



Mariposa Energy, LLC

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April 25, 2011

Mr. Craig Hoffman, CPM
(09-AFC-3C)
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

SUBJECT: Mariposa Energy Project (09-AFC-3C)
BIO-10 California Tiger Salamander and California Red Legged Frog Management Plan
BIO-12 Burrowing Owl Mitigation Plan
BIO-14 San Joaquin Kit Fox Management Plan
BIO-7, BIO-8, BIO-9, BIO-10, BIO-11, BIO-12, BIO-13, BIO-14, BIO-15, and BIO-17
Temporary Construction Fencing Plan for the Mariposa Energy Project

Dear Mr. Hoffman:

Please find attached the following biological resources plans for the Mariposa Energy Project (MEP):

- BIO-10 California Tiger Salamander (CTS) and California Red Legged Frog (CRLF) Management Plan
- BIO-12 Burrowing Owl (BUOW) Mitigation Plan
- BIO-14 San Joaquin Kit Fox (SJKF) Management Plan
- BIO-7, BIO-8, BIO-9, BIO-10, BIO-11, BIO-12, BIO-13, BIO-14, BIO-15, and BIO-17 Temporary Construction Fencing Plan for the Mariposa Energy Project

The plans have been submitted for Staff review, in accordance with the conditions of certification outlined above. Copies of each of the documents have also been submitted to the California Department of Fish and Game (CDFG) and the U.S. Fish and Wildlife Service (USFWS) for their review and comment, with the exception of the Burrowing Owl Mitigation Plan. A copy of this plan was only submitted to the CDFG.

Mariposa Energy, LLC acknowledges that MEP has not yet been certified by the California Energy Commission (CEC). Submittal of this compliance information is at Mariposa Energy's risk and in no way implies or predisposes project certification by the CEC.

If you have any questions regarding this submittal, please do not hesitate to contact me at (213) 346-2134 or Keith McGregor at (916) 286-0221.

Sincerely,

Chris Curry
Mariposa Energy, LLC
Senior Manager - Development



Mariposa Energy, LLC

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Attachment: CTS and CRLF Management Plan for MEP (09-AFC-3C)
BUOW Mitigation Plan for MEP (09-AFC-3C)
SJKF Management Plan for MEP (09-AFC-3C)
Temporary Construction Fencing Plan for MEP (09-AFC-3C)

cc: Bo Buchynsky, Mariposa Energy, LLC
Keith McGregor, CH2M HILL

DRAFT
BIO-10

**California Red-legged Frog and
California Tiger Salamander
Management Plan for the
Mariposa Energy Project
(09-AFC-03C)**

Submitted to the
California Energy Commission

Submitted by
Mariposa Energy, LLC

April 2011

With Assistance from

CH2MHILL
2485 Natomas Park Drive
Suite 600
Sacramento, CA 95833

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Figure

Location of CRLF and CTS Relocation Sites

California Red-legged Frog and California Tiger Salamander Management Plan

1.0 Introduction

This document provides a mitigation and monitoring plan for California red-legged frog (CRLF, *Rana draytonii*) and California tiger salamander (CTS, *Ambystoma californiense*). This plan is being provided to meet Condition of Certification (COC) BIO-10 set by the California Energy Commission (CEC) for the proposed Mariposa Energy Project (MEP) (09-AFC-03C) and will be incorporated into the MEP Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP).

Implementation of this plan will provide for the protection and monitoring of CRLF and CTS that may be affected by project-related construction activities. The avoidance, minimization, and monitoring measures proposed in this plan are subject to final approval by the U.S. Fish and Wildlife Service (USFWS) and CEC's Compliance Project Manager (CPM) in consultation with the California Department of Fish and Game (CDFG).

2.0 Project Description

MEP will be a nominal 200-megawatt (MW), simple-cycle generating facility consisting of four power blocks. Each power block will contain one GE LM6000 PC-Sprint natural-gas-fired combustion turbine generator. The generated power will be delivered to the grid via Pacific Gas and Electric Company's (PG&E) Kelso Substation. The new facility will be designed, constructed, and operated in accordance with applicable laws, ordinances, regulations, and standards. The main access to the facility site will be from Bruns Road. A portion of the site will be paved to provide internal access to all project facilities and onsite buildings. The areas around equipment, where not paved, will have gravel surfacing. The project also includes: a new, approximately 0.7-mile-long, 230-kilovolt (kV) transmission line to deliver the plant output to the electrical grid via the existing 230-kV Kelso Substation located north of the project site; approximately 580 feet of new natural gas pipeline that will run directly northeast from the project site to interconnect with PG&E's existing high-pressure natural gas pipeline; and a new 1.8-mile water supply line from the Byron-Bethany Irrigation District Canal 45 to deliver raw water to the project site.

The facility site is in northeastern Alameda County, in an unincorporated area designated as Large Parcel Agriculture by the East County Area Plan. The site is located approximately 7 miles northwest of Tracy, 7 miles east of Livermore, 6 miles south of Byron, and approximately 2.5 miles west of the community of Mountain House in San Joaquin County. The facility will be located southeast of the intersection of Bruns Road and Kelso Road on a 10-acre portion of an approximate 158-acre parcel immediately south of the Bethany Compressor Station and 230-kV Kelso Substation, both owned by PG&E. The proposed power plant site is located in the southern portion of the project parcel. The existing, unrelated 6.5-MW Byron Power Cogen Plant occupies 2 acres of the 158-acre parcel

northeast of the proposed MEP site. The remainder of the parcel is non-irrigated grazing land and will remain as such during MEP operation. A wind turbine development was once located on the southern portion of the parcel, including the MEP site. Concrete foundations and other miscellaneous debris, including remnants of turbine housings, remain onsite.

3.0 Proposed Mitigation Measures

Construction of MEP will entail ground-disturbing activities that could directly or indirectly affect CRLF and CTS. This section presents proposed mitigation measures to minimize or eliminate impacts on frogs or salamanders if they are found onsite.

3.1 Preconstruction Surveys

Clearance surveys within the exclusionary fence will be conducted by the Designated Biologist and/or Biological Monitor 48 hours to 1 week prior to ground disturbance. In addition, after the first major rain event (as agreed upon with the CPM, in consultation with CDFG and USFWS), clearance surveys will be conducted within the exclusionary fence before construction commences. If CRLF or CTS are discovered during pre-construction surveys, individuals will be relocated to a CPM- (in consultation with CDFG) and USFWS-approved site. For relocation procedures, refer to Section 3.3 of this plan. Only biologists approved by USFWS and the CPM will capture and relocate these species.

No less than 10 days prior to the start of any ground-disturbing activities or construction equipment staging (unless a shorter review period is approved by USFWS and the CPM), Mariposa Energy, LLC (the project owner) will provide a letter-report to the CPM describing the findings of the preconstruction surveys, including the time, date, and duration of the survey; identity and qualifications of the surveyor(s); and a list of species observed, number of CTS and CRLF observed and moved, and location to which they were moved. Mariposa Energy will report monthly to USFWS and the CPM for the duration of construction on the implementation of CTS and CRLF avoidance and minimization measures. Within 30 days after completion of construction, Mariposa Energy will provide a written construction termination report to USFWS and the CPM identifying how mitigation measures described in the plan have been completed.

3.2 Avoidance and Minimization

Mariposa Energy will work with the Designated Biologist or Biological Monitor to site the least damaging temporary access routes and locations for temporary work areas during construction. These work areas will be positioned in a manner that avoids or minimizes impacts on CRLF and CTS habitat to the furthest extent feasible. A Biological Monitor will be present during all linear route construction.

Mariposa Energy, in consultation with the Designated Biologist, will implement the following CTS and CRLF management measures at the construction site and related facilities to avoid and minimize impacts on CRLF and CTS. Additional measures may be issued by USFWS separately in a Biological Opinion, which is currently in preparation. Construction and operation management measures are described below.

3.2.1 MEP Construction

1. Avoidance: Concentrations of small mammal burrows and other refugia that may support CRLF or CTS will be avoided to the extent feasible. Prior to ground disturbance, linear routes will be mapped, marked in the field, and surveyed for burrows. Burrows within a vehicle access route that cannot be avoided and are susceptible to being crushed will be temporarily reinforced with PVC pipe or by other measures as deemed effective by the Designated Biologist or Biological Monitor, and approved by the CPM (in consultation with CDFG and USFWS) (dry season only) prior to allowing vehicle access. Any reinforcing materials will be removed immediately after access is completed.
2. Install Exclusionary Fencing: Prior to any site work, including debris removal, a solid barrier fence will be installed around the power plant site, laydown area, gas line, and access road, and will remain in place for the duration of the project. An exclusion fence is not needed along the water line route north of Kelso Road because the work will occur during the dry summer months during daylight hours only when CRLF are expected to be less mobile and when CTS are in burrows aestivating. Additionally, the Biological Monitor will perform full-time construction monitoring during construction of the water line. The design and location of the exclusion fence are presented in a separate fencing plan. The Biological Monitor will survey and delineate the fence route, and will be present during fence installation. Exit funnels for CTS and CRLF will be provided. The exclusion fence will be routinely inspected for good repair for the duration of construction; any damage, such as holes or gaps, will be repaired immediately.
3. CTS and CRLF Relocation: CRLF and CTS found in or near the construction site and along Bruns Road during road monitoring (see item "9" below) will be captured and relocated by the Designated Biologist or Biological Monitor following the procedures outlined Section 3.3 of this plan.
4. Linear Routes
 - a. Before disturbance of aquatic habitat, the Designated Biologist or Biological Monitor will check for CRLF and CTS within the aquatic habitat or surrounding area.
 - b. Before the start of linear work each morning, the Designated Biologist or Biological Monitor will check for CRLF and CTS under any equipment such as vehicles and stored pipes. The Biological Monitor will check all excavated steep-walled holes or trenches each morning before sunrise for any CRLF and CTS. CRLF and CTS will be removed by the Designated Biologist or Biological Monitor and relocated to the USFWS- and CPM-approved relocation site (see Section 3.3). All excavated holes or trenches deeper than 6 inches located outside the MEP site will be ramped at the end of the work day, or escape boards will be placed in the trench to allow the animals to escape.

5. Timing: Construction outside of fenced areas (for example, transmission line and water line) will be scheduled to occur during the dry summer months between June 15 and October 15. Work will not take place outside of fenced areas during the wet season, unless approved by USFWS and the CPM (in consultation with CDFG).
6. Environmentally Sensitive Areas (ESA): An ESA fence (for example, orange exclusion fence) will be installed as necessary along linear routes to protect offsite habitat including potential breeding sites. A separate fencing plan includes a map showing the preliminary location of the ESA fence for the project. Construction personnel will not enter the ESAs.
7. Speed limit: A 10-mile-per-hour speed limit will be enforced at all construction sites, except on roads with a posted speed limit. On roads with posted speed limits, construction traffic will go the minimum safe speed.
8. Bruns Road and Access Road Monitoring: During wet-season construction, approximately mid-November through mid-June (though earlier or later if conditions are wet and CRLF and CTS are observed) if large volumes of construction traffic (25 vehicles or more) are scheduled to arrive or depart after dusk or before dawn, frogs and salamanders moving between breeding sites and burrows will be protected by:
 - a. A wildlife exclusion fence will be installed on both sides of Bruns Road from the project site to Kelso Road. During wet-season construction, worker traffic will be directed away from Bruns Road north of Kelso Road, and be required to use Kelso Road and Mountain House Road east of the project site.
 - b. Biological monitors will walk the exclusion fence along Bruns Road to detect any CTS or CRLF. This will be completed daily concurrently with other biological monitoring duties. Any CTS or CRLF that are detected will be moved by the biologist only if, in the biologist's judgment, the animal would be in danger from vehicles.
 - i. The Project Owner will contact the CPM to indicate when the construction traffic threshold is anticipated to be met, and therefore when exclusion fence and surveys are anticipated.
9. Throughout wet-season construction (including when surveys have not been conducted) as soon as practicable after the work crew arrives or departs, the biologist will walk or drive slowly along the survey route to determine if any CTS or CRLF have been affected. Any dead or injured CTS or CRLF will be reported as described in COC BIO-7, Item #14 contained in the BRMIMP. In the event that dead or injured CTS or CRLF are found, the biologist will consult with USFWS and the CPM to determine which, if any, adaptive management measures will be implemented. These measures may include more frequent surveys (lower traffic threshold), more intensive surveys, or controlled arrival and departures of construction traffic.

10. Best Management Practices (BMP): BMPs listed in the stormwater pollution prevention plan will be implemented during project construction to protect against adverse effects on sensitive aquatic areas. Dust control measures will be implemented during construction in the dry season. Work areas and dirt access roads will be watered regularly to minimize airborne dust and soil particles generated by construction.

3.2.2 MEP Operation

A barrier on the permanent fence sufficient to block access to the power plant site by CRLF and CTS will be installed. Within 60 days of completion of the permanent power plant site fence, the Mariposa Energy will submit a map and photographs to USFWS and the CPM of the CTS and CRLF barrier fence.

3.3 Capture and Relocation

Project construction is anticipated to affect two breeding cycles involving both wet and dry seasons for CRLF and CTS. Occurrences that may be encountered during construction are anticipated in upland areas only when animals are either aestivating (during dry season) or on the move (during the wet season). The project will not affect known and potential breeding habitat for these species. CRLF and CTS encountered during construction will be treated on a case-by-case basis in coordination with the USFWS and CDFG. The following will occur under the direction of the USFWS- and CPM-approved biological monitor:

1. Leave the non-injured animal if it is not in danger
2. Move the animal to a nearby location if it is in danger
3. Take the animal into custody for educational outreach and/or scientific research if the first two options are unavailable

These three options are further described below.

1. Leave the non-injured animal if it is not in danger

When a CRLF or CTS is encountered in the work area, the first priority will be to stop all activities in the surrounding area that have the potential to result in take of the individual. The Biological Monitor will assess the situation and select an appropriate course of action that will minimize the impact on the individual. Once the site is secure, a representative of Mariposa Energy will contact USFWS, Division of Endangered Species, at (916) 414-6600 for further direction. If a CTS is encountered, the CPM will also be contacted.

The first priority is to avoid contact with the frog or salamander and allow it to move out of the work area on its own to a safe location. The animal will not be picked up and moved. This guidance only applies to situations where a frog or salamander is encountered on the move during conditions that make upland travel feasible (which is usually during the wet season). This does not apply to frogs or salamanders that are uncovered or otherwise exposed or in areas where there is not sufficient adjacent habitat to support the life history of the animal should they move outside the construction footprint.

Avoidance is the preferred option if the frog or salamander is not moving and is using aquatic habitat or is within some sort of burrow or other refugia. The area should already be

well marked for avoidance and a USFWS- and CPM-approved biological monitor should be assigned to the area when work is taking place nearby.

2. Move the animal to a nearby location if it is in danger

Option #1 will not always be feasible and sometimes capturing and moving (salvaging) the animal is the only option to prevent its death or injury. Two proposed release locations have been identified for CRLF and CTS, as shown on Figure 1. All releases will be coordinated with USFWS and the CPM. In most situations, and regardless of season, the release site will be into the mouth of a small mammal burrow or other suitable refugia that provides immediate cover from potential predation. Releases will occur in the immediate vicinity of aquatic habitat. No animal will be relocated to another property without the property owner's written permission, arranged for by Mariposa Energy.

The preferred release location is the Byron Conservation Bank, owned by CDFG. The CDFG property supports known breeding populations of both frog and salamander. A series of breeding pools occurring along an intermittent drainage would be suitable release sites for CRLF. A salamander breeding pond recorded in the California Natural Diversity Database (CNDDDB) and the surrounding small mammal burrows located near the southeastern corner of the bank property would be a suitable release site for CTS. Access to the Byron Conservation Bank property would be closely coordinated with CDFG each time a frog or salamander is released.

An alternate release location for frog and salamander is the proposed Mountain House Mitigation Bank property (Figure 1). The property is privately owned by Mr. Robert Fletcher, who is currently developing it as a special-status species mitigation bank. Potentially suitable frog aquatic breeding and aquatic non-breeding habitat occurs onsite along an intermittent drainage (Figure 1). This drainage would be the release site for CRLF. The property is known to support breeding habitat of CTS, as recorded in the CNDDDB (see Figure 1, southern pond). The two onsite stock ponds, including the surrounding burrow refugia, would be the release sites for CTS. Access to the property would be closely coordinated with Mr. Fletcher, or his appointee, each time a frog or salamander is released.

The following summarizes handling and transport procedures that will be implemented:

1. All field decisions concerning salvage activities by the Designated Biologist will be coordinated with USFWS (CTS and CRLF) and the CPM (in coordination with CDFG [CTS]).
2. Any CRLF or CTS individuals requiring transport will be released into habitat (within the property locations described above) equivalent to that from which it was removed.
3. Individual species observed migrating or dispersing on the surface, or aestivating within a burrow in upland habitat, will be released at the mouth of a ground squirrel burrow opening. The approved biologist will not vacate the release site until it is clear that the individual has entered the burrow. No more than one individual will be released into a single burrow repository, and the burrow location will be marked on a map using global position system technology so that it will not be used for any future releases. In the unlikely event that the numbers of salvaged individuals exceed the identified individual sites designated for release, coordination with USFWS and the CPM to determine the feasibility of releasing individuals to the same repository will occur.

4. Individuals will not be moved distances longer than their appropriate dispersal range from suspected breeding habitats to avoid transferring disease or pathogens between aquatic habitats.
5. Entrapment time will be minimized to the extent practicable.
6. Nets or bare hands will be used.
7. The biologist will not use soaps, oils, creams, lotions, repellents, or solvents of any sort on their hands within two hours before and during periods when they are capturing and relocating CRLF or CTS.
8. Biologists will avoid reaching for amphibians by the tail, head or limbs.
9. Containers used for holding or transporting adults will not contain any standing water. Captured adult amphibians will be kept moist, cool, and aerated environment, such as a bucket containing a damp sponge, and minimize periods of direct sun exposure.
10. Individual animals will not be placed in positions/containers where they may physically contact other individuals.
11. If available, vegetation clippings from the exact capture location will be placed in the container to help shade and calm the individual during transport. The vegetation will be discarded with any other plant materials, as specified in the following summary for disinfection.

Several amphibian diseases may be involved in amphibian declines and may be spread by relocating animals. Therefore, due to concerns regarding genetic and health issues and adverse effects on other CRLF and CTS, the long-distance relocation of frogs and salamanders on this project (i.e., out of the watershed) will not occur.

Only USFWS- and CPM-approved biologists for the project will attempt to salvage CRLF and CTS. To avoid transferring disease or pathogens between sites during the course of handling the animals, the biologists will use the following guidance for disinfecting equipment and clothing. These recommendations are adapted from the Declining Amphibian Population Task Force's Code, which can be found in their entirety at: <http://www.open.ac.uk/daptf/>

- All dirt and debris, including mud, snails, plant material (including fruits and seeds), and algae, will be removed from containers, boots, vehicle tires and all other surfaces that have come into contact with water at the relocation site. Cleaned items will be rinsed with clean water before leaving the relocation site.
- Boots, containers, etc., will then be scrubbed with either a 70% ethanol solution, a bleach solution (0.5 to 1.0 cup of bleach to 1.0 gallon of water), QUAT 128 (quaternary ammonium, use 1:60 dilution), or a 6% sodium hypochlorite 3 solution and rinsed clean with water. Cleaning equipment in the immediate vicinity of a pond or wetland will be avoided. All traces of the disinfectant will be removed before re-entering the relocation site.
- Used cleaning materials (liquids, etc.) will be disposed of safely, and if necessary, taken back to a lab for proper disposal.

- The handling biologists will limit the duration of handling and captivity. While in captivity, individual frog or salamanders will be kept in a cool, dark, moist, aerated environment, such as a clean and disinfected bucket or plastic container with a damp sponge or cloth. Containers used for holding or transporting will not contain any standing water and will be disinfected before reuse.

3. Take the animal into custody for educational outreach and/or scientific research if the first two options are unavailable

If frogs or salamanders cannot be moved either because of injury or death, the individuals will be used for outreach and/or research. Delivery of individuals to the recipient will be coordinated with USFWS and the CPM (in coordination with CDFG). Unless otherwise directed, frogs and salamanders will be delivered to the Shaffer Lab at the University of California at Davis. Dr. H. Bradley Shaffer and the laboratory staff can be reached at (530) 752-2939 or hbshaffer@ucdavis.edu.

4.0 Monitoring

The mitigation measures presented in this plan are designed to minimize or eliminate the potential adverse effects of the project on CRLF and CTS. Ultimately, USFWS and the CPM will review and approve these measures before they are implemented onsite. To assess the effectiveness of the proposed mitigation measures, monitoring is included as part of this plan. If CRLF or CTS are identified onsite during the preconstruction survey, the following monitoring measures will be implemented, in coordination with USFWS and the CPM (in coordination with CDFG):

1. Record effects on CRLF and CTS during project construction and report these findings to USFWS and the CPM in the monthly and final compliance reports written by the Designated Biologist.
2. The Designated Biologist or Biological Monitor will conduct as-needed monitoring visits during the summer season and daily monitor visits during the winter season following the preconstruction survey until the completion of all project work areas to determine status and effectiveness of this management plan. The Designated Biologist will provide the results of the monitoring surveys and any recommendations to improve the effectiveness of take avoidance in the monthly compliance report. Any agency-approved remedial actions will be implemented immediately and monitored for their success by the Designated Biologist or Biological Monitor.

5.0 Reporting

Any injuries, fatalities, or other unforeseen circumstances regarding CRLF and CTS will be reported to USFWS and the CPM within 24 hours. Construction monitoring for onsite CRLF and CTS will be reported on a monthly basis by the Designated Biologist, and the results of the monitoring effort will be included in the MEP monthly compliance report to be submitted to USFWS and the CPM.

A construction termination report written by the Designated Biologist will be provided to USFWS and the CPM within 30 days after completion of project construction. The report will identify when surveys were completed, survey observations, how mitigation measures were implemented, any remedial actions taken, how the measures were completed, and the results of the mitigation.

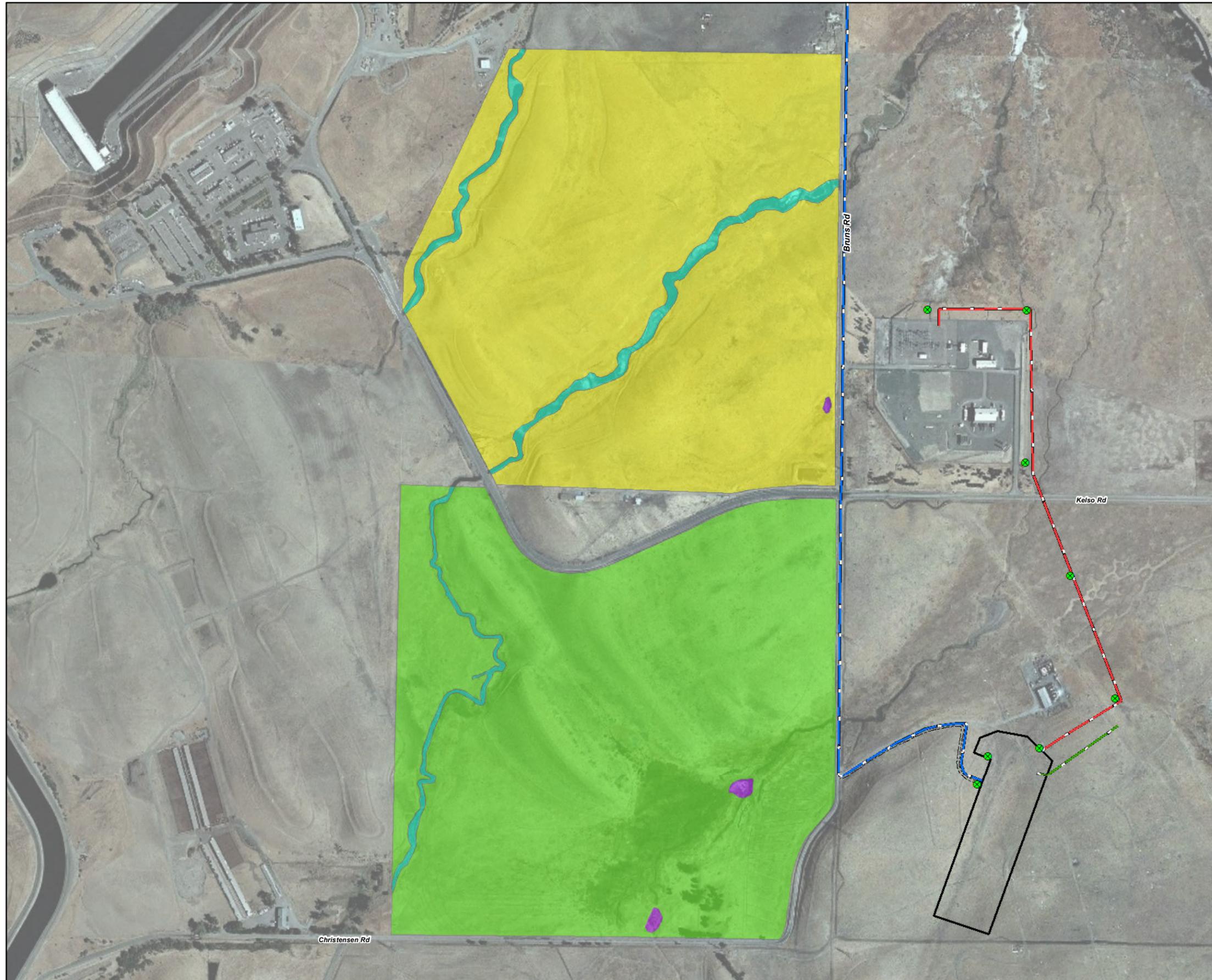
All monitoring reports will generally include the following information:

- Survey methodology, including date and time of visits
- Description of the site including location, size, topography, and vegetation communities
- Photographs of the site
- Map showing the location and number of all CRLF and CTS observed
- Names of biologists conducting the survey

6.0 Adaptive Management

To manage any unforeseen conditions that may arise, adaptive management may be required to ensure that take of CRLF and CTS is minimized, or if possible completely avoided. Adaptations may include implementing new mitigation measures as appropriate based on the actual effects of the project on CRLF and CTS, and, as feasible, implement new mitigation measures developed by amphibian experts.

During construction, Mariposa Energy will work collaboratively with USFWS and the CPM to ensure that the most effective and reliable mitigation measures are implemented for the protection of CRLF and CTS. Adaptive management measures may include more stringent seasonal work restrictions, full-time construction monitoring regardless of season, and/or additional biological monitors. These measures will be considered if it appears that avoidance and minimization success are not being met.



- LEGEND**
- POWER POLE LOCATION
 - ACCESS ROAD
 - NATURAL GAS PIPELINE ROUTE
 - TRANSMISSION LINE ROUTE
 - WATER SUPPLY PIPELINE ROUTE
 - ▭ PROJECT SITE
- Frog and Salamander Relocation Sites**
- California Department of Fish and Game Byron Mitigation Bank
 - California Red-legged Frog Breeding and Aquatic Non-breeding Habitat
 - California Tiger Salamander Breeding Habitat
 - Proposed Mountain House Mitigation Bank

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

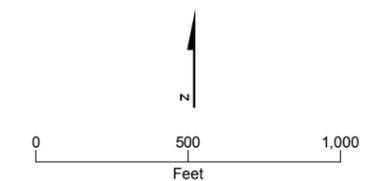


FIGURE 1
PROPOSED CALIFORNIA RED-LEGGED FROG AND CALIFORNIA TIGER SALAMANDER RELOCATION SITES
 MARIPOSA ENERGY PROJECT
 ALAMEDA COUNTY, CALIFORNIA

DRAFT
BIO-12

**Burrowing Owl
Mitigation and Monitoring Plan
for the
Mariposa Energy Project
(09-AFC-03C)**

Submitted to the
California Energy Commission

Submitted by
Mariposa Energy, LLC

April 2011

With Assistance from

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Burrowing Owl Mitigation and Monitoring Plan

1.0 Introduction

This document provides a mitigation and monitoring plan for western burrowing owl (*Athene cunicularia*). This plan is being provided to meet Condition of Certification (COC) BIO-12 set by the California Energy Commission (CEC) for the proposed Mariposa Energy Project (MEP or project) (09-AFC-03) and will be incorporated into the MEP Biological Resources Mitigation Implementation and Monitoring Plan.

No burrows occupied by burrowing owl were observed within the proposed project footprint during 2010 protocol-level (CDFG, 1995) Phase II or Phase III surveys (CH2M HILL, 2010). Burrowing owl burrows observed during Phase I surveys were determined to be inactive during Phase III surveys. Five occupied burrows representing three breeding territories observed during Phase III surveys were less than 250 feet outside the project footprint adjacent to the transmission line work corridor; therefore, they are potentially vulnerable to project-related ground disturbances during the non-nesting (September 1 to January 31) and nesting (February 1 to August 31) seasons. Because burrowing owls exhibit high nest site fidelity, the three territories are likely to be occupied again during the 2011 season, and therefore could be subject to potential take as a result of project construction.

Implementation of this plan will provide for the protection and monitoring of western burrowing owls that may be affected by project-related construction activities. The avoidance, minimization, and monitoring measures proposed in this plan are subject to final approval by the CEC's Compliance Project Manager (CPM) in consultation with the California Department of Fish and Game (CDFG).

As required by COC BIO-12, this plan follows the CDFG's *Staff Report on Burrowing Owl Mitigation* guidelines (CDFG, 1995) and California Burrowing Owl Consortium's (CBOC) *Burrowing Owl Survey Protocol and Mitigation Guidelines* (CBOC, 1993), which document actions to take if owls are observed in the MEP impact area during preconstruction surveys. The avoidance and minimization measures listed under COC BIO-12 are in agreement with the CDFG and CBOC guidelines.

2.0 Project Description

MEP will be a nominal 200-megawatt (MW), simple-cycle generating facility consisting of four power blocks. Each power block will contain one GE LM6000 PC-Sprint natural-gas-fired combustion turbine generator. The generated power will be delivered to the grid via Pacific Gas and Electric Company's (PG&E) Kelso Substation. The new facility will be designed, constructed, and operated in accordance with applicable laws, ordinances, regulations and standards. The main access to the facility site will be from Bruns Road. A portion of the site will be paved to provide internal access to all project facilities and onsite buildings. The areas around equipment, where not paved, will have gravel surfacing. The

project also includes: a new, approximately 0.7-mile-long, 230-kV transmission line to deliver the plant output to the electrical grid via the existing 230-kV Kelso Substation located north of the project site; approximately 580 feet of new natural gas pipeline that will run directly northeast from the project site to interconnect with PG&E's existing high-pressure natural gas pipeline; and a new 1.8-mile water supply line from the Byron-Bethany Irrigation District Canal 45 to deliver raw water to the project site.

The facility site is in northeastern Alameda County, in an unincorporated area designated as Large Parcel Agriculture by the East County Area Plan. The site is located approximately 7 miles northwest of Tracy, 7 miles east of Livermore, 6 miles south of Byron, and approximately 2.5 miles west of the community of Mountain House in San Joaquin County. The facility will be located southeast of the intersection of Bruns Road and Kelso Road on a 10-acre portion of an approximate 158-acre parcel immediately south of the Bethany Compressor Station and 230-kV Kelso Substation, both owned by PG&E. The proposed power plant site is located in the southern portion of the project parcel. The existing, unrelated 6.5-MW Byron Power Cogen Plant occupies 2 acres of the 158-acre parcel northeast of the proposed MEP site. The remainder of the parcel is non-irrigated grazing land and will remain as such during MEP operation. A wind turbine development was once located on the southern portion of the parcel, including the MEP site. Concrete foundations and other miscellaneous debris, including remnants of turbine housings, remain onsite.

3.0 Regulatory Status and Requirements for Burrowing Owls

Federal and California state laws and resource codes protect burrowing owls and their nesting habitat. Specifically, burrowing owls are protected by the federal Migratory Bird Treaty Act (MBTA) of 1918 (16 United States Code 703-711), making it illegal to take, possess, buy, sell, or barter any migratory bird, including feathers, other parts, eggs, nests, or products. Although the burrowing owl has no current status under the federal Endangered Species Act (ESA), in 1995 the owl was listed as a Category 2 candidate species, indicating population decline. However, in 1996, the U.S. Fish and Wildlife Service (USFWS) eliminated Category 2 and now considers species formerly listed in this category to be "Species of Concern" or "Species at Risk," although these designations are not formally recognized under the ESA. In California, the burrowing owl was listed in 1978 by CDFG as a Species of Special Concern, a category that has legal protections. As a special-status species, the burrowing owl is protected from direct and indirect impacts to birds and nests. Because disturbing nesting owls is a significant impact, measures to avoid or reduce the impact must be identified in accordance with the California Environmental Quality Act.

California Fish and Game Codes §3503, §3503.5, and §3800 also prohibit the take, possession, or destruction of birds, nests or eggs. To prevent take, project-related disturbances in owl breeding territories must be minimized or eliminated during the nesting season (typically February 1 to August 31). Take includes activities that cause nest abandonment, loss of reproductive effort, or loss of habitat necessary for owl survival and reproduction. Such activities would also violate the MBTA.

4.0 Proposed Mitigation Measures

Construction of MEP will entail ground-disturbing activities that could directly or indirectly affect burrowing owls. This section presents proposed mitigation measures to minimize or eliminate impacts on burrowing owls if they are found onsite.

During installation of the wildlife exclusion and construction boundary fencing, biologists will survey the fenceline alignment, including a 500-foot buffer, for burrowing owls. Burrowing owl surveys will be conducted no more than 30 days prior to the start of the fence installation. Once the site is fenced, a preconstruction pedestrian survey of suitable habitat within the interior of the fenced area will be surveyed for burrowing owls. Pedestrian surveys will occur along transects spaced approximately every 30 feet to allow for 100 percent visual coverage of the ground surface. The preconstruction survey within the fenced area will occur no more than 30 days prior to the start of any project-related site disturbance activities. If ground-disturbing activities are delayed or suspended for more than 30 days after the preconstruction survey, the suitable habitat within the site will be resurveyed for burrowing owls.

Avoidance

The project will implement no-work buffers around active burrowing owl burrows during the nesting season (February 1 to August 31) and non-nesting season. As required by COC BIO-12, a 250-foot buffer from active burrowing owl burrows will be enforced during project construction activities occurring during the nesting season. The no-work buffer may be reduced to 160 feet if all project-related activities that might disturb burrowing owls are conducted during the non-breeding season. Signage in both English and Spanish will be posted designating the presence of a biologically sensitive area. A barrier fence (for example, high-visibility orange construction fence) will also be installed at the outer buffer limit to preclude entry by site workers. If construction activities would occur within 500 feet of an occupied burrow during the nesting season, the Designated Biologist or Biological Monitor will monitor to determine if construction activities have the potential to adversely affect nesting efforts, and will implement measures to minimize or avoid such disturbance.

Mariposa Energy will work with the Designated Biologist or Biological Monitor to site the least damaging temporary access routes and locations for temporary work areas during construction. These work areas will be positioned in a manner that avoids or minimizes impacts on active burrowing owl burrows to the furthest extent feasible.

Relocation

If occupied burrows are identified onsite during the preconstruction survey and cannot be avoided, the owls will be passively relocated (CDFG, 1995; CBOC, 1993) only with prior approval by the CPM (in consultation with CDFG). At least one or more weeks may be necessary to accomplish this and allow the owls to acclimate to alternate burrows. Passive relocation will entail use of one-way doors as described by Trulio (1995) and Clark and Plumpton (2005).

Passive relocation will implement the following take avoidance measures:

- Occupied burrows will not be disturbed during the nesting season (February 1 to August 31) unless the Designated Biologist or Biological Monitor can verify through non-invasive methods that egg laying/incubation has not begun or juveniles are foraging independently and able to fly.
- The Designated Biologist or Biological Monitor will passively relocate owls, confirm that owls have left burrows prior to ground-disturbing activities, and monitor the burrows to observe if owls return. Once evacuation is confirmed, the biologist will collapse burrows to prevent reoccupation.
- Passive relocation of owls will be approved by and conducted in consultation with the CPM (in coordination with CDFG).
- If burrowing owls or active burrows are not observed during the preconstruction survey, any unoccupied but potentially suitable burrows within the project footprint will be monitored by the Designated Biologist or Biological Monitor on a weekly basis to determine their activity status up to the time of construction. Passive relocation will be administered as necessary to keep owls from occupying the MEP construction site.

Burrowing owls will be allowed to relocate themselves to suitable offsite habitat, which is readily available and abundant throughout the project vicinity. MEP is located in a region of open annual grassland habitat, within the range of burrowing owl where California ground squirrels are abundant and owls are documented to occur. Within 1 mile of MEP, preserved lands including CDFG's Byron Conservation Bank, CDFG's Christensen Road Burrowing Owl Site, and the proposed Mountain House Conservation Bank property are known to support suitable burrowing owl habitat. Burrowing owls are also known to occur on these properties, currently. Because of the suitable nesting habitat in the project vicinity, construction of artificial burrows or enhancement of existing mammal burrows for passively relocated owls will not be included as a mitigation measure for this plan.

Habitat Compensation

Offsite mitigation at a CPM-approved (in consultation with CDFG) mitigation site will occur regardless if burrowing owls are found during preconstruction surveys. The project area currently supports suitable burrowing owl foraging habitat; therefore, habitat affected during construction will be mitigated at a 2:1 ratio at an approved offsite location. Construction of MEP will result in a loss of 22.1 acres of foraging habitat; therefore, 44.2 acres of compensation land will be acquired for burrowing owl habitat loss. In the event that destruction of an occupied burrow or relocation is required, compensation lands will also:

1. Currently support burrowing owls at twice the number of owls displaced by the project site. This requirement will be presumed to be met if compensation is through a conservation bank; or
2. If no owls are displaced by the project, the compensation lands must currently support burrowing owls or be within 1 mile of an active burrowing owl colony, or as approved by the CPM (in consultation with CDFG).

Burrowing owl habitat compensation mitigation will occur at the proposed Mountain House Conservation Bank (acquired as part of BIO-16), which is located just west of the MEP site across Bruns Road. The bank property is known to be occupied by burrowing owl and is expected to be approved by CDFG to sell burrowing owl mitigation credits.

5.0 Monitoring

The mitigation measures presented in this plan are designed to minimize or eliminate the potential adverse impacts of the project on burrowing owl. Ultimately, the CPM (in consultation with CDFG) will review and approve these measures before they are implemented onsite. To assess the effectiveness of the proposed mitigation measures, monitoring is included as part of this Plan. If burrowing owls are identified onsite during the preconstruction survey, the following burrowing owl monitoring measures will be implemented, in coordination with the CPM (in coordination with CDFG):

1. Monitor burrowing owl pairs identified during the preconstruction survey within 500 feet of any work activities that exceed ambient noise and/or vibration levels for signs of stress or changes in behavior caused by the work activity that could cause nest abandonment. If, in the opinion of the Designated Biologist or Biological Monitor assisting the Designated Biologist, the 250-foot buffer is inadequate to protect burrowing owl, the following will occur:
 - The no-work buffer will be extended until the offset distance is adequate to protect owls, as determined by the Designated Biologist;
 - Noise/visual barriers (for example, straw bales) will be installed; or
 - If the above actions are inadequate to protect owls, the CPM (in coordination with CDFG) will be consulted for further direction.
2. Record impacts to burrowing owls during project construction and report these findings to the CPM and CDFG in the monthly and final compliance reports written by the Designated Biologist.
3. The Designated Biologist or Biological Monitor will conduct as-needed monitoring visits following the preconstruction survey until the completion of all project work areas to determine status and effectiveness of owl passive relocation. The Designated Biologist will provide the results of the monitoring surveys and any recommendations to improve the effectiveness of passive relocation to the CPM and CDFG in the monthly compliance report. Any agency-approved remedial actions will be implemented immediately and monitored for their success by the Designated Biologist or Biological Monitor.

6.0 Reporting

Any injuries, fatalities, or other unforeseen circumstances regarding burrowing owls will be reported to the CPM, CDFG, and USFWS within 24 hours. Monitoring of onsite owls during construction will be reported on a monthly basis by the Designated Biologist, and the results

of the monitoring effort will be included in the MEP monthly compliance report to be submitted to the CPM and CDFG.

A construction termination report written by the Designated Biologist will be provided to the CPM and CDFG within 30 days after completion of project construction. The report will identify when surveys were completed, survey observations, how mitigation measures were implemented, any remedial actions taken, how the measures were completed, and the results of the mitigation.

All monitoring reports will generally include the following information:

- Date and time of visits including, weather and visibility conditions, and survey methodology
- Description of the site including location, size, topography, vegetation communities and animals observed during visits
- A spring and winter census of burrowing owls, as applicable
- Photographs of the site
- Map showing the location of all burrows and owls, including the numbers at each burrow, if present, and tracks, feathers, pellets, or other items (prey remains, animal scat)
- Behavior of owls during the surveys
- Names of biologists conducting the survey

7.0 Success Criteria

Plan success is defined as no active burrowing owl burrows marked for avoidance were affected and no owls were killed or harmed during project construction. These criteria apply to the project during the entire construction period.

8.0 Adaptive Management

To manage any unforeseen conditions that may arise, adaptive management may be required to ensure that the success criteria are met. Adaptations may include implementing new mitigation measures as appropriate based on the actual effects of the project on owls, and, as feasible, implement new owl mitigation measures developed by burrowing owl experts.

During construction, Mariposa Energy will work collaboratively with the CPM and CDFG to ensure that the most effective and reliable mitigation measures are implemented for the protection of active burrows and individual burrowing owls. Adaptive management measures may include more stringent no-work buffers, full-time construction monitoring of active burrows, and/or the use of effective noise/visual barriers. These measures will be considered if it appears that the avoidance/relocation success criteria are not being met.

9.0 References

California Burrowing Owl Consortium (CBOC). 1993. *Burrowing Owl Survey Protocols and Mitigation Guidelines*. Sacramento, California.

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Trulio, Lynne A. 1995. Passive Relocation: A Method to Preserve Burrowing Owls on Disturbed Sites. *Journal of Field Ornithology* 66(11): 99-106.

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**San Joaquin Kit Fox
Management Plan
for the
Mariposa Energy Project
(09-AFC-03C)**

Submitted to the
California Energy Commission

Submitted by
Mariposa Energy, LLC

April 2011

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San Joaquin Kit Fox Management Plan

1.0 Introduction

This document provides a management plan for San Joaquin kit fox (*Vulpes macrotis mutica*). This plan is being provided to meet Condition of Certification (COC) BIO-14 set by the California Energy Commission (CEC) for the proposed Mariposa Energy Project (MEP) (09-AFC-03) and will be incorporated into the MEP Biological Resources Mitigation, Implementation and Monitoring Plan.

The San Joaquin kit fox is the smallest fox in North America, with an average body length of 20 inches and weight of about 5 pounds. It is a member of the Canidae family, which includes dogs, wolves, and foxes. San Joaquin kit foxes are lightly built, with long legs and large ears. Their coat ranges from tan to buff gray in the summer to silvery gray in the winter. Their belly is whitish and their tail is black-tipped (USFWS, 2011). In the northern portion of their range, which includes the MEP project area, kit foxes have been found to most frequently consume California ground squirrels. Cottontails, black-tailed hares, pocket mice, and kangaroo rats also are also part of the kit fox diet. Although ground squirrels are diurnal and kit foxes are predominantly nocturnal, kit foxes are commonly seen during the day during late spring and early summer (USFWS, 1998).

Kit foxes can breed when 1 year old, but may not breed their first year of adulthood. Adult pairs remain together all year, sharing the home range but not necessarily the same den. During September and October, adult females begin to clean and enlarge natal or pupping dens (they select dens with multiple openings). Mating and conception take place between late December and March. The median gestation period is estimated to range from 48 to 52 days. Litters of from two to six pups are born sometime between February and late March (USFWS, 1998).

Kit fox dens most often are located on the lower section of a hill. In the northern portion of the kit fox range, where the MEP is located, dens appear to be located higher than most surrounding ground compared to areas farther south, perhaps reflecting the topography of the area. Most northern region dens lack the ramp or runway characteristic of dens in the southern and central portions of their range. Kit foxes probably enlarge California ground squirrel burrows, but they also may construct their own dens. Kit foxes often change dens and numerous dens may be used throughout the year. However, evidence that a den is in use may be absent. Kit fox change dens four or five times during the summer months, and change natal dens one or two times per month. Den changes have been attributed to depletion of prey in the vicinity of the den or to increases in external parasites such as fleas. Avoidance of coyotes is a more probable reason for frequently changing dens (USFWS, 1998).

In California, kit fox are understood to have a home range of approximately 1 to 2 square miles. (California Department of Fish and Game [CDFG], 2011). No sign of kit fox was observed within the proposed project area during reconnaissance-level surveys in 2010 conducted for the project. However because kit fox are often difficult to detect and leave

very little sign at burrow entrances, implementation of this management plan will provide for the protection and monitoring of kit fox that may be detected during the course of project construction.

The avoidance, minimization, and monitoring measures being proposed in this plan are subject to final approval by the CEC's Compliance Project Manager (CPM) in consultation with CDFG. This plan follows the guidelines provided by the U.S. Fish and Wildlife Service (USFWS) *Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or during Ground Disturbance* (1999).

2.0 Project Description

MEP will be a nominal 200-megawatt (MW), simple-cycle generating facility consisting of four power blocks. Each power block will contain one GE LM6000 PC-Sprint natural-gas-fired combustion turbine generator. The generated power will be delivered to the grid via Pacific Gas and Electric Company's (PG&E) Kelso Substation. The new facility will be designed, constructed, and operated in accordance with applicable laws, ordinances, regulations and standards. The main access to the facility site will be from Bruns Road. A portion of the site will be paved to provide internal access to all project facilities and onsite buildings. The areas around equipment, where not paved, will have gravel surfacing. The project also includes: a new, approximately 0.7-mile-long, 230-kV transmission line to deliver the plant output to the electrical grid via the existing 230-kV Kelso Substation located north of the project site; approximately 580 feet of new natural gas pipeline that will run directly northeast from the project site to interconnect with PG&E's existing high-pressure natural gas pipeline; and a new 1.8-mile water supply line from the Byron-Bethany Irrigation District Canal 45 to deliver raw water to the project site.

The facility site is in northeastern Alameda County, in an unincorporated area designated as Large Parcel Agriculture by the East County Area Plan. The site is located approximately 7 miles northwest of Tracy, 7 miles east of Livermore, 6 miles south of Byron, and approximately 2.5 miles west of the community of Mountain House in San Joaquin County. The facility will be located southeast of the intersection of Bruns Road and Kelso Road on a 10-acre portion of an approximate 158-acre parcel immediately south of the Bethany Compressor Station and 230-kV Kelso Substation, both owned by PG&E. The proposed power plant site is located in the southern portion of the project parcel. The existing, unrelated 6.5-MW Byron Power Cogen Plant occupies 2 acres of the 158-acre parcel northeast of the proposed MEP site. The remainder of the parcel is non-irrigated grazing land and will remain as such during MEP operation. A wind turbine development was once located on the southern portion of the parcel, including the MEP site. Concrete foundations and other miscellaneous debris, including remnants of turbine housings, remain onsite.

3.0 Regulatory Status for San Joaquin Kit Fox

The San Joaquin kit fox was listed as endangered by the U.S. Department of the Interior in 1967, and by the State of California in 1971.

4.0 Proposed Mitigation Measures

Implementation of the measures presented in this plan may be necessary to avoid violating the provisions of the federal Endangered Species Act (ESA) and the California Endangered Species Act (CESA). Both the federal ESA and CESA prohibit “take” (defined as killing, harming, or harassing a listed species, including actions that damage or destroy its habitat). Such protection measures may also be required under the terms of a biological opinion pursuant to section 7 of the ESA and CEC Conditions of Certification (in coordination with CDFG pursuant to CESA) resulting in incidental take authorization. Construction of MEP will involve ground-disturbing activities that could directly or indirectly affect kit fox. This section presents proposed mitigation measures to minimize or eliminate impacts on kit fox if they occur onsite.

4.1 Preconstruction Surveys

Before project construction begins, biologists approved by USFWS and the CPM (in consultation with CDFG) will conduct preconstruction surveys for San Joaquin kit fox dens in the project area, including areas within 200 feet of all project facilities, utility corridors, and access roads.

Preconstruction surveys will be conducted no less than 14 days and no more than 30 days prior to the beginning of ground disturbance and/or construction activities or any project activity likely to affect San Joaquin kit fox. Surveys will follow established protocols provided in this plan. Survey results will identify habitat features on the project site. An evaluation of potential habitat use by kit fox will be included in a discussion of the survey results and if possible, will include an assessment of the potential impacts on kit fox by proposed project activities. The status of all kit fox dens will be determined and mapped. If occupied dens are detected, each den will be classified as a known, potential, atypical, or natal/pupping den.

4.1.1 Survey Methodology

The Designated Biologist and/or Biological Monitors will conduct pedestrian transect surveys that achieve 100 percent visual coverage for potential San Joaquin kit fox dens in the project area, including areas within 200 feet of all project facilities, utility corridors, and access roads. Ground burrows with openings between 4 and 12 inches in diameter for a minimum of 36 inches in depth will be evaluated for evidence of San Joaquin kit fox occupation. Once identified, potential ground burrows with appropriate-sized openings will be monitored for kit fox sign (tracks and/or scat) by the application of a tracking medium in a 360-degree configuration around the burrow. The tracking medium will consist of a mixture of gypsum powder and food-grade diatomaceous earth and will be applied for a minimum of three nights. The tracking medium will be checked daily for sign and reapplied as necessary to account for fouling by non-target species (for example, ground squirrels, pocket gopher) and weather conditions (for example, high winds or precipitation). Sign identified as potential San Joaquin kit fox will be further evaluated by the use of infrared laser remote camera unit installed at the den opening for an additional three consecutive nights. Camera results will be the concluding factor in a positive or negative presence determination of San Joaquin kit fox.

Den avoidance, monitoring, and destruction methods are described in the following sections.

4.2 Avoidance

4.2.1 Exclusion Zones

The configuration of exclusion zones around the San Joaquin kit fox dens will have a radius measured outward from the entrance or cluster of entrances. The following radii are minimums, and if they cannot be followed the USFWS and CPM (in coordination with CDFG) will be contacted.

- Known den: To ensure protection, a 100-foot exclusion zone will be demarcated by fencing that encircles each den and does not prevent access to the den by San Joaquin kit foxes. Exclusion zone fencing will be maintained until all construction-related disturbances have been terminated. At that time, all fencing will be removed to avoid attracting subsequent attention to the dens.
- Potential or Atypical Den: Placement of 4 to 5 flagged stakes 50 feet from the den entrance(s) will identify the den location; fencing will not be required, but the exclusion zone will be observed.
- Natal/pupping den (occupied and unoccupied): USFWS and the CPM (in coordination with CDFG) will be contacted by the Designated Biologist for further direction.

Construction and other project activities will be prohibited or greatly restricted within the exclusion zones. Only essential vehicle operation and foot traffic on existing county roads will be permitted. Otherwise, all construction, vehicle operation, material storage, or any other type of surface-disturbing activity will be prohibited within the exclusion zones.

4.3 Den Destruction

Disturbance of all San Joaquin kit fox dens will be avoided to the maximum extent possible. Protection provided by San Joaquin kit fox dens for use as shelter, escape, cover, and reproduction is vital to the survival of the species. Limited destruction of San Joaquin kit fox dens may be allowed, if avoidance is not a reasonable alternative, provided the following procedures are observed.

Potential, known, and/or occupied San Joaquin kit fox dens will not be destroyed unless Mariposa Energy has obtained an Incidental Take Statement from USFWS and prior authorization from the CPM (in consultation with CDFG). The following measures will be implemented for any natal/pupping dens, active dens (non-natal), and potential dens observed during preconstruction project surveys:

1. Natal/pupping dens will be avoided, and USFWS and the CPM (in coordination with CDFG) contacted for further guidance. Natal/pupping dens will not be disturbed by project-related activities.

2. Known dens (if any) will be surveyed for three days with tracking medium or an infrared beam camera to determine the current use. If no San Joaquin kit fox activity is observed during this period, the den will be destroyed immediately to preclude subsequent use. If San Joaquin kit fox activity is observed at the den during this period, the den will be monitored for at least five consecutive days from the time of the observation to allow any resident animal to move to another den during its normal activity. Use of the den can be discouraged during this period by partially plugging its entrances(s) with soil in such a manner that any resident animal can escape easily. Only when the den is determined to be unoccupied will the den be excavated under the direction of the Designated Biologist. If the animal is still present after five or more consecutive days of plugging and monitoring, the den may have to be excavated when, in the judgment of Designated Biologist, it is temporarily vacant, for example during the animal's normal foraging activities. CEC staff, USFWS, and CDFG encourage hand excavation, but realize that soil conditions may necessitate the use of excavating equipment. However, extreme caution must be exercised.

Destruction of dens will be accomplished by careful excavation until it is certain that no San Joaquin kit foxes are inside. The den will be fully excavated, filled with dirt and compacted to ensure that San Joaquin kit foxes cannot reenter or use the den during the construction period. If any den was considered unoccupied, but upon commencement of den destruction determined to be occupied, den destruction will cease and the CPM (in coordination with CDFG) and USFWS will be notified immediately. Monitoring of the den as described in item #2 above may be allowed to resume, as determined during consultation with the agencies. Destruction of the den would be completed when in the judgment of the Designated Biologist, the animal has escaped from the partially destroyed den.

4.4 Construction and Operational Requirements

Habitat subject to permanent and temporary construction disturbances and other types of project-related disturbance will be minimized. Project designs have limited or clustered permanent project features to the smallest area possible while still permitting project goals to be achieved. To minimize temporary disturbances, all project-related vehicle traffic will be restricted to established roads, construction areas, and other designated areas. These areas will also be included in preconstruction surveys and, to the extent possible, will be established in locations disturbed by previous site actions to prevent further impacts. The following measures will also be implemented:

1. If construction personnel encounter a San Joaquin kit fox or any animal that construction personnel believe may be a San Joaquin kit fox, the following protocol will be followed:
 - a. All work that could result in direct injury, disturbance, or harassment of the individual animal will immediately cease.
 - b. The construction manager will be immediately notified.
 - c. The construction manager will notify the onsite Designated Biologist or Biological Monitor.
 - d. The animal will be allowed to leave the site on its own.

2. Before any ground is disturbed, the boundaries of the construction zone will be clearly delineated with orange-colored plastic construction fencing or solid barriers (for example, a wildlife exclusion fence) to discourage workers or equipment from inadvertently straying from the project area.
3. Project-related vehicles will observe a 10-mph speed limit in all project areas, except on county roads and state and federal highways; this is particularly important at night when San Joaquin kit foxes are most active. To the extent possible, night-time construction will be minimized. Off-road traffic outside of designated project areas will be prohibited.
4. To prevent inadvertent entrapment of San Joaquin kit foxes or other animals during the construction phase of a project, all excavated, steep-walled holes or trenches more than 2 feet deep will be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals. If at any time a trapped or injured San Joaquin kit fox is discovered, the procedures under item #13 below will be followed.
5. San Joaquin kit foxes are attracted to den-like structures such as pipes and may enter stored pipe becoming trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4 inches or greater that are stored at a construction site for one or more overnight periods will be thoroughly inspected for San Joaquin kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a San Joaquin kit fox is discovered inside a pipe, that section of pipe will not be moved until USFWS and the CPM (in coordination with CDFG) have been consulted. If necessary, and under the direct supervision of the Designated Biologist or Biological Monitor, the pipe may be moved once to remove it from the path of construction activity, until the San Joaquin kit fox has escaped.
6. All food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in closed containers and removed at least once a week from a construction or project site.
7. No firearms will be allowed on the project site.
8. To prevent harassment, mortality of San Joaquin kit foxes, or destruction of dens by dogs or cats, no pets will be permitted on project sites.
9. The Designated Biologist will be the contact source for any employee or contractor who might inadvertently kill or injure a San Joaquin kit fox or who finds a dead, injured or entrapped individual, including animals struck by project vehicles.
10. An employee education program will be conducted which consists of a presentation by persons knowledgeable in San Joaquin kit fox biology and legislative protection to explain endangered species concerns to contractors, their employees, and agency personnel involved in the project. The program will include the following: a description of the San Joaquin kit fox and its habitat needs; a report of the occurrence of San Joaquin kit fox in the project area; an explanation of the status of the species and its protection under the federal ESA and CESA; and a list of measures being taken to reduce impacts

to the species during project construction and implementation. A fact sheet conveying this information will be part of the education program for distribution to the above-mentioned individuals and anyone else who may enter the project site.

11. Upon completion of the project, all areas subject to temporary ground disturbances, including storage and staging areas, pipeline corridors, etc. will be re-contoured if necessary, and revegetated to promote restoration of the area to pre-project conditions. An area subject to “temporary” disturbance means any area that is disturbed during project construction, but that after completion of project construction will not be subject to further disturbance and has the potential to be revegetated.
12. In the case of trapped animals, escape ramps or structures will be installed immediately to allow the animal(s) to escape, or USFWS and the CPM (in coordination with CDFG) will be contacted for advice.
13. USFWS and the CPM (in coordination with CDFG) will be notified immediately within three working days of the accidental death or injury to a San Joaquin kit fox during project related activities. Notification will include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The USFWS contact is the Chief of the Division of Endangered Species, 2800 Cottage Way, Room W-2605, Sacramento, CA 95825, (916) 414-6600. The CDFG contact for immediate assistance is State Dispatch at (831) 649-2817. They will contact the local warden or biologist and also contact Mr. Liam Davis at P.O. Box 47, Yountville, California, 94599, (707) 944-5529.

5.0 Monitoring

The mitigation measures presented in this plan are designed to minimize or eliminate the potential adverse impacts of the project on San Joaquin kit fox. Ultimately, USFWS and the CPM (in consultation with CDFG) must approve this plan before it is implemented onsite. To assess the effectiveness of the proposed mitigation measures, monitoring is included as part of this plan. The Designated Biologist or Biological Monitor will conduct daily or as-needed (depending on site activities and season) onsite monitoring visits following the preconstruction survey until the completion of all project work areas. In addition to enforcement of den avoidance, the onsite biologists will also monitor any inactive construction areas for presence of kit fox. Because not all project areas will be simultaneously disturbed during the 14-month construction period, kit fox may establish a den in an inactive construction area or immediately nearby (for example, within 200 feet). Kit fox could also enter the construction site. The Designated Biologist will provide the results of the monitoring surveys to USFWS and the CPM (in coordination with CDFG) in monthly compliance reports. Any agency-approved remedial actions will be implemented immediately and monitored for their success by the Designated Biologist or Biological Monitor.

6.0 Reporting

Any injuries, mortality, or other unforeseen circumstances regarding San Joaquin kit fox will be reported to the USFWS and CPM (in coordination with CDFG) within 24 hours.

Construction monitoring and the results of kit fox monitoring will be reported on a monthly basis by the Designated Biologist.

A construction termination report written by the Designated Biologist will also be provided to USFWS and the CPM (in coordination with CDFG) within 30 days after completion of project construction. The report will identify when surveys were completed, survey observations, how mitigation measures were implemented, any remedial actions taken, how the measures were completed, and the results of the mitigation.

All monitoring reports will generally include the following information:

- Date and time of monitoring including, weather and visibility conditions, and methodology
- Description of the site including location, size, topography, vegetation communities and wildlife observed
- Photographs of the site
- A map showing the location of all identified kit fox burrow types
- Names of biologists conducting the monitoring

7.0 Success Criteria

Plan success is defined as no active San Joaquin kit fox dens marked for avoidance were impacted and no kit fox were directly or indirectly harmed during construction. These criteria apply to the project, during the entire 14-month construction period.

8.0 Adaptive Management

To manage any unforeseen conditions that may arise, adaptive management may be required to ensure that the success criteria are met. Adaptations may include implementing new mitigation measures as appropriate based on the actual effects of the project on San Joaquin kit fox.

During construction, Mariposa Energy will work collaboratively with USFWS and the CPM (in consultation with CDFG) to ensure that the most effective and reliable mitigation measures are implemented for the protection of active dens and individual kit fox. Adaptive management measures may include more stringent no-work offsets and constant construction monitoring of active den locations.

9.0 References

California Department of Fish and Game (CDFG). 2011. Online Information.
<http://www.dfg.ca.gov/biogeodata/cwhr/cawildlife.aspx>

U.S. Fish and Wildlife Service (USFWS). 2011. Online Information
<http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=A006>

U.S. Fish and Wildlife Service (USFWS). 1999. *Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or during Ground Disturbance*. Technical Report. Sacramento, California

U.S. Fish and Wildlife Service (USFWS). 1998. Recovery plan for upland species of the San Joaquin Valley, California. Region 1, Portland, OR. 319 pp.

Temporary Construction Fencing Plan for the Mariposa Energy Project

PREPARED FOR: Mariposa Energy, LLC
PREPARED BY: CH2M HILL
DATE: April 25, 2011

Mariposa Energy, LLC is required to construct temporary fencing as part of the site preparation activities for the Mariposa Energy Project (MEP). As outlined in California Energy Commission (CEC) Conditions of Certification (COC), the temporary fencing must be installed along the perimeter of the MEP construction site and adjacent parking and laydown area, the natural gas pipeline work corridor, along the transmission line work corridor, along the access road, and along both sides of Bruns Road from the site access to the intersection of Kelso Road. The purpose of the temporary fencing is to delineate the construction work zone and delineate the boundaries of sensitive habitat in the vicinity of the project site. Two types of fencing will be used to meet the COC requirements. A solid barrier wildlife exclusion fence will be used for the MEP construction site and other areas requiring wildlife exclusion (BIO-10), and construction corridor/sensitive habitat boundary fencing will be used to delineate work areas and habitat buffers where wildlife exclusion fencing is not required (BIO-7, BIO-8, BIO-9, BIO-11, BIO-12, BIO-13, BIO-14, BIO-15, and BIO-17).

Solid Barrier Wildlife Exclusion Fencing

As outlined in COC BIO-10, the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish Game (CDFG) require the installation of a solid barrier wildlife exclusion fence with one-way exit funnels. The purpose of the solid barrier wildlife exclusion fence is to provide an escape route for California red-legged frog (CRLF) and California tiger salamander (CTS) during the initial grading activities, and to prevent or discourage the entry of CRLF and CTS into the active work areas during the remainder of the construction activities. Exclusion materials must also be installed at site access gates in a manner that effectively prevents entry by CRLF and CTS, while allowing workers to open and close the gate during construction. Along Bruns Road, a solid barrier wildlife exclusion fence will minimize the potential for CRLF and CTS road mortality while workers are driving to and from the project site during the winter season before dawn or after dusk.

The solid barrier wildlife exclusion fencing will be a combination of geotextile and plywood as shown in Figure 1. Fabrics listed in Item 1 have been used on other projects in northern California; however, the final geotextile fabric will be selected in consultation with the CEC.

The solid barrier wildlife exclusion fencing will include the following components:

1. Geotextile fabric made of woven monofilament polypropylene geotextile material (for example, Propex Geotex 104F or 111F [Propex] or TENCATE Mirafi FW700) or approved

equal will be installed a minimum of 6 inches below grade and 42 inches above grade. The fabric will be secured with stakes or posts a minimum of every 6 feet.

2. Plywood fence: A plywood panel will be installed every 200 feet along the geotextile fence to install escape funnels as shown in Figure 1. Plywood panels will be ½-inch exterior grade or ½-inch oriented strand board (OSB), and will be minimally embedded 6 inches below grade and extend 42 inches above grade. The plywood panels will be attached to 5-foot metal fence posts or T-stakes sunken a minimum of 18 inches below grade. Panels will be free of holes and cracks and will be the minimum length needed to accommodate attachment of the fence funnel.
3. Exit funnels: Will be installed as shown in Figure 1.

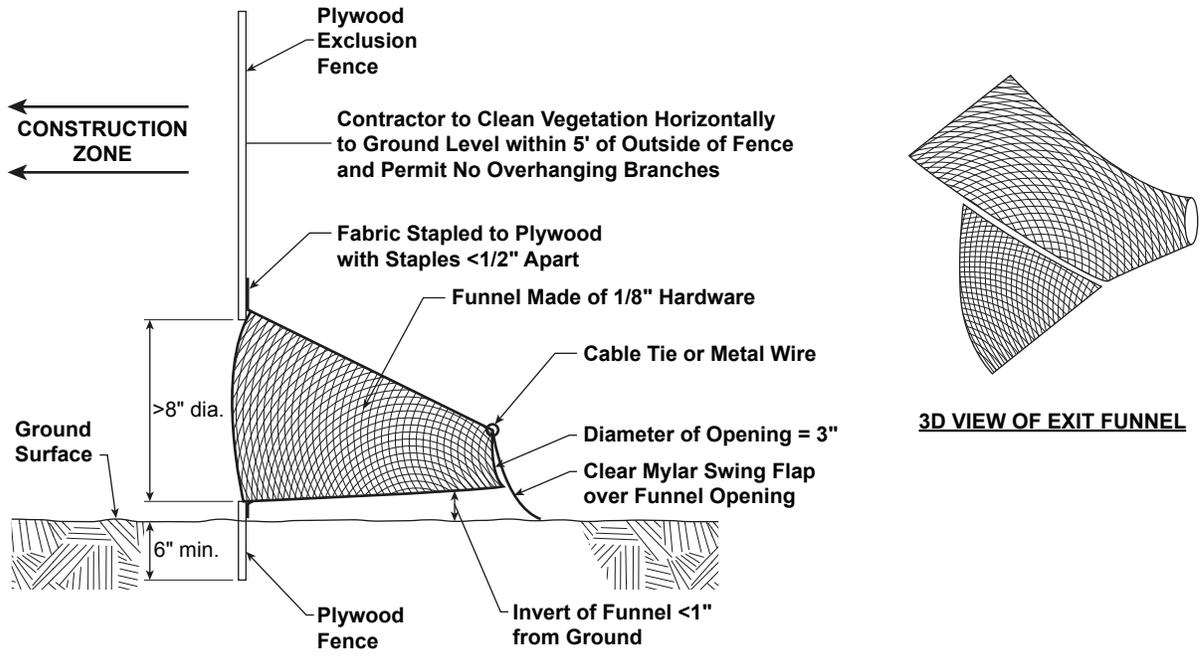
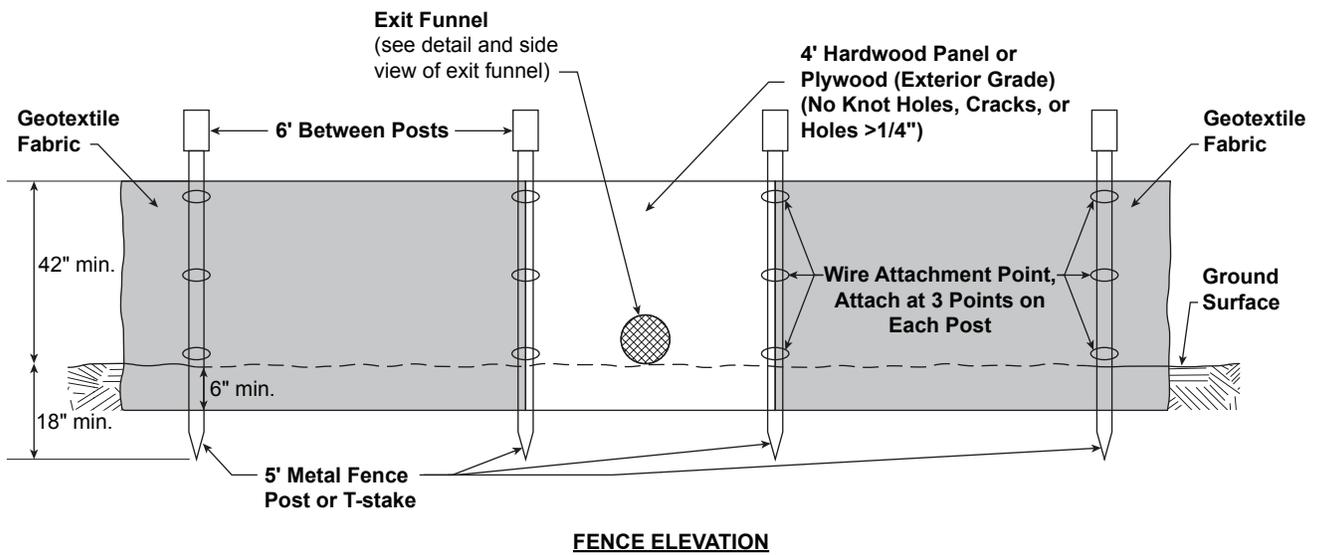
The proposed location of the solid barrier wildlife exclusion fencing is shown in Figure 2. The fencing plan includes the installation of a solid barrier wildlife exclusion fence around the perimeter of the MEP site, the adjacent parking and laydown area, and the natural gas pipeline work corridor. Based on this proposed design, approximately 10,500 linear feet of solid barrier wildlife exclusion fencing is needed for the project. The detailed location of the fence line will be delineated by a land surveyor using stakes and or flagging to delineate the perimeter. The fence will be installed by a general contractor. The Designated Biologist and/or biological monitor will be onsite daily during fence installation to ensure the fencing materials are installed according to the approved plan.

Construction Corridor and Sensitive Habitat Boundary Fencing

Construction corridor fencing will be installed to prevent construction workers from walking or driving out of the approved work area. Fencing will also be used to delineate environmentally sensitive areas (ESA), such as wetlands and sensitive species habitat, in accordance with COCs BIO-7, BIO-8, BIO-9, BIO-11, BIO-12, BIO-13, BIO-14, BIO-15, and BIO-17. The construction corridor and sensitive habitat boundary fencing will be high-visibility orange plastic safety fencing¹. The fencing will be installed by attaching it to 5-foot metal fence posts or T-stakes, which are sunken a minimum of 18 inches below grade and spaced no more than 6 feet apart.

The proposed location of the construction corridor and sensitive habitat boundary fencing is shown in Figure 2. The detailed location of the transmission line disturbance corridor will be delineated by a land surveyor using stakes and or flagging to delineate the boundary. The sensitive habitat boundaries will be delineated by the Designated Biologist based on the protected species and sensitive habitat requirements. The transmission line disturbance corridor fence and initial ESA fencing identified in Figure 2 will be installed by a general contractor. The Designated Biologist and/or biological monitor will be onsite daily during fence installation to ensure the fencing materials are installed according to the approved plan. If additional environmentally sensitive areas are identified during the construction of the project, additional orange safety fencing will be installed by the Designated Biologist or biological monitor.

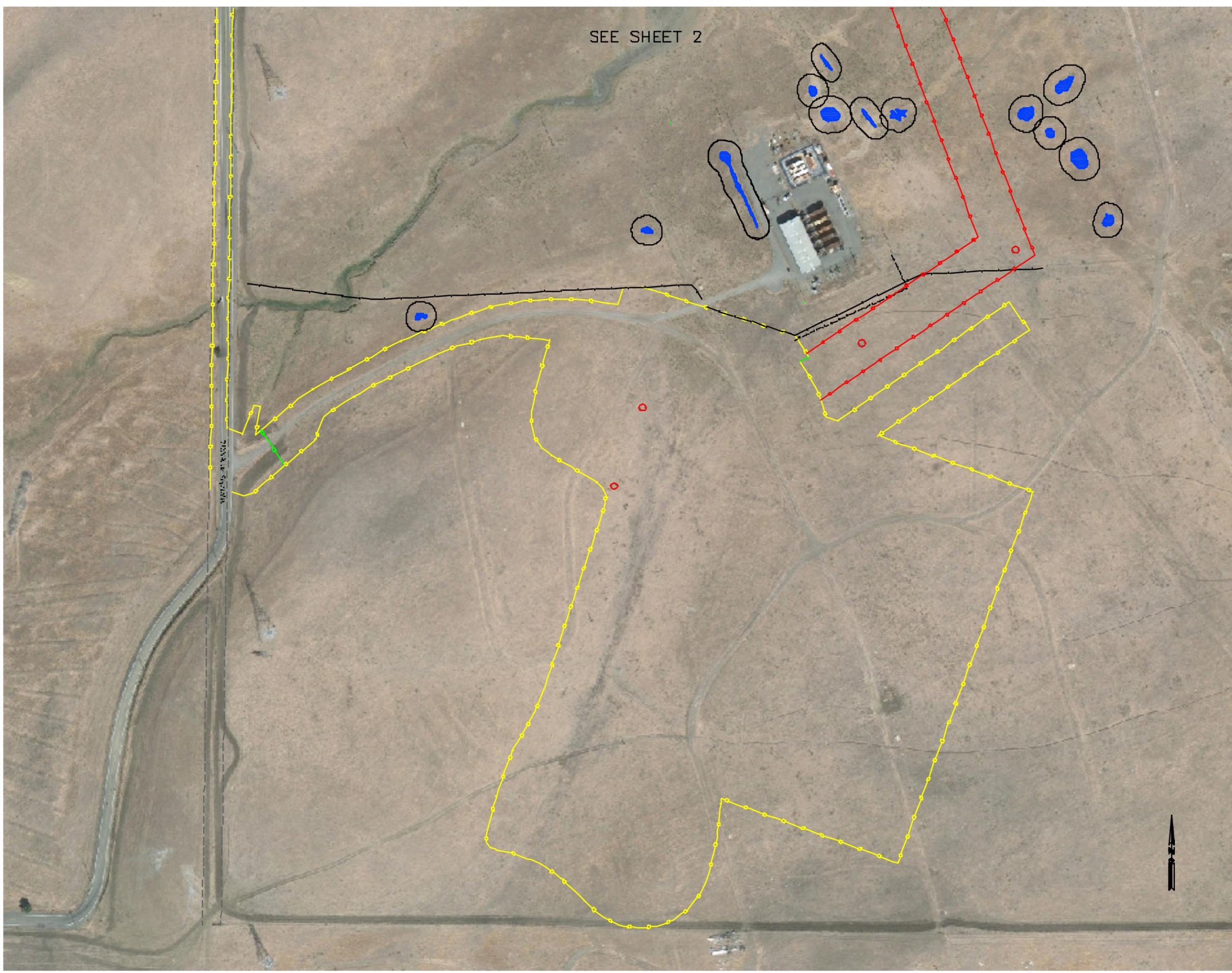
¹ For example, High Visibility Orange Safety Fence by FarmTek (http://www.farmtek.com/farm/supplies/prod1;ft1_fencing_containment-ft1_snow_safety_fence;9cc10df5.html)



FENCE FUNNEL AND DRAINAGE HOLE

**FIGURE 1
SOLID BARRIER WILDLIFE
EXCLUSION FENCING DESIGN**

Mariposa Energy Project
Alameda County, California



SEE SHEET 2

LEGEND

Exclusion Fencing Type

-  Wildlife Exclusion Fence
-  Wildlife Exclusion Gate
-  Worker Exclusion Fence

 Denotes Proposed Pole Location

 Branchiopod Habitat with 25' Buffer

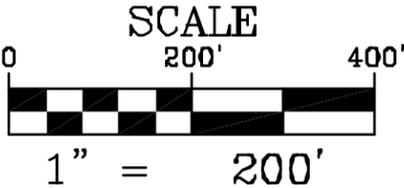
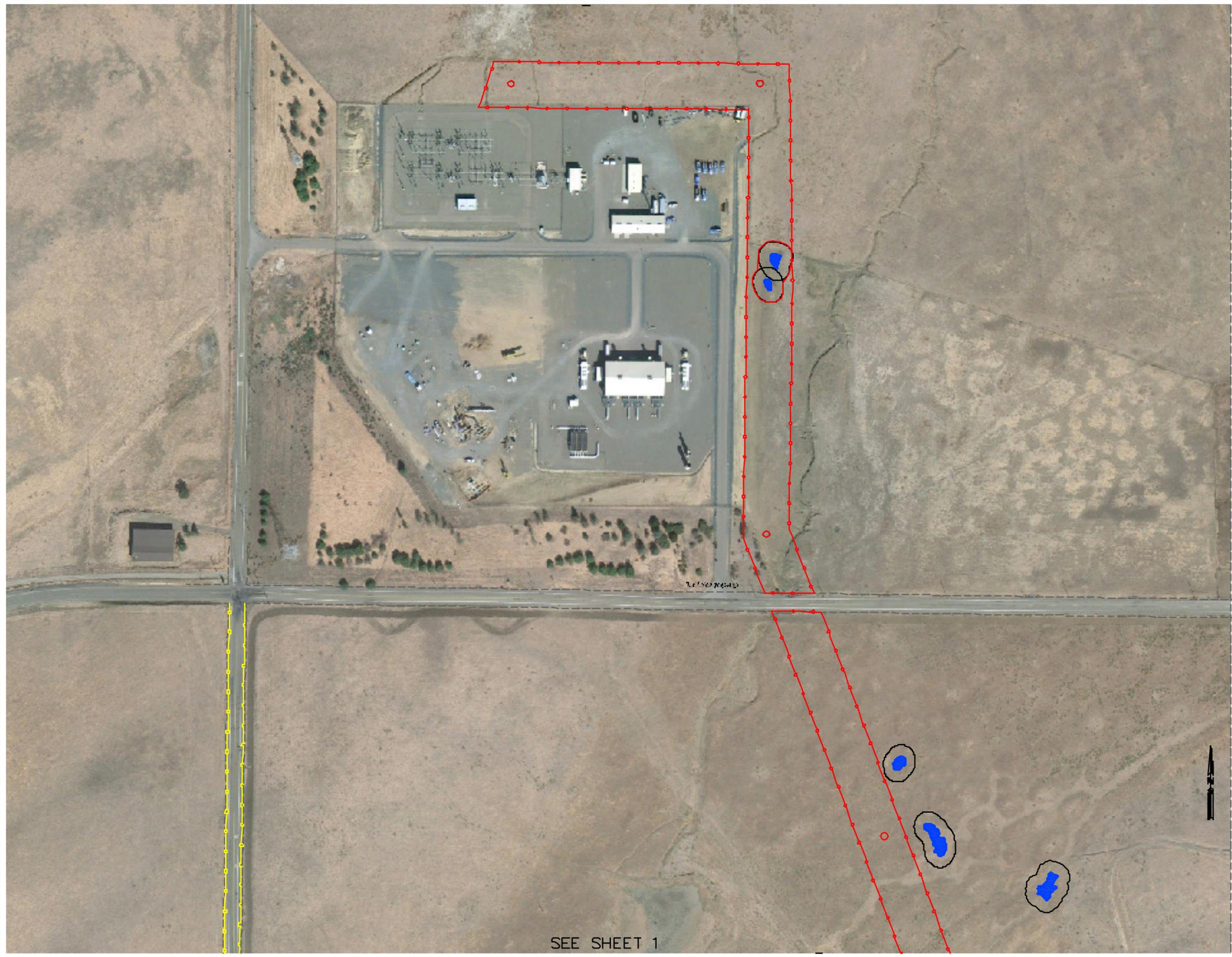


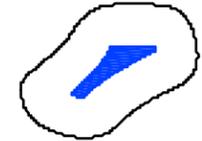
FIGURE 2
EXCLUSION FENCE PLAN
 MARIPOSA ENERGY PROJECT
 ALAMEDA COUNTY, CALIFORNIA



LEGEND
 Exclusion Fencing Type

-  Wildlife Exclusion Fence
-  Wildlife Exclusion Gate
-  Worker Exclusion Fence

 Denotes Proposed Pole Location

 Branchiopod Habitat with 25' Buffer

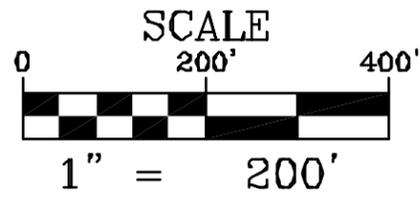


FIGURE 2
 EXCLUSION FENCE PLAN
 MARIPOSA ENERGY PROJECT
 ALAMEDA COUNTY, CALIFORNIA

CRI+IGEN

Scale: 1"=200'
 April 21, 2011

Sheet 2 of 2

SEE SHEET 1