# Appendix F

Biological Resources Supporting Information

# BIOLOGICAL ASSESSMENT

## FOR THE EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT SANTA BARBARA COUNTY, CALIFORNIA

**Project No. 1002-0455**

**Prepared for:**

Aera Energy LLC
10000 Ming Avenue City,
Bakersfield, California 93311

**Prepared by:**

Padre Associates, Inc.
369 Pacific Street
San Luis Obispo, California 93401

**DECEMBER 2017**

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

# Authenticity and Signature Page

**Padre Associates, Inc.**
**369 Pacific Street**
**San Luis Obispo, California 93401**

Padre Associates, Inc. (Padre) hereby certifies that all statements furnished in the following Biological Assessment and all supporting information required for this biological evaluation are true and correct to the best of our knowledge and belief. The information provided herein has been prepared in accordance with legal requirements set forth under Section 7 of the Federal Endangered Species Act [16 U.S.C 1536 (c)], and follows the standards established in the United States Fish and Wildlife Service and National Marine Fisheries Service Endangered Species Consultation Handbook (1998). Further, we certify that all field surveys associated with this report were performed by Padre using standards accepted by Santa Barbara County and that this report accurately represents all information retained from field visits to the East Cat Canyon Oil Field in Santa Barbara County, California.

List of Preparers:

**Alyssa Berry**
Senior Biologist

**Crystahl Taylor**
Senior Project Manager

**Eric Snelling**
Principal

PAGE INTENTIONALLY LEFT BLANK

## EXECUTIVE SUMMARY

The following Biological Assessment (BA) has been prepared by Padre Associates, Inc. on behalf of Aera Energy LLC (Aera) for the East Cat Canyon Oil Field Redevelopment Project (Project). The Project will re-establish oil production in an existing oil field by drilling and operating new wells, and building and operating new infrastructure and facilities to support enhanced oil recovery. Project plans include construction and restoration of approximately 72 well pads, construction and restoration of over nine miles of field access roads, and drilling of up to 296 wells. Planned wells include oil/gas production wells, steam injection wells, observation wells, water production wells, water injection wells, and fresh groundwater wells. Additional utilities to support the redevelopment Project include a natural gas pipeline and an electrical power transmission line and substation, which have been included in this BA.

This BA has been prepared to facilitate consultation with the United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) under Section 7 of the Federal Endangered Species Act (FESA) of 1973 (16 U.S. Code [USC] 1531-1544, 2008). This BA evaluates the potential effects of the Project on species that are listed or proposed to be listed as Endangered or Threatened under the FESA, and regulated by the USFWS and the NMFS, per requirements set forth under Section 7 of the FESA (16 USC 1536; 50 CFR 402 et. seq.).

A review of existing data, field surveys, and communication with the USFWS, determined that the proposed Project is not located within the boundaries of designated areas of Critical Habitat for listed species. In addition, no Federally listed species have been documented within the Project site.

No suitable aquatic breeding habitat for California red-legged frog (CRLF) (*Rana draytonii*) is present within the Project site; however, CRLF does have the potential to occur within certain areas of the Project site during migratory movements between offsite breeding ponds. With the implementation of Project avoidance and minimization measures, the Project is *not likely to adversely affect* this species. Project avoidance and minimization measures for CRLF include, but are not limited to, conducting pre-activity surveys immediately prior to start of initial grading, excavation or vegetation removal activities, presentation of an Environmental Sensitivity Orientation to all onsite field personnel prior to start of work, and minimizing vehicle traffic during rainy nights to the greatest extent feasible.

Although not present within the Project site, potential suitable aquatic breeding habitat for California tiger salamander (CTS) (*Ambystoma californiense*) does occur within the maximum CTS dispersal distance (1.37 miles) from the Project site and the utility corridors. Based on the results of CTS upland and aquatic surveys conducted in 2014 through 2016, suitable potential CTS upland habitat is present within a portion of the Project site that is adjacent to an offsite potential CTS breeding pond (SISQ-19). The proposed natural gas pipeline will be located within existing roadways along the southern border of USFWS-designated Critical Habitat. Therefore, Project activities have the potential to impact CTS and will temporarily and permanently impact potential CTS upland habitat. The Project is *likely to adversely affect* this species. Aera proposes to minimize the potential effects on CTS and their habitat by completing mitigation for permanent and temporary impacts to potential CTS upland habitat, and by implementing Project avoidance and minimization measures. Project avoidance and minimization measures for CTS include, but

are not limited to, the measures listed above for CRLF, installation of exclusion barriers or covers around/on open excavations left overnight, monitoring of ground-disturbing activities within 2,200 feet of a potential CTS breeding pond by a CTS USFWS 10(a)(1)(A) permitted biologist, and conducting camera probe surveys for CTS for burrows within 2,200 feet of a potential breeding pond by a CTS permitted biologist.

## TABLE OF CONTENTS

**1.0 INTRODUCTION ..... 1-1**

1.1 CONSULTATION TO DATE ..... 1-2

**2.0 PROJECT DESCRIPTION AND SCHEDULE ..... 2-1**

2.1 PROJECT DESCRIPTION ..... 2-1
2.2 PROJECT SCHEDULE ..... 2-2

**3.0 SETTING ..... 3-1**

3.1 PLANT COMMUNITIES ..... 3-1
3.1.1 Western Rush Marshes ..... 3-35
3.1.2 Annual Grassland ..... 3-35
3.1.3 California Coffeeberry Scrub ..... 3-35
3.1.4 California Coastal Scrub ..... 3-35
3.1.5 Red Willow Thickets ..... 3-36
3.1.6 Arroyo Willow Thickets ..... 3-36
3.1.7 Coast Live Oak Woodland ..... 3-36
3.1.8 Eucalyptus Groves ..... 3-37
3.1.9 Ornamental ..... 3-37
3.1.10 Previously Disturbed ..... 3-37
3.1.11 Agricultural ..... 3-37
3.2 WILDLIFE ..... 3-38
3.2.1 Invertebrates ..... 3-38
3.2.2 Fish ..... 3-38
3.2.3 Amphibians ..... 3-38
3.2.4 Reptiles ..... 3-39
3.2.5 Birds ..... 3-39
3.2.6 Mammals ..... 3-39

**4.0 LISTED SPECIES CONSIDERED FOR ANALYSIS ..... 4-1**

4.1 CRITICAL HABITAT FOR LISTED SPECIES CONSIDERED FOR ANALYSIS ..... 4-9
4.2 SPECIES ACCOUNTS ..... 4-9
4.2.1 California Red-Legged Frog ..... 4-10
4.2.2 California Tiger Salamander ..... 4-11

**5.0 POTENTIAL EFFECTS OF THE PROPOSED ACTION ON LISTED SPECIES ..... 5-1**

5.1 CALIFORNIA RED-LEGGED FROG ..... 5-1
5.1.1 Direct Effects ..... 5-1
5.1.2 Indirect Effects ..... 5-1
5.1.3 California Red-Legged Frog Avoidance and Minimization Measures ..... 5-1
5.2 CALIFORNIA TIGER SALAMANDER ..... 5-2
5.2.1 Direct Effects ..... 5-3
5.2.2 Indirect Effects ..... 5-3
5.2.3 California Tiger Salamander Avoidance and Minimization Measures ..... 5-4

5.2.4 Mitigation for Potential California Tiger Salamander Upland Habitat ..... 5-10
5.3 CUMULATIVE ADVERSE EFFECTS ..... 5-11

**6.0 DETERMINATION OF EFFECTS ..... 6-1**

6.1 CALIFORNIA RED-LEGGED FROG ..... 6-1
6.2 CALIFORNIA TIGER SALAMANDER ..... 6-1

**7.0 ANALYSIS OF ALTERNATIVE ACTION ..... 7-1**

7.1 REDUCED FOOTPRINT ALTERNATIVE ..... 7-3
7.2 OAK AVOIDANCE ALTERNATIVE ..... 7-4
7.3 NO ACTION ALTERNATIVE ..... 7-5

**8.0 REFERENCES ..... 8-1**

## LIST OF FIGURES

Figure 1. Project Location ..... 2-3
Figure 2. Project Site and Project Footprint ..... 2-5
Figure 3. Biological Field Survey Results for the Project Site ..... 3-3
Figure 4. Known Occurrences of Federally Listed Species and Critical Habitat within 5 Miles of the Project Site ..... 4-3
Figure 5. NWI Wetlands, USGS Blue Line Streams, and Other Aquatic Features ..... 4-13
Figure 6. Known and Potential CTS Ponds within the Maximum Dispersal ..... 5-5
Figure 7. CTS Reproductive Value Impact and Mitigation Results ..... 5-6

## LIST OF TABLES

Table 3-1. Summary of Existing Plant Communities ..... 3-2
Table 4-1. Likelihood of Occurrence Analysis for Federally Listed Species ..... 4-5
Table 4-2. Critical Habitat for Listed Species Considered for Analysis ..... 4-9
Table 4-3. Potential CTS Breeding Ponds Within 1.37 Miles of Project Site ..... 4-15
Table 5-1. Project Impacts Based on USFWS Searcy Model ..... 5-3
Table 5-2. CTS Conservation Area Value ..... 5-11
Table 6-1. Determination Summary for Federally Listed Species for the Project Site ..... 6-2
Table 7-1. Alternative Project Footprint Comparison ..... 7-1
Table 7-2. Reduced Footprint Alternative Impacts Based on USFWS Searcy Model ..... 7-3
Table 7-3. Reduced Footprint Alternative CTS Mitigation ..... 7-3
Table 7-4. Oak Avoidance Alternative Impacts Based on USFWS Searcy Model ..... 7-4
Table 7-5. Oak Avoidance Alternative CTS Mitigation ..... 7-4

## APPENDICES

Appendix A. USFWS Official Species List

# 1.0 INTRODUCTION

The following Biological Assessment (BA) has been prepared by Padre Associates, Inc. (Padre) on behalf of Aera Energy LLC (Aera) for the East Cat Canyon Oil Field Redevelopment Project (Project). The Project will re-establish oil production in an existing oil field by drilling and operating new wells, and building and operating new infrastructure and facilities to support enhanced oil recovery. Project plans include construction and restoration of approximately 72 well pads, construction and restoration of over nine miles of field access roads, and drilling of up to 296 wells. Planned wells include oil/gas production wells, steam injection wells, observation wells, water production wells, water injection wells, and fresh groundwater wells. Additional utilities to support the redevelopment Project include a natural gas pipeline, electrical power transmission line and substation, and upgraded fiber optic communication lines, which have been included in this BA.

This BA was prepared per guidance within Section 7 (Interagency Cooperation) of the Federal Endangered Species Act (FESA). The consultation process under Section 7 is initiated when a Federal Action is prompted. For the purposes of this Project, the Federal Action is the Clean Water Act (CWA) Section 404 Nationwide Permit Authorization for three creek crossing locations required for Project access from the United States Army Corps of Engineers (ACOE). Section 7 of the FESA requires that Federal agencies must consult with the United States Fish and Wildlife Service (USFWS) and/or the National Marine Fisheries Service (NMFS) that provide protection of Federally listed species and Federally designated Critical Habitats. The initial step in the consultation process is to acquire an official list of Federally Threatened and Endangered species that may occur in the proposed Project area, and/or may be affected by the proposed Project. This list was last updated November 1, 2017 (Consultation Code: 08EVEN00-2018-SLI-0056), and provided as Appendix A. A BA is required to be submitted prior to initiation of a consultation between Federal agencies when a listed species or Critical Habitat is present within the proposed action area where major construction activities are proposed.

The purpose of this BA is to facilitate consultations with the USFWS, NMFS, and ACOE and provide information to determine whether a proposed action is likely to: (1) adversely affect listed species or designated Critical Habitat; (2) jeopardize the continued existence of species that are proposed for listing; or (3) adversely modify proposed Critical Habitat. Potential effects on Federally listed species are evaluated in accordance with the legal requirements set forth under Section 7 of the FESA (16 USC 1536; 50 CFR 402 et. seq.). In the event the Federal agencies determine that the Project would be likely to adversely affect species or Critical Habitat, a formal consultation is initiated. Formal consultations may last up to 90 days, after which the USFWS will prepare a Biological Opinion (BO) on whether the proposed activity will jeopardize the continued existence of a listed species. The USFWS has 45 days after completion of formal consultation to write the BO.

This BA provides information on the potential effects of the Project on Federally listed species and Federally designated Critical Habitat. Federally listed species discussed in this BA include species listed within the official species list provided by the USFWS on May 16, 2016 (USFWS, 2017) (Appendix A), information on listed species documented within the vicinity of the

Project site based on a desktop review of Federal, State, and local resources/databases, and results of biological surveys conducted within the Project site.

All impact acreages reported are based on current Project planning documents and are subject to change based on field conditions encountered during implementation of the Project. Mitigation acreages will be adjusted according to actual Project impacts.

## 1.1 CONSULTATION TO DATE

As part of the consultation process, ongoing meetings have been held with the USFWS, ACOE, and California Department of Fish and Wildlife (CDFW), to discuss the proposed action, potential effects, and avoidance, minimization, and mitigation measures that could be included as part of the proposed action. The consultation history for the Project is outlined below:

- Meeting with the USFWS and CDFW to discuss necessary special-status species surveys and permitting; November 6, 2013;
- Meeting with the USFWS to discuss Project update on special-status species surveys (i.e., vernal pool fairy shrimp [VPFS] and least Bell's vireo), California tiger salamander (CTS) drift fence survey design, and mitigation banking strategy options; April 3, 2014.
- Site visit with Martin Potter (CDFW) to discuss CTS drift fence survey design; April 9, 2014;
- Meeting with ACOE to discuss the Project description, impacts to waters of the United States, meetings with USFWS and CDFW, permitting, and Federal jurisdiction; June 30, 2014;
- USFWS and CDFW approval of CTS drift fence survey design; August 1, 2014;
- Meeting with the USFWS and CDFW to discuss Project update on special-status species surveys (VPFS and CTS), CTS mitigation strategy, and prospective conservation easement; November 21, 2014;
- Meeting with the ACOE to discuss jurisdictional determination and Section 7 consultation; November 2, 2015;
- Meeting with the USFWS to discuss Project update on CTS surveys; February 25, 2016;
- Official species list obtained from USFWS for use in preparation of the Biological Assessment (Consultation Code: 08EVEN00-2018-SLI-0056); November 1, 2017;
- Submitted 2081 application to CDFW; June 2016;
- Received Preliminary Jurisdictional Determination Form from ACOE; August 2016; and
- Meetings with USFWS to discuss CTS Searcy Model results; November 14, 2016 and June 22, 2017.

# 2.0 PROJECT DESCRIPTION AND SCHEDULE

## 2.1 PROJECT DESCRIPTION

The Project site is located within the Solomon Hills northeast of the Gato Ridge mountain ranges within Cat Canyon, approximately ten miles southeast of the city of Santa Maria and the community of Orcutt located in northern Santa Barbara County, California (Figure 1). The main property entrance is located at 6516 Cat Canyon Road, south of the community of Sisquoc, California. The California Department of Conservation Division of Oil, Gas and Geothermal Resources (DOGGR) divides the Cat Canyon Oil Field into four distinct areas: East Area, West Area, Central Area, and Sisquoc Area. The entire Project site lies within the East Cat Canyon Oil Field (East Area) boundaries.

The Project will re-establish oil production in the existing East Cat Canyon Oil Field by drilling and operating new wells, and building and operating new infrastructure and facilities to support enhanced oil recovery. Project plans include construction of approximately 72 well pads, construction of over nine miles of field access roads, and drilling of up to 296 wells. Planned wells include oil/gas production wells, steam injection wells, observation wells, non-potable water production wells, water injection wells, and fresh groundwater wells. No hydraulic fracturing ("fracking") will be used for this Project.

The Project facilities and infrastructure will be sited predominantly on the southwest portion of the property, where a greater density of existing roads, well pads, and previous facility footprints already exist. In addition, the Project has been designed to minimize grading and land disturbance by maximizing the use of existing roads, well pads, cleared areas, and contours wherever possible. Out of the approximate total 2,108-acre Project site, approximately 300 acres, or 14 percent will be graded. Earthwork volumes will be balanced across the Project site to minimize the need for import or export of significant amounts of soil.

New processing facilities and field systems will be constructed. Processing facilities will include: 1) a production group station for bulk separation of produced gas and liquids, 2) a central processing facility for oil cleaning, water cleaning, water softening, oil storage, and oil sales, and 3) a steam generation site (up to six once-through steam generators rated at 85 million British thermal units/hour each) for production of saturated steam to be used for thermal enhanced oil recovery. An additional 62.5 million British thermal units/hour steam generator will be used to generate steam from the project's produced gas. No fresh water will be used to generate steam; only non-potable water will be used.

Field systems will include: 1) a production gathering network, 2) a steam distribution network and 3) electrical power distribution and supervisory control and data acquisition (SCADA) networks. Project infrastructure will also include an office building, a multipurpose building, a warehouse and maintenance building, and a facility control building. A fresh water system with a 3,000-barrel tank and water distribution pipelines is planned for drinking water and ancillary purposes, including fire protection, lavatories, showers, equipment cleaning, dust control, and minor landscape irrigation. The primary Project site entrance is located at 6516 Cat Canyon Road. Vehicles and equipment entering the Project site travel across Cat Canyon Creek via an existing culvert crossing located just outside of the Aera property boundary. As proposed, the Project

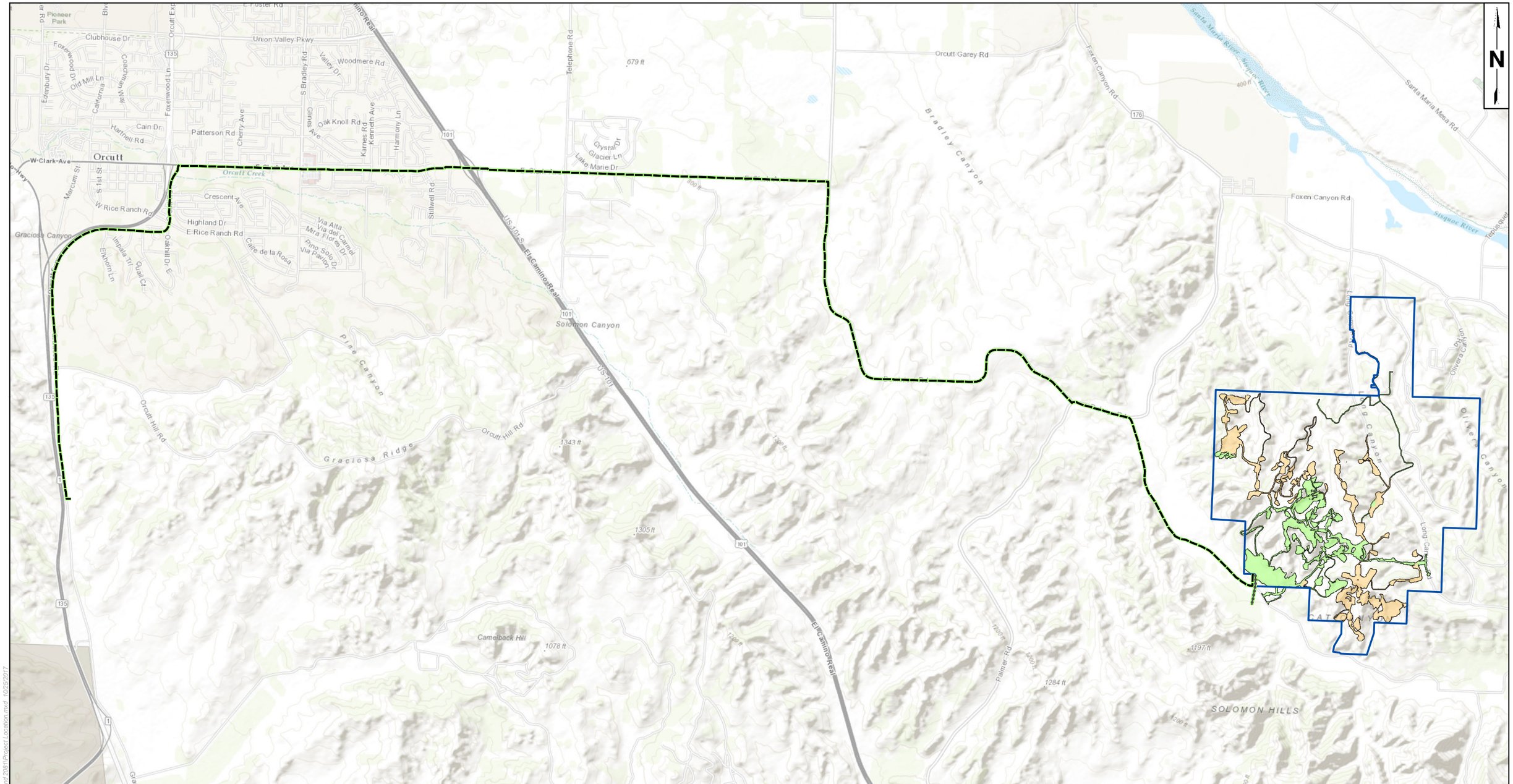
would utilize the existing crossing during the initial Project construction, while concurrently constructing a new Project site entrance located approximately 300 feet north (downstream) of the existing entrance. The Project will also include construction of a secondary access located along Long Canyon Road, on the eastern boundary of the Project site along with two smaller east side entrances from Long Canyon Road, which will be constructed to provide adequate access to new well pads. Project site entrances will be connected via a primary site access road, which will be graded and paved concurrently with site entrance construction activities.

As part of the Project, Pacific Gas and Electric Company (PG&E) will construct, operate, and maintain a new approximately 0.3-mile 115 kilovolt power line to the Aera-owned substation located at the Project site. This power line will interconnect into PG&E's Sisquoc-Santa Ynez Switch Station 115 kilovolt power line. In addition, the Project will require the installation of a new natural gas pipeline that will be designed, built, operated and maintained by the Southern California Gas Company. The proposed Project includes a 14-mile, 8-inch natural gas pipeline and associated facilities to provide 13 million cubic feet per day of natural gas delivery pressure of 50 to 300 pounds per square inch to the Project site. The new pipeline will be fed from the existing Southern California Gas Line 1010 at Divide Station along Graciosa Road and will terminate at the proposed central processing facility located in the southwest corner of the Project site.

## 2.2 PROJECT SCHEDULE

The Project will be implemented in phases to maximize efficiency and help moderate construction peak activity levels (Figure 2). Phase I will include the construction of the production group station, central processing facility, steam generation site, fresh water distribution system, office building, main roadways, and a beneficial reuse facility for soil and sand. Four of the seven steam generators will be installed. Some of the Project's well pads and wells will be restored/developed during Phase I, along with the roadways, electrical distribution lines, and gathering and distribution pipelines to support those wells. Phase I activities will last approximately four years.

During Phase II, the remaining well pads will be restored/developed, the remaining wells will be drilled, along with associated roadways, electrical distribution lines, and gathering and distribution pipelines. Phase II will also expand the processing facility capacities, and add three additional steam generators. Phase II construction will start approximately three years after Phase I completion and is expected to take up to two years. Phase II well drilling, along with the construction of roadways, electrical distribution lines, and gathering and distribution pipelines to support those wells, is planned to take place over a period of up to ten years. Production from the Project is expected to continue for more than 30 years.




LEGEND:

- Aera Energy LLC Property
- Proposed Project Footprint
- Proposed 115kV Service Line
- Proposed Natural Gas Import Pipeline Route
- Phase I
- Phase II

MAP EXTENT:

0 0.75 1.5
MILES

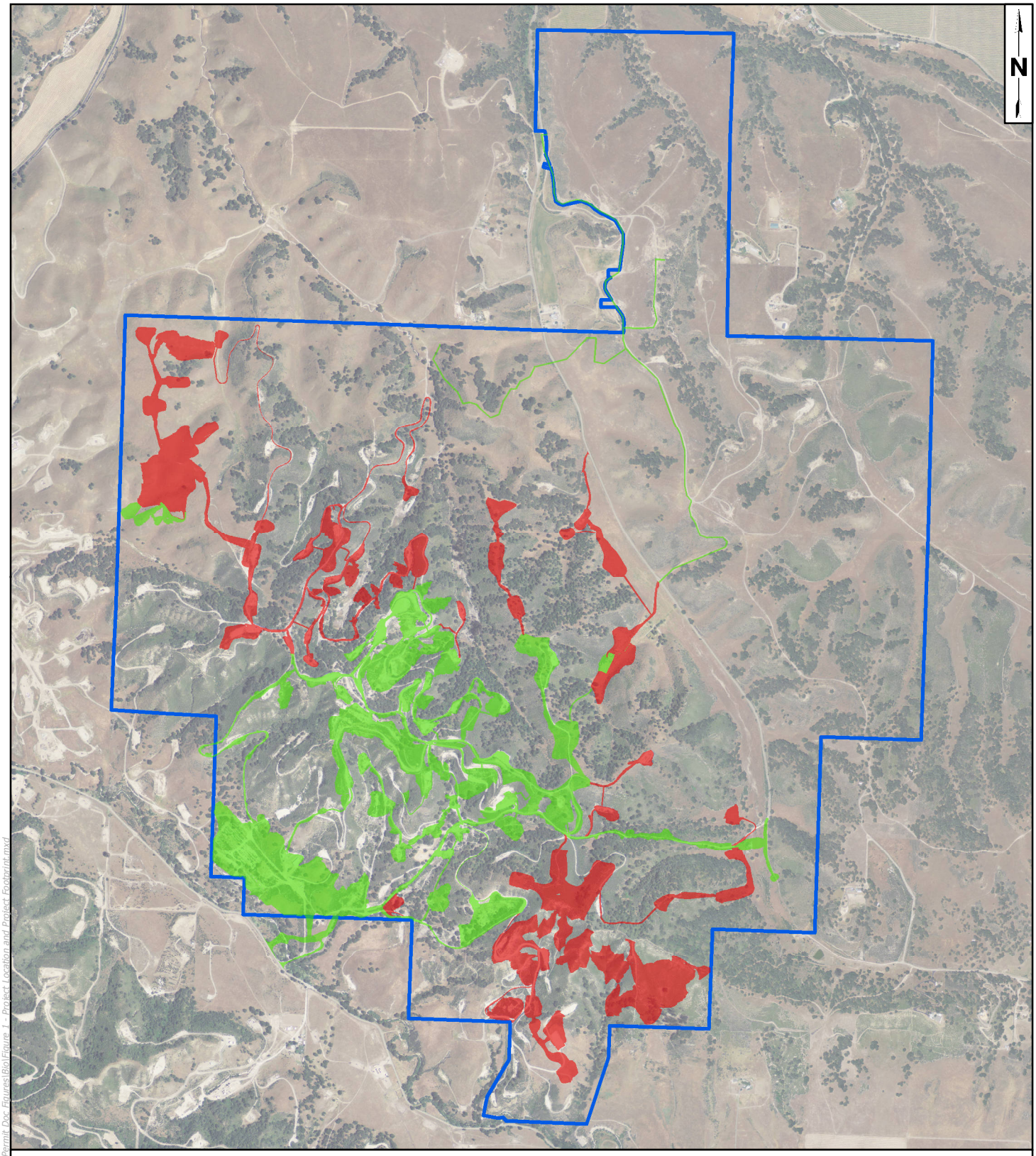
Source: DPSI 2013 Survey, TJ Cross 8/20/2014, Spec Services 2013, PGE, Esri Online Basemap
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposes only.

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: | EAST CAT CANYON<br>SANTA BARBARA COUNTY, CA | PROJECT LOCATION | FIGURE |
|---|---|---|---|
| PROJECT NUMBER: 1002-0455 | DATE: October 2017 | | 1 |

East Cat Canyon\Notice of Incomplete Response\BA and 2081\Project Location.mxd 10/25/2017

PAGE INTENTIONALLY LEFT BLANK




Aera Energy LLC Property

**Project Footprint**

Phase I

Phase II

0 900 1,800

FEET

*Source: NAIP 2012 Aerial Imagery, County of Santa Barbara, TJCross 8-20-14, DPSI 2013 Land Survey*
*Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet*
*Notes: This map was created for informational and display purposes only.*

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: EAST CAT CANYON SANTA BARBARA COUNTY, CA

PROJECT NUMBER: 1002-0455

DATE: September 2014

PROJECT SITE AND PROJECT FOOTPRINT

FIGURE 2

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Permit Doc Figures\Bio\Figure 1 - Project Location and Project Footprint.mxd

PAGE INTENTIONALLY LEFT BLANK

# 3.0 SETTING

The East Cat Canyon Oil Field is located in the Santa Maria Basin, where oil has been produced since 1908. Approximately 131 oil wells operated on the Project site but were decommissioned by Aera between the late 1980s and 2003, in accordance with Division of Oil, Gas, and Geothermal Resources (DOGGR) requirements. All the oil wells at the Project site attributed to Aera or its predecessor companies are currently listed as plugged and abandoned (DOGGR, 2016), with the exception of four non-producing test wells (Victory G1, G3, and G7 as well as Field Fee G2) that were drilled in 2012 in support of reservoir studies. Five oil production wells are currently operated on the Project site by ERG Resources, LLC (ERG). Legacy access roads and well pads remain intact. The abandoned well pads are generally level and range in size from approximately 5,000 to 10,000 square feet and consist of bare ground and/or gravel with varying coverage of asphalt paving and weedy vegetation.

The Project site is located within the Solomon Hills and the Gato Ridge mountain ranges in Cat Canyon, southeast of the City of Santa Maria, California. The regional topography is generally comprised of steeply to moderately incised canyons and drainages, moderate to steep hills, valleys, and small flat areas reserved for agriculture. The Project site consists of moderate to steep hills and two predominant valleys, Long Canyon and Olivera Canyon, and has an elevation range between approximately 550 feet to 1,120 feet mean sea level (msl). Drainages found throughout the Project site consist of dry, loose sand and rock with moderate to dense scrub and scattered oak woodland habitat. The Sisquoc River is located approximately 3,700 feet to the northeast of the Project site. This river is subject to moderate to heavy seasonal flows and provides suitable habitat for a variety of species, including several special-status plants and wildlife. The ephemeral drainages occurring throughout the Project site drain into adjacent agricultural canals and/or into the tributaries to the Sisquoc River; however, the majority of the drainages are dry and, due to sandy soil conditions, do not hold water for very long after rainfall.

The natural gas pipeline extends west from the Project site, following existing roadways of steep to moderate grades along Cat Canyon Road, Dominion Road, and Clark Avenue to the SoCal Gas terminal along Graciosa Road. The route parallels vineyards, rangeland, agriculture, and residential and business developments.

## 3.1 PLANT COMMUNITIES

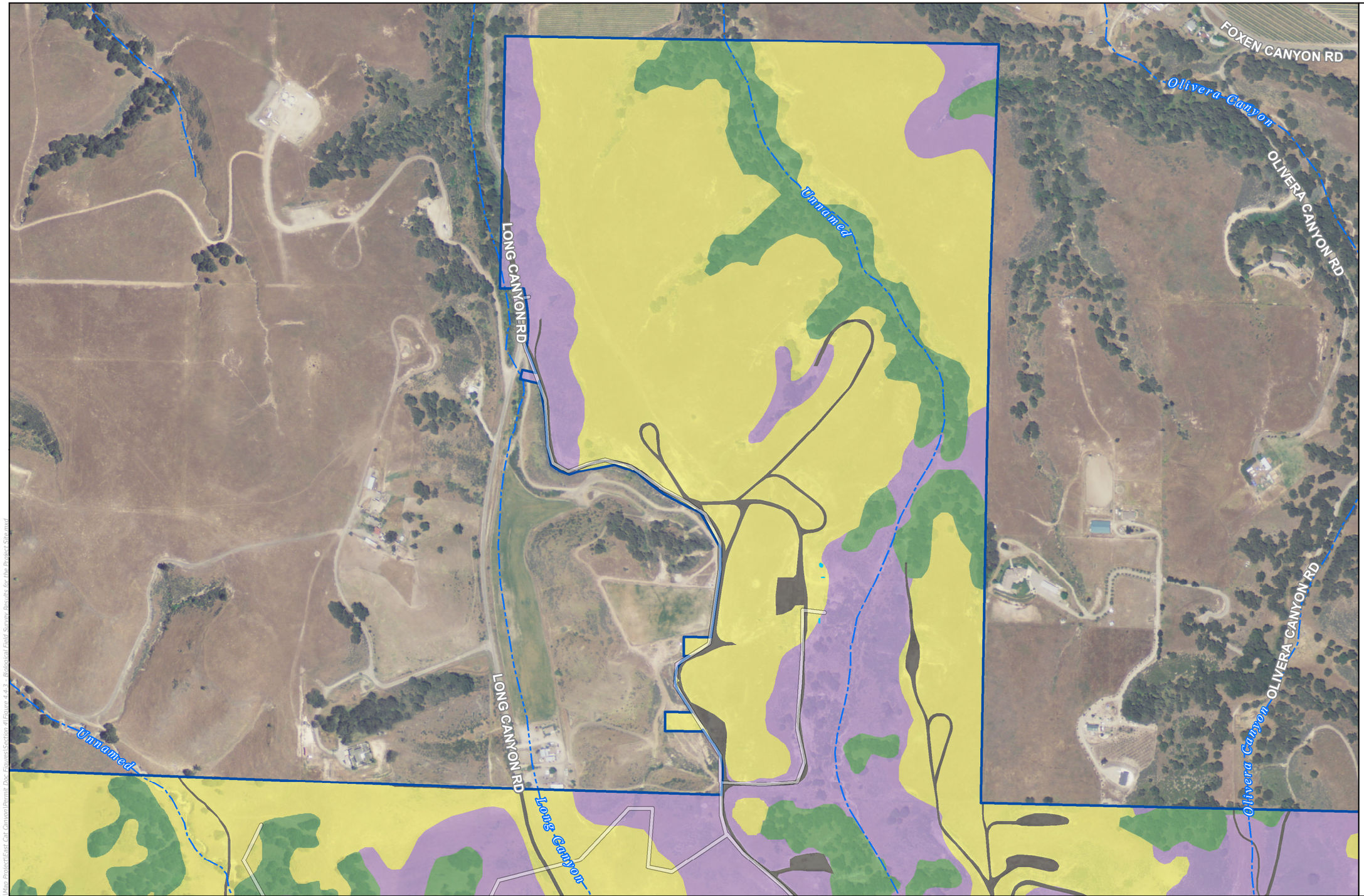
Plant communities within the Project site were identified and documented during comprehensive biological resources surveys conducted by Padre in 2013 and 2014 (Padre Associates, 2015a). Vegetation types identified during the surveys were classified based on the California Native Plant Society's (CNPS) *A Manual of California Vegetation, Second Edition* (Sawyer et al., 2009) (MCVII) and *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland, 1986), as appropriate. Further, in conjunction with MCVII, the CNPS and CDFW *Protocol for Combined Vegetation Rapid Assessment and Relevè Sampling* (VRAP) (version May 13, 2011) was utilized during the field surveys to classify the vegetation types within Project site.

Based on species composition, life form, and community membership rules, the vegetation identified within the Project site can be classified into eight distinct plant communities (i.e., alliances, associations) as described in Sawyer et al., 2009 (Table 3-1 and Figure 3). These plant

communities include the following: western rush marshes, annual grassland, California coffeeberry scrub, California coastal scrub, red willow thickets, arroyo willow thicket, coast live oak woodland, eucalyptus groves, ornamental, agricultural, and previously disturbed habitat.

**Table 3-1. Summary of Existing Plant Communities**

| Plant Community | Acres |
|---|---|
| Western Rush Marshes | 0.53 |
| Annual Grassland | 619.29 |
| California Coffeeberry Scrub | 0.64 |
| California Coastal Scrub | 1,151.46 |
| Arroyo Willow Thickets | 8.13 |
| Red Willow Thickets | 2.18 |
| Coast Live Oak Woodland | 492.08 |
| Eucalyptus Groves | 9.92 |
| Ornamental | 14.89 |
| Previously Disturbed | 253.95 |
| Agricultural | 69.98 |




LEGEND:

- Biological Survey Area (BSA)
- Project Footprint
- Rapid Assessment and/or Releve Data Point
- Ephemeral Wetland Depression (2/2013)
- Hydrographic Feature

**Wildlife Observation**

- Americal kestrel nest
- Red-tailed hawk nest
- Common raven nest
- Golden eagle
- Rufous-crowned sparrow
- American badger

**Special Status Species**

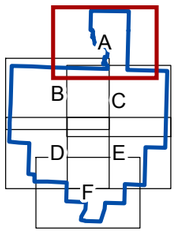
- Straight-awned spinefllower

**Vegetation Community**

- Annual grasslands
- California coastal scrub
- California coffee berry scrub
- Coast live oak woodland
- Eucalyptus groves
- Previously Disturbed/Developed
- Red willow thicket
- Western rush marsh

N

FIGURE INDEX:




0 250 500
FEET

Source: NAIP 2012 Image, County of Santa Barbara, DPSI 2013, TJ Cross 8/20/2014
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposes only

PROJECT NAME: EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT

PROJECT NUMBER: 1002-0455

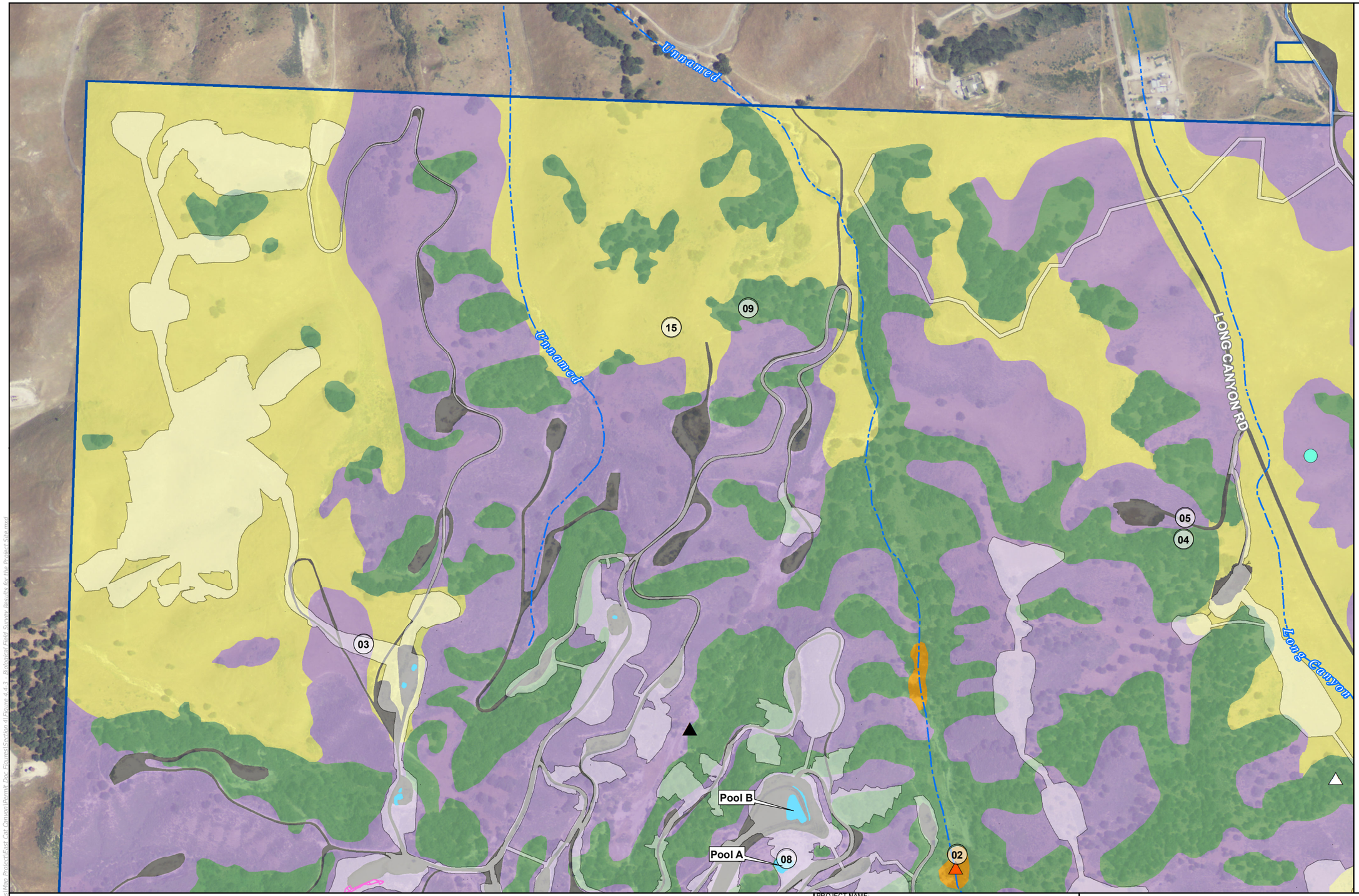
DATE: August 2015

# BIOLOGICAL FIELD SURVEY RESULTS FOR THE PROJECT SITE

FIGURE 3-1A

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Permit Doc Figures\Section 4\Figure 4-4.2 - Biological Field Survey Results for the Project Site.mxd

PAGE INTENTIONALLY LEFT BLANK




LEGEND:

- Biological Survey Area (BSA)
- Project Footprint
- Rapid Assessment and/or Releve Data Point
- Ephemeral Wetland Depression (2/2013)
- Hydrographic Feature

**Wildlife Observation**

- Americal kestrel nest
- Red-tailed hawk nest
- Common raven nest
- Golden eagle
- Rufous-crowned sparrow
- American badger

**Special Status Species**

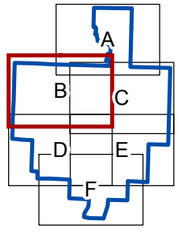
- Straight-awned spinefllower

**Vegetation Community**

- Annual grasslands
- California coastal scrub
- California coffee berry scrub
- Coast live oak woodland
- Eucalyptus groves
- Previously Disturbed/Developed
- Red willow thicket
- Western rush marsh

N

FIGURE INDEX:




0 250 500
FEET

Source: NAIP 2012 Image, County of Santa Barbara, DPSI 2013, TJ Cross 8/20/2014
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposes only

PROJECT NAME: EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT

PROJECT NUMBER: 1002-0455

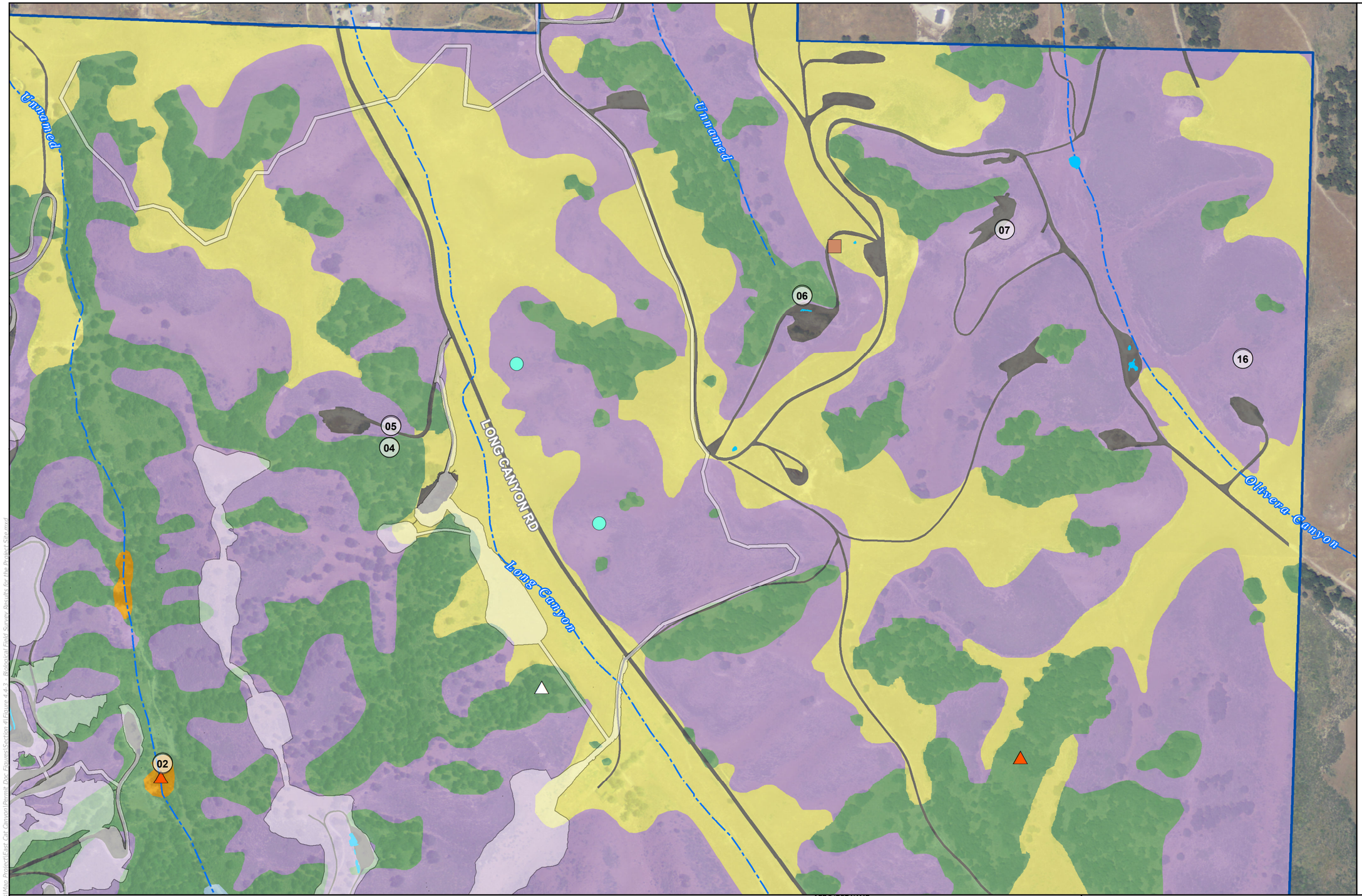
DATE: August 2015

# BIOLOGICAL FIELD SURVEY RESULTS FOR THE PROJECT SITE

FIGURE 3-1B

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Permit Doc Figures\Section 4\Figure 4.4.3_Biological Field Survey Results for the Project Site.mxd

PAGE INTENTIONALLY LEFT BLANK




LEGEND:

- Biological Survey Area (BSA)
- Project Footprint
- Rapid Assessment and/or Releve Data Point
- Ephemeral Wetland Depression (2/2013)
- Hydrographic Feature

**Wildlife Observation**

- Americal kestrel nest
- Red-tailed hawk nest
- Common raven nest
- Golden eagle
- Rufous-crowned sparrow
- American badger

**Special Status Species**

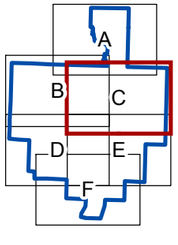
- Straight-awned spinefllower

**Vegetation Community**

- Annual grasslands
- California coastal scrub
- California coffee berry scrub
- Coast live oak woodland
- Eucalyptus groves
- Previously Disturbed/Developed
- Red willow thicket
- Western rush marsh

N

FIGURE INDEX:




0 250 500
FEET

Source: NAIP 2012 Image, County of Santa Barbara, DPSI 2013, TJ Cross 8/20/2014
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposes only

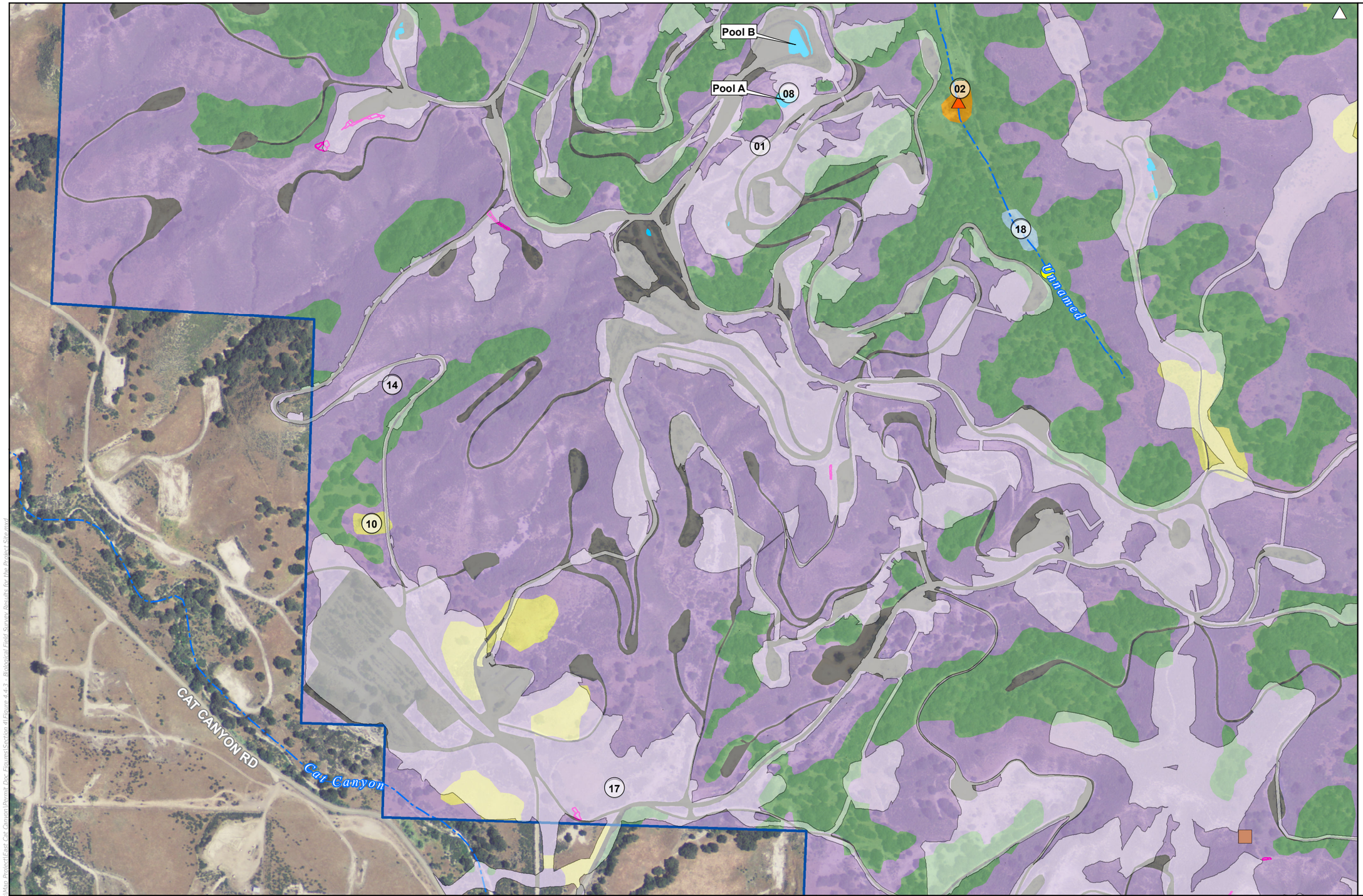
| PROJECT NAME: | | |
|---|---|---|
| EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT | | |
| PROJECT NUMBER: 1002-0455 | DATE: August 2015 | |

# BIOLOGICAL FIELD SURVEY RESULTS FOR THE PROJECT SITE

FIGURE 3-1C

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Permit Doc Figures\Section 4\Figure 4.4-3_Biological Field Survey Results for the Project Site.mxd

PAGE INTENTIONALLY LEFT BLANK




LEGEND:

- Biological Survey Area (BSA)
- Project Footprint
- Rapid Assessment and/or Releve Data Point
- Ephemeral Wetland Depression (2/2013)
- Hydrographic Feature

**Wildlife Observation**

- Americal kestrel nest
- Red-tailed hawk nest
- Common raven nest
- Golden eagle
- Rufous-crowned sparrow
- American badger

**Special Status Species**

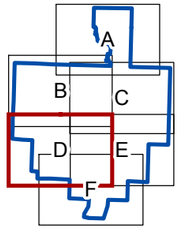
- Straight-awned spinefflower

**Vegetation Community**

- Annual grasslands
- California coastal scrub
- California coffee berry scrub
- Coast live oak woodland
- Eucalyptus groves
- Previously Disturbed/Developed
- Red willow thicket
- Western rush marsh

N

FIGURE INDEX:




0 250 500
FEET

Source: NAIP 2012 Image, County of Santa Barbara, DPSI 2013, TJ Cross 8/20/2014
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposes only

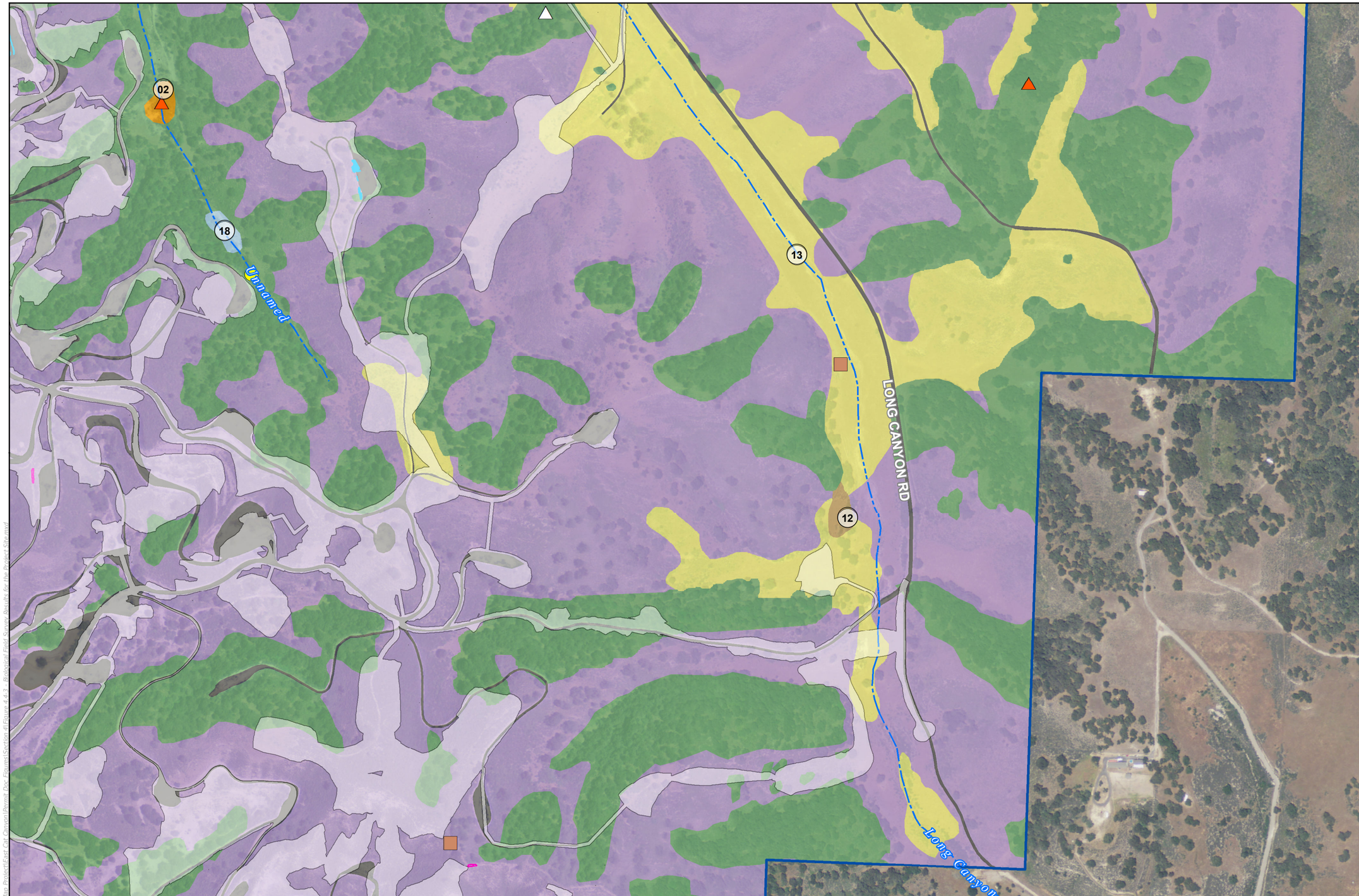
| PROJECT NAME: | | |
|---|---|---|
| EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT | | |
| PROJECT NUMBER: 1002-0455 | DATE: August 2015 | |

BIOLOGICAL FIELD SURVEY RESULTS FOR THE PROJECT SITE

FIGURE 3-1D

Z:\Kristin\GIS Maps\Map_Project\East Cat Canyon\Permit Doc Figures\Section 4\Figure 4.4-3_Biological Field Survey Results for the Project Site.mxd

PAGE INTENTIONALLY LEFT BLANK




LEGEND:

- Biological Survey Area (BSA)
- Project Footprint
- Rapid Assessment and/or Releve Data Point
- Ephemeral Wetland Depression (2/2013)
- Hydrographic Feature

**Wildlife Observation**

- Americal kestrel nest
- Red-tailed hawk nest
- Common raven nest
- Golden eagle
- Rufous-crowned sparrow
- American badger

**Special Status Species**

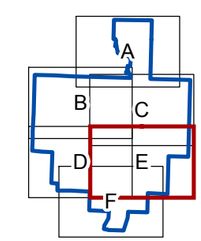
- Straight-awned spinefflower

**Vegetation Community**

- Annual grasslands
- California coastal scrub
- California coffee berry scrub
- Coast live oak woodland
- Eucalyptus groves
- Previously Disturbed/Developed
- Red willow thicket
- Western rush marsh

N

FIGURE INDEX:




0 250 500
FEET

Source: NAIP 2012 Image, County of Santa Barbara, DPSI 2013, TJ Cross 8/20/2014
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposes only

PROJECT NAME: EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT

PROJECT NUMBER: 1002-0455

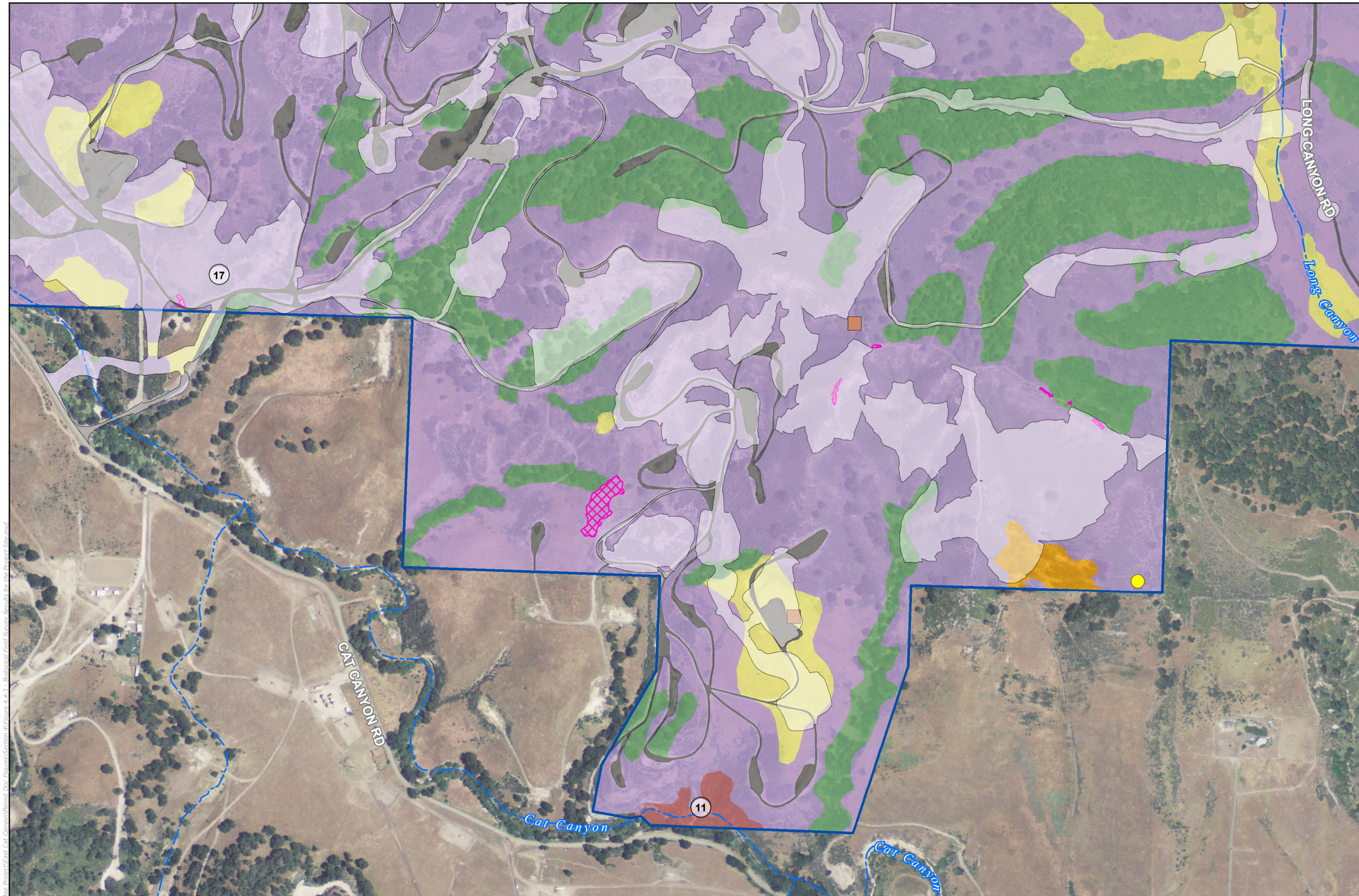
DATE: August 2015

# BIOLOGICAL FIELD SURVEY RESULTS FOR THE PROJECT SITE

FIGURE 3-1E

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Permit Doc Figures\Section 4\Figure 4.4.3 - Biological Field Survey Results for the Project Site.mxd

PAGE INTENTIONALLY LEFT BLANK




LEGEND:

- Biological Survey Area (BSA)
- Project Footprint
- Rapid Assessment and/or Releve Data Point
- Ephemeral Wetland Depression (2/2013)
- Hydrographic Feature

**Wildlife Observation**

- Americal kestrel nest
- Red-tailed hawk nest
- Common raven nest
- Golden eagle
- Rufous-crowned sparrow
- American badger

**Special Status Species**

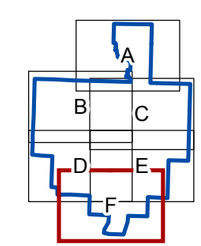
- Straight-awned spinefflower

**Vegetation Community**

- Annual grasslands
- California coastal scrub
- California coffee berry scrub
- Coast live oak woodland
- Eucalyptus groves
- Previously Disturbed/Developed
- Red willow thicket
- Western rush marsh

N

FIGURE INDEX:




0 250 500
FEET

Source: NAIP 2012 Image, County of Santa Barbara, DPSI 2013, TJ Cross 8/20/2014
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposes only

PROJECT NAME: EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT

PROJECT NUMBER: 1002-0455

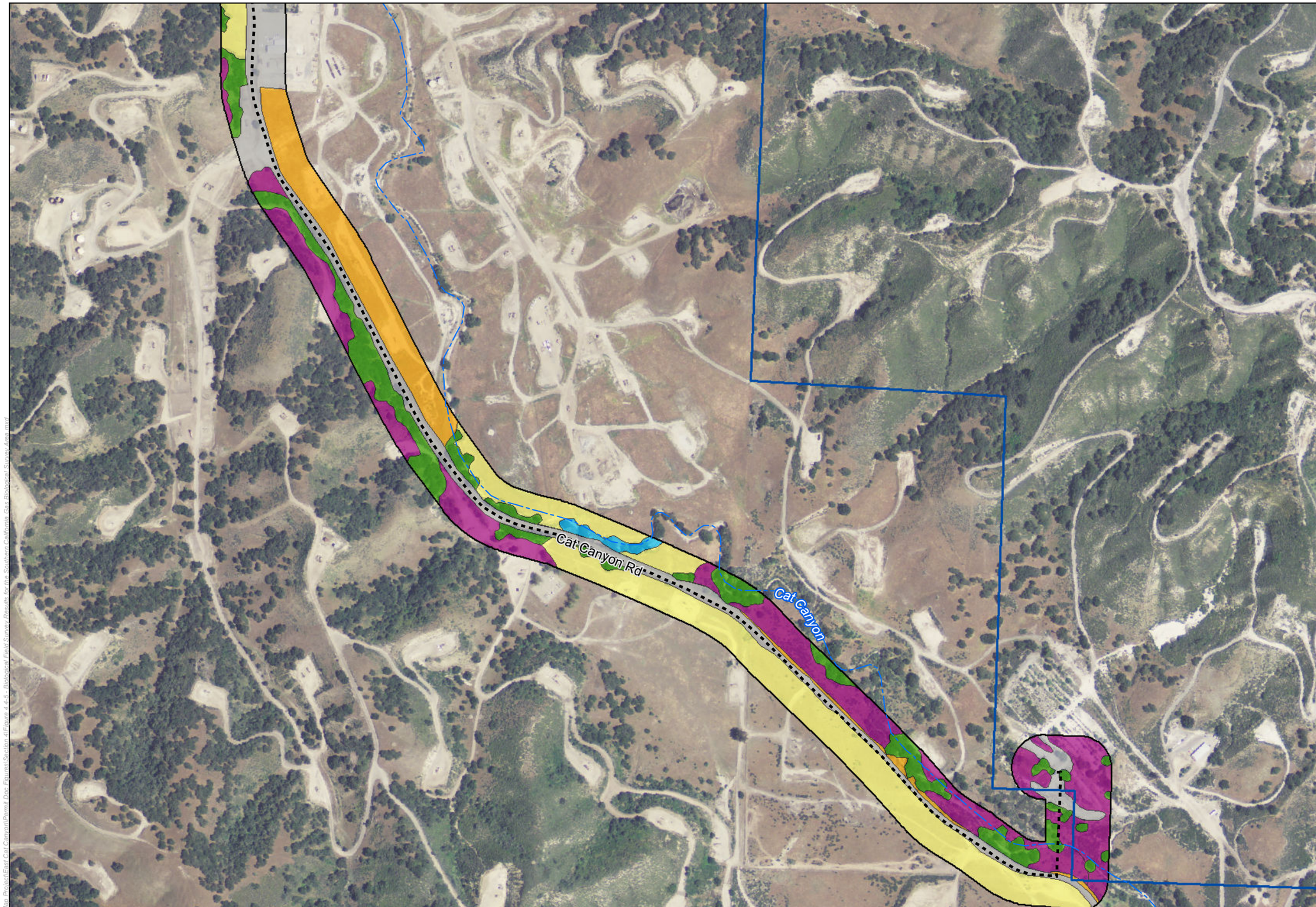
DATE: August 2015

# BIOLOGICAL FIELD SURVEY RESULTS FOR THE PROJECT SITE

FIGURE 3-1F

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Permit Doc Figures\Section 4\Figure 4.4.3_ Biological Field Survey Results for the Project Site.mxd

PAGE INTENTIONALLY LEFT BLANK




N

LEGEND:

- Biological Survey Area
- Natural Gas Import Pipeline Route
- Aera Energy LLC Property
- Hydrological Feature

Vegetation Type

- Agricultural
- Annual Brome Grasslands
- Arroyo Willow Thickets
- Coast Live Oak Woodland
- Coyote Brush Scrub
- Developed
- Drainage Feature
- Eucalyptus Groves
- Ornamental
- Ruderal

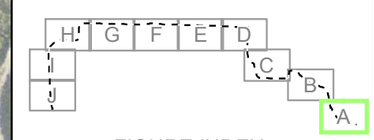



FIGURE INDEX

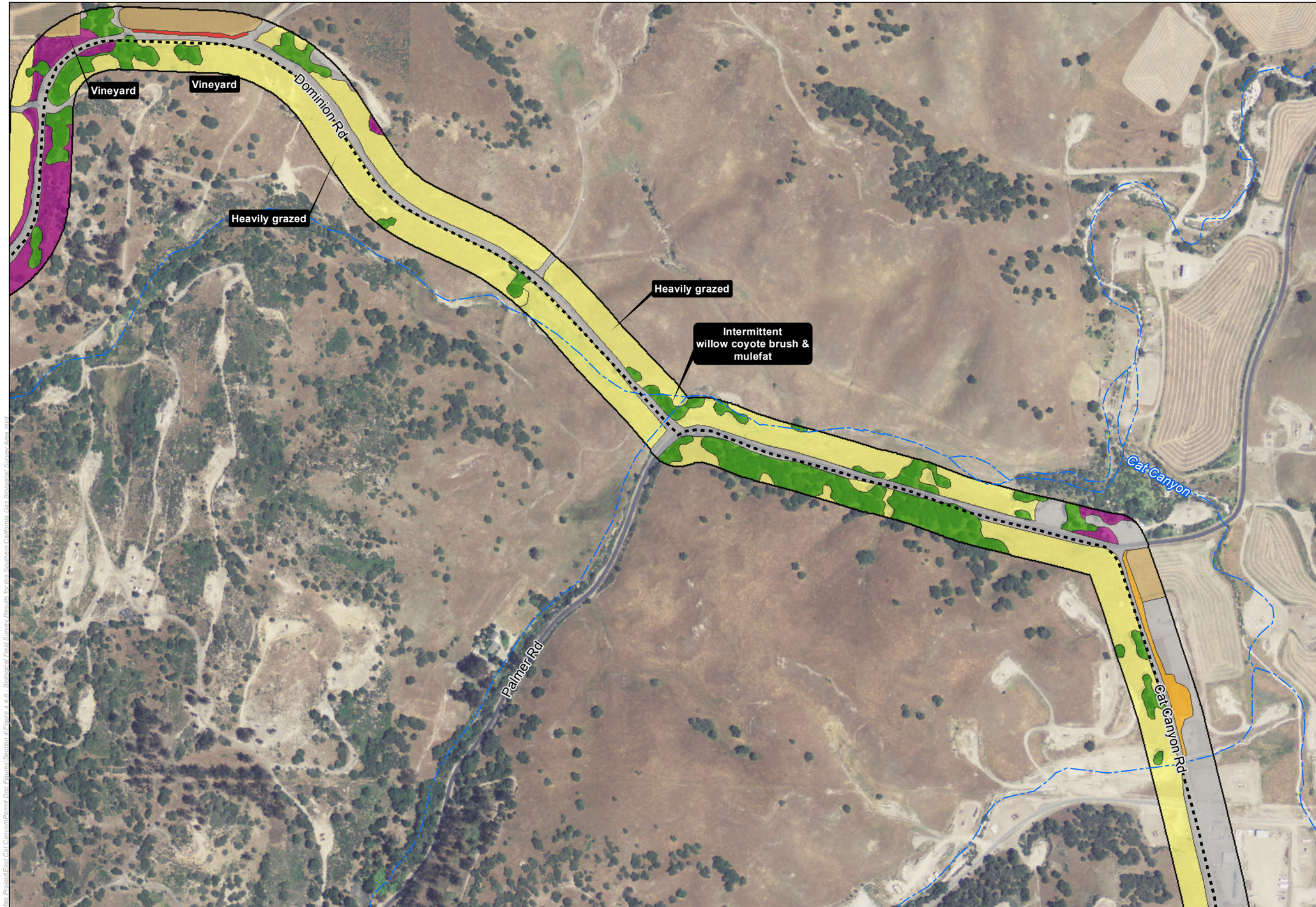
0 250 500
FEET

Source: Santa Barbara County, NAIP 2012 Image, Spec Services
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposes only

| PROJECT NAME: | | BIOLOGICAL FIELD SURVEY RESULTS FOR THE SOUTHERN CALIFORNIA GAS BIOLOGICAL SURVEY AREA | FIGURE |
|---|---|---|---|
| EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT | | | 3-2A |
| PROJECT NUMBER: 1002-0455 | DATE: September 2014 | | |

Z:\Kristin\GIS_Maps\Map Project\East Cat Canyon\Permit Doc Figures\Section 4\Figures 4-4-5_Biological Field Survey Results for the Southern California Gas Biological Survey Area.mxd

PAGE INTENTIONALLY LEFT BLANK




N

LEGEND:

- Biological Survey Area
- Natural Gas Import Pipeline Route
- Aera Energy LLC Property
- Hydrological Feature

Vegetation Type

- Agricultural
- Annual Brome Grasslands
- Arroyo Willow Thickets
- Coast Live Oak Woodland
- Coyote Brush Scrub
- Developed
- Drainage Feature
- Eucalyptus Groves
- Ornamental
- Ruderal

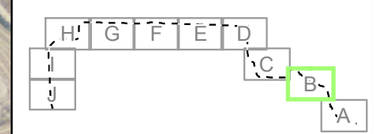



FIGURE INDEX

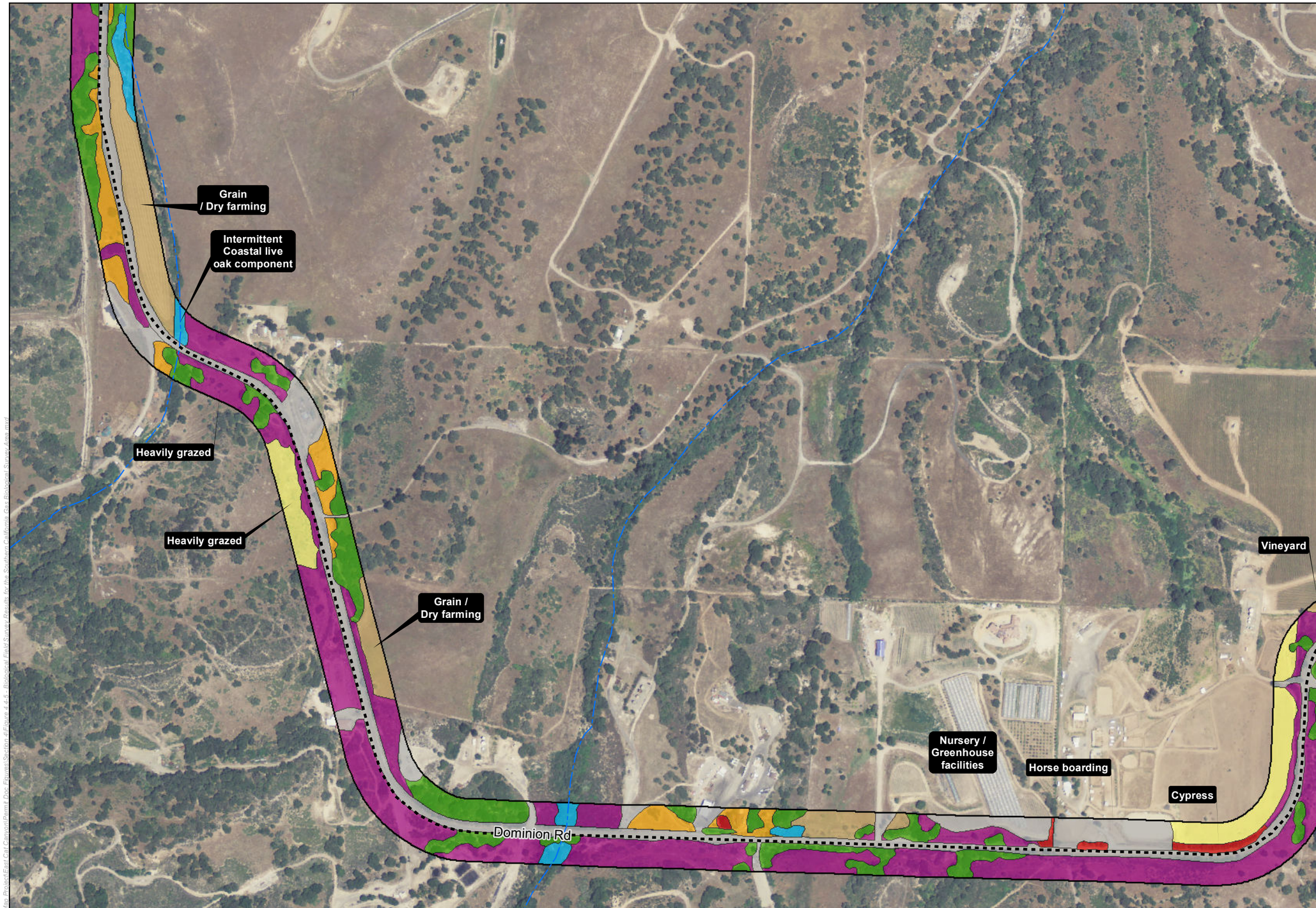
0 250 500
FEET

Source: Santa Barbara County, NAIP 2012 Image, Spec Services
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposes only

| PROJECT NAME: | | BIOLOGICAL FIELD SURVEY RESULTS FOR THE SOUTHERN CALIFORNIA GAS BIOLOGICAL SURVEY AREA | FIGURE |
|---|---|---|---|
| EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT | | | 3-2B |
| PROJECT NUMBER: 1002-0455 | DATE: September 2014 | | |

Z:\Kristin\GIS Map\Map Project\East Cat Canyon\Permit Doc Figures\Section 4\Figure 4-5_Biological Field Survey Results for the Southern California Gas

PAGE INTENTIONALLY LEFT BLANK




N

LEGEND:

- Biological Survey Area
- Natural Gas Import Pipeline Route
- Aera Energy LLC Property
- Hydrological Feature

Vegetation Type

- Agricultural
- Annual Brome Grasslands
- Arroyo Willow Thickets
- Coast Live Oak Woodland
- Coyote Brush Scrub
- Developed
- Drainage Feature
- Eucalyptus Groves
- Ornamental
- Ruderal

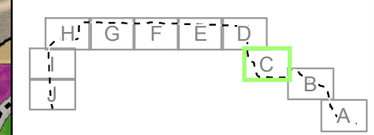


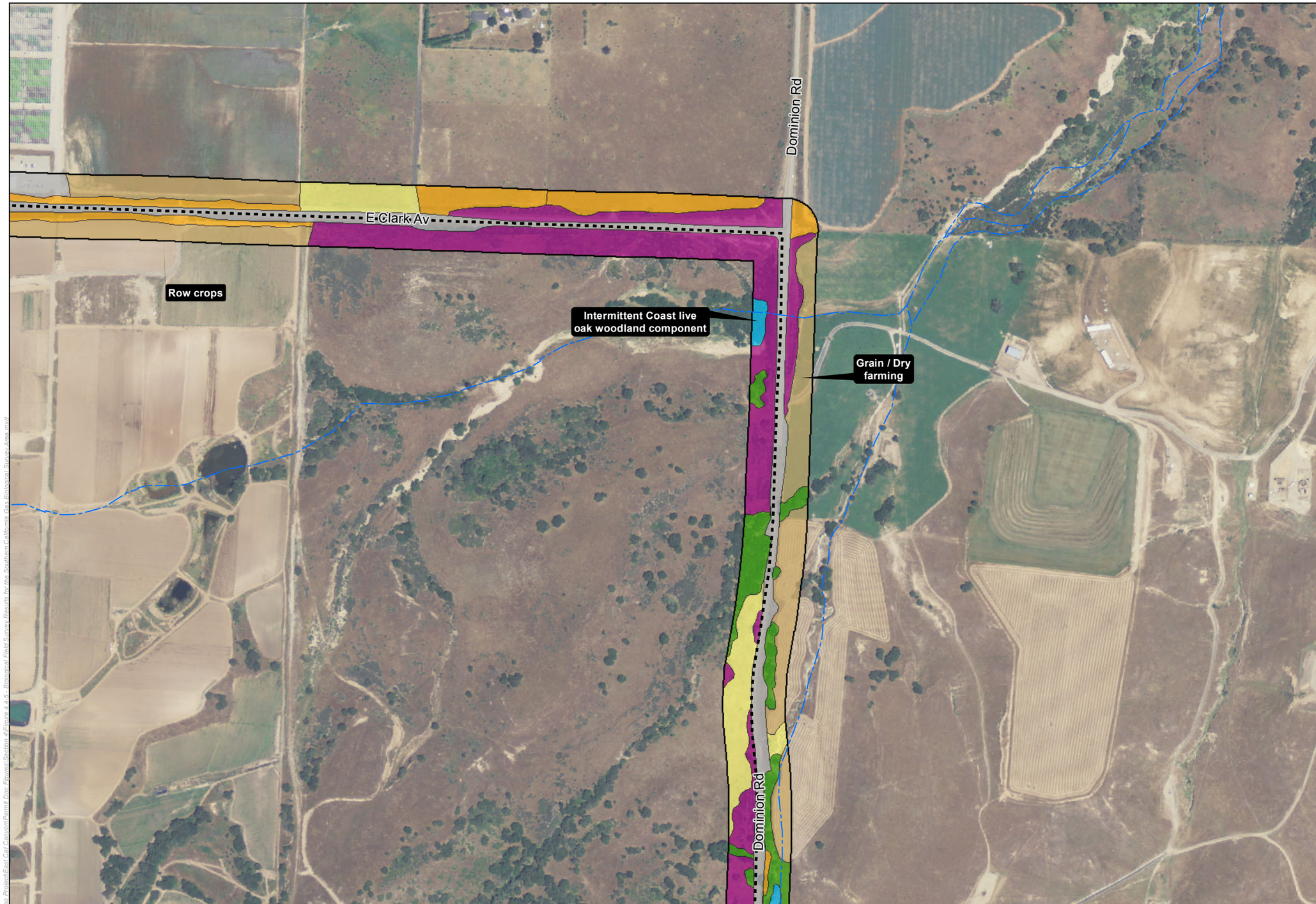

FIGURE INDEX

0 250 500
FEET

Source: Santa Barbara County, NAIP 2012 Image, Spec Services
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposes only

| PROJECT NAME: | | BIOLOGICAL FIELD SURVEY RESULTS FOR THE SOUTHERN CALIFORNIA GAS BIOLOGICAL SURVEY AREA | FIGURE |
|---|---|---|---|
| EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT | | | 3-2C |
| PROJECT NUMBER: 1002-0455 | DATE: September 2014 | | |

PAGE INTENTIONALLY LEFT BLANK




N

LEGEND:

- Biological Survey Area
- Natural Gas Import Pipeline Route
- Aera Energy LLC Property
- Hydrological Feature

Vegetation Type

- Agricultural
- Annual Brome Grasslands
- Arroyo Willow Thickets
- Coast Live Oak Woodland
- Coyote Brush Scrub
- Developed
- Drainage Feature
- Eucalyptus Groves
- Ornamental
- Ruderal

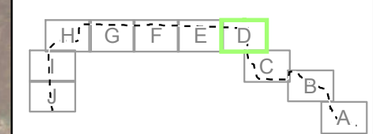



FIGURE INDEX

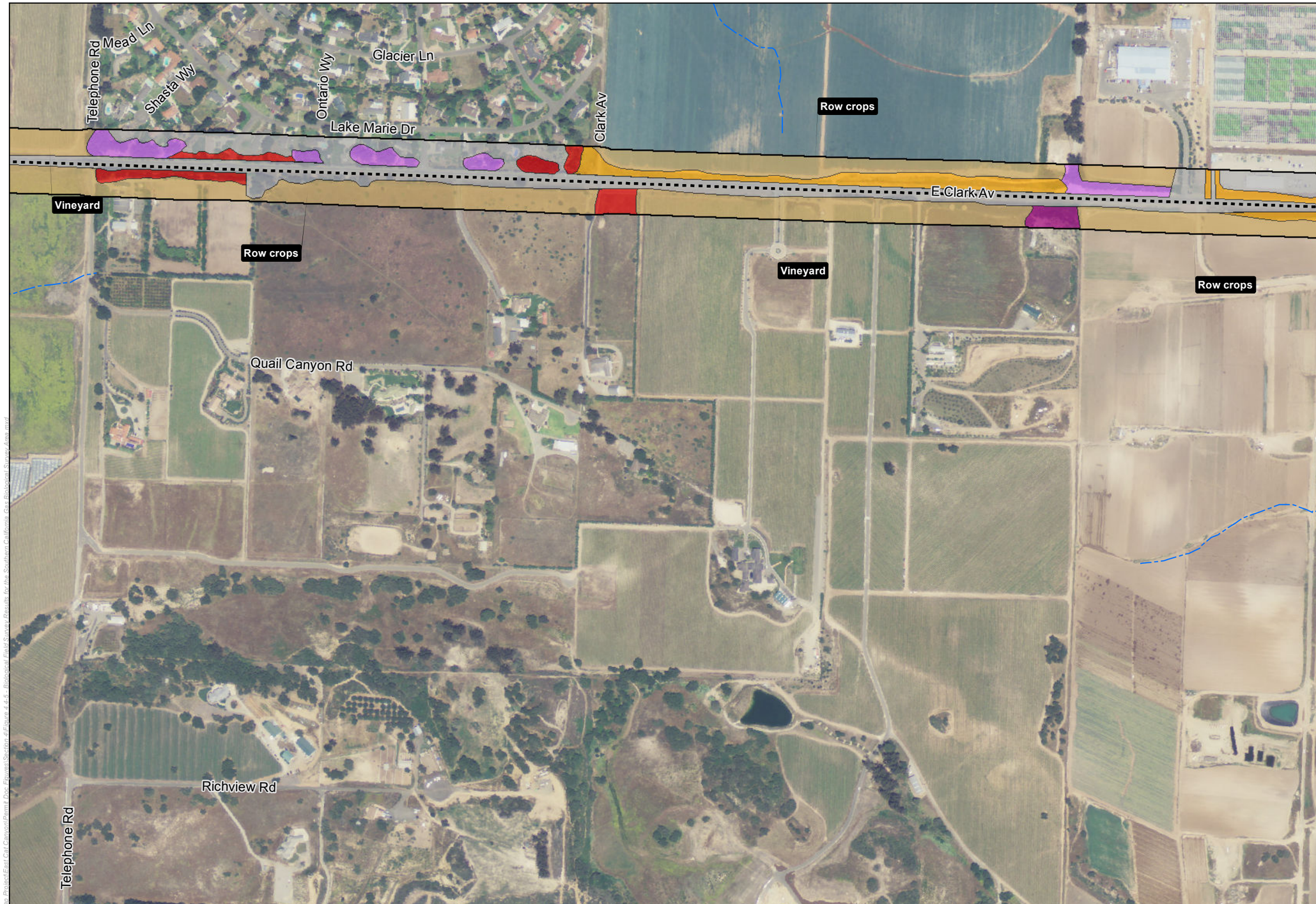
0 250 500
FEET

Source: Santa Barbara County, NAIP 2012 Image, Spec Services
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposes only

| PROJECT NAME: | | BIOLOGICAL FIELD SURVEY RESULTS FOR THE SOUTHERN CALIFORNIA GAS BIOLOGICAL SURVEY AREA | FIGURE |
|---|---|---|---|
| EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT | | | 3-2D |
| PROJECT NUMBER: 1002-0455 | DATE: September 2014 | | |

Z:\Kirstin\GIS Maps\Map Project\East Cat Canyon\Permit Doc Figures\Section 4\Figure 4.4-5_Biological Field Survey Results for the Southern California Gas Biological Survey Area.mxd

PAGE INTENTIONALLY LEFT BLANK




N

LEGEND:

- Biological Survey Area
- Natural Gas Import Pipeline Route
- Aera Energy LLC Property
- Hydrological Feature

Vegetation Type

- Agricultural
- Annual Brome Grasslands
- Arroyo Willow Thickets
- Coast Live Oak Woodland
- Coyote Brush Scrub
- Developed
- Drainage Feature
- Eucalyptus Groves
- Ornamental
- Ruderal

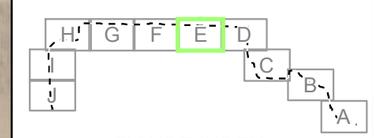


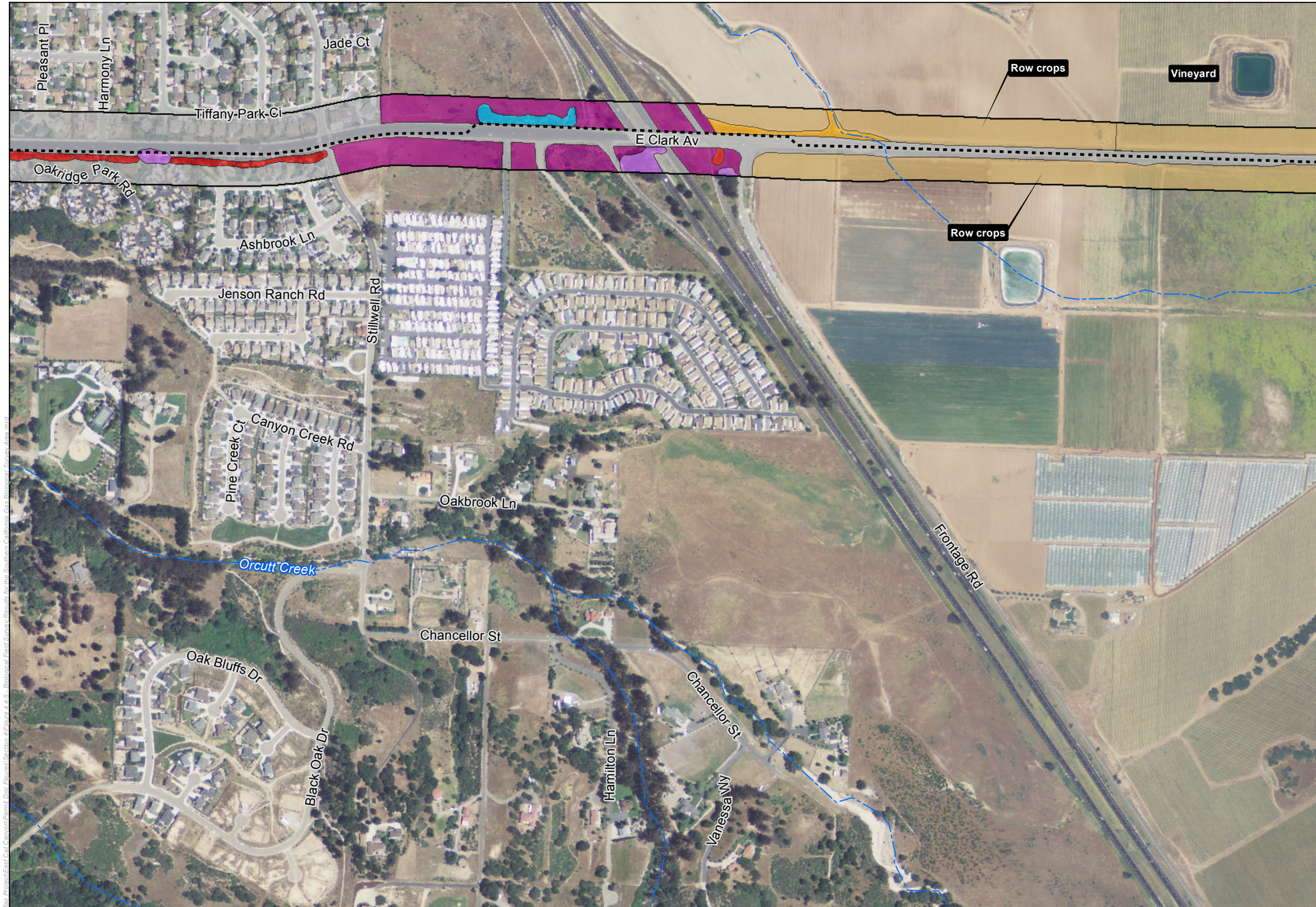

FIGURE INDEX

0 250 500
FEET

Source: Santa Barbara County, NAIP 2012 Image, Spec Services
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposes only

| PROJECT NAME: EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT | BIOLOGICAL FIELD SURVEY RESULTS FOR THE SOUTHERN CALIFORNIA GAS BIOLOGICAL SURVEY AREA | FIGURE 3-2E |
|---|---|---|
| PROJECT NUMBER: 1002-0455 / DATE: September 2014 | | |

PAGE INTENTIONALLY LEFT BLANK




N

LEGEND:

- Biological Survey Area
- Natural Gas Import Pipeline Route
- Aera Energy LLC Property
- Hydrological Feature

Vegetation Type

- Agricultural
- Annual Brome Grasslands
- Arroyo Willow Thickets
- Coast Live Oak Woodland
- Coyote Brush Scrub
- Developed
- Drainage Feature
- Eucalyptus Groves
- Ornamental
- Ruderal

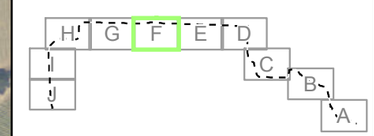


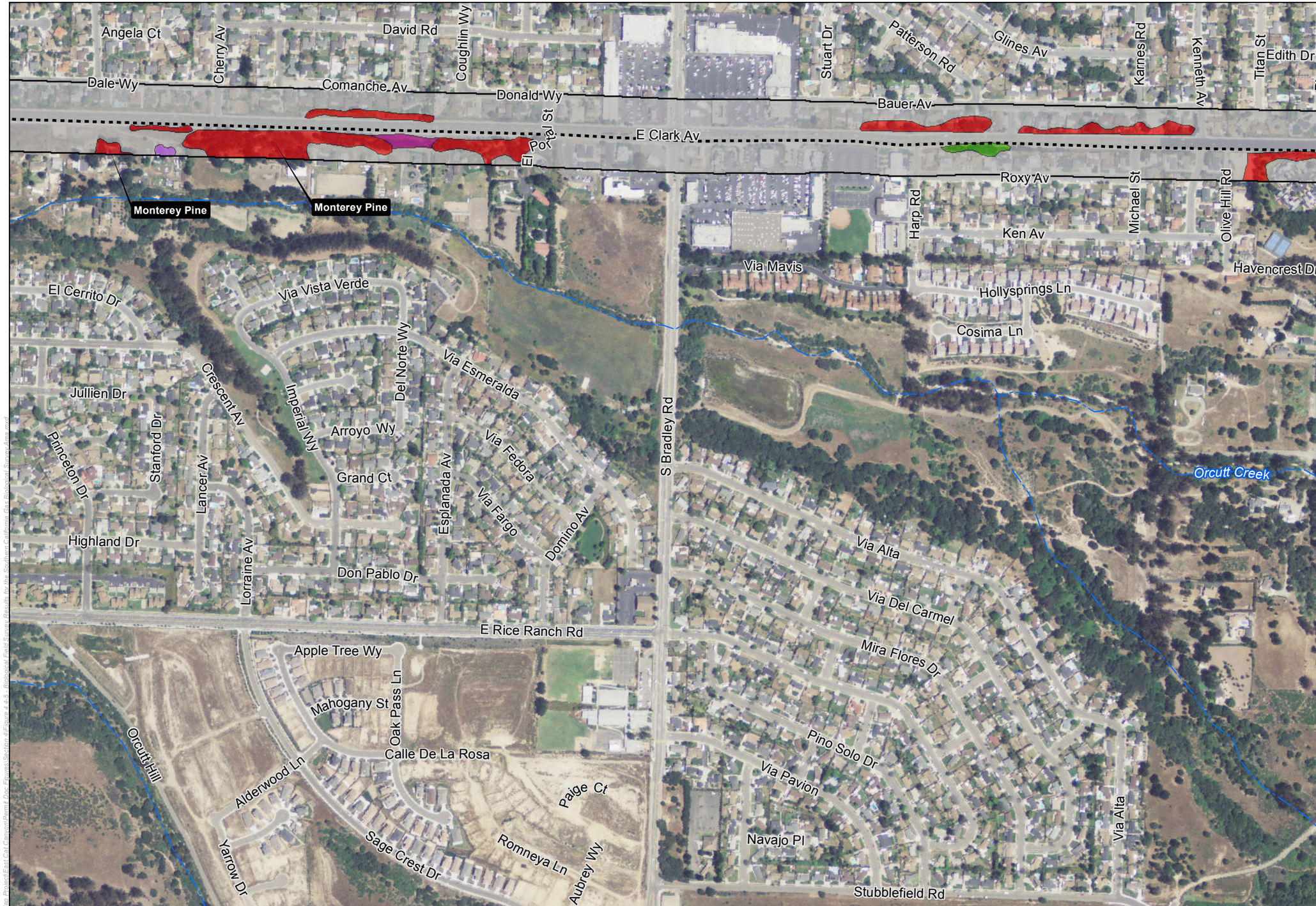

FIGURE INDEX

0 250 500
FEET

Source: Santa Barbara County, NAIP 2012 Image, Spec Services
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposes only

| PROJECT NAME: EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT | BIOLOGICAL FIELD SURVEY RESULTS FOR THE SOUTHERN CALIFORNIA GAS BIOLOGICAL SURVEY AREA | FIGURE 3-2F |
|---|---|---|
| PROJECT NUMBER: 1002-0455 / DATE: September 2014 | | |

PAGE INTENTIONALLY LEFT BLANK




N

LEGEND:

- Biological Survey Area
- Natural Gas Import Pipeline Route
- Aera Energy LLC Property
- Hydrological Feature

Vegetation Type

- Agricultural
- Annual Brome Grasslands
- Arroyo Willow Thickets
- Coast Live Oak Woodland
- Coyote Brush Scrub
- Developed
- Drainage Feature
- Eucalyptus Groves
- Ornamental
- Ruderal

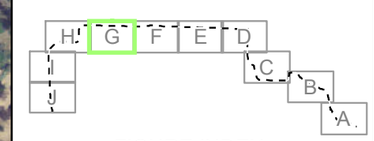



FIGURE INDEX

0 250 500
FEET

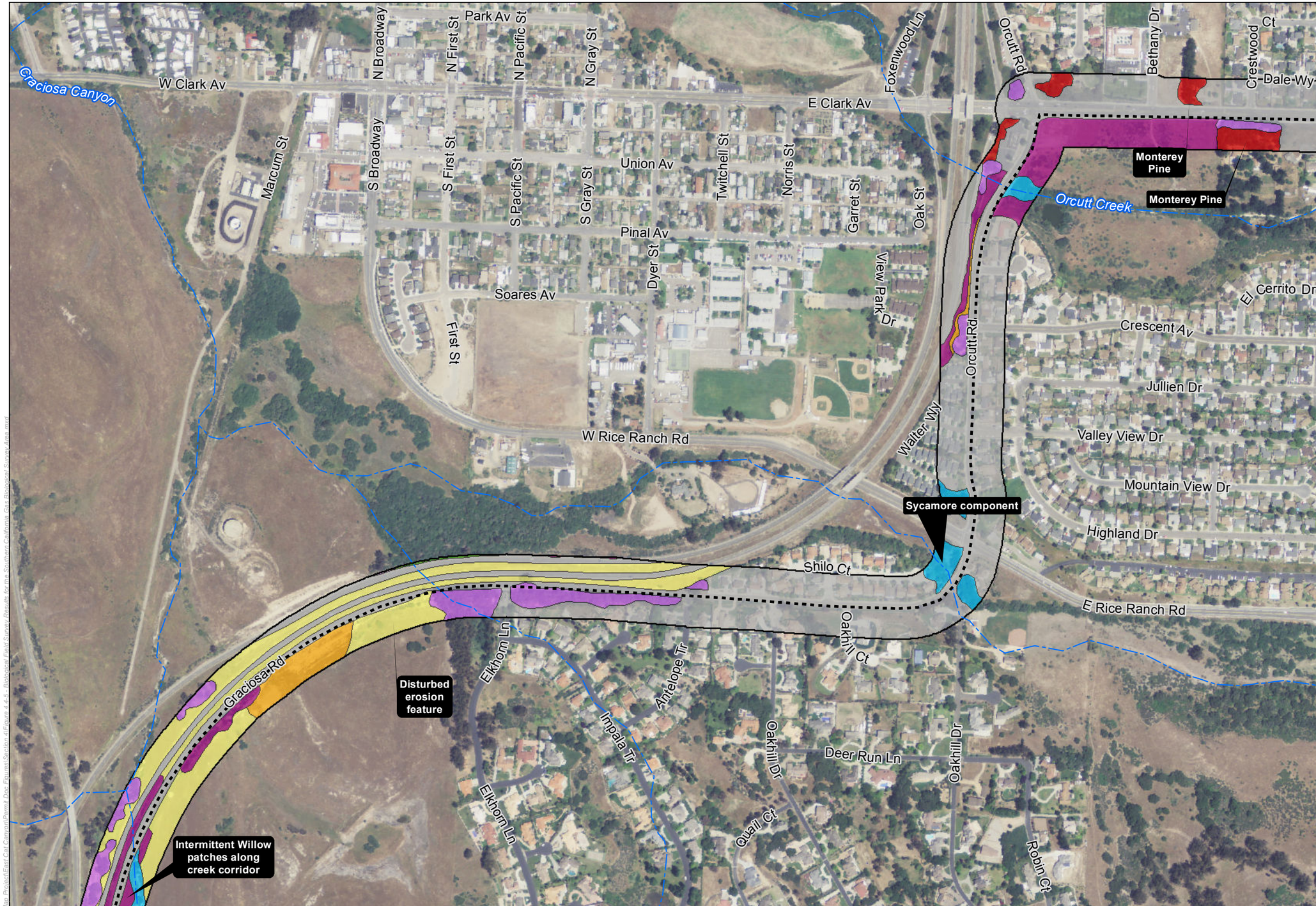
Source: Santa Barbara County, NAIP 2012 Image, Spec Services
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposes only

| PROJECT NAME: | | |
|---|---|---|
| EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT | | |
| PROJECT NUMBER: 1002-0455 | DATE: September 2014 | |

BIOLOGICAL FIELD SURVEY RESULTS FOR THE SOUTHERN CALIFORNIA GAS BIOLOGICAL SURVEY AREA

FIGURE 3-2G

PAGE INTENTIONALLY LEFT BLANK




N

LEGEND:

- Biological Survey Area
- Natural Gas Import Pipeline Route
- Aera Energy LLC Property
- Hydrological Feature

Vegetation Type

- Agricultural
- Annual Brome Grasslands
- Arroyo Willow Thickets
- Coast Live Oak Woodland
- Coyote Brush Scrub
- Developed
- Drainage Feature
- Eucalyptus Groves
- Ornamental
- Ruderal

H G F E D C B A

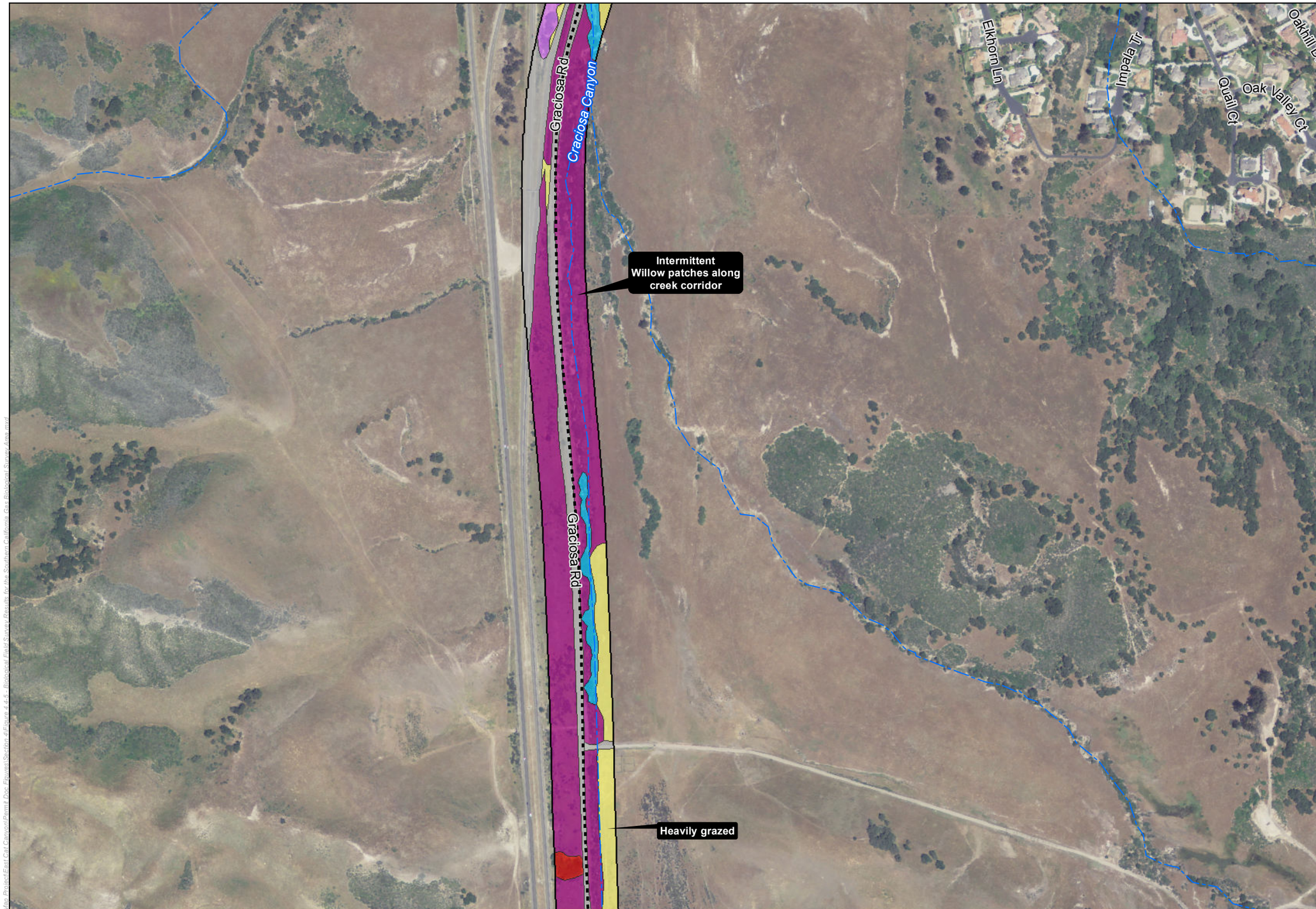
FIGURE INDEX

0 250 500
FEET

Source: Santa Barbara County, NAIP 2012 Image, Spec Services
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposes only

| PROJECT NAME: EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT | BIOLOGICAL FIELD SURVEY RESULTS FOR THE SOUTHERN CALIFORNIA GAS BIOLOGICAL SURVEY AREA | FIGURE 3-2H |
|---|---|---|
| PROJECT NUMBER: 1002-0455 / DATE: September 2014 | | |

PAGE INTENTIONALLY LEFT BLANK




N

LEGEND:

- Biological Survey Area
- Natural Gas Import Pipeline Route
- Aera Energy LLC Property
- Hydrological Feature

Vegetation Type

- Agricultural
- Annual Brome Grasslands
- Arroyo Willow Thickets
- Coast Live Oak Woodland
- Coyote Brush Scrub
- Developed
- Drainage Feature
- Eucalyptus Groves
- Ornamental
- Ruderal

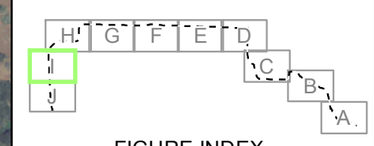



FIGURE INDEX

0 250 500
FEET

Source: Santa Barbara County, NAIP 2012 Image, Spec Services
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposes only

PROJECT NAME: EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT

PROJECT NUMBER: 1002-0455

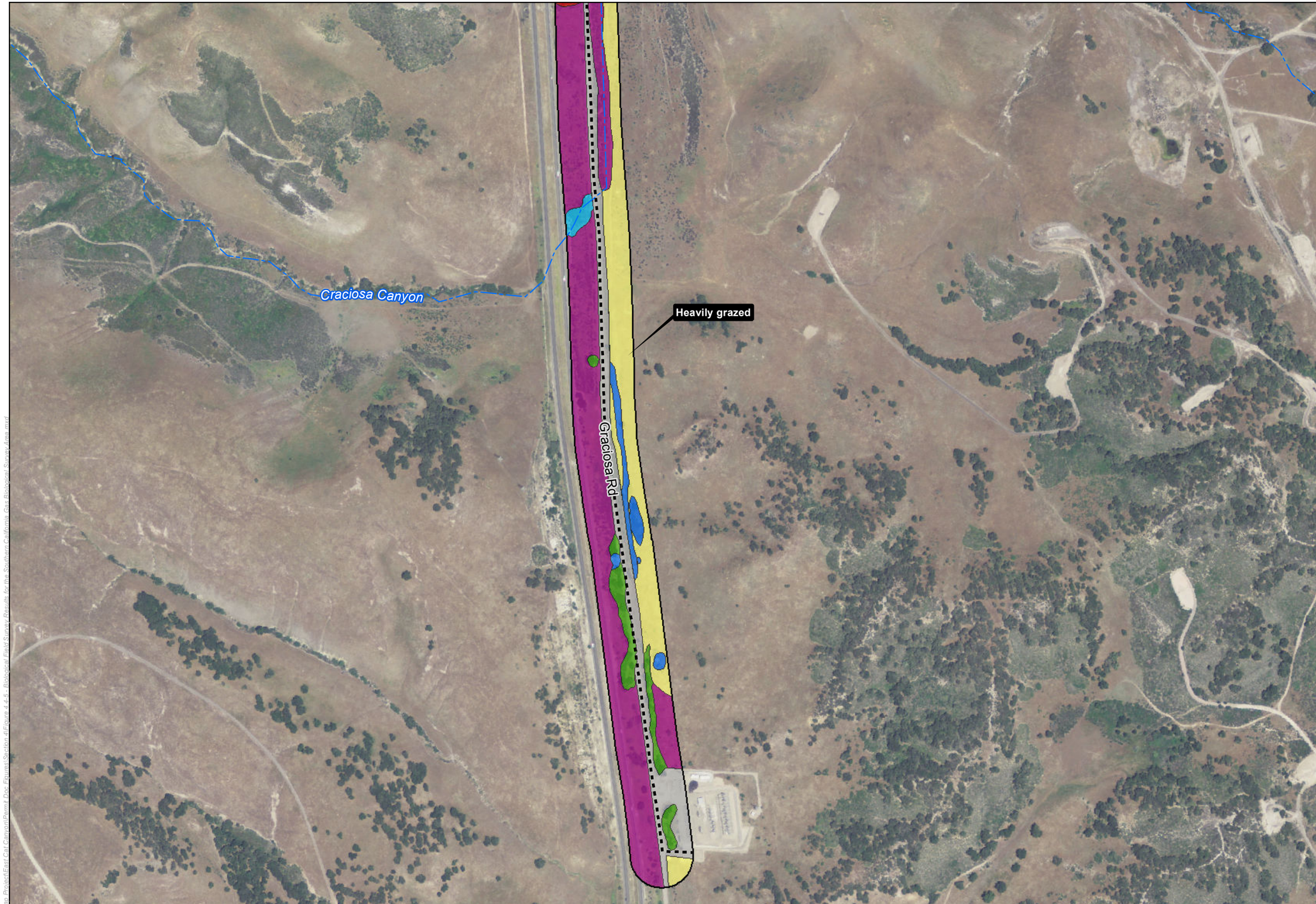
DATE: September 2014

BIOLOGICAL FIELD SURVEY RESULTS FOR THE SOUTHERN CALIFORNIA GAS BIOLOGICAL SURVEY AREA

FIGURE 3-2I

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Permit Doc Figures\Section 4\Figure 4.4-5_ Biological Field Survey Results for the Southern California Gas Biological Survey Area.mxd

PAGE INTENTIONALLY LEFT BLANK




N

LEGEND:

- Biological Survey Area
- Natural Gas Import Pipeline Route
- Aera Energy LLC Property
- Hydrological Feature

Vegetation Type

- Agricultural
- Annual Brome Grasslands
- Arroyo Willow Thickets
- Coast Live Oak Woodland
- Coyote Brush Scrub
- Developed
- Drainage Feature
- Eucalyptus Groves
- Ornamental
- Ruderal

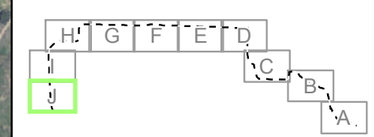



FIGURE INDEX

0 250 500
FEET

Source: Santa Barbara County, NAIP 2012 Image, Spec Services
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposes only

| PROJECT NAME: EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT | | BIOLOGICAL FIELD SURVEY RESULTS FOR THE SOUTHERN CALIFORNIA GAS BIOLOGICAL SURVEY AREA | FIGURE 3-2J |
|---|---|---|---|
| PROJECT NUMBER: 1002-0455 | DATE: September 2014 | | |

Z:\Kirsten\GIS Maps\Maps Project\East Cat Canyon\Permit Doc Figures\Section 4\Figure 4.4-5_Biological Field Survey Results for the Southern California Gas Biological Survey Area.mxd

PAGE INTENTIONALLY LEFT BLANK

Biological Survey Area
Proposed 115kV Service Line
Aera Energy LLC Property
Hydrological Feature

**Vegetation Type**
Annual Brome Grasslands
Coast Live Oak Woodland
Coyote Brush Scrub
Developed
Blue Gum Tree (*Eucalyptus globulus*)
Ruderal
Coyote Brush Scrub and California Walnut (*Juglans californica*)
Coyote Brush Scrub and Peppertree (*Schinus molle*)

*Source: County of Santa Barbara, NAIP 2012, PGE, Aera Energy LLC 1-20-13 drawing, DPSI 2013 Survey*
*Notes: This map was created for informational and display purposes only*

0 200 400
Feet

PROJECT NAME:
EAST CAT CANYON
OIL FIELD REDEVELOPMENT PROJECT

PROJECT NUMBER: 1002-0455
DATE: September 2014

BIOLOGICAL FIELD SURVEY RESULTS FOR THE PACIFIC GAS AND ELECTRIC BIOLOGICAL SURVEY AREA

FIGURE
3-3

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Permit Doc Figures\Section 4\Figure 4.4-4 - Biological Field Survey Results for the Pacific Gas and Electric Biological Survey Area.mxd

PAGE INTENTIONALLY LEFT BLANK

### 3.1.1 Western Rush Marshes

Western rush marsh (*Juncus occidentalis* Provisional Herbaceous Alliance) occurs in seasonally saturated soils on flats, depressions, and/or gentle slopes. This alliance is characterized by spreading rush (*Juncus patens)* as dominant in the herbaceous layer with intermittent to continuous cover (Sawyer et al., 2009). Based on field surveys, western rush marsh was observed at one location within the Project site, in a drainage feature within an opening in coast live oak woodland habitat. A quantitative vegetation assessment identified native and non-native forb and grass species with spreading rush as the dominant species. Component species include ripgut grass (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), miniature lupine (*Lupinus bicolor*), rattail sixweeks grass (*Festuca myuros*), toad rush (*Juncus bufonius*), and several seedling shrub and tree species including coyote brush (*Baccharis pilularis*) and coast live oak (*Quercus agrifolia*). Soils were not saturated, and no pooled water was observed during April 2014 field visits.

### 3.1.2 Annual Grassland

The grasslands within the Project site consist of several native and non-native grass species that transition in dominance in relation to distinct topographical areas (e.g., valleys, flat ridge tops, moderately sloping hillsides, etc.). Field surveys, identified two distinct grassland vegetation types (i.e., MCVII alliances) within the Project site, including annual brome grasslands (*Bromus* (*diandrus, hordeaceus*) – *Brachypodium distachyon* Semi-Natural Herbaceous Stands) and wild oats grasslands (*Avena barbata* and *fatua* Semi-Natural Herbaceous Stands). Component species consist of mostly non-native grasses and include ripgut grass, soft chess, red brome (*Bromus madritensis* sp*. rubens*), tocalote (*Centauria melitensis*), slender wild oat (*Avena barbata*), storksbill (*Erodium botrys*), red-stemmed filaree (*Erodium cicutarium*), and Italian ryegrass (*Festuca perennis*). Additionally, purple needlegrass (*Stipa pulchra*) was observed intermittently throughout the Project site during field surveys.

### 3.1.3 California Coffeeberry Scrub

California coffeeberry scrub (*Frangula californica* Shrubland Alliance) occurs on concave slopes, lower slopes, and along drainages and undulating moderate to steep slopes of sedimentary or serpentine substrates, where soils retain moisture much of the year. This alliance is characterized by California coffeeberry as dominant or co-dominant in the shrub canopy; the canopy is open to continuous and one or two tiered; and the herbaceous layer is open with a high amount of exposed soil and rock (Sawyer et al., 2009). California coffeeberry scrub was observed during field surveys in a small patch adjacent to a shallow ephemeral drainage parallel to Long Canyon Road. The quantitative vegetation assessment identified native shrubs and forbs, with California coffeeberry as the dominant species within this vegetation type. Component species include California sagebrush (*Artemisia californica*), mock heather (*Ericameria ericoides*), coyote brush, coast live oak, and horehound (*Marrubium vulgare*).

### 3.1.4 California Coastal Scrub

The coastal scrub habitat within the Project site consists of several perennial shrub species that transition in dominance in relation to distinct topographical areas (e.g., west facing hillsides, steep slopes, etc.). Field surveys identified four distinct coastal scrub vegetation types (MCVII alliances) within the Project site, including black sage scrub (*Salvia mellifera* Shrubland

Alliance), California sagebrush scrub (*Artemisia californica* Shrubland Alliance), mock heather (*Ericameria ericoides*) stand, and coyote brush scrub (*Baccharis pilularis* Shrubland Alliance).

### 3.1.5 Red Willow Thickets

Red willow thickets (*Salix laevigata* Woodland Alliance) occur in ditches, floodplains, lake edges, or low-gradient depositions along streams. This alliance is characterized by red willow as dominant or co-dominant species in the tree layer; the tree layer is open to intermittent and herbaceous layer is variable (Sawyer et al., 2009). Red willow thickets were observed during field surveys at one location within the southwestern portion of the Project site, in the dry bed of Cat Canyon Creek adjacent to Cat Canyon Road. The quantitative vegetation assessment identified native shrubs with red willow as the dominant species within this vegetation type. Component shrub species include mulefat (*Baccharis salicifolia*), coyote brush, California mugwort (*Artemisia douglasiana*), California everlasting (*Gnaphalium californicum*), and yellow sweet clover (*Melilotus indicus*). Due to the dominance of red willow, this vegetation type is considered riparian habitat, and provided protection as a Natural Community of Special Concern by the CDFW.

### 3.1.6 Arroyo Willow Thickets

Arroyo willow thickets (*Salix lasiolepis* Shrubland Alliance) occur on stream banks and benches, slope seeps, and stringers along drainages. This alliance has an open to continuous canopy. Coyote brush is a dominant or co-dominant species in the shrub or tree canopy (Sawyer *et al.,* 2009). Arroyo willow thickets occurs in patches at several locations within the BSA, in drainages and or creek crossings along Cat Canyon Road, Palmer Road, and Dominion Road, and Graciosa Road. Based on field surveys, this vegetation type is dominated by arroyo willow, with component tree, shrub, forb and grass species including coyote brush, poison oak (*Toxicodendron diversilobum*), scattered coast live oak, blue elderberry (*Sambucus nigra*), and foxtail barley. These thickets occur within the majority of the drainages intersecting the BSA.

### 3.1.7 Coast Live Oak Woodland

Coast live oak woodland (*Quercus agrifolia* Woodland Alliance) occurs on alluvial terraces, canyon bottoms, stream banks, slopes, or flats, with soils that are deep, sandy or loamy with high organic matter. This alliance is characterized by coast live oak as dominant or co-dominant in the tree canopy; canopy is open to continuous, shrub layer is sparse to intermittent, and herbaceous layer is sparse (Sawyer et al., 2009). Coast live oak woodland is particularly important for its ability to support a wide variety of wildlife species due to its high value as foraging habitat and protective cover (e.g., acorn production, forest canopy, etc.). Further, oak woodland is considered to be an environmentally sensitive habitat area by Santa Barbara County.

Coast live oak woodland was identified during field surveys throughout the Project site on all topographic settings, ranging in cover from dense to intermittent. The quantitative vegetation assessments identified native and non-native shrubs, forbs and grasses, with coast live oak as the dominant species within this vegetation type. Component species include Italian thistle (*Carduus pycnocephalus*), ripgut grass (*Bromus diandrus*), slender wild oat (*Avena barbata*), Italian ryegrass (*Festuca perennis*), geranium (*Geranium molle*), miner's lettuce (*Claytonia perfoliata*), woodmint (*Stachys bullata*), poison oak (*Toxicodendron diversilobum*), and California hummingbird sage (*Salvia spathacea*).

### 3.1.8 Eucalyptus Groves

Eucalyptus groves (*Eucalyptus* [*globulus, camaldulensis*] Semi-Natural Woodland Stands) are characterized by gum trees as dominant in the tree canopy; canopy is intermittent, shrub and herbaceous layer is sparse to intermittent (Sawyer et al., 2009). Eucalyptus groves often provide suitable nesting habitat for birds and overwintering habitat for monarch butterflies. Eucalyptus groves were observed during field surveys at two distinct locations in the central portion of the Project site. The quantitative vegetation assessment identified native and non-native trees, forbs, and grasses, with blue gum (*Eucalyptus globulus*) as the dominant species within this vegetation type. Component species include ripgut grass, miner's lettuce, geranium, Italian thistle, California everlasting, and dense leaf litter layer.

### 3.1.9 Ornamental

The term ornamental is used to describe the presence of horticultural species planted as a component of urban and suburban landscape design within the BSA. Ornamental habitat may provide some food and cover for wildlife; however, some ornamental species may be poisonous to wildlife. Ground cover is usually limited in ornamental communities due to allelopathic properties of leaf litter from various ornamental plant species and/or landscape maintenance activities. Based on field surveys, the primary ornamental species observed include Monterey pine, Peruvian peppertree, cypress (*Cupressus* sp.), and eucalyptus.

### 3.1.10 Previously Disturbed

For the purposes of the Project biological resources survey report (Padre Associates, 2015a), "previously disturbed areas" includes developed lands and areas of disturbed habitat. Generally, developed land is a term that describes areas where the land surface has been modified for commercial, residential, industrial, or infrastructure use such as buildings, parking lots, and paved roads. Disturbed habitat is a term used to describe areas that may support uncultivated plants and wildlife but have been significantly altered by land use practices. Developed lands typically do not support vegetative cover due to the presence of impervious surfaces; however, disturbed habitats that are not paved may support vegetative cover. Within the Project site, previously disturbed areas include office facilities, well pads, oil and gas facilities, and paved and unpaved access roads.

### 3.1.11 Agricultural

The term agricultural is used to describe those areas that are currently or recently utilized for rotational row-crops or vineyards. Crop cover can provide suitable habitat for a variety of common wildlife species and may act as wildlife migratory corridors. Crop cover may be variable depending on time of year and species being cultivated. Based on field surveys, agricultural areas occur primarily in the central portion of the BSA, adjacent to Clark Avenue and Highway 101. All agricultural areas consisting of row-crops and vineyards are collectively referred to as Agriculture.

Overall, the Project site has extensive disturbance from historic and current land use activities. Plant cover within the previously disturbed areas ranges from bare ground to vegetated land consisting almost entirely of non-native, annual grasses and forb species tolerant of disturbance, with native shrubs scattered throughout. The dominant species observed within the

previously disturbed areas include, but are not limited to, red brome, ripgut grass, soft chess, black mustard (*Brassica nigra*), telegraph weed (*Heterotheca grandiflora*), red stemmed filaree (*Erodium cicutarium*), tree tobacco (*Nicotiana glauca*), bur clover (*Medicago polymorpha*), and storksbill.

## 3.2 WILDLIFE

Padre biologists conducted a comprehensive desktop review and biological surveys of the Project site from 2013 through 2016. Biological field surveys were comprised of comprehensive biological surveys and species-specific surveys, including habitat assessments for California red-legged frog (CRLF) (*Rana draytonii*), vernal pool fairy shrimp (VPFS) (*Branchinecta lynchi*), and California tiger salamander (CTS), and protocol-level or focused surveys for VPFS, CTS, and least Bell's vireo (*Vireo bellii pusillus*). The following wildlife sections are based on biological field survey results, as summarized in the Project biological resources report and species-specific habitat assessments and (protocol and non-protocol) surveys (Padre Associates, 2013; 2014a; 2014b; 2015a; and 2015b; and Storrer Environmental, 2015; 2016).

### 3.2.1 Invertebrates

A wide variety of invertebrates are expected to occur in the Project site, including ground beetles (Order Coleoptera) and burrowing bugs (*Aethus* sp.), spiders (Order Araneida), millipedes (Class Diplopoda), butterflies (Order Lepidoptera), dragonflies (Order Odonata), and bees, wasps, and ants (Order Hymenoptera). Several of these common terrestrial invertebrates were observed during the field surveys; however, they were not collected and/or further identified to the species level. Protocol-level VPFS dip-net surveys were completed during the 2013/2014 and 2014/2015 wet seasons for all suitable aquatic pools documented within the Project site. In addition, a protocol-level dry season VPFS cysts survey was completed in the summer of 2014. No VPFS were found during protocol-level surveys; however, dip net surveys resulted in the identification of seed shrimp (Ostracods), water boatman (Corixidae), midge larvae (Chironomidae), predaceous water beetle (Dystiscidae), and water strider (Gerridae).

### 3.2.2 Fish

The drainages and pools within the Project site are intermittent and/or ephemeral and therefore do not support fish.

### 3.2.3 Amphibians

Some of the ephemeral pools within the Project site accumulate water for sufficient durations to support breeding cycles for certain amphibians. Adults, juveniles, tadpoles, and/or eggs of Baja California treefrog (*Pseudacris hypochondriaca hypochondriaca*), California toad (*Anaxyrus boreas halophilus*), and western spadefoot (*Spea hammondii*) have been observed within the Project site during biological field surveys. In addition, oak woodland habitat within the Project site provides shade, moist logs, and dense leaf litter that can hold adequate moisture throughout the year for terrestrial amphibians such as ensatina (*Ensatina eschscholtzii*), black-bellied slender salamander (*Batrachoseps nigriventris*), and arboreal salamander (*Aneides lugubris*), all of which have been identified within the Project site.

Arroyo toad (*Anaxyrus californicus*) occurrences are documented within the Project region and within the Sisquoc River that is located three miles north of the Project site; however, no suitable aquatic habitat was identified within the Project site and, following discussion with USFWS, no protocol-level surveys were considered necessary. A CRLF habitat assessment was conducted by Padre in 2013 and no suitable aquatic breeding habitat was identified within the Project site; however, it was determined that CRLF could potentially utilize portions of the Project site as migratory corridors to suitable, offsite breeding ponds. CTS habitat assessments completed for the Project (Semonsen, 2007; Storrer Environmental, 2011; 2013) determined that no suitable aquatic breeding habitat was present within the Project site; however, USFWS- and CDFW-approved CTS upland and aquatic surveys were conducted within the Project site during the 2014/2015 and 2015/2016 wet seasons. No CTS were observed during these surveys; however, because the surveys could not practicably be conducted completely to protocol, potential presence of CTS within certain areas of the Project site has been presumed.

### 3.2.4 Reptiles

Reptile species that are expected to occur within the Project site based on the presence of suitable habitat include, but are not limited to, western rattlesnake (*Crotalus oreganus*), western yellow-bellied racer (*Coluber constrictor mormon*), and California alligator lizard (*Elgaria multicarinata multicarinata*). Reptiles observed within the Project site during biological field surveys include California whiptail (*Aspidoscelis tigris munda*), Skilton's skink (*Plestiodon skiltonianus skiltonianus*), Blainville's horned lizard (*Phrynosoma blainvillii*), California kingsnake (*Lampropeltis getula californiae*), San Diego gopher snake (*Pituphis catenifer annectens*), California striped racer (*Coluber lateralis lateralis*), western side-blotched lizard (*Uta stansburiana elegans*), and coast range fence lizard (*Sceloporus occidentalis bocourtii*).

### 3.2.5 Birds

The various, non-disturbed habitats throughout the Project site provide plenty of foraging and nesting habitat for a variety of resident and migratory birds. Birds that were observed in the Project site during biological field surveys include, but are not limited to, western scrub jay (*Aphelocoma californica*), American crow (*Corvus brachyrhynchos*), spotted towhee (*Pipilo maculatus*), northern flicker (*Colaptes auratus*), bushtit (*Psaltriparus minimus*), wrentit (*Chamaea fasciata*), blue-gray gnatcatcher (*Polioptila caerulea*), California thrasher (*Toxostoma redivivum),* western kingbird (*Tyrannus verticalis*), lark sparrow (*Chondestes grammacus*), phainopepla (*Phainopepla nitens*), Cooper's hawk (*Accipiter cooperii*), golden eagle (*Aquila chrysaetos*), and red-tailed hawk (*Buteo jamaicensis*). Protocol-level presence/absence least Bell's vireo surveys were completed along portions of willow scrub habitat within the Project site by Padre in 2014. No least Bell's vireo were identified during these surveys; therefore, this species is considered absent within the Project site.

### 3.2.6 Mammals

Mammals observed directly and/or through signs during the field survey include, but are not limited to, Audubon's cottontail (*Sylvilagus audubonii*), Botta's pocket gopher (*Thomomys bottae*), American badger (*Taxidea taxus*), coyote (*Canis latrans*), black-tailed jackrabbit (*Lepus californicus*), bobcat (*Lynx rufus*), mule deer (*Odocoileus hemionus*), striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), wild pig (*Sus scrofa*), and big-eared woodrat (*Neotoma*

*macrotis*). Other common mammal species that are expected to occur within the Project site based on the presence of suitable habitat and migratory corridors (i.e., ridgelines and roadways) include gray fox (*Urocyon cinereoargenteus*) and mountain lion (*Felis concolor*).

# 4.0 LISTED SPECIES CONSIDERED FOR ANALYSIS

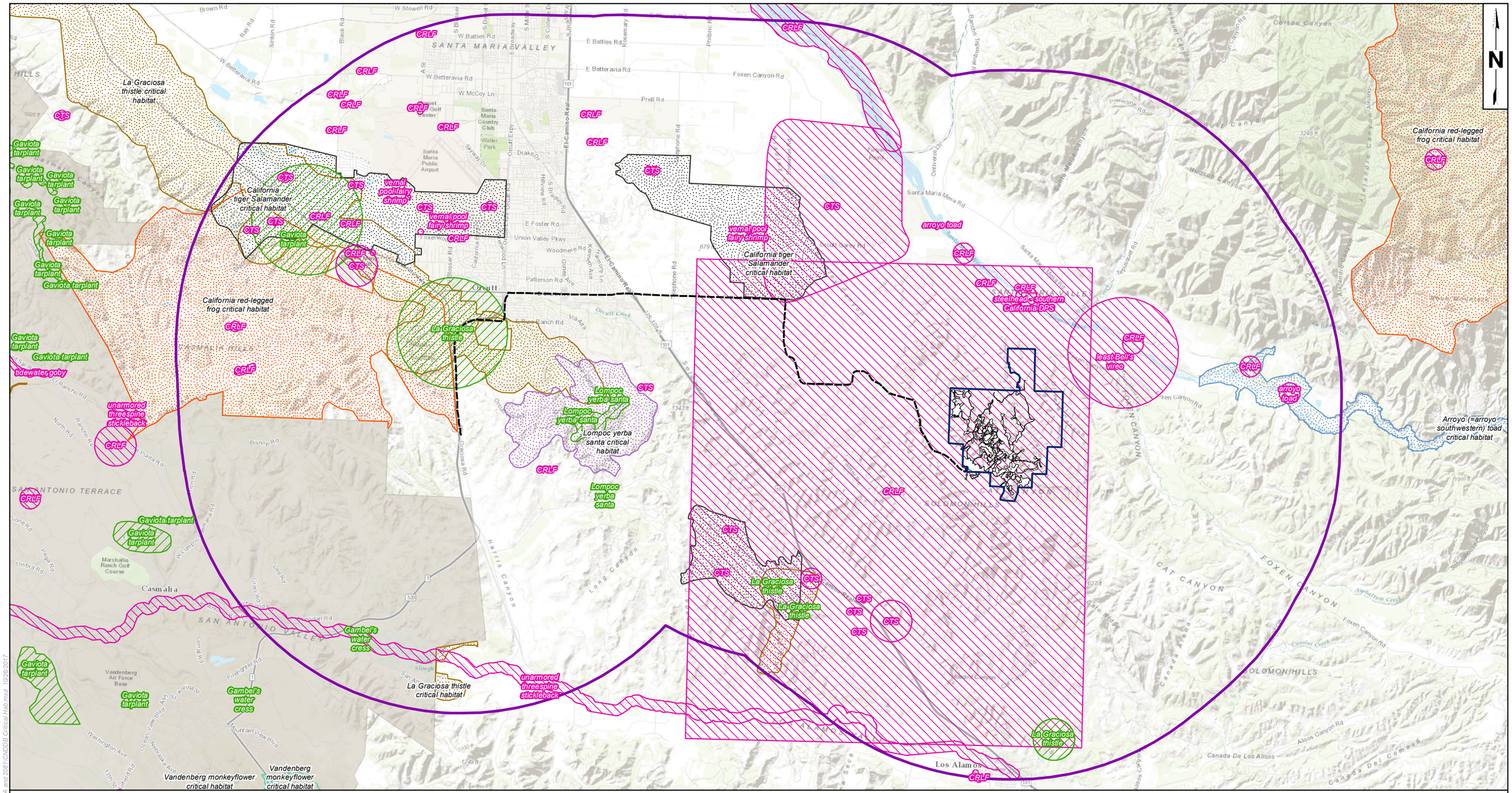
An official species list was obtained from the USFWS Information, Planning, and Conservation System (IPaC) on November 1, 2017 (Consultation Code: 08EVEN00-2018-SLI-0056), provided as Appendix A. This list functions as the species list issued by the ecological services office pursuant to 50 CFR 402.12(e). Table 4-1 summarizes the listed species considered for analysis, which includes the species listed on the USFWS IPaC official species list and Federally listed species that were not included on the list, but have been identified within the region of the Project site based on desktop analysis. Figure 4 illustrates the nearest documented occurrences of Federally listed species and USFWS/NMFS designated Critical Habitat for listed species within one and five miles from the Project site boundaries, including listed species documented with the CDFW California Natural Diversity Database (CNDDB) (CDFW, 2016).

Table 4-1 provides habitat descriptions and nearest known occurrence for each listed species for analysis and an analysis of *likelihood of occurrence* (CDFW, 2016). The likelihood of occurrence includes the following categories:

- ***Absent*:** Species does not occur within Project site, does not occur within five miles from the Project site, and/or suitable habitat does not occur within the Project site. Absence also indicates that the species is not likely to occur within the Project site.
- ***Present*:** Species has been documented/observed within the Project site.
- ***Potential*:** Species occurs within five miles from the Project site. The species may occur in the Project site due to proximity and/or suitable habitat conditions (including corridors) within the Project site.

Species information and analysis of likelihood of occurrence in Table 4-1 is based on results of the Project biological resources survey report and species-specific habitat assessments and (protocol and non-protocol) surveys (Padre Associates, 2013, 2014a, 2014b, 2014c, 2014d, 2015a, and 2015b; and Storrer Environmental, 2015, 2016).

PAGE INTENTIONALLY LEFT BLANK




LEGEND:

- 5mi Buffer of Project Site
- Aera Energy LLC Property
- Proposed Project Footprint
- Proposed 115kV Service Line
- Proposed Natural Gas Import Pipeline Route
- Botanical
- Wildlife
- Arroyo toad
- California red-legged frog
- California tiger salamander
- La Graciosa thistle
- Lompoc yerba santa
- Vandenberg monkeyflower

0 1.75 3.5
MILES

Source: DPSI 2013 Survey, TJ Cross 8/20/2014, Spec Services 2013, PGE, Esri Online Basemap, CNDDB 9/2017, USFWS Critical Habitat
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposes only.
CTS = California tiger salamander; CRLF = California red-legged frog

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: EAST CAT CANYON SANTA BARBARA COUNTY, CA | KNOWN OCCURRENCES OF FEDERALLY LISTED SPECIES AND CRITICAL HABITAT WITHIN 5 MILES OF PROJECT SITE | FIGURE 4 |
|---|---|---|
| PROJECT NUMBER: 1002-0455 / DATE: October 2017 | | |

East Cat Canyon\Notice of Incomplete Response\BA and 2081\CNDDB Critical Hab.mxd 10/26/2017

PAGE INTENTIONALLY LEFT BLANK

## Table 4-1. Likelihood of Occurrence Analysis for Federally Listed Species

| Common Name | Scientific Name | Federal Listing Status | Habitat Requirements | Likelihood of Occurrence |
|---|---|---|---|---|
| **Plants** | | | | |
| Gambel's watercress | *Rorippa gambellii* | FE | Marshes and swamps (freshwater or brackish). | **Absent.** The nearest known occurrence is approximately 11.4 miles west of the Project site and no suitable habitat is present within the Project site. |
| Gaviota tarplant[2] | *Deinandra increscens* ssp. *villosa* | FE[1] | Coastal scrub, valley and foothill grassland, coastal bluff scrub. | **Absent.** Suitable coastal scrub and grassland habitat is present within the Project site; however, the distribution and range of this species is limited to coastal bluffs in the coastal areas of northern Santa Barbara County and the nearest known occurrence is approximately 13 miles northwest of the Project site. Therefore, this species is not expected to occur within the Project site. |
| La Graciosa thistle | *Cirsium loncholepis* | FE[1] | Mesic and sandy cismontane woodland, coastal dunes, riparian scrub, brackish marshes, valley and foothill grassland. | **Absent.** Although general grassland habitat is present within the Project site, and the nearest known occurrence is approximately four miles from the Project site, preferable ecological conditions consisting of coastal dune conditions are absent; therefore, this species is not expected to occur within the Project site. |
| Lompoc yerba santa | *Eriodictyon capitatum* | FE[1] | Closed-cone coniferous forest, maritime chaparral. | **Absent.** The nearest known occurrence is approximately seven miles west of the Project site and no suitable habitat is present within the Project site. |
| Marsh sandwort | *Arenaria paludicola* | FE | Freshwater marshes and swamps. | **Absent.** The nearest known occurrence is approximately 21 miles northwest of the Project site and no suitable habitat is present within the Project site. |
| **Invertebrates** | | | | |
| Vernal pool fairy shrimp | *Branchinecta lynchi* | FT[1] | Vernal pools. | **Absent.** The nearest known occurrence is approximately five miles northwest of the Project site. Although suitable habitat is present within the Project |

| Common Name | Scientific Name | Federal Listing Status | Habitat Requirements | Likelihood of Occurrence |
|---|---|---|---|---|
| | | | | site, results of VPFS wet and dry season surveys completed in 2013-2015 were negative. |
| El Segundo blue butterfly | *Euphilotes battoides allyni* | FE | Coastal dune scrub with host plant, coastal buckwheat | **Absent. The nearest known occurrence is greater than 5 miles from the Project site.** |
| **Fish** | | | | |
| Southern Steelhead – southern California ESU | *Oncorhynchus mykiss irideus* | FE | Warmer waters and more variable conditions from Santa Maria river into San Diego County. | **Absent.** The nearest known occurrence is approximately three miles from the Project site. |
| Unarmored threespine stickleback | *Gasterosteus aculeatus williamsoni* | FE | Weedy pools, backwaters and emergent vegetation at the stream edge in small southern California streams. | **Absent.** The nearest known occurrence is in San Antonio Creek, approximately four miles from Project site (CDFW, 2014). |
| **Amphibians** | | | | |
| Arroyo toad[2] | *Anaxyrus californicus* | FE[1] | Rivers with sandy banks, willows, cottonwoods, and sycamores; loose, gravely areas of streams in drier parts of range. | **Absent.** The nearest known occurrence is approximately four miles north-northwest of the Project site and no suitable habitat is present within the Project site. |
| California red-legged frog | *Rana draytonii* | FT[1] | Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. | **Potential.** The nearest known occurrence is along the Sisquoc River, approximately three miles north and northeast of the Project site. The CRLF habitat assessment completed in 2013 determined that although suitable aquatic breeding habitat is absent within the Project site, CRLF could potentially utilize certain portions of the Project site as migratory corridors to suitable, offsite breeding ponds. |
| California tiger salamander | *Ambystoma californiense* | FE[1] | Need underground refuges, especially ground squirrel burrows, and vernal pools or other seasonal water sources for breeding. | **Potential.** The nearest known location is approximately four miles southwest of the Project site. Although CTS surveys (non-protocol) conducted in 2014-2016 resulted in negative findings, it was determined that CTS could still potentially be present within the Project site due to lack of protocol-level surveys. |

| Common Name | Scientific Name | Federal Listing Status | Habitat Requirements | Likelihood of Occurrence |
|---|---|---|---|---|
| **Birds** | | | | |
| Least Bell's vireo | *Vireo bellii pusillus* | FE[1] | Low riparian in vicinity of water or in dry river bottoms, below 2000 feet. | **Absent.** The nearest known occurrence is along the Sisquoc River approximately three miles east of the Project site. Minimal patches of suitable riparian habitat (willow thickets) are present along Cat Canyon Creek; however, results of protocol-level least Bell's vireo surveys conducted in 2014 were negative. Therefore, this species is not expected to occur within the Project site. |
| Southwestern willow flycatcher | *Empidonax traillii extimus* | FE[1] | Riparian woodlands, brushy habitats in wet areas. | **Absent.** The nearest known occurrence is along the Santa Ynez River approximately 13 miles south of the Project site. Minimal patches of suitable riparian habitat (willow thickets) are present along Cat Canyon Creek; however, this channel is ephemeral and does hold water long after rain events. In addition, no southwestern willow flycatcher was observed during protocol-level least Bell's vireo surveys conducted in 2014 along patches of riparian habitat along Cat Canyon Creek. Therefore, this species is not expected to occur within the Project site. |

**Status Codes:**
FE = Federally Endangered
FT = Federally Threatened

**Notes:**
[1]Crifical Habitat designated for the species (USFWS)
[2]Arroyo toad and Gaviota tarplant were not included on the USFWS IPaC official species list; however, they were identified within the region of the Project site during the biological resources desktop review (Padre Associates, 2015a).

PAGE INTENTIONALLY LEFT BLANK

## 4.1 CRITICAL HABITAT FOR LISTED SPECIES CONSIDERED FOR ANALYSIS

Critical Habitat is a term defined and used in the FESA as specific geographic areas that contain features essential for the conservation of a Threatened or Endangered species. Critical Habitat may include an area that is not currently occupied by the species but that will be needed for its recovery. An area is designated as Critical Habitat after publishing a proposed regulation in the Federal Register, receiving and responding to public comment, and finalizing a Final Rule.

Critical Habitat has been designated for nine of the Federally listed species considered for analysis for the Project and the nearest Critical Habitat location for each of these species is summarized in Table 4-2. No USFWS-designated Critical Habitat areas occur within the Project site.

**Table 4-2. Critical Habitat for Listed Species Considered for Analysis**

| Species | Nearest Critical Habitat Location | Distance to Project Site (miles) |
|---|---|---|
| Gaviota tarplant | Sudden Peak Unit | 20.0 |
| La Graciosa thistle | Unit 3 | 3.27 |
| Lompoc yerba santa | Solomon Hills Unit | 5.25 |
| Vernal pool fairy shrimp | Lake Cachuma Area Unit | 18.23 |
| Arroyo toad | Unit 2 | 2.45 |
| California red-legged frog | STB-3 | 5.47 |
| California tiger salamander | Unit 2 – Eastern Santa Maria | 2.99 |
| Least Bell's vireo | Santa Ynez River | 38.5 |
| Southwestern willow flycatcher | Santa Ynez River | 13.47 |

## 4.2 SPECIES ACCOUNTS

All listed species considered for analysis, except CRLF and CTS, are considered *absent* based on the likelihood of occurrence analysis summarized in Table 4-1. The *absent* classification for these species has occurred because the Project site is located outside of the recorded geographic and/or elevation range for the species, and/or suitable habitat is not present within the Project site. These species are therefore eliminated from further consideration in this BA.

CRLF and CTS both fall in the *potential* classification of likelihood of occurrence. These species have the potential to occur within the Project site and are discussed in the following sections.

### 4.2.1 California Red-Legged Frog

#### 4.2.1.1 Listing Status

CRLF was Federally listed as Threatened on May 23, 1996. Critical Habitat for CRLF was originally designated on April 13, 2006, and revised March 17, 2010. Seven Critical Habitat Units occur within Santa Barbara County (STB-1 through -7), the nearest of which to the Project site is Unit STB-3, located approximately 5.5 miles northwest of the Project site. No Critical Habitat for CRLF occurs within the Project site.

The Recovery Plan for CRLF was published in 2002 (USFWS, 2002). The Project site occurs within the Northern Transverse Ranges and Tehachapi Mountains Recovery Unit and partially within the Sisquoc River Core Area boundary designated in the Recovery Plan.

#### 4.2.1.2 Life History

CRLF are generally found along or in marshes, streams, lakes, reservoirs, ponds, and other permanent sources of water where wetland or riparian vegetation, such as willows (*Salix* sp.), cattails (*Typha* sp.), and bulrushes (*Schoenoplectus* sp.), provide dense cover (Stebbins, 2003). CRLF may also be found in agricultural ponds that may have poor water quality and no emergent vegetation, and that do not provide breeding habitat essentials. Breeding habitat includes sources of water that remain inundated for 19 to 27 weeks to allow for egg and tadpole development and may or may not have emergent vegetation (Tatarian et al., 2015). Water sources that do not provide a hydroperiod of this length will not support breeding, but may provide important areas for shelter, foraging, predator avoidance, and dispersal opportunities for juvenile and adult CRLF. In addition, a pond that may not provide breeding habitat for CRLF in the driest years may provide suitable habitat in years with heavier rainfall.

CRLF adults and juveniles may remain in or around breeding ponds/streams all year if water remains available; however, some will disperse from aquatic habitat to different water sources or upland habitat for the dry season. Suitable upland/summer habitat mainly consists of grassland or riparian areas that provide small mammal burrows, moist leaf litter, boulders or rocks, logs, or man-made sources of cover, such as watering troughs or abandoned sheds (USFWS, 2002). CRLF disperse between aquatic and upland habitats during periods of wet weather and can travel up to one mile over the course of a wet season. While some CRLF may use migration corridors (e.g., riparian corridors) during dispersal, this species has been observed traveling in a straight line through upland areas without apparent concern for vegetation type or topography while moving in between habitats (USFWS, 2002). Dispersal distance and number of individual dispersals can vary year to year due to changing environmental conditions (Fellers and Kleeman, 2007).

Starting with the first rains of the wet season, adult CRLF will begin to move from upland habitat towards breeding ponds/streams during periods of wet weather. The breeding period for CRLF is short, often occurring only one to two weeks between November and April, depending on local conditions (Stebbins, 2003). During this time, males will call to attract females. Once two adults are in amplexus (breeding position), the pair will move to an oviposition site where the eggs are fertilized while being attached to emergent vegetation, roots, or twigs (USFWS, 2002).

The females lay between 2,000 and 6,000 eggs in a gelatinous envelope attached to vegetation, which helps keep the egg mass afloat, rather than sinking to the bottom of the breeding pond/stream (Storer, 1925; USFWS, 2002). Cook (2002) reported strong site fidelity for egg-laying in CRLF and most frequently observed egg masses attached to spikerush (*Eleocharis* sp.), smartweed (*Polygonum* sp.), and cattails, but none on bulrushes presumably due to smooth stem surfaces that inhibit attachment. Depending on water temperature, eggs take two to three weeks to develop into tadpoles, and tadpoles metamorphose into juvenile frogs after four to six months. In rare circumstances, some tadpoles will overwinter into the following year (Tatarian et al., 2015; USFWS, 2002).

Historical and current threats to CRLF include: past exploitation of CRLF for food during the mid- to late-1800s; habitat loss, degradation, and fragmentation; water management, channelization, and flood control of current habitat; forestry, agricultural, and grazing activities; presence of introduced bullfrogs (*Lithobates catesbeiana*) which are both predators to CRLF and strong competitors for food sources and habitat; non-native predatory fish; and diseases such as chytrid fungus (USFWS, 2002).

#### 4.2.1.3 Status within the Project Site

Critical Habitat for CRLF does not occur within the Project site; however, it does occur adjacent to the natural gas pipeline along Graciosa Road (USFWS, 2016) (Figure 4). In addition, several occurrences of CRLF have been documented within a five-mile radius of the Project site, the nearest of which is along the Sisquoc River, approximately 2.5 miles from the Project site (CDFW, 2016). A CRLF habitat assessment was conducted by Padre in 2013 and no suitable aquatic breeding habitat was identified within the Project site. In addition, no CRLF were identified during biological field surveys, protocol-level VPFS surveys, and non-protocol CTS surveys conducted within the Project site by Padre from 2013 to 2016. Following discussions with the USFWS, protocol-level CRLF surveys were deemed unnecessary due to lack of suitable breeding habitat within the Project site; however, it was determined that CRLF could potentially utilize portions of the Project site as migratory corridors to suitable, offsite breeding ponds.

### 4.2.2 California Tiger Salamander

#### 4.2.2.1 Listing Status

The Santa Barbara County Distinct Population Segment (DPS) of CTS was Federally listed as Endangered on January 19, 2000 and Critical Habitat for this population was designated in 2004. Six Critical Habitat Units (Units 1-7) occur throughout Santa Barbara County, the nearest of which to the Project site is Unit 2 – Eastern Santa Maria, located approximately three miles northwest of the Project site. No Critical Habitat for CTS occurs within the Project site. A Draft Recovery Plan for the Santa Barbara County DPS of CTS was published on April 24, 2015 (USFWS, 2015).

#### 4.2.2.2 Life History

Adults breed in ponds between November and March after migrating from upland habitats during the first big rain, typically in November/December. Females lay eggs in the pools; full metamorphosis to a terrestrial life form occurs within three to four months. The young (“metamorphs”) migrate to upland during May through August as the breeding ponds dry. Young

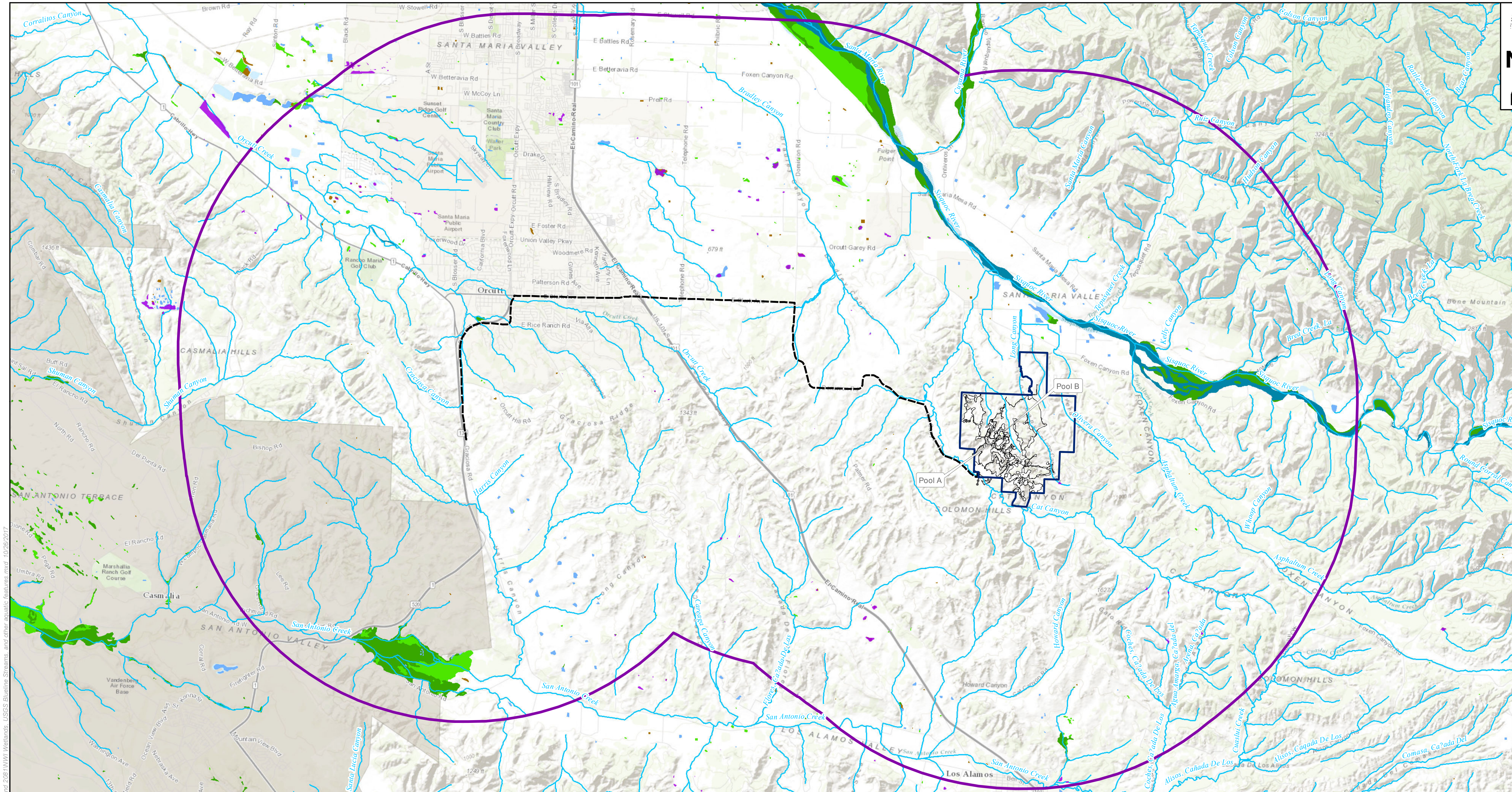
CTS are strictly terrestrial for three to four years, remaining in small mammal burrows, moving through terrestrial habitats during the night, and rarely come to the surface to feed. Upland habitat includes grasslands, edge of oak savannas, sometimes chaparral and shrublands (in coastal areas), and may or may not be grazed by cattle. CTS regularly use California ground squirrel (*Otospermophilus beecheyi*) and Botta's pocket gopher (*Thomomys bottae*) burrows, as well as burrows made by other small mammal species in upland habitats (Shaffer et al., 1993, Barry and Shaffer, 1994).

Mature CTS migrate to aquatic habitats to breed. The aquatic habitats include ponds, vernal pools, and man-made impoundments. Breeding ponds must be non-permanent, but water must persist in these pools at least into May (preferably into July or August) to allow time for metamorphosis. While CTS are known to disperse up to 1.37 miles away from breeding ponds (Orloff, 2011), Trenham and Shaffer (2005) found that 95 percent of adult and sub-adult CTS are found within 0.4 mile (approximately 2,200 feet) of breeding ponds. Although these studies are most commonly referenced for dispersal distances, it should be noted that they were not conducted within the Santa Barbara County population. Sykes (2006) studied the dispersal of CTS by monitoring individuals fitted with radio transmitters at two known breeding ponds south of the Santa Maria Public Airport. Sykes (2006) documented maximum dispersal distances of 561 feet.

The range of CTS is highly fragmented, with patches of occupied habitat occurring along the coast of California from the vicinity of Santa Rosa, Sonoma County, south to the area of Lompoc, Santa Barbara County, and inland from southern Sacramento County to northwestern Tulare County (Stebbins, 2003). This species occupies approximately 45 percent of its historic range, mainly due to extensive habitat loss and fragmentation because of agriculture, housing, and other developments, which have destroyed effective breeding pools/ponds for CTS. Other factors contributing to species decline include introduction of invasive species (e.g., American bullfrogs) into breeding sites, road kills, drainage of wetlands, and decline of burrowing rodents, especially ground squirrels which provide suitable upland habitat for CTS (i.e., burrows) (Stebbins, 2003).

#### 4.2.2.3 Status within the Project Site

The Project site and natural gas pipeline is located within five miles of CTS Critical Habitat (USFWS, 2016), documented occurrences of CTS (CDFW, 2016) (Figure 4), and documented CTS breeding pools (Storrer Environmental, 2013). The USFWS has also identified several pools with aerial imagery that have not necessarily been surveyed and may or may not contain suitable CTS breeding or adjacent upland habitat. Figure 5 identifies regional aquatic features near the Project site and those that are within the 1.37-mile maximum dispersal distance for CTS, including ponds mapped by ERG (Collins and Gaede, 2013), ponds identified by Padre from aerial imagery review and field reconnaissance (Padre Associates, 2015a), and ponds that the USFWS have identified as potentially occupied by CTS (USFWS, 2010). Table 4-3 lists all the aquatic features within 1.37 miles of the Project site (not including aquatic features along the utility corridor), their attributes, and associated survey information.




LEGEND:

- 5mi Buffer of Project Site
- Aera Energy LLC Property
- Proposed Project Footprint
- Proposed 115kV Service Line
- Proposed Natural Gas Import Pipeline Route
- USGS Blue Line Stream
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine
- Potential CTS Breeding Pool
- Ephemeral Wetland Depression on Aera Energy LLC Property

0 1.75 3.5

MILES

*Source: DPSI 2013 Survey, TJ Cross 8/20/2014, Spec Services 2013, PGE, Esri Online Basemap, USGS 24k Hydro, NWI, USFWS 2012 CTS*
*Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet*
*Notes: CTS = California tiger salamander*
*This map was created for informational and display purposes only.*

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: EAST CAT CANYON SANTA BARBARA COUNTY, CA | | NWI WETLANDS, USGS BLUE LINE STREAMS, AND OTHER AQUATIC FEATURES | FIGURE 5 |
|---|---|---|---|
| PROJECT NUMBER: 1002-0455 | DATE: October 2017 | | |

East Cat Canyon\Notice of Incomplete Response\BA and 2081\NWI Wetlands, USGS Blueline Streams, and other aquatic features.mxd 10/26/2017

PAGE INTENTIONALLY LEFT BLANK

**Table 4-3. Potential CTS Breeding Ponds Within 1.37 Miles of Project Site**

| Designation | Distance from Potential CTS Pond to Project Site Boundary (feet) | Direction from Project Site | Sufficient CTS Hydroperiod (Y/N) | Upland Surveys (Fenced) (Y/N) | Upland Survey Dates (Rainy Season) | Aquatic Surveys (Y/N) | Aquatic Survey Dates | Reason for No Aquatic Survey |
|---|---|---|---|---|---|---|---|---|
| SISQ-19 | 240 | South | N | Y | 2014/2015, 2015/2016 | N | | No site access, water present from July 2011 – March 2012, no water present from 2014 -2016 |
| SISQ-20 | Within Site Boundary | - | N | Y | 2014/2015, 2015/2016 | N | - | No observed water present at any time |
| Pond 205 / Pool A | Within Site Boundary | - | Y | Y | 2015/2016 | Y | 2015, 2016 | N/A |
| Pool B | Within Site Boundary | - | N | N | - | N | - | Insufficient hydroperiod |
| Ridgetop Pond | Within Site Boundary | - | N | N | - | Y | 2015 | N/A |
| 301 | Within Site Boundary | - | N | N | - | N | - | Insufficient hydroperiod |
| 208 | 1,300 | North | N | N | - | N | - | No site access, irregular and artificially-induced hydroperiod |
| ERG-B | 1,625 | Northwest | Y | Y | 2011/2012, 2012/2013 | Y | 2011, 2012, 2013 | Aquatic survey results provided by ERG |
| ERG-C | 4,631 | West | Y | Y | 2011/2012, 2012/2013 | Y | 2011, 2012, 2013 | Aquatic survey results provided by ERG |
| ERG-D | 1,149 | West | Y | Y | 2011/2012, 2012/2013 | Y | 2011, 2012, 2013 | Aquatic survey results provided by ERG |
| 705-A | 6,232 | East | Unknown | N | - | N | - | No site access, concluded to have low potential to support CTS, and distant from Project site (Storrer, 2013) |
| 705-B | 6,967 | East | Unknown | N | - | N | - | No site access and distant from Project site |
| 705-C | 3,331 | East | Unknown | N | - | N | - | No site access and distant from Project site |

PAGE INTENTIONALLY LEFT BLANK

**Potential CTS Breeding Ponds**

Two ponds that lie within the 1.37 mile maximum CTS traverse distance from the Project site are designated by the USFWS as "Potential CTS Breeding Ponds" (USFWS, 2010): Olivera Canyon Pond (SISQ-20) and Long Canyon Pond (SISQ-19). Olivera Canyon Pond (SISQ-20) is located within the Project site, but does not appear to be capable of holding water long enough to support CTS breeding. It did not sustain surface water for more than one week during the 2012/2013 wet season and it did not hold water at all following rain events in the winter months of 2013, 2014, 2015, and 2016, and therefore could not be subjected to aquatic sampling. Long Canyon Pond (SISQ-19) is located outside of the Project site on private property, and there is limited access and information available. From remote ground observations within the Project site, SISQ-19 held water from July 2011 through March 2012 during field reconnaissance for the CTS habitat assessment. Maximum depth was unknown, but it appeared to contain "sufficient water to suggest that it held water for an extended period of time" (Storrer Environmental, 2013). However, this pond did not hold surface water at any point during the 2014/2015 and 2015/2016 wet seasons. These observations suggest that SISQ-19 may have either lost its capacity to retain water, perhaps via some terrain alteration, or that it required supplemental water that is no longer being provided. No aquatic surveys have been performed at this feature due to access limitations.

Aquatic surveys were conducted during 2015 and 2016 at "Pond 205," a pool located on an existing well pad within the Project site that demonstrated, during the 2014 VPFS surveys, a suitable CTS hydroperiod. In addition, there were various potential CTS breeding pools that were identified throughout the Project site (i.e., Pool B, "Ridgetop Pond", and "301") during initial assessments (e.g. Storrer Environmental, 2013), but ultimately were determined to have insufficient hydroperiod to support CTS breeding.

CRLF surveys completed by Sage Institute, Inc. (2012) identified several small stock ponds within the ERG property (ERG Ponds A, B, C, D, and E) to the west of the Project site that provide potential suitable habitat for CTS. Aquatic and upland surveys for CTS were completed for ERG at all of these ponds during 2011, 2012, and 2013. No CTS were found at any of the ERG ponds during these surveys (Collins and Gaede, 2013).

A potential CTS breeding pond, "208", was identified to the north of the Project site during initial desktop analysis; however, after field reconnaissance, it was determined that this aquatic feature supports an irregular and artificially-induced hydroperiod, unsuitable for CTS breeding. In addition, three potential CTS breeding ponds (705-A, -B, and -C) were identified on private property to the east of the Project site during aerial imagery review. Due to access restrictions, the hydroperiod of these ponds is unknown. Pond 705-A was visually assessed by Tierney Consulting in 2001 and concluded it had a low probability to support CTS based on physical characteristics and context. Ponds 705-B and 705-C were not assessed or surveyed (Storrer Environmental, 2013). Although CTS absence has not been confirmed at the Ponds 705-A, -B, and –C, these ponds are located so far east of the Project site that CTS would only occur within 1.37 miles of the proposed Project conservation area on the eastern side of the Project site, not within the permanent Project footprint. Therefore, given the uncertainty of the 705 ponds' suitability as CTS breeding ponds and their distance from the Project site, they were omitted from the impact and mitigation analysis.

### CTS Habitat Assessments and Surveys

A CTS habitat assessment completed by Mr. Vince Semonsen in 2007 and a second and third completed by Storrer Environmental in 2011 and 2013 concluded that aquatic habitat within the Project site was not suitable for CTS. Despite these conclusions, discussions with the USFWS and CDFW indicated that CTS protocol-level surveys were necessary to determine presence or absence of the species occurring within the Project site; however, due to the size and terrain of the Project site, protocol-level surveys were deemed infeasible. Therefore, design and operation of the CTS upland drift fencing was consistent with the *Interim Guidance on Site Assessments and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander* (USFWS, 2003) and a modified survey design approved by USFWS and CDFW representatives in consideration of the scale and terrain of the Project site. The surveys were not intended to conform to "full protocol" presence/absence criteria for the reasons stated above.

Based on discussions with the USFWS and CDFW, the modified survey design for the upland drift fence array was designed to capture the most plausible CTS movements through the Project site based on the locations of SISQ-19, SISQ-20, and Pond 205. The 705 ponds were not included in the design because of the distance and terrain between these ponds and the Project site. This "most plausible pathways" drift fence survey approach was chosen over the standard USFWS protocol, due to the infeasibility of covering 90 percent of the property boundary. Drift fence arrays were able to be installed encircling SISQ-20 and Pond 205; however, SISQ-19 was unable to encircled with drift fences due to its offsite location. Upland surveys were conducted during the 2014-2015 and 2015-2016 wet seasons.

No CTS were observed during upland and aquatic surveys conducted within the Project site between 2014 and 2016. In addition to onsite surveys, potential breeding ponds on the ERG property to the west of the Project site were subject to aquatic and upland surveys in 2011, 2012, and 2013; no CTS were captured at these ponds during these years of sampling (Collins and Gaede, 2013). However low the probability of occurrence may seem from the available data and analysis, it is not possible to conclusively demonstrate absence of CTS within the Project site without conducting protocol level surveys. Therefore, potential presence of CTS within certain areas of the Project site has been presumed.

# 5.0 POTENTIAL EFFECTS OF THE PROPOSED ACTION ON LISTED SPECIES

The evaluation of potential effect includes the analysis of direct and indirect effects on the species and their associated habitats as a result of Project activities. *Direct effects* are impacts caused during construction/development activities of the Project and *indirect effects* are impacts caused by the Project, but occur later in time. Project avoidance and minimization measures implemented as part of Project activities and mitigation for potential CTS upland habitat were included in the evaluation for a *determination of effects* (No effect, Not likely to adversely affect, or Likely to adversely affect), further discussed in Section 6.0.

## 5.1 CALIFORNIA RED-LEGGED FROG

No CRLF have been documented within the Project site to-date and no suitable aquatic breeding habitat is present within the Project site; however, CRLF do have the potential to occur within the Project site during migratory movements between suitable, offsite breeding ponds.

### 5.1.1 Direct Effects

Potential direct impacts to CRLF from the Project are construction-related and include mortality or injury from equipment operations, vehicle traffic, accidental entombment or collapse of burrows, and entrapment in open excavations.

### 5.1.2 Indirect Effects

Potential indirect impacts to CRLF include migratory habitat loss and fragmentation as a result of permanent impacts from the Project, including vegetation removal and grading for well pads, roads, laydown areas, facility areas, detention basins, and installation of culverts.

### 5.1.3 California Red-Legged Frog Avoidance and Minimization Measures

With implementation of the following Project measures, impacts to potentially occurring CRLF and their associated habitat will be avoided and/or minimized.

- A pre-activity survey will be conducted by a qualified biologist immediately prior to the start of initial grading, excavation, or vegetation removal activities to ensure that there are no sensitive species are present in the work area.
- Work areas, including equipment lay-down areas, will be pre-designated on plans and Project limit flagging/fencing will be installed throughout the Project site prior to the start of work.
- The use of heavy equipment and vehicles will be limited to designated work limits.
- An Environmental Sensitivity Orientation will be prepared and presented to all onsite field personnel at the beginning of the initial work activities. The orientation will discuss listed species with potential to occur in the work areas, and species-specific measures outlined in all Project permitting. The orientation will explain the importance of minimizing disturbance, adhering to all permit conditions, and proper reporting of observations or incidents. The orientation will be repeated if additional filed personnel are added to the Project.

- To minimize impacts to migrating amphibians that travel to aquatic breeding grounds during rainy nights (i.e., spadefoot, CRLF, CTS), vehicle travel will be avoided during rainy nights to the greatest extent feasible. In the event that vehicles must travel on roads within the Project area during rainy nights, speeds will be reduced. In the event a CRLF or CTS is identified on a road, a qualified biologist, CDFW, and USFWS will be contacted immediately for further direction.
- Temporary and permanent erosion control measures will be implemented as specified in the Project-specific Storm Water Pollution Prevention Plan (SWPPP). Erosion and sediment controls (e.g., silt fences, straw wattles, mulching, and/or hydroseeding) will be installed properly and maintained regularly. Other Best Management Practices (BMPs) will also be implemented as necessary and/or as required by Project permits.
- All refueling, maintenance, and staging of equipment and vehicles will occur at least 50 feet from the Cat Canyon Creek, Long Canyon Creek, or in designated areas designed to contain spills, and not in a location where a spill would drain directly toward aquatic habitat. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.
- A Project specific Spill Prevention and Response Plan will be implemented throughout Project activities and will include the containment of fueling areas and use of drip pans under equipment parked within the Project site.
- All food-related items and trash will be removed from the work areas at the end of each working day.
- All excavations left open overnight will be covered or encircled with an exclusion barrier to prevent unintentional entrapment of wildlife.
- Encounters with listed species will be reported immediately to the onsite qualified biologist and reported to the CDFW and USFWS within 24 hours. The biologist will maintain records of all listed species encountered during project activities, including the following information: location, habitat type, date of observation, general condition and health of wildlife, if moved, location moved to, and diagnostic markings.
- In the event that a dead or injured listed species is observed on the Project site during construction activities, notification will be made within 24 hours to the CDFW and USFWS, as appropriate. Any listed species injured through Aera's activities will be transported to Pacific Wildlife Care in Morro Bay, the Wildlife Care Network in Goleta, or an approved wildlife veterinarian.

In addition to the avoidance and minimization measures listed above, Aera will comply with the measures set forth in all applicable permits, including USFWS, CDFW, ACOE, Central Coast Regional Water Quality Control Board (RWQCB), and Santa Barbara County permits.

## 5.2 CALIFORNIA TIGER SALAMANDER

No CTS have been documented within the Project site, to-date; however, CTS do have the potential to occur within certain portions of the Project site. Based on the habitat assessments and results of focused CTS upland and aquatic surveys, all suitable upland habitat within the

Project site (i.e., annual grassland, oak woodland, coastal sage scrub, and coffeeberry scrub), excluding developed or previously disturbed areas, within 1.37 miles of SISQ-19 is considered to have potential for CTS. Although other ponds are present within 1.37 miles of the Project site, SISQ-19 is the only USFWS-identified potential CTS breeding pond that was not accessible for aquatic sampling and complete upland drift fence surveys (encirclement of pond), and therefore has an undetermined potential to support CTS breeding.

From remote ground observations within the Project site, SISQ-19 held water from July 2011 through March 2012; however, this pond did not hold water at any point during the 2014/2015 and 2015/2016 wet seasons. In addition, an upland drift fence was installed along the Project site boundary closest to SISQ-19 along the "most plausible" pathway into the Project site. No CTS were captured during upland surveys and the recently observed hydroperiod appears inadequate for CTS breeding. However, the pond was not surveyed to protocol level because it is situated on adjacent private property, as previously described. Therefore, potential presence around SISQ-19 has been presumed and the upland habitat within the Project site that is within 1.37 miles of SISQ-19 has been determined to have low potential for CTS (Figure 6).

### 5.2.1 Direct Effects

Potential direct impacts to CTS from the Project are construction-related and include mortality or injury from equipment operations, vehicle traffic, accidental entombment or collapse of burrows, and entrapment in open excavations.

### 5.2.2 Indirect Effects

Indirect impacts to CTS include habitat loss and fragmentation as a result of permanent impacts from the Project, including vegetation removal and grading for well pumping units, and facilities.

Based on the presumption of presence around SISQ-19, a total of 76.77 acres of low-potential upland habitat will be temporarily impacted, and then restored with native vegetation following development. A total of 4.3 acres of low-potential upland habitat will be permanently impacted by the proposed Project and approximately 108.7 will be impacted by grading for roads and pads (refer to Table 5-1 and Figure 7).

**Table 5-1. Project Impacts Based on USFWS Searcy Model**

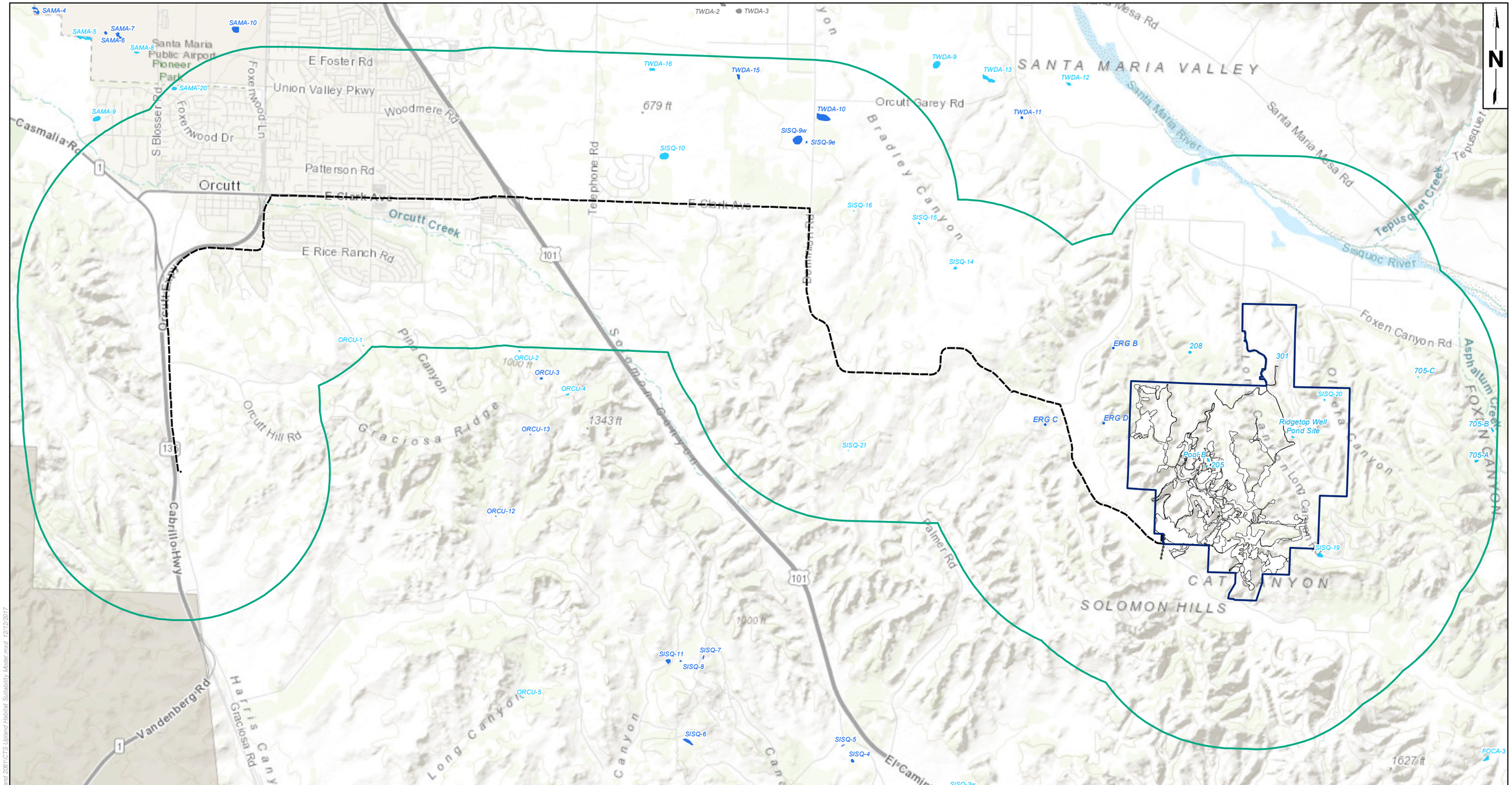
| Project Impacts | Reproductive Value of Project Footprint | Reproductive Value of Shadow Effect | Total Reproductive Value |
|---|---|---|---|
| Impacts that impede CTS dispersal[1] | 175 | 13,026 | 13,201 |
| Impacts that do not impede CTS dispersal[2] | 18,242 | N/A | 18,242 |
| Total | | | 31,443 |

Notes:
1 Impacts that impede CTS dispersal include well pumping units and facilities.
2 Impacts that do not impede CTS dispersal include well pads and roadways.
N/A – Not applicable

### 5.2.3 California Tiger Salamander Avoidance and Minimization Measures

With implementation of the following Project measures within 1.37 miles of SISQ-19, impacts to potentially occurring CTS and their associated habitat will be avoided and/or minimized.

- A qualified biological monitor will be on site during initial grading, excavation, and vegetation removal activities. The monitor will inform the construction foreman of the need to halt construction in the event a listed species is observed. In addition, prior to construction activities each day, a qualified biological monitor shall inspect any excavations to ensure no wildlife is trapped or hiding within the excavation. For areas within 2,200 feet of a potential CTS breeding pond (i.e., SISQ-19), a CTS USFWS 10(a)(1)(A) permitted biologist will be present in the event an individual CTS has to be relocated.
- A pre-activity survey will be conducted by a qualified biologist immediately prior to the start of construction to ensure that there are no sensitive species are present in the work area.
- If a burrow is located within the Project footprint and is within 2,200 feet of a potential CTS breeding pond (i.e., SISQ-19) and is unavoidable, a camera probe will be inserted into the burrow by a CTS permitted biologist prior to excavating the burrow.
- If CTS are determined to be present in a burrow within the excavation footprint, the burrow will be hand excavated and CTS will be relocated to a new burrow at least 300 feet from the work area. Prior to relocating CTS, the burrow and individual will be moistened with de-chlorinated water. Relocation of CTS will only be conducted by a CTS permitted biologist with the approval of the USFWS and CDFW.




LEGEND:

- 1.37mi Buffer of Project Site
- Aera Energy LLC Property
- Proposed Project Footprint
- Proposed 115kV Service Line
- Proposed Natural Gas Import Pipeline Route
- Known CTS Breeding Pool
- Potential CTS Breeding Pool
- Removed Potential CTS Breeding Pool

0 1 2
MILES

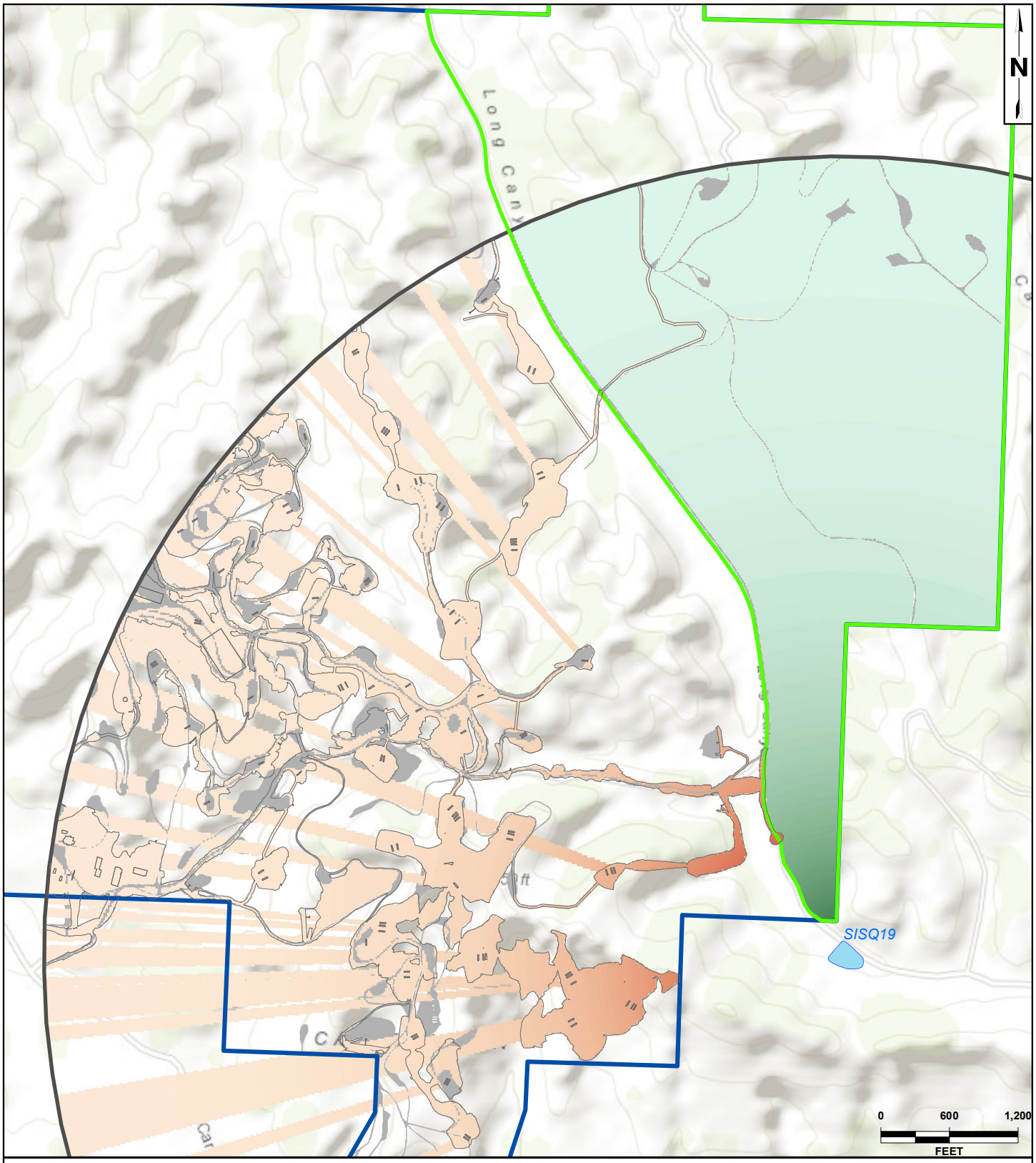
Source: DPSI 2013 Survey, TJ Cross 8/20/2014, Spec Services 2013, PGE, Esri Online Basemap, USFWS 2012 CTS
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: CTS = California tiger salamander
This map was created for informational and display purposes only.

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: | EAST CAT CANYON<br>SANTA BARBARA COUNTY, CA | KNOWN AND POTENTIAL CTS PONDS WITHIN THE MAXIMUM DISPERSAL | FIGURE |
|---|---|---|---|
| PROJECT NUMBER: 1002-0455 | DATE: December 2017 | | 6 |

East Cat Canyon\Notice of Incomplete Response\BA and 2081\CTS Upland Habitat Suitability Model.mxd 12/12/2017

**PAGE INTENTIONALLY LEFT BLANK**




LEGEND:

- Aera Energy LLC Property Boundary
- Project Footprint
- Potential CTS Pond
- CTS Dispersal Radius
- Pre-existing Disturbed Area
- Proposed Conservation Easement

**Conservation Easement Reproductive Value**

15

0

**Footprint and Shadow Impact to Reproductive Value**

0

-10

*Source: TJ Cross 8/20/17, DPSI 2013 Survey, Padre Associates 2017, USFWS 2017, Esri Basemap*
*Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet*
*Notes: This map was created for informational and display purposes only.*

| PROJECT NAME: EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT | CTS REPRODUCTIVE VALUE IMPACT AND MITIGATION RESULTS | FIGURE 7 |
|---|---|---|
| PROJECT NUMBER: 1002-0455 / DATE: December 2017 | | |

*\East Cat Canyon\ConservationEasement\CTS Results Permit Case Padre.mxd*

PAGE INTENTIONALLY LEFT BLANK

- If a CTS is unexpectedly uncovered while excavating, the individual's health will be assessed and if no life threatening injuries are present, the individual will be relocated by a CTS permitted biologist with the approval of the USFWS and CDFW to a suitable burrow more than 300 feet from the work area. The individual and the inside and outside of the burrow will be moistened with de-chlorinated water to prevent desiccation. If the individual is severely harmed, the individual will be taken to Pacific Wildlife Care in Morro Bay or an approved wildlife veterinarian, unless directed otherwise.
- Work areas, including equipment lay-down areas, will be pre-designated on plans and Project limit flagging/fencing will be installed throughout the Project site prior to the start of initial grading, excavation, and vegetation removal activities.
- The use of heavy equipment and vehicles will be limited to designated work limits.
- An Environmental Sensitivity Orientation will be prepared and presented to all onsite field personnel at the beginning of the initial work activities. The orientation will discuss listed species with potential to occur in the work areas, and species-specific measures outlined in all Project permitting. The orientation will explain the importance of minimizing disturbance, adhering to all permit conditions, and proper reporting of observations or incidents. The orientation will be repeated if additional filed personnel are added to the Project.
- To minimize impacts to migrating amphibians that travel to aquatic breeding grounds during rainy nights (i.e., spadefoot, CRLF, CTS), vehicle travel will be avoided during rainy nights to the greatest extent feasible. In the event that vehicles must travel on roads within the Project area during rainy nights, speeds will be reduced. In the event a CRLF or CTS is identified on a road, a qualified biologist, CDFW, and USFWS will be contacted immediately for further direction.
- Temporary and permanent erosion control measures will be implemented as specified in the Project-specific SWPPP. Erosion and sediment controls (e.g., silt fences, straw wattles, mulching, and/or hydroseeding) will be installed properly and maintained regularly. Other BMPs will also be implemented as necessary and/or as required by Project permits.
- All refueling, maintenance, and staging of equipment and vehicles will occur at least 50 feet from the Cat Canyon Creek, Long Canyon Creek, or in designated areas designed to contain spills, and not in a location where a spill would drain directly toward aquatic habitat. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.
- A Project specific Spill Prevention and Response Plan will be implemented throughout Project activities and will include the containment of fueling areas and use of drip pans under equipment parked within the Project site.

- All food-related items and trash will be removed from the work areas at the end of each working day.
- All excavations left open overnight will be covered or encircled with an exclusion barrier to prevent unintentional entrapment of wildlife.
- Encounters with listed species will be reported immediately to the onsite qualified biologist and reported to the CDFW and USFWS within 24 hours. The biologist will maintain records of all listed species encountered during project activities, including the following information: location, habitat type, date of observation, general condition and health of wildlife, if moved, location moved to, and diagnostic markings.
- In the event that a dead or injured listed species is observed on the Project site during construction activities, notification will be made within 24 hours to the CDFW and USFWS, as appropriate. Any listed species injured through Aera's activities will be transported to Pacific Wildlife Care in Morro Bay, the Wildlife Care Network in Goleta, or an approved wildlife veterinarian.
- Aera proposes to provide mitigation for Project impacts by creating a permanent onsite conservation easement."
- In addition to the avoidance and minimization measures listed above, Aera will comply with the measures set forth in all applicable permits, including USFWS, CDFW, ACOE, Central Coast Regional Water Quality Control Board, and Santa Barbara County permits.

### 5.2.4 Mitigation for Potential California Tiger Salamander Upland Habitat

Aera has consulted with both the USFWS and CDFW throughout the Project planning stages and compensatory mitigation for permanent loss and temporary disturbance of CTS upland refuge habitat is required for the Project. Aera will provide one or more of the following mitigation alternatives to preserve CTS habitat of equal or greater quality than that affected by the Project:

- Permanent onsite easement(s);
- Funds for the acquisition of permanent easements to a qualified easement holder; and/or
- Contribution to an established "conservation bank."

It is important to note that the applicant's Santa Barbara County Land Use Permit (LUP) application and associated CTS mitigation for the Project was deemed complete on April 8, 2016; however, the CTS habitat impact acreages in the LUP application do not reflect the results of recent CTS surveys that were completed during the review period. The proposed impact values for potential suitable CTS habitat included in this BA are based on the results of recent surveys and analysis, and are therefore not consistent with the CTS impact values proposed in the LUP application. In addition, the calculation of impacts and mitigation presented in this BA follows the USFWS Searcy Model for estimating the reproductive value of impacts and mitigation land. The

reproductive values presented in Tables 5-1 and 5-2 were provided by the USFWS on November 10, 2017.

**Table 5-2. CTS Conservation Area Value**

| Project Components | Reproductive Value[1] | Ratio[2] |
|---|---|---|
| Conservation Area | 42,741 | 1.36 |
| Project Footprint | 31,443 | 1 |

Notes:
[1]Based on USFWS Searcy Model calculations provided on November 10, 2017.
[2]Ratio of Conservation Area reproductive value in comparison to the Project Footprint reproductive value.

## 5.3 CUMULATIVE ADVERSE EFFECTS

FESA Regulation 50 CFR 402.14(g)(3)(4) requires the USFWS and NMFS to "evaluate the effects of the action and cumulative effects on the listed species or critical habitat" and "formulate its biological opinion as to whether the action, taken together with cumulative effects, is likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of Critical Habitat."

According to the Endangered Species Consultation Handbook (USFWS and NMFS, 1998), cumulative effects include the effects of future State, local or private actions that are reasonably certain to occur in the action area considered in a biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to Section 7 of FESA. Indicators of effects "reasonably certain to occur" may include, but are not limited to: approval of the action by State or local agencies or governments (e.g., permits, grants); indications by granting authorities that an action is imminent; assurances by Project sponsors that an action will proceed; the obligation of venture capital; and/or initiation of contracts. Speculative non-Federal actions that may never be implemented are not factored into cumulative effects analyses.

The Project site and surrounding areas consist of current and past land disturbance from oil development activities, agriculture, residential, and other industrial uses. Based on the cumulative impacts analysis completed for the Project Oil and Gas Drilling/Production Plan Permit Application Package (Aera, 2015), there are several projects (either proposed or in process) within the immediate vicinity (i.e., within one mile) of the Project site, all of which include the development of oil wells.

The increase in oil and gas operations in the Project vicinity will cumulatively increase human presence, vehicle traffic, development of roads, and noise from operations and ongoing well maintenance within Cat Canyon and Long Canyon. Wildlife that utilize the resources in the vicinity, specifically the larger drainages that provide cover and migratory passageways, such as Cat Canyon Creek, may be potentially impacted indirectly from these cumulative disturbances. Direct impacts may also result from vehicle collisions with wildlife, specifically during the early morning hours and night along Cat Canyon Road. These impacts may be increased during

periods when water is present within ephemeral ponds and creek channels that attract wildlife from upland areas, including semi-aquatic amphibians, such as CRLF and CTS.

In addition, the Project has the potential to impact CTS upland habitat and add to cumulative impacts to biological resources (in particular CRLF and CTS) which may result from development in the region. However, the Project-related impacts to biological resources can be reduced to less than significant levels with the implementation of Project-incorporated minimization and avoidance measures, including those listed in this BA, the Project biological resources report (Padre Associates, 2015a), and all applicable permits. In addition, mitigation for temporary and permanent loss of CTS upland habitat will be implemented as described in Section 5.2.4 above. Therefore, with Project-incorporated measures and appropriate mitigation, the Project's impacts to CRLF and CTS will not be significant, nor will they be cumulatively significant with other projects in the region.

# 6.0 DETERMINATION OF EFFECTS

This section describes potential effects to Federally listed species and their habitats. Effects of the Project on listed species were evaluated based on the following definitions (50 CFR 402.02):

- ***No effect*:** The appropriate determination where the Proposed Action will not affect listed species or critical habitat.
- ***Not likely to adversely affect*:** The appropriate determination when effects on listed species are expected to be discountable, insignificant, or beneficial. Beneficial effects are contemporaneous positive effects without adverse effects to the species. Insignificant effects relate to the size of the impact and should never reach the scale where take occurs. Discountable effects are those effects extremely unlikely to occur.
- ***Likely to adversely affect*:** The appropriate determination if adverse effect to listed species may occur as a direct or indirect result of the proposed action (including interdependent and interrelated actions), and the effect is not discountable or insignificant.
- ***Likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of Critical Habitat***: The appropriate determination when the proposed Project is likely to jeopardize the species or adversely modify Critical Habitat for the species. Jeopardy occurs when the Project is likely to directly or indirectly appreciably reduce the likelihood of both the survival and recovery of the protected species in the wild by reducing their reproduction, numbers, or distribution.
- ***Likely to jeopardize a proposed species or adversely modify proposed Critical Habitat***: The appropriate conclusion if the Project is likely to jeopardize the continued existence of the proposed species or adversely modify the proposed Critical Habitat.

Critical Habitat does not occur within the Project site and no Federally listed species have been documented within the Project site. Listed species that have been determined to be *absent* from the Project site during the initial potential for occurrence analysis (Section 4.0) are determined to have *No Effect* from the proposed Project. The following discussion provides determinations on the effect to listed species considered for analysis based on *potential* for presence within the Project site. A summary of determinations is provided in Table 6-1, below.

## 6.1 CALIFORNIA RED-LEGGED FROG

CRLF have not been documented within the Project site, but are known to occur within five miles of the Project site. The Project is *not likely to adversely affect* CRLF. Incorporation of Project avoidance and minimization measures will further reduce potential direct and indirect impacts to CRLF to the greatest extent possible.

## 6.2 CALIFORNIA TIGER SALAMANDER

CTS have not been documented within the Project site, but are known to occur within five miles of the Project site, and have been presumed to be present because protocol surveys were

not feasible to implement to determine presence/absence. The Project is *likely to adversely affect* CTS. Mitigation for temporary and permanent impacts to potential CTS upland habitat and incorporation of Project avoidance and minimization measures will further reduce potential direct and indirect impacts to CTS to the greatest extent possible.

**Table 6-1. Determination Summary for Federally Listed Species for the Project Site**

| Common Name | Determination | | | |
|---|---|---|---|---|
| | No Effect | Not Likely to Adversely Affect | Likely to Adversely Affect | Jeopardy / Adverse Modification Finding |
| **Plants** | | | | |
| Gambel's watercress | X | | | |
| Gaviota tarplant | X | | | |
| La Graciosa thistle | X | | | |
| Lompoc yerba santa | X | | | |
| Marsh sandwort | X | | | |
| **Invertebrates** | | | | |
| Vernal pool fairy shrimp | X | | | |
| **Amphibians** | | | | |
| Arroyo toad | X | | | |
| California red-legged frog | | X | | |
| California tiger salamander | | | X | |
| **Birds** | | | | |
| Least Bell's vireo | X | | | |
| Southwestern willow flycatcher | X | | | |

# 7.0 ANALYSIS OF ALTERNATIVE ACTION

Prior to the implementation of an action that would adversely impact listed species, Section 10(a)(2)(A)(iii) of the FESA requires that alternatives be evaluated to avoid unnecessary take. The reasons why alternatives are infeasible must be discussed. Alternatives to the proposed Project (oil field development activities) evaluated by this BA are as follows:

- Reduced Footprint Alternative;
- Oak Avoidance Alternative; and
- No Action Alternative.

Table 7-1 – Alternative Project Footprint Comparison presents the specifications for each Project alternative, including facilities and access roads, acreage of disturbance, vegetation impacts, CTS habitat impacts, and vehicle trips.

**Table 7-1. Alternative Project Footprint Comparison**

| Issue Area | Proposed Development Project | Reduced Footprint Project Alternative | Oak Avoidance Alternative |
|---|---|---|---|
| Total Disturbed acreage: (temporary and permanent) | 304.7 acre | 163.65 acre | 136.10 acre |
| Disturbed acreage (temporary) | 103.3 acre | 48.46 acre | 36.79 acre |
| Disturbed acreage (permanent) | 201.4 acre | 115.19 acre | 95.46 acre |
| Active Wells | 296 | No Change | No Change |
| Replacement Wells | 30 | No Change | No Change |
| Well pads | 72 | 26 | 37 |
| Number of steam generators | 6 | No change | No Change |
| Access roads | 9 miles | 9.25 miles | 10.09 miles |
| Conservation Easement Acreage | 686.4 acre | 403.6 acre | 222.4 acre |
| Oak tree impacts (mature tree removals) | 1,500 trees | 735 trees | 281 trees |
| Oak Tree Replacements - Conservation Easement Acreage | 237.2 acre | 116.2 acre | 40.29 acre |
| CTS potential habitat impacts (Temporary and Permanent) | 240.5 acre | 116.7 acre | 86.24 acre |
| CTS potential habitat impacts (temporary) | 104.6 acre | 40.82 acre | 30.94 acre |

## Table 7-1. Alternative Project Footprint Comparison

| Issue Area | Proposed Development Project | Reduced Footprint Project Alternative | Oak Avoidance Alternative |
|---|---|---|---|
| CTS potential habitat impacts (permanent) | 135.9 acre | 75.89 acre | 55.31 acre |
| Vegetation Impacts (Temporary and Permanent) | 335.2 acre | 163.65 acre | 132.25 acre |
| Vegetation Impacts (Temporary) | 103.3 acre | 48.46 acre | 36.79 acre |
| Vegetation Impacts (Permanent) | 201.4 acre | 115.19 acre | 95.46 acre |
| Peak Production Barrels/day – oil | 10,000 | No change | No change |
| Natural gas pipeline | 14 miles, 8-inch pipeline | No change | No change |
| Electrical transmission line | 0.3 miles, 115 kV | No change | No change |
| Vehicle Trips per day (includes employees, contractors, incoming and outgoing deliveries including oil shipping.) | 532 (199 tanker truck, 18 non-tanker truck, 315 employee) | No change | No change |
| Oil recovery process | Cyclic steam injection and pattern steam flood | No change | No change |
| Personnel | 40 staff / 75 contractors | No change | No change |
| Proposed brackish water re-use | 35,000 to 40,000 barrels per day | No change | No change |
| Proposed Fresh Water Use | 10,500 gallons per well | No change | No change |
| Processing facilities | | No change | No change |
| Oil transport | Trucking | No change | No change |

## 7.1 REDUCED FOOTPRINT ALTERNATIVE

The Reduced Footprint Alternative would reduce the number of wells, pads, access roads, and equipment, which would reduce the Project impact to sensitive habitat and species. This alternative utilizes more directional drilling to reach subsurface reservoir locations, and is more costly to implement and operate, however, it achieves most of the Project Objectives while reducing Project impacts. In particular, there is less grading, oak removals, and CTS habitat impacts. USFW modeled CTS impacts for this alternative and the results are as follows:

**Table 7-2. Reduced Footprint Alternative Impacts Based on USFWS Searcy Model**

| Project Impacts | Reproductive Value of Project Footprint | Reproductive Value of Shadow Effect | Total Reproductive Value |
|---|---|---|---|
| Impacts that impede CTS dispersal[1] | 71 | 8,334 | 8,405 |
| Impacts that do not impede CTS dispersal[2] | 5,762 | N/A | 5,762 |
| | | Total | 14,167 |

Notes:
[1] Impacts that impede CTS dispersal include well pumping units and facilities.
[2] Impacts that do not impede CTS dispersal include well pads and roadways.
N/A – Not applicable

In addition to reducing the Project footprint, the Reduced Footprint Alternative has a reduced conservation area that is proportional to the disturbance. The mitigation ratio for CTS is presented in Table 7-3 – Reduced Footprint Alternative CTS Mitigation.

**Table 7-3. Reduced Footprint Alternative CTS Mitigation**

| Project Components | Reproductive Value[1] | Ratio[2] |
|---|---|---|
| Conservation Area | 42,293 | 2.99 |
| Reduced Footprint Alternative Footprint | 14,167 | 1 |

Notes:
[1]Based on USFWS Searcy Model calculations provided on November 10, 2017.
[2]Ratio of Conservation Area reproductive value in comparison to the Project Footprint reproductive value.

## 7.2 OAK AVOIDANCE ALTERNATIVE

The Oak Avoidance Alternative further reduces the number of wells, pads, access roads, and equipment with particular focus on avoiding coast live oak trees. This alternative utilizes even more directional drilling to reach subsurface reservoir locations, and is more costly to implement and operate, however, it achieves most of the Project Objectives while reducing Project impacts. In particular, there is less grading, oak removals, and CTS habitat impacts. USFW modeled CTS impacts for this alternative and the results are as follows:

**Table 7-4. Oak Avoidance Alternative Impacts Based on USFWS Searcy Model**

| Project Impacts | Reproductive Value of Project Footprint | Reproductive Value of Shadow Effect | Total Reproductive Value |
|---|---|---|---|
| Impacts that impede CTS dispersal[1] | 43 | 7,713 | 7,756 |
| Impacts that do not impede CTS dispersal[2] | 4,109 | N/A | 4,109 |
| | | Total | 11,865 |

Notes:
[1] Impacts that impede CTS dispersal include well pumping units and facilities.
[2] Impacts that do not impede CTS dispersal include well pads and roadways.
N/A – Not applicable

In addition to reducing the Project footprint, the Oak Avoidance Alternative has a reduced conservation area that is proportional to the disturbance. The mitigation ratio for CTS is presented in Table 7-5 – Oak Avoidance Alternative CTS Mitigation.

**Table 7-5. Oak Avoidance Alternative CTS Mitigation**

| Project Components | Reproductive Value[1] | Ratio[2] |
|---|---|---|
| Conservation Area | 40,528 | 3.42 |
| Oak Avoidance Alternative Footprint | 11,865 | 1 |

Notes:
[1]Based on USFWS Searcy Model calculations provided on November 10, 2017.
[2]Ratio of Conservation Area reproductive value in comparison to the Project Footprint reproductive value.

## 7.3 NO ACTION ALTERNATIVE

The No Action Alternative is for comparative evaluation as required by the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). Under the No Action Alternative, there would be no oil field redevelopment within the East Cat Canyon Oil Field Project site. The Project site would remain as is, as a decommissioned and partially abandoned oil field. This alternative would not meet the purpose, need, or objectives of the proposed Project. The environmental setting would remain as it currently exists and there would be no direct effect on listed species that may occur in the area.

PAGE INTENTIONALLY LEFT BLANK

# 8.0 REFERENCES

Aera Energy LLC (Aera). 2015. Oil and Gas Drilling/Production Plan Permit Application Package for the East Cat Canyon Oil Field Redevelopment Project, Santa Barbara County, California.

Barry, S.J. and H.B. Shaffer. 1994. The Status of the California tiger salamander *Ambystoma californiense* at Lagunita: A 50 year update. Journal of Herpetology 28:159-164.

California Department of Fish and Wildlife (CDFW). 2016. California Natural Diversity Data Base (CNDDB) Rare Find. Twitchell Dam, Tepusquet Canyon, Sisquoc, Orcutt, Lompoc, Los Alamos, Zaca Creek, Foxen Canyon, and Santa Maria.

California Division of Oil, Gas, and Geothermal Resources (DOGGR). 2016. DOGGR Online Mapping System. Online: http://maps.conservation.ca.gov/doms/index.html.

Collins, P. and P. Gaede. 2013. Results of Drift Fence and Aquatic Surveys for California Tiger Salamanders (*Ambystoma californiense*) and other Special Status Amphibians on the ERG West Cat Canyon Lease in Northern Santa Barbara County, California. Prepared for ERG Operating Company LLC.

Cook, D. 2002. Microhabitat Use and Reproductive Success of the California Red-legged Frog (*Rana aurora draytonii*) and Bullfrog (*Rana catesbeiana*) in an Ephemeral Marsh. California Red-Legged Frog Workshop. Sacramento-Shasta Chapter of The Wildlife Society. April 8-10, 2002. Marshall, CA.

Fellers, G. M. and P. M. Kleeman. 2007. California red-legged frog (*Rana draytonii*) movement and habitat use: Implications for conservation. Journal of Herpetology 41:276–286.

Holland, R. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. Unpublished Report. California Fish and Game, Natural Heritage Division. Sacramento, CA.

Orloff. 2011. Movement patterns and migration distances in an upland population of California tiger salamander (*Ambystoma californiense*). Herpetological Conservation and Biology 6: 266-276.

Padre Associates, Inc. 2013. California Red-Legged Frog Habitat Assessment for the Aera Energy LLC Cat Canyon Property. Prepared for Aera Energy LLC.

------ 2014a. Least Bell's Vireo (*Vireo bellii pusillus*) Survey Report for the East Cat Canyon Oil Field. Prepared for Aera Energy LLC.

------ 2014b. 90-Day Report on Wet Season Vernal Pool Branchiopod Surveys for the Aera Energy LLC East Cat Canyon Oil Field. 2013/2014 Wet Season.

------ 2014c. Biological Resources Survey Report – Electrical Transmission Line for the Aera Energy LLC East Cat Canyon Oil Field Redevelopment Project. Prepared for Aera Energy LLC.

------ 2014d. Biological Resources Survey Report – Natural Gas Import Pipeline for the Aera Energy LLC East Cat Canyon Oil Field Redevelopment Project. Prepared for Aera Energy LLC.

------ 2015a. Biological Resources Survey Report for the East Cat Canyon Oil Field Redevelopment Project. Prepared for Aera Energy LLC.

------ 2015b. 90-Day Report on Wet Season Vernal Pool Branchiopod Surveys for the Aera Energy LLC East Cat Canyon Oil Field Redevelopment Project. 2014/2015 Wet Season.

Sawyer, John O., Keeler-Wolf, Todd, Evans, Julie M. 2009. A Manual of California Vegetation Second Edition. California Native Plant Society. Berkeley, CA.

Searcy, C.A. Shaffer, 2008. Calculating biologically accurate mitigation credits: insights from the California tiger salamander. Conservation Biology. 131: 14-22.

Searcy, C.A. Shaffer, H.B., 2011. Determining the migration distance of a vagile vernal pool specialist: how much land is required for conservation of California tiger salamanders? In: Alexander, D.G., Schlising, R.A. (Eds.), Research and Recovery of Vernal Pool Landscapes. California State University, Chico, CA, pp.73-87.

Searcy, Christopher, Emilio Gabbai-Saldate, H. Bradley Shaffer. 2013. Microhabitat use and migration distance of an endangered grassland amphibian. Biological Conservation. 158:80-87.

Semonsen, Vince. 2007. Initial Field Assessment for California Tiger Salamander for the Aera East Cat Canyon Oil and Gas Field. Prepared by Vince Semenson of VJS Biological Consulting. Prepared for Aera Energy LLC.

Shaffer, H.B., R.N. Fisher, and S.E. Stanley. 1993. Status Report: The California tiger salamander (*Ambystoma californiense*). Final report to California Department of Fish and Game, Inland fisheries division, contract #FG9422 and FG1393.

Stebbins, Robert C. 2003. A Field Guide to Western Reptiles and Amphibians, Third Edition. Houghton Mifflin Company. New York.

Storer, T. 1925. A Synopsis of the Amphibia of California. University of California Zoology 27:1-342.

Storrer Environmental. 2011. Habitat Assessment for California Tiger Salamander for the Aera Two-dimensional Seismic Survey Test Plan. Prepared for Aera Energy LLC.

Storrer Environmental. 2013. Habitat Assessment for California Tiger Salamander (*Ambystoma californiense*), Aera East Cat Canyon Production Plan, Santa Barbara County, California. Prepared for Padre Associates, Inc.

Storrer Environmental. 2015. California Tiger Salamander Survey Results 2014/2015, Aera East Cat Canyon Oil Field Re-development Project, Santa Barbara County, California. Prepared for Padre Associates, Inc.

Storrer Environmental. 2016. California Tiger Salamander Survey Results 2015/2016, Aera East Cat Canyon Oil Field Re-development Project, Santa Barbara County, California. Prepared for Padre Associates, Inc.

Sykes, Stephen A. 2006. Results of California Tiger Salamander Research Conducted from 2001-2004 at Two Ponds at the Santa Maria Airport, Santa Maria, California. Prepared for the U.S. Fish and Wildlife Service.

Tatarian, T., G. Tatarian, and N. Scott. 2015. Biology and Management of the California Red-Legged Frog (*Rana draytonii*). CRLF Workshop. Elkhorn Slough Coastal Training Program.

Trenham, P. C., and H. B. Shaffer. 2005. Amphibian upland habitat use and its consequences for population viability. Ecological Applications 15:1158–1168.

U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS). 1998. Consultation Handbook; Procedures for Conducting Consultation and Conference Activities Under Section 7 of the Endangered Species Act. March 1998.

U.S. Fish and Wildlife Service (USFWS). 2002. Recovery Plan for the California Red-Legged Frog (*Rana aurora draytonii*). September 12, 2002. Portland, Oregon.

------- 2003. Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander.

------ 2010. USFWS California Tiger Salamander Pond Habitats – Northern Area (Santa Barbara County Population).

------ 2015. Draft Recovery Plan for the Santa Barbara County DPS of California Tiger Salamander (*Ambystoma californiense*). April 24, 2015.

------ 2016. Critical Habitat Portal. Available online: http://criticalhabitat.fws.gov/crithab/.

------ 2017. Official Species List. Consultation Code: 08EVEN00-2016-SLI-0383. Obtained May 16, 2016.

------ 2018. Official Species List. Consultation Code: 08EVEN00-2018-SLI-0056. Obtained November 1, 2017.

PAGE INTENTIONALLY LEFT BLANK

# APPENDIX A

## USFWS OFFICIAL SPECIES LIST

PAGE INTENTIONALLY LEFT BLANK

# United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ventura Fish And Wildlife Office
2493 Portola Road, Suite B
Ventura, CA 93003-7726
Phone: (805) 644-1766 Fax: (805) 644-3958


In Reply Refer To: November 01, 2017
Consultation Code: 08EVEN00-2018-SLI-0056
Event Code: 08EVEN00-2018-E-00114
Project Name: East Cat Canyon Oil Field Redevelopment

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed list identifies species listed as threatened and endangered, species proposed for listing as threatened or endangered, designated and proposed critical habitat, and species that are candidates for listing that may occur within the boundary of the area you have indicated using the U.S. Fish and Wildlife Service's (Service) Information Planning and Conservation System (IPaC). The species list fulfills the requirements under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.). Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the species list should be verified after 90 days. We recommend that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists following the same process you used to receive the enclosed list. Please include the Consultation Tracking Number in the header of this letter with any correspondence about the species list.

Due to staff shortages and excessive workload, we are unable to provide an official list more specific to your area. Numerous other sources of information are available for you to narrow the list to the habitats and conditions of the site in which you are interested. For example, we recommend conducting a biological site assessment or surveys for plants and animals that could help refine the list.

If a Federal agency is involved in the project, that agency has the responsibility to review its proposed activities and determine whether any listed species may be affected. If the project is a major construction project*, the Federal agency has the responsibility to prepare a biological assessment to make a determination of the effects of the action on the listed species or critical habitat. If the Federal agency determines that a listed species or critical habitat is likely to be adversely affected, it should request, in writing through our office, formal consultation pursuant to section 7 of the Act. Informal consultation may be used to exchange information and resolve conflicts with respect to threatened or endangered species or their critical habitat prior to a

written request for formal consultation. During this review process, the Federal agency may engage in planning efforts but may not make any irreversible commitment of resources. Such a commitment could constitute a violation of section 7(d) of the Act.

Federal agencies are required to confer with the Service, pursuant to section 7(a)(4) of the Act, when an agency action is likely to jeopardize the continued existence of any proposed species or result in the destruction or adverse modification of proposed critical habitat (50 CFR 402.10(a)). A request for formal conference must be in writing and should include the same information that would be provided for a request for formal consultation. Conferences can also include discussions between the Service and the Federal agency to identify and resolve potential conflicts between an action and proposed species or proposed critical habitat early in the decision-making process. The Service recommends ways to minimize or avoid adverse effects of the action. These recommendations are advisory because the jeopardy prohibition of section 7(a)(2) of the Act does not apply until the species is listed or the proposed critical habitat is designated. The conference process fulfills the need to inform Federal agencies of possible steps that an agency might take at an early stage to adjust its actions to avoid jeopardizing a proposed species.

When a proposed species or proposed critical habitat may be affected by an action, the lead Federal agency may elect to enter into formal conference with the Service even if the action is not likely to jeopardize or result in the destruction or adverse modification of proposed critical habitat. If the proposed species is listed or the proposed critical habitat is designated after completion of the conference, the Federal agency may ask the Service, in writing, to confirm the conference as a formal consultation. If the Service reviews the proposed action and finds that no significant changes in the action as planned or in the information used during the conference have occurred, the Service will confirm the conference as a formal consultation on the project and no further section 7 consultation will be necessary. Use of the formal conference process in this manner can prevent delays in the event the proposed species is listed or the proposed critical habitat is designated during project development or implementation.

Candidate species are those species presently under review by the Service for consideration for Federal listing. Candidate species should be considered in the planning process because they may become listed or proposed for listing prior to project completion. Preparation of a biological assessment, as described in section 7(c) of the Act, is not required for candidate species. If early evaluation of your project indicates that it is likely to affect a candidate species, you may wish to request technical assistance from this office.

Only listed species receive protection under the Act. However, sensitive species should be considered in the planning process in the event they become listed or proposed for listing prior to project completion. We recommend that you review information in the California Department of Fish and Wildlife's Natural Diversity Data Base. You can contact the California Department of Fish and Wildlife at (916) 324-3812 for information on other sensitive species that may occur in this area.

[*A Biological Assessment is required for construction projects (or other undertakings having

similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.]

Attachment(s):

- Official Species List

# Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

**Ventura Fish And Wildlife Office**
2493 Portola Road, Suite B
Ventura, CA 93003-7726
(805) 644-1766

# Project Summary

Consultation Code: 08EVEN00-2018-SLI-0056

Event Code: 08EVEN00-2018-E-00114

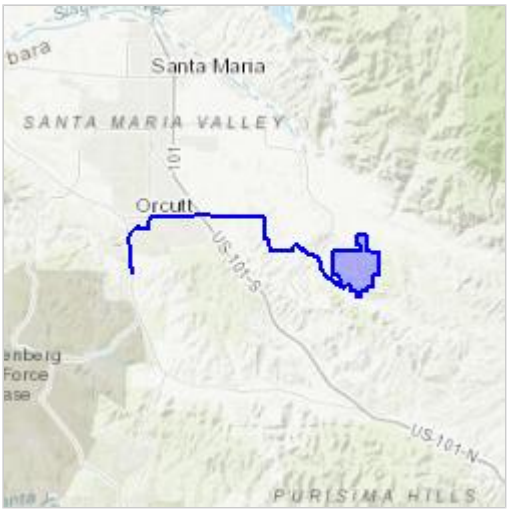
Project Name: East Cat Canyon Oil Field Redevelopment

Project Type: OIL OR GAS

Project Description: The Project will re-establish oil production in an existing oil field by drilling and operating new wells, and building and operating new infrastructure and facilities to support enhanced oil recovery. Project plans include construction and restoration of approximately 72 well pads, construction and restoration of over nine miles of field access roads, and drilling of up to 296 wells. Planned wells include oil/gas production wells, steam injection wells, observation wells, water production wells, water injection wells, and fresh groundwater wells. Additional utilities to support the redevelopment Project include a natural gas pipeline, electrical power transmission line and substation, and upgraded fiber optic communication lines, which have been included in this BA.

Project Location:

Approximate location of the project can be viewed in Google Maps:
https://www.google.com/maps/place/34.83970390890826N120.27722021255966W




Counties: Santa Barbara, CA

# Endangered Species Act Species

There is a total of 11 threatened, endangered, or candidate species on this species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

## Birds

| NAME | STATUS |
|---|---|
| Least Bell's Vireo *Vireo bellii pusillus*<br>There is **final** critical habitat for this species. Your location is outside the critical habitat.<br>Species profile: https://ecos.fws.gov/ecp/species/5945 | Endangered |
| Southwestern Willow Flycatcher *Empidonax traillii extimus*<br>There is **final** critical habitat for this species. Your location is outside the critical habitat.<br>Species profile: https://ecos.fws.gov/ecp/species/6749 | Endangered |

## Amphibians

| NAME | STATUS |
|---|---|
| California Red-legged Frog *Rana draytonii*<br>There is **final** critical habitat for this species. Your location is outside the critical habitat.<br>Species profile: https://ecos.fws.gov/ecp/species/2891 | Threatened |
| California Tiger Salamander *Ambystoma californiense*<br>Population: U.S.A. (CA - Santa Barbara County)<br>There is **final** critical habitat for this species. Your location overlaps the critical habitat.<br>Species profile: https://ecos.fws.gov/ecp/species/2076 | Endangered |

## Fishes

| NAME | STATUS |
|---|---|
| Unarmored Threespine Stickleback *Gasterosteus aculeatus williamsoni*<br>No critical habitat has been designated for this species.<br>Species profile: https://ecos.fws.gov/ecp/species/7002 | Endangered |

## Insects

| NAME | STATUS |
|---|---|
| El Segundo Blue Butterfly *Euphilotes battoides allyni*<br>There is **proposed** critical habitat for this species. The location of the critical habitat is not available.<br>Species profile: https://ecos.fws.gov/ecp/species/3135 | Endangered |

## Crustaceans

| NAME | STATUS |
|---|---|
| Vernal Pool Fairy Shrimp *Branchinecta lynchi*<br>There is **final** critical habitat for this species. Your location is outside the critical habitat.<br>Species profile: https://ecos.fws.gov/ecp/species/498 | Threatened |

## Flowering Plants

| NAME | STATUS |
|---|---|
| Gambel's Watercress *Rorippa gambellii*<br>No critical habitat has been designated for this species.<br>Species profile: https://ecos.fws.gov/ecp/species/4201 | Endangered |
| La Graciosa Thistle *Cirsium loncholepis*<br>There is **final** critical habitat for this species. Your location overlaps the critical habitat.<br>Species profile: https://ecos.fws.gov/ecp/species/6547 | Endangered |
| Lompoc Yerba Santa *Eriodictyon capitatum*<br>There is **final** critical habitat for this species. Your location is outside the critical habitat.<br>Species profile: https://ecos.fws.gov/ecp/species/364 | Endangered |
| Marsh Sandwort *Arenaria paludicola*<br>No critical habitat has been designated for this species.<br>Species profile: https://ecos.fws.gov/ecp/species/2229 | Endangered |

## Critical habitats

There are 2 critical habitats wholly or partially within your project area under this office's jurisdiction.

| NAME | STATUS |
|---|---|

California Tiger Salamander *Ambystoma californiense* Final
https://ecos.fws.gov/ecp/species/2076#crithab

La Graciosa Thistle *Cirsium loncholepis* Final
https://ecos.fws.gov/ecp/species/6547#crithab

# BIOLOGICAL RESOURCES SURVEY REPORT

## EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT
## SANTA BARBARA COUNTY, CALIFORNIA

**Prepared for:**

Aera Energy LLC
10000 Ming Avenue
Bakersfield, California 93311

**Prepared by:**

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

369 Pacific Street
San Luis Obispo, California 93401

**Revised August 2015**

**Project No. 1002-0455**

# Authenticity and Signature Page

**Padre Associates, Inc.**
**369 Pacific Street**
**San Luis Obispo, California 93401**
**805-786-2650**

Padre Associates, Inc. hereby certifies that all statements furnished in the following Biological Resources Report and all supporting information required for this biological evaluation are true and correct to the best of our knowledge and belief. Further, we certify that all field surveys associated with this report were performed by Padre using standards accepted by Santa Barbara County and accurately represent all information retained from field visits to the subject property in the East Cat Canyon Oil and Gas Field, Santa Barbara County, California.

Eric Snelling
Principal

Thea Benson
Senior Biologist

PAGE INTENTIONALLY BLANK

## EXECUTIVE SUMMARY

The following Biological Resources Survey Report (Report) has been prepared by Padre Associates, Inc. (Padre) documenting the results of a biological survey conducted for Aera Energy LLC (Aera) for the proposed Oil and Gas Redevelopment Project (Project), located within East Cat Canyon, Santa Barbara County, California. The Project will re-establish oil production in an existing oil field by drilling and operating new wells, and building and operating new infrastructure and facilities to support enhanced oil recovery.. Project plans include construction and restoration of approximately 72 well pads, construction and restoration of over nine miles of field access roads, and drilling of up to 296 wells. Planned wells include oil/gas production wells, steam injection wells, observation wells, water production wells, water injection wells, and fresh groundwater wells. Additional utilities to support the redevelopment Project include a natural gas pipeline, electrical power transmission line and substation, and upgraded fiber optic communication lines. For the purposes of this Report, the biological resources and potential impacts to regional biological resources from the supporting utilities are not discussed.

Biological field surveys supporting this Report were completed between January 2012 and September 2014. Surveys included spring botanical surveys, protocol-level brachiopod surveys, protocol-level least Bell's vireo (*Vireo bellii pusillus*) surveys, vegetation mapping, and oak tree inventories. In addition, several species-specific habitat assessments for federally listed species were prepared and submitted to United States Fish and Wildlife Service and California Department of Fish and Wildlife to initiate discussions regarding Project avoidance, minimization, and mitigation measures. Consultations with the United States Fish and Wildlife Service, California Department of Fish and Wildlife, and United States Army Corps of Engineers were completed between November 2011 and June 2014.

The field surveys documented eight general vegetation types including, western rush marshes, California coffeeberry scrub, red willow thickets, coast live oak woodland, annual grassland (annual brome and wild oats grassland), California coastal scrub (California sage scrub, black sage scrub, mock heather stand, and coyote brush scrub), eucalyptus groves, and previously disturbed areas consisting of spare vegetation. The desktop analysis and field surveys concluded that suitable habitat for several special-status plants and animals documented in the region (within 10 miles from the Project site) may occur within the Project site. Special-status plant species that have a potential for occurrence within the Biological Survey Area include:

| **Common Name** *(Arranged alphabetically by common name)* | **Scientific Name** | **Project Site** | | | |
|---|---|---|---|---|---|
| | | Habitat Present | Occurrence ≤ Five Miles | Observed by Padre Biologists | Potential for Occurrence |
| Black-flowered figwort | *Scrophularia atrata* | X | | | X |
| Blochman's leafy daisy | *Erigeron blochmaniae* | X | | | X |
| Chaparral ragwort | *Senecio aphanactis* | X | | | X |
| Dwarf calycadenia | *Calycadenia villosa* | X | | | X |

| **Common Name** *(Arranged alphabetically by common name)* | **Scientific Name** | **Project Site** | | | |
|---|---|---|---|---|---|
| | | Habitat Present | Occurrence ≤ Five Miles | Observed by Padre Biologists | Potential for Occurrence |
| Gaviota tarplant | *Deinandra increscens* ssp. *villosa* | X | | | X |
| Hoover's bent grass | *Agrostis hooveri* | X | X | | X |
| Mesa horkelia | *Horkelia cuneata* var. *puberula* | X | X | | X |
| Miles' milkvetch | *Astragalus didymocarpus* var. *milesianus* | X | X | | X |
| Pale-yellow layia | *Layia heterotricha* | X | | | X |
| Santa Barbara honeysuckle | *Lonicera subspicata var. subspicata* | X | | | X |
| Santa Ynez groundstar | *Ancistrocarphus keilii* | X | | | X |
| Seaside bird's-beak | *Cordylanthus rigidus* ssp. *littoralis* | X | | | X |
| Straight-awned spineflower | *Chorizanthe rectispina* | X | X | X | X |
| Umbrella larkspur | *Delphinium umbraculorum* | X | | | X |
| Vandenberg monkeyflower | *Mimulus fremontii* var. *vandenbergensis* | X | | | X |

Appropriately timed spring surveys were completed to capture the blooming period for these potentially occurring species and other species documented in the region that may have suitable habitat within the Project site.

Special-status wildlife species that have the potential for occurrence within the Project site include:

| **Common Name** *(Arranged alphabetically by common name)* | **Scientific Name** | **Project Site** | | | |
|---|---|---|---|---|---|
| | | Habitat Present | Occurrence ≤ Five Miles | Observed by Padre Biologists | Potential for Occurrence |
| American badger | *Taxidea taxus* | X | X | X | X |
| Burrowing owl | *Athene cunicularia* | X | X | | X |
| California horned lark | *Eremophila alpestris actia* | X | X | X | X |
| California red-legged frog | *Rana draytonii* | | X | | X |
| California tiger salamander | *Ambystoma californiense* | X | X | | X |
| Blainville's horned lizard | *Phrynosoma blainvillii* | X | X | X | X |
| Coast patch-nosed snake | *Salvadora hexalepis virgultea* | X | | | X |
| Golden eagle | *Aquila chrysaetos* | X | X | | X |
| Loggerhead shrike | *Lanius ludovicianus* | X | | | X |

| **Common Name** *(Arranged alphabetically by common name)* | **Scientific Name** | **Project Site** | | | |
|---|---|---|---|---|---|
| | | Habitat Present | Occurrence ≤ Five Miles | Observed by Padre Biologists | Potential for Occurrence |
| Monarch butterfly | *Danaus plexippus* | X | X | X | X |
| Oak titmouse | *Baeolophus inornatus* | X | X | X | X |
| Purple martin | *Progne subis* | X | | | X |
| San Diego desert woodrat | *Neotoma lepida intermedia* | X | | | X |
| California legless lizard | *Anniella pulchra* | X | X | | X |
| Southern California rufous-crowned sparrow | *Aimophila ruficeps canescens* | X | X | X | X |
| Southern western pond turtle | *Actinemys pallida* | X | X | | X |
| Tricolored blackbird | *Agelaius tricolor* | X | X | | X |
| Western spadefoot | *Spea hammondii* | X | X | | X |
| Yellow warbler | *Dendroica petechia* | X | X | | X |

Based on the proposed Project footprint, temporary impacts to vegetation are expected to occur as a result of cut/fill slope grading, and above-ground pipeline installation activities, as well as fuel management activities associated with defensible space standards, per Santa Barbara County Fire Department requirements. Permanent impacts to vegetation will result from construction activities and will include the removal and conversion of habitat and fragment the landscape and disrupt foraging areas and/or access to food sources for local wildlife. Avoidance and minimization measures, such as implementation of a Project Fuel Management Plan, pre-activity surveys, and revegetation/relocation plans, are provided in this Report and will be incorporated into Project plans to reduce impacts to vegetation types and wildlife habitat to the greatest extent possible.

During initial grading and construction activities, individual coast live oak trees within the Project footprint and immediate boundary of the Project footprint may be temporarily impacted from soil compaction within the critical root zone (use of heavy equipment, piling of debris, soil fill, or parking vehicles), trenching/excavation activities that may cut into the root structure, or tree limbing for fuel management/reduction. Coast live oak trees occurring within the Project footprint that are proposed for removal will incorporate mitigation measures following Santa Barbara County approval. Mitigation for each live oak tree greater than six inches in diameter at breast height removed will be compensated 10:1 by replacement planting of acorns or young one gallon saplings, 3:1 by replacement planting of 15 gallon saplings, maintenance and protection of nurture trees (naturally occurring oak trees between six inches and six feet tall) 10:1 within the Project site, 1:1 by transplanting mature oak trees, or a combination thereof. An Oak Tree Protection Plan and an Oak Tree Replacement Plan are provided as avoidance and minimization measures that will be incorporated into Project plans.

A California tiger salamander (*Ambystoma californiense*) habitat assessment prepared for the Eat Cat Canyon Production Plan concluded that there was a low potential for California tiger salamander to occur within the boundaries of the Project site (Storrer, 2013). California tiger salamander have not been recorded within the limits of the Project site. There are no documented California tiger salamander breeding ponds within the maximum recorded dispersal distance of 1.3 miles. California tiger salamander have not been found during three years of upland and aquatic surveys on the adjacent West Cat Canyon Oil and Gas Lease, outside Aera property limits. Aera has consulted with both the California Department of Fish and Wildlife and United States Fish and Wildlife Service throughout the Project planning stages. Upland and aquatic surveys have been approved by the agencies and are planned for fall, winter, and spring of 2014 - 2015. Aera will provide permanent on-site and/or off-site open space easements, funds for the acquisition of such easements to a qualified easement holder, and/or contribution to an established "conservation bank" to preserve California tiger salamander habitat of equal or greater quality than that affected by the Project.

With the implementation of the avoidance and minimization measures incorporated into the Project and provided in this Report, significant impacts to biological resources will be avoided or minimized to the greatest extent possible.

## TABLE OF CONTENTS

**1.0 INTRODUCTION ..... 1**

1.1 PROJECT LOCATION ..... 1

1.2 SITE BACKGROUND ..... 1

1.3 PROJECT DESCRIPTION ..... 2

**2.0 REGULATORY SETTING ..... 7**

2.1 FEDERAL REGULATIONS ..... 7

2.1.1 Endangered Species Act ..... 7
2.1.2 Migratory Bird Treaty Act ..... 7
2.1.3 Bald and Golden Eagle Protection Act ..... 8
2.1.4 Magnuson-Stevens Fishery Conservation and Management Act ..... 8
2.1.5 Clean Water Act ..... 8

2.2 STATE REGULATIONS ..... 9

2.2.1 Porter-Cologne Water Quality Control Act ..... 9
2.2.2 California Fish and Game Code ..... 9
2.2.3 California Environmental Quality Act ..... 10
2.2.4 State of California Senate Bill 1334 ..... 11

2.3 SANTA BARBARA COUNTY REGULATIONS ..... 11

2.3.1 Santa Barbara County Comprehensive Plan ..... 11
2.3.2 Conservation Element –Oak Protection ..... 12
2.3.3 Santa Barbara County Code - Grading Ordinance Guidelines for Native Oak Tree Removal. ..... 12
2.3.4 Defensible Space Program. ..... 12

**3.0 AGENCY CONSULTATION HISTORY ..... 13**

**4.0 METHODS ..... 15**

4.1 DESKTOP REVIEW ..... 15

4.2 FIELD SURVEYS ..... 17

4.2.1 Biological Resource Surveys ..... 18

**5.0 FINDINGS ..... 21**

5.1 REGIONAL SETTING ..... 21

5.2 REGIONALLY OCCURRING SENSITIVE HABITATS ..... 22

5.2.1 Southern Steelhead Critical Habitat ..... 23
5.2.2 California Red-Legged Frog Critical Habitat ..... 23
5.2.3 California Tiger Salamander Critical Habitat ..... 23
5.2.4 Arroyo Toad Critical Habitat ..... 24
5.2.5 La Graciosa Thistle Critical Habitat ..... 24
5.2.6 Lompoc Yerba Santa Critical Habitat ..... 27
5.2.7 Gaviota tarplant Critical Habitat ..... 27
5.2.8 CDFW Natural Communities of Special Concern ..... 27
5.2.9 County Sensitive Habitats ..... 27

5.3 AQUATIC FEATURES ..... 28
5.3.1 Drainages ..... 28
5.3.2 Ephemeral Pools ..... 31
5.4 VEGETATION TYPES OCCURRING WITHIN THE PROJECT SITE ..... 32
5.4.1 Western Rush Marshes ..... 47
5.4.2 Annual Grassland ..... 47
5.4.3 California Coffeeberry Scrub ..... 48
5.4.4 California Coastal Scrub. ..... 48
5.4.5 Red Willow Thickets ..... 49
5.4.6 Coast Live Oak Woodland ..... 49
5.4.7 Eucalyptus Groves ..... 50
5.4.8 Previously Disturbed ..... 50
5.5 SPECIAL-STATUS PLANT SPECIES ..... 50
5.5.1 Straight-awned spineflower ..... 59
5.5.2 Hoover's bent grass ..... 59
5.6 WILDLIFE OCCURRING WITHIN THE PROJECT SITE ..... 59
5.6.1 Invertebrates ..... 60
5.6.2 Fish ..... 60
5.6.3 Amphibians ..... 60
5.6.4 Reptiles ..... 60
5.6.5 Birds ..... 60
5.6.6 Mammals ..... 61
5.6.7 Migratory Corridors ..... 61
5.7 SPECIAL-STATUS WILDLIFE SPECIES ..... 62
5.7.1 Invertebrates ..... 69
5.7.2 Fishes ..... 70
5.7.3 Amphibians ..... 70
5.7.4 Reptiles ..... 72
5.7.5 Birds ..... 73
5.7.6 Mammals ..... 76
**6.0 IMPACT DISCUSSION ..... 79**
6.1 THRESHOLD OF SIGNIFICANCE ..... 79
6.2 IMPACTS TO VEGETATION TYPES ..... 81
6.2.1 Western Rush Marsh ..... 85
6.2.2 California Coffeeberry Scrub ..... 85
6.2.3 Red Willow Thickets ..... 85
6.2.4 Oak Woodlands/Coast Live Oak ..... 85
6.2.5 Annual Grasslands ..... 91
6.2.6 California Coastal Scrub ..... 92
6.2.7 Eucalyptus Groves ..... 93
6.3 IMPACTS TO WATERS AND WETLANDS ..... 93
6.4 IMPACTS TO SPECIAL-STATUS PLANT SPECIES ..... 94

6.4.1 Straight-awned Spineflower ..... 94
6.5 IMPACTS TO WILDLIFE SPECIES ..... 95
6.5.1 General Impacts to Wildlife ..... 95
6.5.2 Impacts to Special-Status Wildlife ..... 95
**7.0 AVOIDANCE AND MINIMIZATION MEASURES ..... 105**
**8.0 REFERENCES ..... 109**

## FIGURES

Figure 1-1. Project Location and Project Footprint ..... 3
Figure 5-1. Regionally Occurring Sensitive Habitats ..... 25
Figure 5-2. NWI Wetlands and USGS Blue Line Streams ..... 29
Figure 5-3A. Biological Field Survey Results (A) ..... 35
Figure 5-3B. Biological Field Survey Results (B) ..... 37
Figure 5-3C. Biological Field Survey Results (C) ..... 39
Figure 5-3D. Biological Field Survey Results (D) ..... 41
Figure 5-3E. Biological Field Survey Results (E) ..... 43
Figure 5-3F. Biological Field Survey Results (F) ..... 45
Figure 5-4. Documented Special-Status Plants ..... 57
Figure 5-5. Documented Special-Status Wildlife ..... 67
Figure 6-1. Oak Inventory Study Areas ..... 89
Figure 6.2. CTS Upland Habitat Suitability Model ..... 99

## TABLES

Table 3-1. Agency Consultation Summary 13
Table 4-1. Summary of Field Surveys 17
Table 5-1. Summary of Sensitive Habitats Occurring within the Project Region 22
Table 5-3. Definitions of Special-Status Plant Species 51
Table 5-5. Blooming Period for Potentially Occurring Special-Status Plants 55
Table 5-6. Definitions of Special-Status Wildlife Species 62
Table 5-7. Special-Status Wildlife Species of the Project Region 63
Table 6-1. Summary of Vegetation Impacts Resulting from Project Activities 83
Table 6-2 - Ranking of Potential for CTS to occur within Project Site 96
Table 6-3. Project Impacts Based on CTS Occurrence Potential 97
Table 6-4. Mitigation for Loss of Potential California Tiger Salamander Upland Habitat 101

## APPENDICES

A. Fuel Management Plan

B. CNDDB Nine Quadrangle Query Results

C. California Red-Legged Frog Habitat Assessment (Padre, 2013)

D. Vernal Pool Fairy Shrimp Wet-Season Report (Padre, 2014a)

E. Vernal Pool Fairy Shrimp Dry-Season Report (LSA, 2014)

F. Habitat Assessment for California Tiger Salamander (Storrer Environmental, 2013)

G. Least Bell's Vireo Survey Results (Padre, 2014b)

H. Vegetation Rapid Assessment and Relevè Sampling (VRAP) Results

I. Site Photographs

J. Vascular Plant Inventory

K. CNDDB Completed Forms

L. Wildlife Species List

M. Oak Tree Protection Plan (Padre, 2014c)

N. Oak Tree Replacement Plan (Padre, 2015)

## ACRONYMS

| | |
|---|---|
| ACOE | United States Army Corps of Engineers |
| BCC | Birds of Conservation Concern |
| CDFW | California Department of Fish and Wildlife |
| CEQA | California Environmental Quality Act |
| CESA | California Endangered Species Act |
| CNDDB | California Natural Diversity Database |
| CNPS | California Native Plant Society |
| CRLF | California Red-Legged Frog |
| CTS | California Tiger Salamander |
| CWA | Clean Water Act |
| DBH | Diameter at breast height |
| DEM | Digital Elevation Model |
| DPS | Distinct Population Segment |
| EIR | Environmental Impact Report |
| EO | Element Occurrences |
| EPA | Environmental Protection Agency |
| ESA | Endangered Species Act |
| ESHA | Environmentally Sensitive Habitat Areas |
| ESU | Evolutionary Significant Unit |
| FESA | Federal Endangered Species Act |
| GIS | Geographic Information Systems |
| GPS | Global Positioning System |
| LSAA | Lake or Streambed Alteration Agreement |
| MBTA | Migratory Bird Treaty Act |
| MCVII | Manual of California Vegetation, Second Edition |
| MOU | Memorandum of Understanding |
| NMFS | National Marine Fisheries Service |
| NOAA | National Oceanic and Atmospheric Administration |
| NWI | National Wetland Inventory |
| OHWM | Ordinary High Water Mark |
| RWQCB | Regional Water Quality Control Board |
| SB | Senate Bill |
| SBCFD | Santa Barbara County Fire Department |

| | |
|---|---|
| SWPPP | Storm Water Pollution Prevention Plan |
| SWRCB | State Water Resources Control Board |
| USFWS | United States Fish and Wildlife Service |
| USGS | United States Geological Survey |
| VPFS | Vernal Pool Fairy Shrimp |
| VRAP | Vegetation Rapid Assessment and Relevè Sampling |

# 1.0 INTRODUCTION

The following Biological Resources Survey Report (Report) has been prepared by Padre Associates, Inc. (Padre) documenting the results of a comprehensive desktop review and a large scale biological survey conducted for Aera Energy LLC (Aera) for the East Cat Canyon Oil Field Redevelopment Project (Project) located within the East Cat Canyon Oil and Gas Field, Santa Barbara County, California. This Report does not include a biological evaluation of the Project-supporting natural gas pipeline, or overhead transmission lines. A separate biological resources survey report has been prepared for each of these Project associated utilities.

This Report provides an evaluation of biological resources occurring within the Project site, which includes the Aera-owned portions of the East Cat Canyon Oil Field and two small additional adjacent off-site Project footprint areas. The Project site location and Project development footprint (i.e., maximum disturbance area for grading and construction of Project facilities and infrastructure) are depicted on Figure 1-1 – Project Location and Project Footprint.

All biological field surveys were completed within the boundaries of the Project site. Other biological resources that occur in the region (within ten miles from the Project site) that may have the potential to occur within the Project site, or may be impacted indirectly by Project activities, were also evaluated through a desktop review. The primary objectives of the Report are as follows: 1) present the results of all field surveys within the Project site, including the type and extent of vegetative communities and wildlife habitats; 2) provide an inventory of all plants and wildlife observed in the Project site, 3) and identify local plant and wildlife species that may occur within the Project site but were not identified during field surveys; 4) identify special-status plant and wildlife species occurring within the region and suitable habitat of these special-status species within the Project site; 5) provide a complete evaluation of the potential Project impacts to biological resources within the Project site and surrounding region; and, 6) provide a detailed list of Project measures to avoid and/or minimize potential impacts to special-status species and associated habitats.

## 1.1 PROJECT LOCATION

The Project site is located within the Solomon Hills northeast of the Gato Ridge mountain ranges within Cat Canyon, approximately 10 miles southeast of the City of Santa Maria and the community of Orcutt located in northern Santa Barbara County, California (Figure 1-1 – Project Location and Project Footprint). The main property entrance is located at 6516 Cat Canyon Road, south of the community of Sisquoc, California. The Project facilities and infrastructure will be focused predominantly on the southwest portion of the property, where a greater density of existing roads, well pads, and previous facility footprints already exist. The California Division of Oil, Gas, and Geothermal Resources divides the Cat Canyon Oil Field into four distinct areas: East Area, West Area, Central Area, and Sisquoc Area. The entire Project site lies within the Cat Canyon Oil Field (East Area) boundaries.

## 1.2 SITE BACKGROUND

The East Cat Canyon Oil Field is located in the Santa Maria Basin, where oil has been produced since 1908. Approximately 131 oil wells operated on the Project site but were decommissioned by Aera between the late 1980s and 2003, under the supervision of the California Department of Conservation Division of Oil, Gas and Geothermal Resources (DOGGR). All of the oil wells at the Project site attributed to Aera or its predecessor companies are currently

listed as plugged and abandoned (DOGGR, 2013), with the exception of four non-producing test wells (Victory G1, G3, and G7 as well as Field Fee G2) that were drilled in 2012 in support of reservoir studies. Five oil production wells are currently operated on the Project site by ERG Resources, LLC. Legacy access roads and well pads remain intact. The abandoned well pads are generally level and range in size from approximately 5,000 to 10,000 square feet and consist of bare ground and/or gravel with varying coverage of asphalt paving and weedy vegetation.

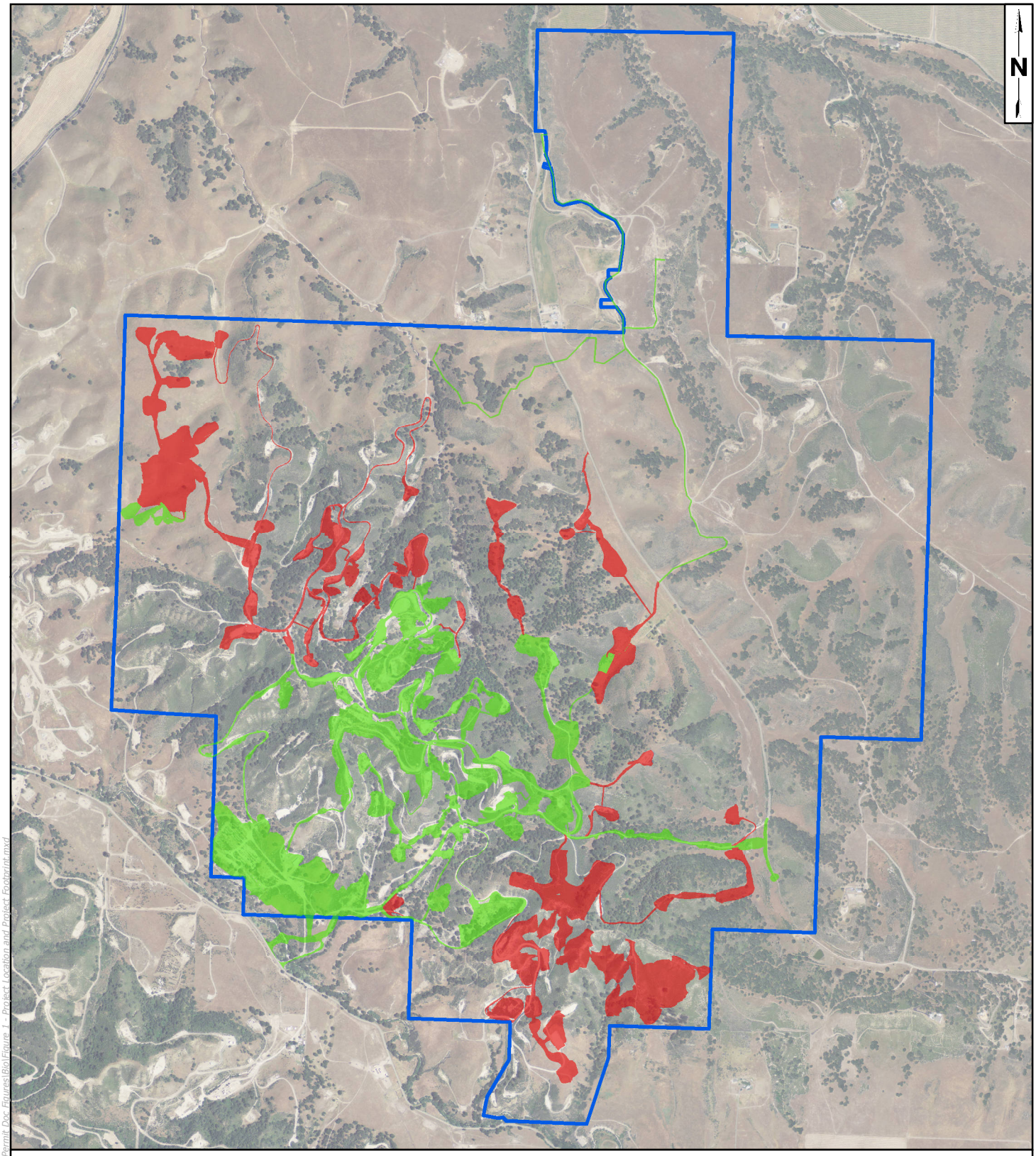
## 1.3 PROJECT DESCRIPTION

The Project will re-establish oil production in an existing oil field by drilling and operating new wells, and building and operating new infrastructure and facilities to support enhanced oil recovery. Project plans include construction and restoration of approximately 72 well pads, construction and restoration of over nine miles of field access roads, and drilling of up to 296 wells. Planned wells include oil/gas production wells, steam injection wells, observation wells, non-potable water production wells, water injection wells, and fresh groundwater wells. No hydraulic fracturing ("fracking") will be used for this Project.

New processing facilities and field systems will be constructed. Processing facilities will include: 1) a production group station for bulk separation of produced gas and liquids, 2) a central processing facility for oil cleaning, water cleaning, water softening, oil storage, and oil sales, and 3) a steam generation site (up to six once-through steam generators rated at 85 million British thermal units/hour each) for production of saturated steam to be used for thermal enhanced oil recovery. An additional 62.5 million British thermal units/hour steam generator will be used to generate steam from the project's produced gas. No fresh water will be used to generate steam; only non-potable water will be used.

Field systems will include: 1) a production gathering network, 2) a steam distribution network and 3) electrical power distribution and supervisory control and data acquisition (SCADA) networks. Project infrastructure will also include an office building, a multipurpose building, a warehouse and maintenance building, and a facility control building. A fresh water system with a 3,000 barrel tank and water distribution pipelines is planned for drinking water and ancillary purposes, including fire protection, lavatories, showers, equipment cleaning, dust control, and minor landscape irrigation.

The Project has been designed to minimize grading and land disturbance by maximizing the use of existing roads, well pads, cleared areas, and contours wherever possible. Out of the approximate total 2,108-acre Project site, approximately 300 acres, or 14 percent will be graded. Earthwork volumes will be balanced across the Project site in order to minimize the need for import or export of significant amounts of soil.




Aera Energy LLC Property

**Project Footprint**

Phase I

Phase II

0 900 1,800

FEET

*Source: NAIP 2012 Aerial Imagery, County of Santa Barbara, TJCross 8-20-14, DPSI 2013 Land Survey*
*Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet*
*Notes: This map was created for informational and display purposes only.*

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: EAST CAT CANYON SANTA BARBARA COUNTY, CA

PROJECT NUMBER: 1002-0455

DATE: September 2014

PROJECT LOCATION AND PROJECT FOOTPRINT

FIGURE 1-1

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Permit Doc Figures\Bio\Figure 1 - Project Location and Project Footprint.mxd

PAGE INTENTIONALLY BLANK

The primary Project site entrance is located at 6516 Cat Canyon Road. Vehicles and equipment entering the Project site travel across Cat Canyon Creek via an existing culvert crossing located just outside of the Aera property boundary. As proposed, the Project would utilize the existing crossing during the initial Project construction, while concurrently constructing a new Project site entrance located approximately 300 feet north (downstream) of the existing entrance. The Project will also include construction of a secondary access located along Long Canyon Road, on the eastern boundary of the Project site along with two smaller east side entrances from Long Canyon Road, which will be constructed to provide adequate access new well pads. Project site entrances will be connected via a primary site access road, which will be graded and paved concurrently with site entrance construction activities.

The Project will be implemented in phases to maximize efficiency and help moderate construction peak activity levels. Phase I will include the construction of the production group station, central processing facility, steam generation site , fresh water distribution system, office building, main roadways and a beneficial reuse facility for soil and sand. Four of the seven steam generators will be installed. Some of the Project's well pads and wells will be restored/developed during Phase I, along with the roadways, electrical distribution lines, and gathering and distribution pipelines to support those wells. Phase I activities will last approximately four years.

During Phase II, the remaining well pads will be restored/developed, the remaining wells will be drilled, along with associated roadways, electrical distribution lines, and gathering and distribution pipelines. Phase II will also expand the processing facility capacities, and add three additional steam generators. Phase II construction will start approximately three years after Phase I completion and is expected to take up to two years. Phase II well drilling, along with the construction of roadways, electrical distribution lines, and gathering and distribution pipelines to support those wells, is planned to take place over a period of up to ten years. Production from the project is expected to continue for more than 30 years.

PAGE INTENTIONALLY BLANK

# 2.0 REGULATORY SETTING

This section identifies and discusses the regulations and policies administered by resource agencies pertaining to those biological resources that are known to exist and/or have the potential to occur within the Project site and surrounding region.

## 2.1 FEDERAL REGULATIONS

### 2.1.1 Endangered Species Act

The Federal Endangered Species Act (FESA), administered by the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS), provides protection to species listed as Threatened or Endangered, and Critical Habitat designated for the protection of such species. The FESA prohibits "take" of Threatened and Endangered species except under certain circumstances and only with authorization from the USFWS through a permit under sections 4(d), 7, or 10(a) of the FESA. Under the FESA, take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.

Critical Habitat is defined in Section 3(5)(A) of the FESA as: (1) specific areas within the geographical area occupied by the species at the time of listing, on which are found those physical or biological features that are essential to the conservation of the listed species and that may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by the species at the time of listing that are essential for the conservation of a listed species.

The FESA also provides protection to those species proposed to be listed under FESA and maintains lists of species that are neither formally listed nor proposed, but could potentially be listed in the future. These federal candidate species include taxa for which substantial information on biological vulnerability and potential threats exist, and are maintained in order to support the appropriateness of proposing to list the taxa as an Endangered or Threatened species. The USFWS also manages Birds of Conservation Concern (BCC), which include bird species of highest conservation priorities in effort to draw attention to species in need of conservation action.

### 2.1.2 Migratory Bird Treaty Act

The USFWS administers the Federal Migratory Bird Treaty Act (MBTA) of 1918 (16 USC 703-711). This Act establishes Federal responsibilities for the protection of nearly all species of birds, their eggs, and their nests, including all native bird species. It implemented the 1916 Convention between the United States and Great Britain for the protection of birds migrating between the United States and Canada; implemented the 1936 Convention for the Protection of Migratory Birds and Animals between the United States and Mexico; and similar conventions between the United States and Japan (1972) and the Union of Soviet Socialist Republics (1976). Under the MBTA, it is unlawful to kill, collect, *take*, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR 10, including feathers or other parts, nests, eggs or products, except as allowed by implementing regulations (50 CFR 21). Certain game bird species are allowed to be hunted for specific periods determined by federal and state governments.

### 2.1.3 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act is administered by the USFWS and protects eagles from commercial exploitation and safeguards their continued survival in the United States. Permits are issued for scientific, educational, and Indian religious purposes, depredation, and falconry (golden eagles). This Act prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald eagles, including their parts, nests, or eggs, similarly to the MBTA. The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." "Disturb" means "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior." In addition to immediate impacts, this definition also covers impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present.

### 2.1.4 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Act provides for the conservation and management of fishery resources within the United States Exclusive Economic Zone, which extends from the seaward boundary to 230 miles from shore. Using the tools provided by the Magnuson-Stevens Act, National Oceanic and Atmospheric Administration's (NOAA's) National Marine Fisheries Service (NMFS) assesses and predicts the status of fish stocks, ensures compliance with fisheries regulations and works to reduce wasteful fishing practices. Fish utilizing inland waters that are provided a significant nexus to the Pacific Ocean that swim upstream for breeding (anadromous fish) are provided protection by the Magnuson-Stevens Act. Waters that may support anadromous fish may be subject to Section 7 consultation with the NMFS under the federal ESA.

### 2.1.5 Clean Water Act

The Clean Water Act (CWA), formally entitled the Federal Water Pollution Control Act of 1972, is comprehensive legislation enacted to protect the nation's waters. The Act generally includes reference to its substantial supplementation by the CWA of 1977. Both Acts were subsequently amended in 1981, 1987, and 1993. Overall, the CWA seeks to protect the nation's water from pollution by setting water quality standards for surface water and by limiting the discharge of effluents into waters of the United States (Waters). These water quality standards are enforced by the U.S. Environmental Protection Agency (EPA).

The U.S. Army Corps of Engineers (ACOE) is responsible for the issuance of permits for the placement of dredged or fill material into Waters pursuant to Section 404 of the Clean Water Act (33 USC 1344). As defined by the ACOE in 33 CFR 328.3(a)(3), Waters are those waters that are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; tributaries and impoundments to such waters; all interstate waters including interstate wetlands; and territorial seas. In addition, federal guidance has been developed that requires careful examination and documentation of the physical location(s) and hydrologic connections among waters/wetlands. To determine federal jurisdiction, particular focus is given to (1) surface hydrologic connections between a wetland and "navigable waters in fact", (2) "adjacency" of a wetland to traditionally navigable waters, and thus (3) a "significant nexus" to interstate commerce. Waters/wetlands features can also be determined to be under federal jurisdiction by

the ACOE or EPA if a "significant nexus" can be shown between the wetland feature in question and its contribution to the maintenance or restoration of the physical, chemical, or biological integrity of downstream waters that are traditionally navigable.

In non-tidal waters, the lateral extent of ACOE jurisdiction is determined by the ordinary high water mark (OHWM), which is defined as the: "…line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" (33 CFR 328[e]).

## 2.2 STATE REGULATIONS

### 2.2.1 Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (CA Water Code §§ 13000-13999.10) mandates that waters of the state shall be protected, such that activities that may affect waters of the state shall be regulated to attain the highest quality. This Act establishes the State Water Resources Control Board (SWRCB) as the principal state agency for controlling water quality in California. The SWRCB provides regulations that mandate a "non-degradation policy" for state waters, especially those of high quality. The SWRCB is divided into local Regional Water Quality Control Boards (RWQCB).

Pursuant to Section 401 of the CWA, the ACOE cannot issue a federal permit until the State of California first issues a water quality certification to ensure that a project will comply with state water quality standards. The authority to issue water quality certifications for the following Project is vested with the Central Coast RWQCB.

### 2.2.2 California Fish and Game Code

The California Department of Fish and Wildlife (CDFW), formerly the California Department of Fish and Game, administers a number of laws and programs designed to protect fish and wildlife resources. Principal of these is the California Endangered Species Act of 1984 (CESA) Fish and Game Code Section 2050 that regulates the listing and take of state Endangered and Threatened species. CDFW also maintains lists of Candidate-Endangered species and Candidate-Threatened species. California candidate species are afforded the same level of protection as listed species. CDFW also designates Species of Special Concern that are of limited distribution, declining populations, diminishing habitat, or unusual scientific, recreational, or educational value. These species do not have the same legal protection as listed species, but may be added to official lists in the future.

The CDFW also manage a Watch List that includes "Taxa to Watch" (Shuford and Gardali, 2008), which includes: 1) species not on the current Special Concern list but were on previous lists and they have not been state listed under CESA; 2) species that were previously state or federally listed and now are on neither list; or 3) species are on the list of Fully Protected species.

CDFW administers other state laws designed to protect wildlife and plants. Section 3511 of the California Fish and Game Code designates species that are afforded Fully Protected status. Fish and Game Code Sections 4700 and 5515 assign the same status to specified mammals and fish. These statutes generally provide that specifically identified birds, mammals, and fish "or parts thereof may not be taken or possessed at any time and no provision of [the Fish and Game]

code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected [bird, mammal, or fish] and no permits or licenses heretofore issued shall have any force or effect" for any such purpose. For fully protected fish and mammals, the only exception to the take prohibition is that the Fish and Game Commission may authorize the collecting of such species "for necessary scientific research" (Fish and Game Code, Sections 4700, 5515). With a proper permit, Fully Protected birds may also be captured live and relocated "for the protection of livestock" (Section 3511). Section 3503.5 protects birds-of-prey (Falconiformes and Strigiformes), their eggs, and their nests. In addition, Section 3513 provides protection to the birds listed under the MBTA, essentially all native birds.

CDFW manages the California Native Plant Protection Act of 1977 (Fish and Game Code Section 1900, *et seq*.), which was enacted to identify, designate and, protect rare plants. The California Native Plant Society (CNPS) operates under a Memorandum of Understanding (MOU) with the CDFW and outlines broad cooperation in rare plant assessment and protection, and formalizes cooperative ventures such as data sharing and production of complementary information sources for rare plants.

Pursuant to Section 1602 of the California Fish and Game Code, CDFW requires a Lake or Streambed Alteration Agreement (LSAA) between CDFW and any state or local governmental agency, public utility, or private party before the initiation of any construction project that will: 1) substantially divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake; 2) substantially change or use materials from a streambed; or 3) result in the disposal or deposition of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into any river, stream, or lake. Therefore, the CDFW claims jurisdiction over the bed, bank, and channel of the drainage that may be impacted by project activities.

### 2.2.3 California Environmental Quality Act

Project-related adverse impacts on special-status species are likely considered significant for California Environmental Quality Act (CEQA) purposes. Section 15065 of CEQA states that a Lead Agency shall find that a project may have a significant effect on the environment and thereby require an Environmental Impact Report (EIR) to be prepared for the project where the project has the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal.

Further, CEQA Appendix G states that a project will normally have a significant effect on the environment if it will:

> "(a) Conflict with adopted environmental plans and goals of the community where it is located;
>
> (b) Substantially affect a rare or endangered species of animal, plant or the habitat of the species;
>
> (c) Interfere substantially with the movement of any resident or migratory fish or wildlife species; and

(d) Substantially diminish habitat for fish, wildlife or plants" (County of Santa Barbara, 2008).

### 2.2.4 State of California Senate Bill 1334

State of California regulations specific to oak tree protection are included in State Senate Bill (SB) 1334. Regulations specific to SB 1334 were introduced by Senator Sheila James Kuehl and filed in September of 2004. SB 1334 requires that oak woodland conversions be subject to CEQA and mitigated. SB 1344 states that the conversion of oak woodlands refers to the cutting or removal of 30 percent or more of the oak tree canopy from an oak woodland and changing the land use so that the converted acreage will not sustain oak species functioning as a biological unit in the future. Pursuant to SB 1334, a County shall determine whether a project may result in a conversion of oak woodlands that will have a significant effect on the environment.

## 2.3 SANTA BARBARA COUNTY REGULATIONS

### 2.3.1 Santa Barbara County Comprehensive Plan

Requirements for the protection of biological resources in the unincorporated area of Santa Barbara County are provided within the Comprehensive Plan Conservation Element, Environmental Resource Management Element, Land Use Element, Community Plans, Environmental Thresholds and Guidelines, and the Coastal Land Use Plan. These documents identify sensitive habitats and special-status species, and provide measures to direct project design and policies to protect biological resources. These Plans/Elements provide a framework of policies designed to protect special-status species and environmentally sensitive habitat areas (ESHA). Environmental Thresholds and Guidelines Manual, published in October of 2008 by the County, assists in determining levels of impacts to sensitive areas and appropriate methods for avoidance, minimization, and/or mitigation.

Factors that are used in assessing the significance of project impacts on biological resources include: size of project; the relative disturbance to habitat occurring in Project region and immediate vicinity; type of impact; and, timing relative to the occurrence of sensitive resources that project may impact.

Santa Barbara County (2008) determines that disturbance impacts may be *Significant* based on substantial evidence in the record, if a project substantially impacts sensitive resources in the following ways:

1. Substantially reduce or eliminate species diversity or abundance;
2. Substantially reduce or eliminate quantity or quality of nesting areas;
3. Substantially limit reproductive capacity through losses of individuals or habitat;
4. Substantially fragment, eliminate, or otherwise disrupt foraging areas and/or access to food sources;
5. Substantially limit or fragment range and movement (geographic distribution or animals and/or seed dispersal routes; and,
6. Substantially interfere with natural processes, such as fire or flooding, upon which the habitat depends.

Disturbance impacts may be *less than significant* if the project occurs in an area "where there is little or no importance to a given habitat and it is presumed that disruption would not create a significant impact" (County of Santa Barbara, 2008).

Examples of areas where impacts to habitat are presumed to be *insignificant* include: "small acreages of non-native grassland if wildlife values are low; individuals or stands of non-native trees if not used by important animal species such as raptors or monarch butterflies (*Danaus plexippus*); areas of historical disturbance such as intensive agriculture; small pockets of habitats already significantly fragmented or isolated, and degraded or disturbed; and, areas of primarily ruderal species resulting from pre-existing man-made disturbance" (County of Santa Barbara, 2008).

### 2.3.2 Conservation Element –Oak Protection

The *Oak Tree Protection in the Inland Rural Areas of Santa Barbara County (2009)* amends the Conservation Element Mapped Areas and Communities Section of the Santa Barbara Comprehensive Plan to include additional oak protection measures. This oak protection document provides goals, policies, actions, and development standards that address oak trees in the inland rural areas in the County.

### 2.3.3 Santa Barbara County Code - Grading Ordinance Guidelines for Native Oak Tree Removal.

The Santa Barbara County Grading Ordinance (Chapter 14 of the County Code) provides guidelines and mitigation measures for native oak tree removal on private land outside of the coastal zone and urbanized areas. These guidelines govern deciduous and live oak removals, replacing the County of Santa Barbara Environmental Thresholds and Guidelines Manual as a standard in Chapter 14 for addressing significant environmental damage and significant environmental impact associated with native oak tree removal of protected and unprotected size, as defined in the Grading Ordinance, for agricultural and non-agricultural practices not requiring a discretionary permit.

### 2.3.4 Defensible Space Program.

The Santa Barbara County Fire Department (SBCFD) is responsible for the administration of the Defensible Space Program as outlined in California's Public Resource Code 4291, which has been incorporated into the Government Code 51175-51189, Santa Barbara County Code of Ordinances, and SBCFD Development Standards. Defensible space is an area surrounding a building or structure where basic wildfire protection practices are implemented, thus providing defense from an approaching wildfire or escape from a structure fire. The area is managed to limit fuel and thereby limit the potential for combustion. The Project will perform fuel reduction, including vegetation removal, in accordance with the defensible space requirements outlined in SBCFD Development Standard Number 6. These standards are further discussed in the Fuel Management Plan (Appendix A).

## 3.0 AGENCY CONSULTATION HISTORY

Table 3-1 – Agency Consultation Summary, summarizes agency consultations that specifically discussed planning for the Project as of August 2014. Agency consultations include coordination meetings with the USFWS, CDFW, and ACOE. Main topics of discussion with the USFWS and CDFW have focused on drift fence study designs and mitigation requirements for California tiger salamander (*Ambystoma californiense*) (CTS) and USFWS protocol-level surveys for other potentially occurring special-status species.

**Table 3-1. Agency Consultation Summary**

| Meeting Date and Location | Names of Attendees | Topic of Discussion |
|---|---|---|
| June 30, 2014 – Padre Associates Ventura Office | Crystal Huerta (ACOE), Susan Perrell (Aera), Eric Snelling (Padre), Sarah Spann (Padre) | ACOE jurisdictional waters |
| May 16, 2014 – East Cat Canyon Oil and Gas Field Project site | Martin Potter (CDFW), Susan Perrell (Aera), John Storrer (Storrer Environmental), Sarah Spann (Padre), Thea Benson (Padre), Keith Kidwell Jr. (Sturgeon) | Field survey reviewing location of CTS drift fence locations. |
| May 5, 2014 – Ventura USFWS Field Office | Jeff Phillips (USFWS), Nic Huber (USFWS), Martin Potter (CDFW), Susan Perrell (Aera), Sarah Spann (Padre), John Storrer (Storrer Environmental), Thea Benson (Padre) | Review Project plans and CTS drift fence design. |
| November 6, 2013 – Ventura USFWS Field Office | Jeff Phillips (USFWS), Martin Potter (CDFW), Susan Perrell (Aera), John Storrer (Storrer Environmental), Eric Snelling (Padre), Thea Benson (Padre) | Discuss Project preliminary design and special-status species protocol-level surveys. |
| November 15, 2011 | Jeff Phillips (USFWS), Andrea Adams (USFWS), Darryl Gunderson (Aera), Eric Snelling (Padre), John Storrer (Storrer Environmental), | Habitat assessment for exploratory wells and 2D seismic survey |

PAGE INTENTIONALLY BLANK

# 4.0 METHODS

This Report includes a desktop review of the Project site and surrounding region and field surveys completed exclusively within the boundaries of the Project site. This Report does not include a biological evaluation of the Project supporting utilities (natural gas pipeline, overhead transmission lines, and communication lines). Detailed information on resources utilized for the desktop analysis and field survey methodologies are provided below.

## 4.1 DESKTOP REVIEW

The initial desktop review included an aerial imagery review of the Project site and surrounding region. The region, for the purposes of this Report, includes a ten-mile radius from the boundaries of the Project site and includes the following nine United States Geological Survey (USGS) quadrangles: Twitchell Dam, Tepusquet Canyon, Sisquoc, Orcutt, Lompoc, Los Alamos, Zaca Creek, Foxen Canyon, and Santa Maria. This review included the incorporation of Geographic Information Systems (GIS) layers, including topography contours, and aquatic resources as well as aerial photographs of the Project site provided by Cannon Associates (2011). Specifically, the aerial photographs consisted of 12 digital orthophotos using USGS Digital Elevation Model (DEM) data for rectification. These images were reviewed to analyze potential migratory routes, habitat connectivity and landscape fragmentation, and investigation of surrounding land uses. These images were also used in the field to further assist in defining and mapping existing plant communities and sensitive habitats identified within the Project site.

The desktop review included a query of the CDFW California Natural Diversity Database (CNDDB) to identify reported occurrences of special-status plant and wildlife species and sensitive habitats within the region surrounding the Project site. The CNDDB is a statewide digital database utilized to locate the nearest occurrences of all rare, threatened, endangered, and special-status species and natural communities in California. All wildlife taxa listed in the CNDDB are considered “Special Animals,” which the CDFW is interested in tracking, regardless of their legal protection status. The results of the CNDDB query are provided in Appendix B. These figures represent each documented CNDDB occurrence with a polygon that depicts the accuracy of the data that was used to map the occurrence. Each polygon is provided an accuracy class that describes the level of the location detail. A polygon, therefore, does not necessarily reflect that a species occurs in all areas of the polygon, but may represent a non-specific area that documents habitat resources and/or simply a buffer distance around a specific point.

The USFWS Critical Habitat Portal (2014b) was reviewed to determine location of Critical Habitat for federally protected species that may potentially occur in the region. The USFWS Critical Habitat Portal is an online database that provides most recent datasets for federally defined Critical Habitat areas. GIS shapefiles for CTS ponds, provided by the USFWS (last updated in July 2010) were also reviewed. These files were released by the USFWS for purposes of planning and do not constitute a comprehensive list of all the ponds that have the potential to be CTS breeding ponds in Santa Barbara County; however, the information in the shapefiles has provided information on nearby aquatic habitats. In addition, GIS data for ESHA’s provided by the Santa Barbara County Department of Planning and Development were reviewed.

The GIS layers from the National Wetland Inventory (NWI) were reviewed and incorporated into imagery of the Project site to assist in the analysis of water resources. The NWI was established by the USFWS in 1974 to conduct a nationwide inventory of wetlands to provide

biologists and others with information on the distribution of wetlands to aid in wetland conservation efforts. The NWI GIS layers used in this analysis were last modified on May 1, 2014 using the on-line Wetland Mapper (USFWS, 2014a). Other water resources that were utilized in this analysis included USGS blue-line streams identified on topographic imagery. Blue-line streams are used by regulatory agencies to assist in determination of jurisdiction.

The desktop review also examined multiple sources of technical survey information completed in the vicinity of the Project site, including the following:

- *Initial Field Assessment for California Tiger Salamander for the Aera East Cat Canyon Oil and Gas Field*. January 22, 2007. Prepared by Mr. Vince Semonsen of VJS Biological Consulting. (Semonsen, 2007);
- *Habitat Assessment for California Tiger Salamander for the Aera Two-dimensional Seismic Survey Test Plan*. September 8, 2011. Prepared by Storrer Environmental. (Storrer, 2011);
- *Habitat Assessment for California Tiger Salamander for the Aera East Cat Canyon Production Plan, Santa Barbara County, California.* September 2013. Prepared by Storrer Environmental (Storrer, 2013);
- *90-Day Report for Vernal Pool Fairy Shrimp Wet Season Surveys for Aera Energy LLC Oil and Gas Field.* Prepared by Padre Associates, Inc. (Padre, 2014a);
- *Dry Season Survey Results for Vernal Pool Fairy Shrimp within the Aera Energy LLC Oil and Gas Field.* Prepared by LSA Associates, Inc. (LSA, 2014);
- *Biological Resources Report for the Aera Energy LLC Two-dimensional Seismic Survey Project*. May 2011. Prepared by Padre Associates, Inc. (Padre, 2011a);
- *Biological Resources Survey Report for the Aera Exploratory Drilling Project, East Cat Canyon Oil Field*. May 2011. Prepared by Padre Associates, Inc. (Padre, 2011b);
- *ERG Operating Company, LLC. Los Alamos Fee "Pond E" California Red-Legged Frog (Rana draytonii) Survey Results.* July 30, 2012. Letter to ERG Operating Company, LLC. Prepared by Sage Institute, Inc. (Sage, 2012); and
- *California Tiger Salamanders (Ambystoma californiense) Upland and Aquatic Survey Results 2013/2014 ERG West Cat Canyon Lease in Northern Santa Barbara County, California. Prepared for ERG Operating Company LLC, Santa Maria, CA.* Prepared by Paul Collins and Peter Gaede (Collins and Gaede, 2014).

Plant community maps and SBCFD defensible space standards were reviewed to determine potential temporary impacts to plant communities and sensitive habitats for fuel management purposes. The review included GIS analysis of County-required buffers for structures and roadways, and existing plant communities and sensitive habitats occurring within the designated buffers.

A review of site records from other environmental documents and range maps including Zeiner et al., (1988, 1990a, 1990b) and Sibley (2003) were also utilized to determine what species have the potential to occur in the area based on life history and historical and current range maps.

In addition, in February 2014, one HOBO® Micro Weather Station with a rain gauge smart sensor was installed on a tripod adjacent to the office building within the Project site. Rainfall data were downloaded on a regular basis from February through May 2014 using HOBOware® software.

## 4.2 FIELD SURVEYS

Field surveys completed within the Project site included general biological resource surveys, focused species-specific surveys, and an extensive oak tree inventory. Padre Biologists involved in the biological surveys included: Thea Benson, Kenny Wimer, Chris Santala, Michaela Hoffman, Sarah Powell, Shannon Gonzales, and Amy Golub. Padre staff was assisted by Brian Dugas, Jessica Adinolfi, and Rhett Blanton of Terra Verde Environmental Consulting. Thea Benson supported John Storrer of Storrer Environmental, with evaluation of potential CTS habitat within the Project site. Padre Biologists also supported wet and dry season vernal pool fairy shrimp (*Branchinecta lynchi*) (VPFS) surveys within the Project site along with LSA Associates, Inc. Biologists. The survey dates and personnel for all field surveys are summarized in Table 4-1 – Summary of Field Surveys. In addition, the Project site was visited multiple times by Padre Biologists between 2011 and 2014 to support ongoing site operations/maintenance activities and Project design and planning activities that are not included in the summary below. Results of these findings are also included in this biological evaluation of the Project site.

**Table 4-1. Summary of Field Surveys**

| Survey Dates | Survey Focus | Biological Staff |
|---|---|---|
| July 20-21 and August 10, 2011<br>July 20 and August 1, 2012 | CTS Habitat Assessment | Storrer Environmental Services |
| January 15 - 16, 2013 (2 surveys) | Wetland Identification and Mapping, Vernal Pool Fairy Shrimp Habitat Assessment, Botanical, Wildlife | T. Benson, S. Powell, C. Santala, K. Wimer |
| February 13, 2013 (1 survey – day and night) | California Red-Legged Frog Habitat Assessment | T. Benson and B. Dugas |
| March 26, 2013 (1 survey off-site in adjacent properties) | Botanical Blooming Period Reference Survey | C. Santala, J. Adinolfi |
| April 15 - 18, 2013 (4 surveys) | Botanical, Vegetation Community Mapping, Vegetation Rapid Assessments, Wildlife, Camera Stations | T. Benson, C. Santala, K. Wimer, J. Adinolfi, R. Blanton |
| October 15, 2013 to September 5, 2014 | Oak Tree Inventory | T. Benson, C. Santala, A. Golub, K. Wimer, M. Hoffman, S. Gonzales |
| February 13, February 27, March 13, March 25, April 8, April 22, May 6, and May 20, 2014 (8 surveys) | Vernal Pool Fairy Shrimp Wet Season Surveys | S. Powell, M. Hoffman, T. Benson |

**Table 4-1. Summary of Field Surveys**

| Survey Dates | Survey Focus | Biological Staff |
|---|---|---|
| July 8 and 9, 2014 (2 surveys) | Vernal Pool Fairy Shrimp Dry Season Surveys | LSA Associates, Inc., 2014 |
| April 11, May 2, May 16, June 6, June 19, July 1, July 15, and July 25, 2014 | Least Bell's Vireo Surveys (8 surveys) | T. Benson |

### 4.2.1 Biological Resource Surveys

Biological resource field surveys were conducted to identify plant and wildlife species within the Project site and identify vegetation communities and habitats available for potentially occurring species. Winter surveys were completed on January 15 and 16, 2013and spring surveys were completed on April 15, 16, 17, and 18, 2013. Prior to the spring 2013 surveys, a botanical reference population survey was conducted on March 26, 2013 at nearest occurrence locations documented with the CNDDB to observe the bloom status of regionally documented special-status plants. The survey results were utilized as a guide for the determination of an appropriate biological survey date that would capture the blooming period for potentially occurring special-status plant species within the Project site.

During all field surveys, biologists drove established access roads and walked the remaining terrain within the Project site documenting all wildlife species observed. Direct visual observations, indirect signs (e.g., tracks, scat, skeletal remains, and burrows), and auditory cues (i.e., calls and songs) were documented. All sensitive resources were documented using a GeoXT handheld Global Positioning System (GPS). Two infrared sensor cameras were placed along wildlife trails and water sources within the Project site and left overnight in different locations between April 15 and 18, 2013 to document wildlife movements at night.

All identifiable plant species were recorded and presence of suitable habitat for potentially occurring special-status plants was noted. Plant specimens that were not positively identified in the field were further examined using a dissecting microscope and appropriate botanical keys, including *The Jepson Manual: Vascular Plants of California, Second Edition* (Baldwin *et al*., 2012) and the *Jepson Herbarium Online Interchange California Floristics* (University of California, 2014). Vegetation types identified during the surveys were classified based on the CNPS *A Manual of California Vegetation, Second Edition* (Sawyer et al., 2009) (MCVII) and *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland, 1986), as appropriate.

Further, in conjunction with MCVII, the CNPS and CDFW *Protocol for Combined Vegetation Rapid Assessment and Relevè Sampling* (VRAP) (version May 13, 2011) was utilized during the field surveys to classify the vegetation types within Project site. Specifically, a representative stand or sample plot of each vegetation type was sampled, recorded, and subsequently classified to the alliance and/or association level as defined in the MCVII.

#### 4.2.1.1. Species-Specific Surveys

On January 15 and 16, 2013, field surveys were completed to document areas of ponded water occurring throughout the Project site. A field survey was completed on February 13, 2013 to document water resources still holding water, following the January 15 and 16 field visits. Pools

that contained water were surveyed for potential habitat using the *USFWS Revised Guidance on Site Assessments and Field Surveys for California Red-Legged Frog* (2005c). This habitat assessment included a day-time visit and was followed by a night-time eye-shine survey. During these field visits, pool depth was recorded and the pools were inspected for aquatic life, including amphibian egg masses. A California Red-Legged Frog (California red legged frog) Habitat Assessment was submitted to USFWS and CDFW in September 2013 (Appendix C).

A habitat assessment for VPFS was completed and submitted to the USFWS in September 2013, following the January 15 and 16, 2013 field visits. A USFWS protocol-level VPFS survey was initiated following the 1996 *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods* (USFWS, 1996). USFWS-approved dip-net aquatic surveys were completed throughout the Project site on February 13 and 27, March 13 and 25, April 8 and 22, and May 6 and 20, 2014. Surveys were completed by S. Powell under USFWS Recovery Permit 81440-2010-B-0026. Additional methodology and results of the surveys are provided in the 90-Day Report submitted to the USFWS in August 2014, and provided within Appendix D. Following the wet-season VPFS surveys, a dry-season cysts survey was completed on July 8 and 9, 2014, by LSA Associates, Inc. Results of this investigation are provided within Appendix E.

A CTS habitat assessment was submitted to the USFWS and CDFW by J. Storrer in September 2013 (Appendix F). Aquatic dip net surveys (one survey in March, April, and May of each year) were initiated by J. Storrer in 2013, and 2014, for a USFWS documented potential CTS pool (SISQ-19); however, no dip net surveys were completed because the pool did not hold water throughout 2013 and 2014. Several site visits to the pool were completed by Padre Biologists following rain events to document the water levels; however, the pond did not support standing water. One small pool of water located at a former staging area was holding water on May 16, 2014; therefore, a dip net survey was completed by T. Benson and J. Storrer.

During the spring of 2014, T. Benson conducted USFWS protocol-level surveys for least Bell's vireo (*Vireo bellii pusillus*) per guidance of the USFWS. These surveys included eight visits to suitable habitat areas within the Project site documenting all bird activity. The surveys were completed on April 11, May 2, May 16, June 6, June 19, July 1, July 15, and July 25, 2014. Following the completion of the surveys, a final report was submitted to the USFWS and CDFW in August of 2014 (Appendix G).

Tree inventories were completed within the Project site, documenting all trees greater than eight (and some greater than six) inches in diameter at breast height (DBH), using a calibrated DBH measuring tape. In the case of trees with multiple trunks, the DBH of all trunks was combined to calculate the DBH of the tree. Individual oak tree locations were documented with a GPS, the location, size, and species were recorded on data sheets, and each tree was tagged with a specific number corresponding to the data entry. On May 9, 2014, at the County's request, the inventory was expanded to include trees six inches in DBH and greater for the remaining Project grading limits. This subset of data, having both six inch and greater and eight and greater DBH trees, was used to establish the typical ratio of six inch to eight inch trees. The ratio was then applied to the eight inch or greater DBH inventory in each canopy to estimate the number of additional trees (six inches in DBH to less than eight inches in DBH) that were not inventoried in the field.

PAGE INTENTIONALLY BLANK

# 5.0 FINDINGS

The following discussion of biological resources includes those that were observed within the Project site, those identified in the desktop review within the region, and resources that are expected to occur and/or frequent a particular area based on the presence of suitable habitat.

## 5.1 REGIONAL SETTING

The Project site is located within the Solomon Hills and the Gato Ridge mountain ranges in East Cat Canyon, southeast of the City of Santa Maria, Santa Barbara County, California. The regional topography is generally comprised of steeply to moderately incised canyons and drainages, moderate to steep hills, valleys, and small flat areas reserved for agriculture. Elevations within the Project site range between approximately 550 feet to 1,120 feet mean sea level (msl) consisting of moderate to steep hills and two predominant valleys: Long Canyon and Olivera Canyon. Drainages found throughout the Project site consist of dry, loose sand and rock with moderate to dense scrub and scattered oak woodland habitat. The Sisquoc River is located approximately 3,700 feet to the northeast of the Project site. This river is subject to moderate to heavy seasonal flows and provides suitable habitat for a variety of species, including several special-status plants and wildlife. The ephemeral drainages occurring throughout the Project site drain into adjacent agricultural canals and/or into the tributaries to the Sisquoc River; however, the majority of the drainages are dry and, due to the sandy soil conditions, water infiltrates into the soil soon after rainfall (unlike clay soils that tend to allow water to pond and infiltrate much more slowly).

Parcels surrounding the Project site are designated Agriculture under the County of Santa Barbara Land Use and Zoning Ordinances (County of Santa Barbara, 2013). The western portion of the Project site is located adjacent to the existing ERG Resources LLC Cat Canyon development site (active field). In addition, Greka produces oil from the adjacent Bell lease. The surrounding oil field properties contain a network of narrow and steep unpaved and remnant asphalt roads. Properties to the east primarily consist of rotational and long-term row agriculture (e.g., vegetable crops and grape vineyards) primarily within the Sisquoc River flood plain, large residential lots grazed by cattle, and some oil and gas operations.

Due to past and on-going oil field maintenance activities and cattle grazing, much of the Project site has been previously disturbed; however, due to the steep and rugged terrain, many inaccessible areas have been left undisturbed and allow for dense vegetative growth.

The Project site occurs in a Mediterranean climate and during the 2014 rainy season the Project site weather station logged temperatures ranging from the mid to low 40's degree Fahrenheit (°F) to the mid to high 90's°F and moderate wind speeds ranging from 0 to 20 miles per hour. Project site precipitation logs indicate a brief 2014 wet season with lower than average rainfall, consisting of two primary storm systems providing the majority of measurable rainfall. The first system began on February 26 and lasted until March 1 with a total of 2.78 inches of rain. The second system moved through in late March through the first of April and produced 1.16 inches of rain. March had the greatest amount of rainfall for the year, totaling approximately 4.0 inches of rain. A small rain event occurred April 25 and produced 0.77 inches of rain.

## 5.2 REGIONALLY OCCURRING SENSITIVE HABITATS

Based on information obtained from the desktop review, several habitats occur in the region that are afforded protection by a federal, state, or local authority, and may support special-status plants and wildlife. For the purpose of this report, sensitive habitats include the following:

- Critical Habitat defined by the FESA under Section 3, and protected by the USFWS and/or NMFS (Figure 5-1 – Regionally Occurring Sensitive Habitats);
- Sensitive habitats defined by the CESA and protected by the CDFW and/or local agencies;
- ESHAs protected by the County of Santa Barbara and outlined in the Santa Barbara County Environmental Thresholds and Guidelines Manual (County, 2008); and/or
- Rare habitats protected by local professional organizations and/or the scientific community.

Sensitive habitats occurring within the Project region are illustrated in Figure 5-1 - Regionally Occurring Sensitive Habitats and summarized in Table 5-1 – Summary of Sensitive Habitats Occurring within the Project Region.

**Table 5-1. Summary of Sensitive Habitats Occurring within the Project Region**

| Sensitive Habitat | Protection Status | Distance from Boundaries of Project site |
|---|---|---|
| **USFWS/NMFS Designated Critical Habitat[1]** | | |
| Southern Steelhead Critical Habitat | Designated Critical Habitat | 0.7 mile north-northeast |
| California Red-Legged Frog Critical Habitat | Designated Critical Habitat | 5.5 miles northeast |
| California Tiger Salamander Critical Habitat | Designated Critical Habitat | 3.3 miles southwest |
| Arroyo Toad Critical Habitat | Designated Critical Habitat | 2.5 miles east |
| La Graciosa Thistle Critical Habitat | Designated Critical Habitat | 3.0 miles southwest |
| Lompoc Yerba Santa Critical Habitat | Designated Critical Habitat | 5.4 miles west |
| Gaviota Tarplant Critical Habitat | Designated Critical Habitat | 20.9 miles southwest |
| **CDFW Natural Communities of Special Concern[2]** | | |
| Central Coast Arroyo Willow Riparian Forest | G3/S3.2 | 15.8 miles southwest |
| Central Maritime Chaparral | G3/S3.2 | 10.4 miles southwest |
| Southern California Steelhead Stream | G?/SNR | 13.7 miles southwest |
| Southern California Threespine Stickleback Stream | G?/SNR | 10.5 miles southwest |
| Southern Cottonwood Willow Riparian Forest | G3/S3.2 | 13.6 miles south |
| Southern Vernal Pool | G?/SNR | 14.3 miles southwest |
| Southern Willow Scrub | G3/S2.1 | 0.7 mile north-northeast |
| Red Willow Thickets | G3/S3 | Observed within Project site |

**Table 5-1. Summary of Sensitive Habitats Occurring within the Project Region**

| Sensitive Habitat | Protection Status | Distance from Boundaries of Project site |
|---|---|---|
| Coast Live Oak Woodland | G5/S4, County ESHA | Observed within Project site |

**Notes:**

[1]USFWS Federal Register.

[2]The CNDDB ranking codes are part of the Heritage Methodology that provides information about the status of the taxon/community throughout their entire range and within California. The CDFW List of Vegetation Alliances and Associations are based on Sawyer et al., 2009 and available on-line (CDFW, 2010).

| | |
|---|---|
| G | Global Rank. |
| S | State Rank |
| G1-G5 | Globally critically imperiled (G1) to demonstrably secure (G5) |
| S1-S3 | State critically imperiled (S1) to demonstrably secure (S5). |
| NR | Not ranked. |
| ? | Denotes an inexact numeric rank due to insufficient samples over the full expected range of the type, but existing information points to this rank. |

### 5.2.1 Southern Steelhead Critical Habitat

USFWS-designated Critical Habitat for southern steelhead (*Oncorhynchus mykiss*) is defined under Section 3 of the FESA as: (1) specific areas within the geographical area occupied by the species at the time of listing, on which are found those physical or biological features that are essential to the conservation of the listed species and that may require special management considerations or protection, and (2) specific areas outside the geographical area occupied by the species at the time of listing that are essential for the conservation of a listed species (NOAA, 2005a, b). NMFS is responsible for designating Critical Habitat for this species. The Sisquoc River is designated as an evolutionary significant unit (ESU) for southern steelhead and occurs within the Project region; however, it does not cross through the Project site (5-1 – Regionally Occurring Sensitive Habitats).

### 5.2.2 California Red-Legged Frog Critical Habitat

USFWS-designated Critical Habitat was finalized in March of 2001 for core areas selected based on the following criteria: (1) areas that are occupied by CRLF, (2) areas where populations of CRLF appear to be source populations, (3) areas that provide connectivity between source populations, and (4) areas that represent areas of ecological significance (USFWS, 2002a). Critical Habitat may include an area that is not currently occupied by the species, but is important for its recovery. Further, CRLF are also protected if occurring outside designated Critical Habitat areas. CRLF Critical Habitat does not occur within the Project site; however, it does occur approximately 5.5 miles northeast of the Project site in the Sierra Madre Mountains (Figure 5-1 – Regionally Occurring Sensitive Habitats).

### 5.2.3 California Tiger Salamander Critical Habitat

The Project site is located within the Santa Barbara County Distinct Population Segment (DPS) for CTS. The Santa Barbara County DPS Critical Habitat areas were designated by the USFWS in September of 2005 for six metapopulation units: West Santa Maria/Orcutt, East Santa Maria, West Los Alamos/Careaga, East Los Alamos, Purisima Hills, and Santa Rita Valley. The

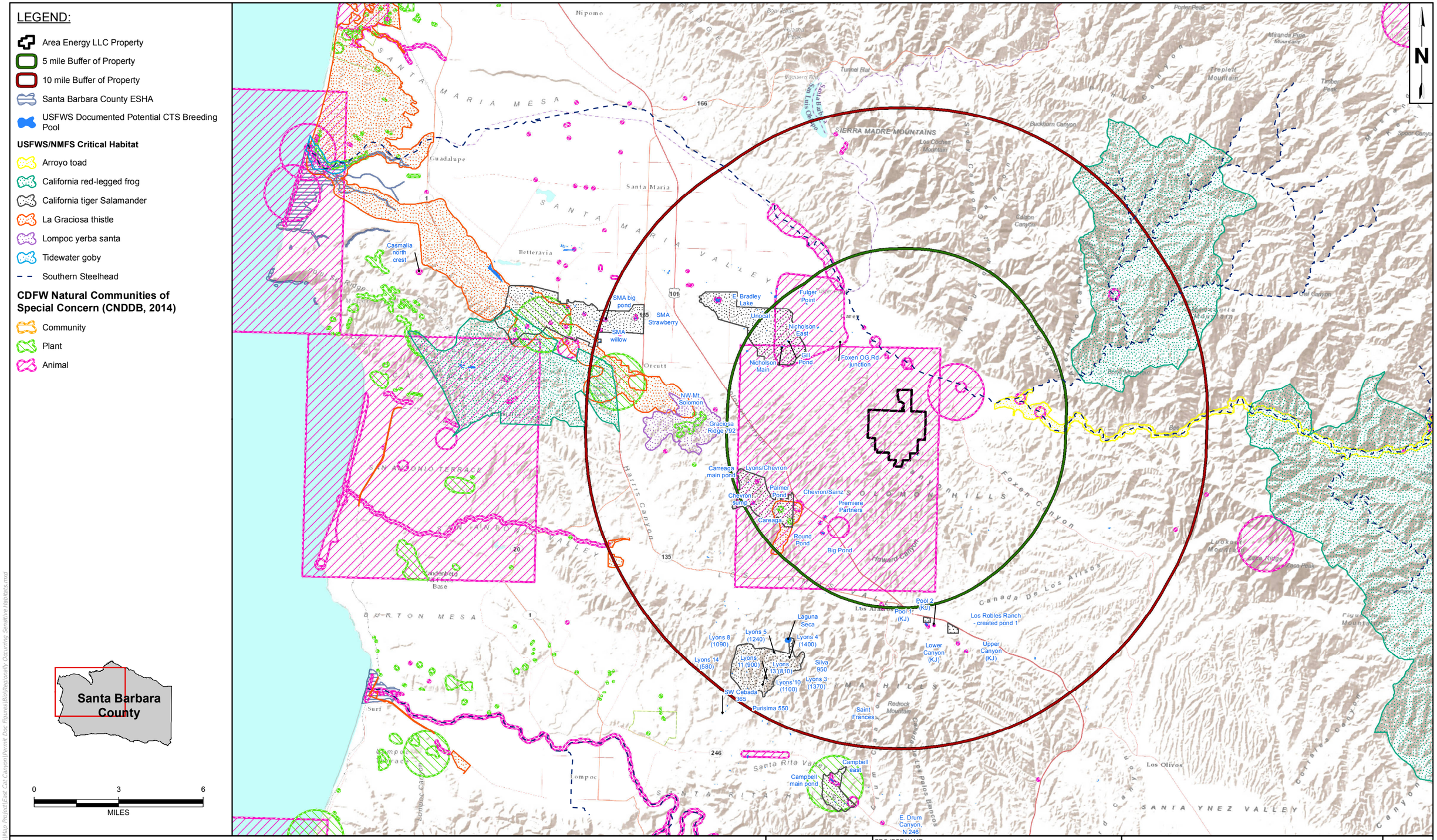
East Santa Maria, West Los Alamos/Careaga, and East Los Alamos metapopulations occur within a five mile radius of the Project site. These Critical Habitat areas include upland and aquatic habitat features essential for movement and breeding activities and may include an area that is not currently occupied by the species, but that is important for its recovery (USFWS, 2005a). Further, CTS are also protected if occurring outside designated Critical Habitat areas. Critical Habitat for CTS does not occur within the Project site; however, it does occur approximately 3.3 miles southwest of the Project site (Figure 5-1 – Regionally Occurring Sensitive Habitats).

### 5.2.4 Arroyo Toad Critical Habitat

Critical Habitat for arroyo toad (*Bufo californicus*) includes the specific geographic areas designated by the USFWS that contain the primary constituent elements needed for the species' survival, including: rivers or streams for all the life stages of the toads; riparian and adjacent upland areas for foraging and breeding; accessible areas between occupied habitat so that the toads can disperse; areas that flood periodically, leaving behind pools where toads breed; and, terrace habitats that provide for their life functions (USFWS, 2011). These Critical Habitat areas may include an area that is not currently occupied by the species but that is important for its recovery. Additionally, arroyo toads remain protected even if occurring outside designated Critical Habitat areas. Arroyo toad Critical Habitat does not occur within the Project site; however, it does occur to the east within 2.5 miles of the Project site in the upstream reaches of the Sisquoc River (Figure 5-1 – Regionally Occurring Sensitive Habitats).

### 5.2.5 La Graciosa Thistle Critical Habitat

USFWS-designated Critical Habitat for La Graciosa thistle (*Cirsium scariosum* var. *loncholepis*) includes mesic areas associated with wetlands of the Santa Maria Valley and Santa Ynez Valley dune complexes; margins of dynamic riparian systems of the Santa Maria and Santa Ynez rivers and Orcutt and San Antonio creeks; and freshwater wetlands found in grasslands, meadows, coastal scrub, chaparral, and oak woodland (USFWS, 2009). The specific geographic areas that have been designated by the USFWS as Critical Habitat for La Graciosa thistle include the following types of vegetation communities: central dune scrub, coastal dune, coastal scrub, freshwater seep, coastal and valley freshwater marsh, riparian scrub, oak woodland, and other wetland communities. La Graciosa thistle Critical Habitat elements also include soils with a sandy component, and features that allow dispersal and connectivity between populations, particularly in natural riparian drainages and natural Aeolian geomorphology (USFWS, 2009). No La Graciosa thistle Critical Habitat occurs within the Project site; however, the La Graciosa Thistle Cañada de Las Flores Unit is located approximately three miles southwest of the Project site (Figure 5-1 – Regionally Occurring Sensitive Habitats).




Source: ESRI Online Basemap, USFWS, DPSI 2013, CNDDB 2014
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: ESHA = Environmentally Sensitive Habitat Area.
CTS = California Tiger Salamander; Potential CTS breeding pond data was provided by USFWS for planning purposes and is not for distribution.
The dataset presents known ponds in areas surveyed, but is not a complete catalog or all potential CTS breeding ponds.This map was created for informational and display purposed only

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: | | |
|---|---|---|
| EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT | | |
| PROJECT NUMBER: 1002-0455 | DATE: September 2014 | |

# REGIONALLY OCCURRING SENSITIVE HABITATS

FIGURE 5-1

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Permit Doc Figures\Bio\Regionally Occurring Sensitive Habitats.mxd

### 5.2.6 Lompoc Yerba Santa Critical Habitat

USFWS-designated Critical Habitat for Lompoc yerba santa (*Eriodictyon capitatum*) occurs in two units in western Santa Barbara County: Santa Ynez Mountains Unit and Solomon Hills Unit. These Critical Habitat areas include: soils with a large component of sand and that tend to be acidic; and plant communities that support associated species, including maritime chaparral and southern bishop pine forests that intergrade with chaparral (USFWS, 2002b). No Lompoc yerba santa Critical Habitat occurs within the Project site; however, the Solomon Hills Unit is located approximately 5.4 miles west of the Project site (Figure 5-1 - Regionally Occurring Sensitive Habitats).

### 5.2.7 Gaviota tarplant Critical Habitat

USFWS-designated Critical Habitat for Gaviota tarplant (*Deinandra increscens* ssp. *villosa*) occurs in three units in western Santa Barbara County: Sudden Peak Unit, Santa Ynez Mountains Unit, and Conception-Gaviota Unit. These Critical Habitat areas include grasslands and open areas of coastal sage scrub generally consisting of sandy soils associated with marine terraces and uplifted marine sediments, and are highly localized in western Santa Barbara County (USFWS, 2002b). No Gaviota tarplant Critical Habitat occurs within the Project site; Sudden Peak Unit is the nearest Gaviota Tarplant Critical Habitat Unit at approximately 20.9 miles to the southwest of the Project site (Figure 5-1 – Regionally Occurring Sensitive Habitats).

### 5.2.8 CDFW Natural Communities of Special Concern

CDFW has created the List of Vegetation Alliances and Associations (Natural Communities List) (CDFW, 2010), to assist in the identification of which Natural Communities are considered to be a high priority for conservation. The Natural Communities List includes CNDDB Natural Community occurrences (i.e., Holland types) and vegetation types classified according to the current state standard MCVII nomenclature. All Natural Community occurrences in the CDFW Natural Communities List (CDFW, 2010) have a corresponding G (global) and S (state) rank, according their degree of imperilment (as measured by rarity, trends, and threats) using the Heritage Methodology.

Based on the CNDDB query conducted during the desktop review, the following Natural Communities of Special Concern have been documented within the region (Figure 5-1 – Regionally Occurring Sensitive Habitats): Central Coast Arroyo Willow Riparian Forest, Central Maritime Chaparral, Southern California Steelhead Stream, Southern California Threespine Stickleback Stream, Southern Cottonwood Willow Riparian Forest, Southern Vernal Pool, and Southern Willow Scrub. Based on the April 2013 field surveys, red willow (*Salix laevigata*) thicket (which is considered riparian and a Natural Community of Special Concern) was observed within the Project site. No other Natural Communities of Special Concern were identified within the Project site.

### 5.2.9 County Sensitive Habitats

Santa Barbara County has habitat-specific impact assessment guidelines in the Environmental Thresholds Manual (2008) for native communities specific to the region, such as oak woodlands, native grasslands, vernal pools, and riparian habitat. The Project site does support native communities including, western rush marshes, California coastal scrub, coast live oak woodland, and a small area of red willow thickets (riparian habitat) that are afforded protection by the County (Figure 5-1 – Regionally Occurring Sensitive Habitats).

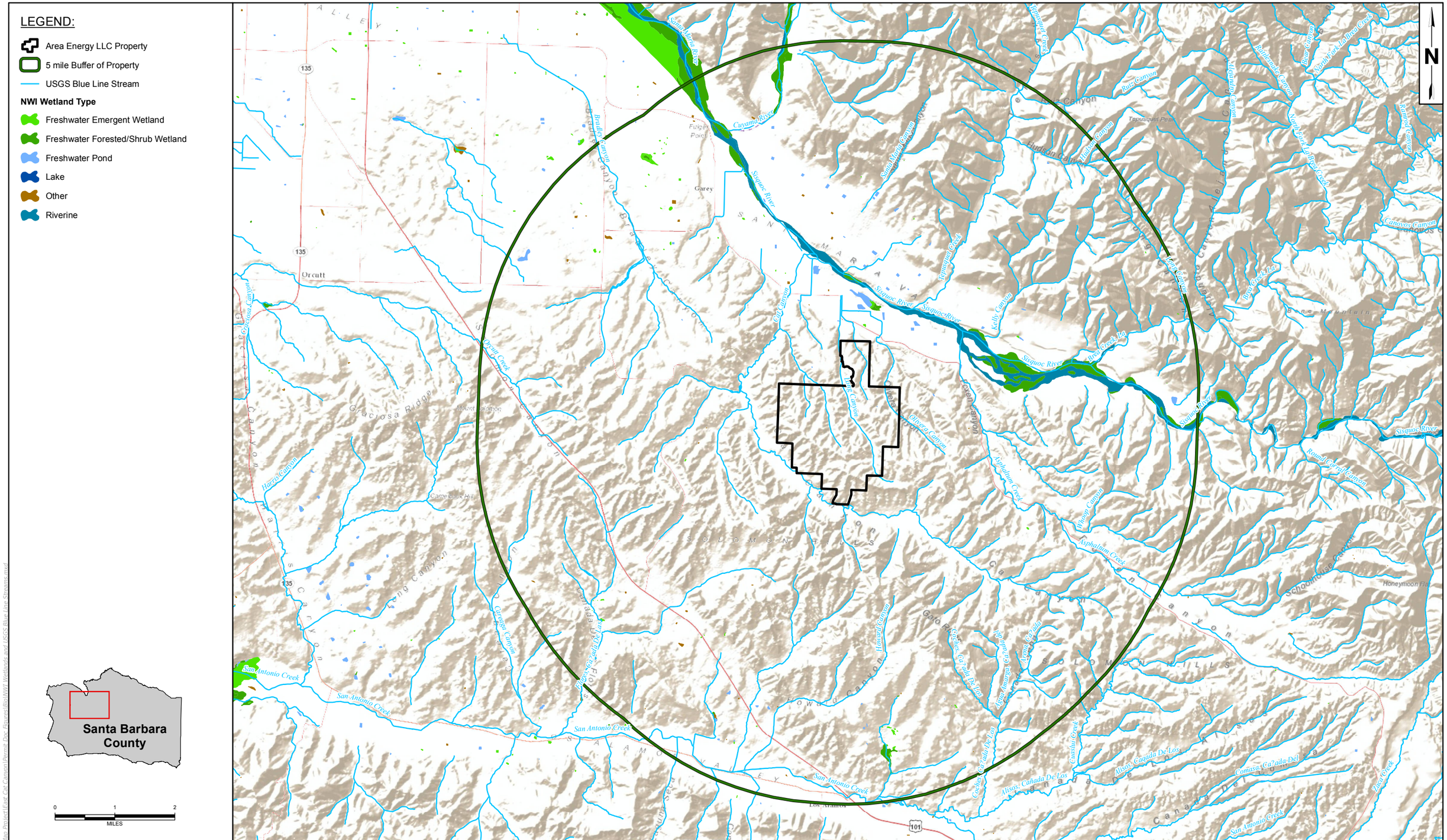
The region has the potential to support native grassland habitat; however, these communities are not typically documented by resource professionals and make historical documentation difficult to track. In Santa Barbara County, native grasslands are defined as "an area where native grassland species comprise ten percent or more of the total relative cover" (County, 2008). Native grasslands occurring in the Santa Barbara County area are dominated by perennial bunch grasses such as purple needlegrass (*Stipa* [*Nasella*] *pulchra*), foothill needlegrass (*Stipa* [*Nasella*] *lepida*), and nodding needlegrass (*Stipa* [*Nasella*] *cernua*). Within the Project site, grassland areas are dominated by non-native species. Purple needlegrass and foothill needlegrass species were identified; however, these species did not comprise a native grassland community with ten percent or more of total relative cover in any given area.

## 5.3 AQUATIC FEATURES

### 5.3.1 Drainages

The Project site contains six "blue-line" drainages identified by USGS topographical imagery. These drainages include Cat Canyon Creek, Long Canyon Creek, Olivera Canyon Creek, and three unnamed drainages. No drainages or other wetlands were identified by the USFWS's NWI (USFWS, 2014a) within the Project site (Figure 5-2 – NWI Wetlands and USGS Blue Line Streams). The blue-line drainages are ephemeral and remain dry for the majority of the year except during and immediately following rainfall. After seasonal rains, the streams may hold water long enough to provide suitable breeding habitat for some amphibious species or aquatic invertebrates that rely on ephemeral water sources. They do not provide a perennial water source for aquatic wildlife that rely on a continual water source for survival and/or breeding, such as fish.

Cat Canyon Creek flows from southeast to northwest along the southwestern boundary of the Project site. This drainage supports a mix of riparian and woodland habitat along portions of the channel as it meanders through numerous private properties north through the town of Sisquoc, eventually draining into the Sisquoc River. Long Canyon Creek flows through the Project site and also drains to the Sisquoc River. In the upper portions of the drainage, in the southeastern portion of the Project site, it is a swale in grassland habitat grazed by cattle. It begins to narrow into the canyon along Long Canyon Road, supporting some scattered riparian vegetation occurring in the northern reaches of the Project site. It then flows north of the Project site where it is channelized by agricultural activities before draining into the Sisquoc River. To the east of the Project site, Olivera Canyon Creek is an ephemeral drainage that gathers water flow from rills in the hillsides following rainfall. This drainage is steep and flows through oak woodland and grassland habitats before also draining to the Sisquoc River.




Source: ESRI Online Basemap, County of Santa Barbara, DPSI 2013, USGS, NWI
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: CTS = California Tiger Salamander; Potential CTS breeding pond data was provided by USFWS for planning purposes and is not for distribution.
The dataset presents known ponds in areas surveyed, but is not a complete catalog or all potential CTS breeding ponds. This map was created for informational and display purposed only

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: | |
|---|---|
| EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT | |
| PROJECT NUMBER: 1002-0455 | DATE: September 2014 |

NWI WETLANDS AND USGS BLUE LINE STREAMS

FIGURE 5-2

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Permit Doc Figures\Bio\NWI Wetlands and USGS Blue Line Streams.mxd

There are three other unnamed blue-line drainages that support water from the north facing slopes of the Project site and drain north eventually to the Sisquoc River. In addition, there are several other ephemeral drainages not identified as USGS blue-line streams but were observed during field surveys throughout the Project site. These channels drain the steep hillsides within the Project site into the lower floodplain during periods of rainfall and remain dry for the remainder of the year. They are sandy and several have been significantly impacted by erosion at the Project site. Riparian vegetation or other hydrophytic plant species were not identified in these drainages.

### 5.3.2 Ephemeral Pools

Ephemeral pools are formed in closed depressions lacking a surface outlet and are wet only seasonally or in wet years. These closed depressions become inundated following rainfall and may sometimes remain inundated until spring or early summer, or sometimes fill and empty numerous times during the wet season. They may support endemic plant and wildlife species that rely on short duration inundation and specific soil elements. Some ephemeral ponds, depending on their specific wetland conditions (i.e., hydric soils, hydrology duration, and/or hydrophytic vegetation), may be afforded protection under regulatory guidelines.

The Santa Barbara County Thresholds of Significance (2008) provides the following wetland definition:

*"… wetlands must have one or more of the following three attributes:*

1. *At least periodically, the land supports predominantly hydrophytes, that is, plants adapted to moist areas,*
2. *The substrate is predominantly un-drained hydric soil, and*
3. *The substrate is non-soil and is saturated with water or covered by shallow water at some time during the growing season of each year."*

Field visits on January 15 and 16, 2013, documented pooled water within the Project site following recorded rainfall of 0.13 inch on January 10, 2013. Several depressional pools were identified along abandoned well pads or containment basins that were previously graded and cleared of vegetation and some with a road base fill (Figure 5-3 – Biological Field Survey Results [A - F]). The majority of the pools did not support vegetation and no endemic vernal pool species were observed during field visits. Few (under twelve) of the pools contained sparse vegetation on the perimeter, consisting primarily of non-native species including brass buttons (*Cotula coropifolia*), annual rabbitsfoot grass (*Polypogon monspeliensis*), rattail sixweeks grass (*Festuca myuros*), and yellow sweet clover (*Melilotus indicus*). Hydrophytic vegetation was not predominant and hydrology indicators were only present following rainfall and not during the region's growing season. In addition, all pools were located on disturbed/compacted soils that do not meet hydric soil specifications. Therefore, these pools did not meet wetland definitions for Santa Barbara County.

The Project site was visited again on February 13, 2013, and the pools were all dry except for two that were once used as containment basins during past oil field operations (Pool A and Pool B) (Figure 5-3 - Biological Field Survey Results). Pool B is fenced off from cattle, and during the February 2013 survey, had an impervious concrete/asphalt base with no emergent vegetation. Pool A was open to cattle and other wildlife to use and was underlain by a claypan, which was

capable of holding water for longer hydroperiods. Pool A contained non-native brass button patches with component species consisting of parish's spikerush (*Eleocharis parishii*), toad rush (*Juncus bufonius*), yellow sweet clover, rattail sixweeks grass, and annual rabbitsfoot grass.

During the April 2013 field survey, the only remaining water identified within the Project site was observed at Pool A, where water persisted and a small patch of brass buttons was identified and further surveyed using the CNPS and CDFW VRAP (CNPS, 2011) (Appendix H: data sheet ECC0008). Because this area supports hydrophytic plant components (brass buttons) and is "*a non-soil that was saturated with water or covered by shallow water at some time during the growing season of each year*", Pool A may be considered a wetland according to Santa Barbara County definitions, outlined above. None of the remaining pools contained sufficient hydrophytic vegetation, hydric soils, or hydroperiod to be considered a wetland under the Santa Barbara County definitions, outlined above.

## 5.4 VEGETATION TYPES OCCURRING WITHIN THE PROJECT SITE

Based on species composition, life form, and community membership rules, the vegetation identified within the Project site can be classified into distinct vegetation types (i.e., alliances, associations) as described in Sawyer et al., 2009. Refer to Appendix I for site photographs and Appendix J for a comprehensive list of plants observed within the Project site during field surveys. CDFW Rapid Assessment Data Sheets are provided as Appendix H with additional representative community photographs. Vegetation types identified within the Project site are illustrated in Figure 5-3 - Biological Field Survey Results (Note: Figure has been updated to include VRAP ID locations), summarized in Table 5-2 - Summary of Vegetation Types within the Project site, and described in detail below.

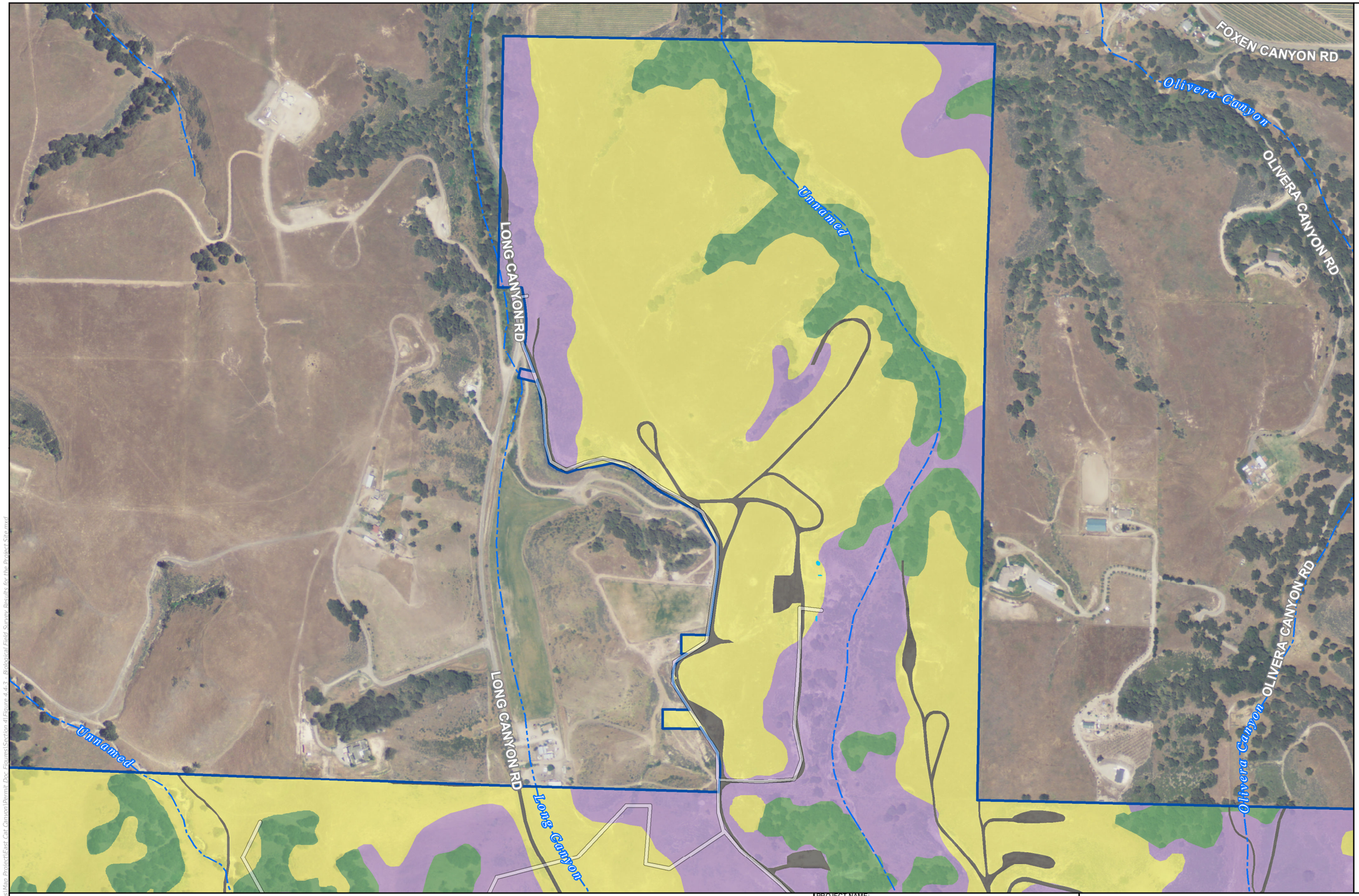
**Table 5-2. Summary of Vegetation Types within the Project site**

| Vegetation Type | VRAP ID | Regulatory Status[1] | Total Acreages within the Project site | Map Treatment |
|---|---|---|---|---|
| Western Rush Marshes | ECC0018 | G4?/S4? | 0.53 | Western Rush Marshes |
| Annual Brome Grasslands | ECC0003<br>ECC0010<br>ECC0013 | - | 509.94 | Component of Annual Grassland |
| Wild Oats Grasslands | ECC0015 | - | | Component of Annual Grassland |
| California Coffeeberry Scrub | ECC0012 | G4/S4 | 0.64 | California Coffeeberry Scrub |
| Black Sage Scrub | ECC0001<br>ECC0014 | G4/S4 | 1,025.83 | Component of California Coastal Scrub |
| California Sagebrush Scrub | ECC0005<br>ECC0016 | G5/S5 | | Component of California Coastal Scrub |
| Mock Heather Stand | ECC0007 | - | | Component of California Coastal Scrub |
| Coyote Brush Scrub | ECC0006<br>ECC0017 | G5/S5 | | Component of California Coastal Scrub |
| Red Willow Thickets | ECC0011 | G3/S3 | 2.18 | Red Willow Thickets |
| Coast Live Oak Woodland | ECC0004<br>ECC0009 | G5/S4, County ESHA | 449.15 | Coast Live Oak Woodland |
| Eucalyptus Groves | ECC0002 | - | 3.75 | Eucalyptus Groves |
| Previously Disturbed | - | - | 119.06 | Previously Disturbed |

Notes:
[1]The CNDDB ranking codes are part of the Heritage Methodology that provides information about the status of the taxon/community throughout their entire range and within California. The CDFW List of Vegetation Alliances and Associations are based on Sawyer et al., 2009 and available on-line (CDFW, 2010).

G Global Rank.
S State Rank
G1-G5 Globally critically imperiled (G1) to demonstrably secure (G5)
S1-S3 State critically imperiled (S1) to demonstrably secure (S5).
NR Not ranked.
? Denotes an inexact numeric rank due to insufficient samples over the full expected range of the type, but existing information points to this rank.

PAGE INTENTIONALLY BLANK




LEGEND:

- Biological Survey Area (BSA)
- Project Footprint
- Rapid Assessment and/or Releve Data Point
- Ephemeral Wetland Depression (2/2013)
- Hydrographic Feature

**Wildlife Observation**

- Americal kestrel nest
- Red-tailed hawk nest
- Common raven nest
- Golden eagle
- Rufous-crowned sparrow
- American badger

**Special Status Species**

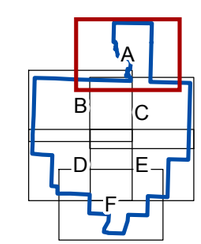
- Straight-awned spineflower

**Vegetation Community**

- Annual grasslands
- California coastal scrub
- California coffee berry scrub
- Coast live oak woodland
- Eucalyptus groves
- Previously Disturbed/Developed
- Red willow thicket
- Western rush marsh

N

FIGURE INDEX:




0 250 500
FEET

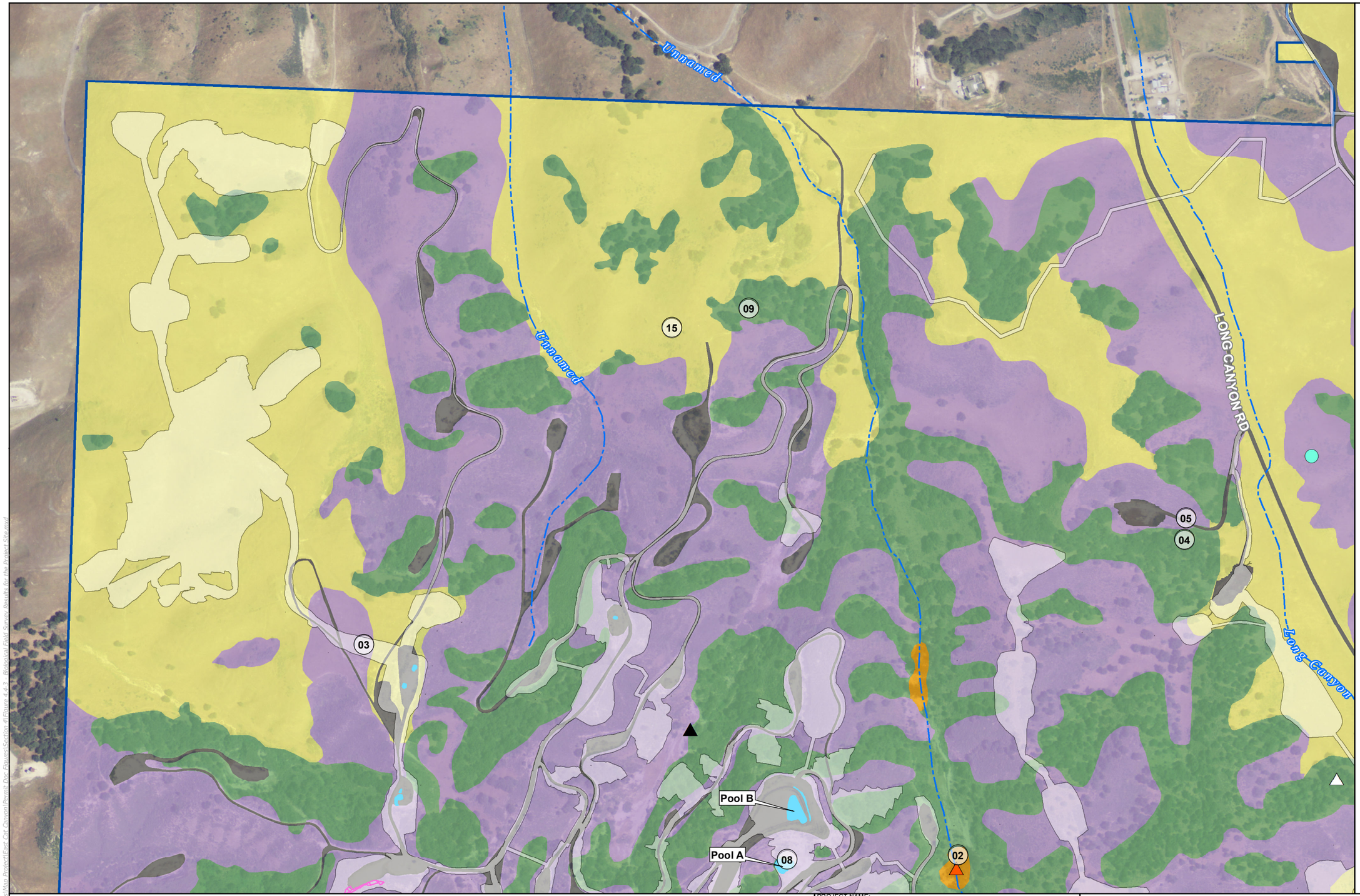
*Source: NAIP 2012 Image, County of Santa Barbara, DPSI 2013, TJ Cross 8/20/2014*
*Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet*
*Notes: This map was created for informational and display purposes only*

| PROJECT NAME: | |
|---|---|
| EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT | |
| PROJECT NUMBER: 1002-0455 | DATE: July 2015 |

# BIOLOGICAL FIELD SURVEY RESULTS FOR THE PROJECT SITE

FIGURE 5-3A

Z:\Kristin\GIS Maps\Maps Project\East Cat Canyon\Permit Doc Figures\Section 4\Figure 4.4.2_Biological Field Survey Results for the Project Site.mxd




LEGEND:

- Biological Survey Area (BSA)
- Project Footprint
- Rapid Assessment and/or Releve Data Point
- Ephemeral Wetland Depression (2/2013)
- Hydrographic Feature

**Wildlife Observation**

- Americal kestrel nest
- Red-tailed hawk nest
- Common raven nest
- Golden eagle
- Rufous-crowned sparrow
- American badger

**Special Status Species**

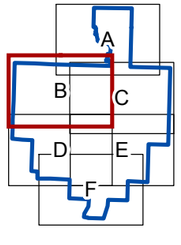
- Straight-awned spinefflower

**Vegetation Community**

- Annual grasslands
- California coastal scrub
- California coffee berry scrub
- Coast live oak woodland
- Eucalyptus groves
- Previously Disturbed/Developed
- Red willow thicket
- Western rush marsh

N

FIGURE INDEX:




0 250 500
FEET

Source: NAIP 2012 Image, County of Santa Barbara, DPSI 2013, TJ Cross 8/20/2014
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposes only

PROJECT NAME: EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT

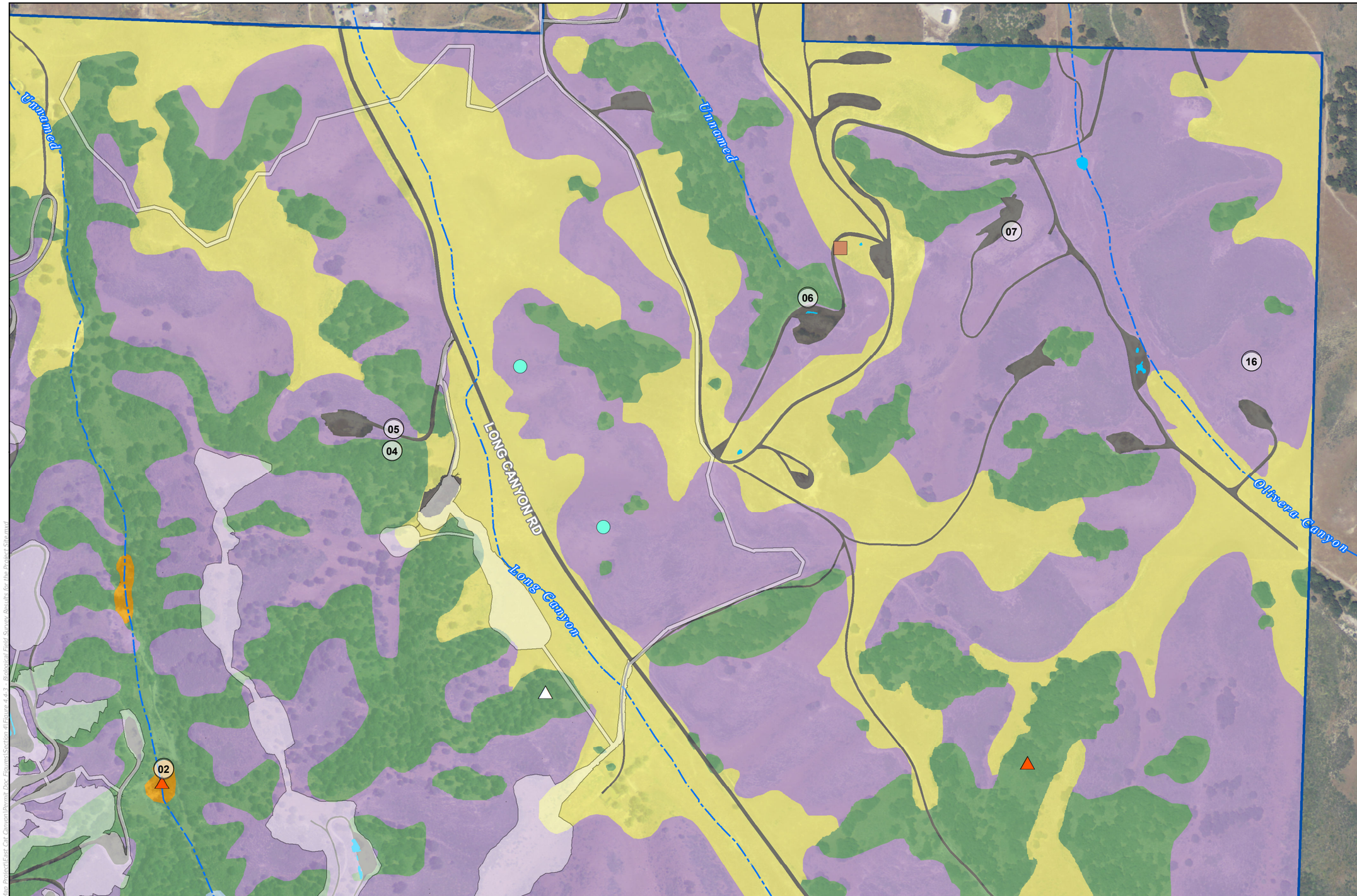
PROJECT NUMBER: 1002-0455

DATE: July 2015

# BIOLOGICAL FIELD SURVEY RESULTS FOR THE PROJECT SITE

FIGURE 5-3B

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Permit Doc Figures\Section 4\Figure 4.4-3_Biological Field Survey Results for the Project Site.mxd




LEGEND:

- Biological Survey Area (BSA)
- Project Footprint
- # Rapid Assessment and/or Releve Data Point
- Ephemeral Wetland Depression (2/2013)
- Hydrographic Feature

**Wildlife Observation**

- Americal kestrel nest
- Red-tailed hawk nest
- Common raven nest
- Golden eagle
- Rufous-crowned sparrow
- American badger

**Special Status Species**

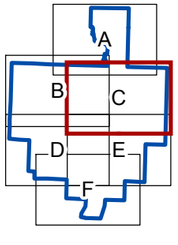
- Straight-awned spinefflower

**Vegetation Community**

- Annual grasslands
- California coastal scrub
- California coffee berry scrub
- Coast live oak woodland
- Eucalyptus groves
- Previously Disturbed/Developed
- Red willow thicket
- Western rush marsh

N

FIGURE INDEX:




0 250 500
FEET

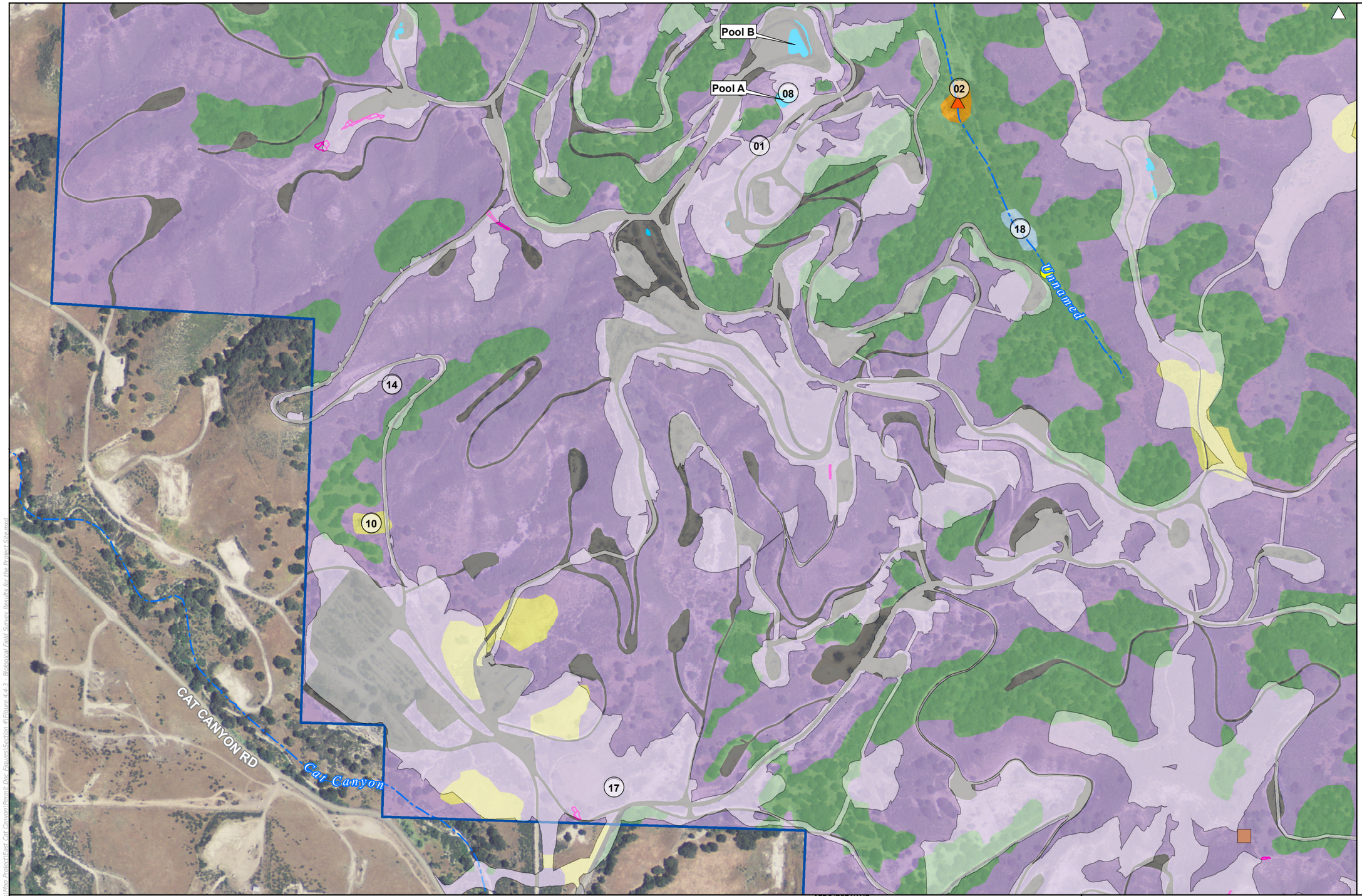
*Source: NAIP 2012 Image, County of Santa Barbara, DPSI 2013, TJ Cross 8/20/2014*
*Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet*
*Notes: This map was created for informational and display purposes only*

| PROJECT NAME: | | |
|---|---|---|
| EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT | | |
| PROJECT NUMBER: 1002-0455 | DATE: July 2015 | |

# BIOLOGICAL FIELD SURVEY RESULTS FOR THE PROJECT SITE

FIGURE 5-3C

Z:\Kristin\GIS Maps\Map_Project\East Cat Canyon\Permit Doc Figures\Section 4\Figure 4.4-3_Biological Field Survey Results for the Project Site.mxd




LEGEND:

- Biological Survey Area (BSA)
- Project Footprint
- Rapid Assessment and/or Releve Data Point
- Ephemeral Wetland Depression (2/2013)
- Hydrographic Feature

**Wildlife Observation**

- Americal kestrel nest
- Red-tailed hawk nest
- Common raven nest
- Golden eagle
- Rufous-crowned sparrow
- American badger

**Special Status Species**

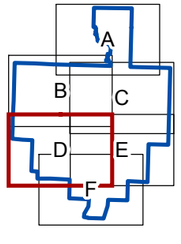
- Straight-awned spinefflower

**Vegetation Community**

- Annual grasslands
- California coastal scrub
- California coffee berry scrub
- Coast live oak woodland
- Eucalyptus groves
- Previously Disturbed/Developed
- Red willow thicket
- Western rush marsh

N

FIGURE INDEX:




0 250 500
FEET

Source: NAIP 2012 Image, County of Santa Barbara, DPSI 2013, TJ Cross 8/20/2014
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposes only

PROJECT NAME: EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT

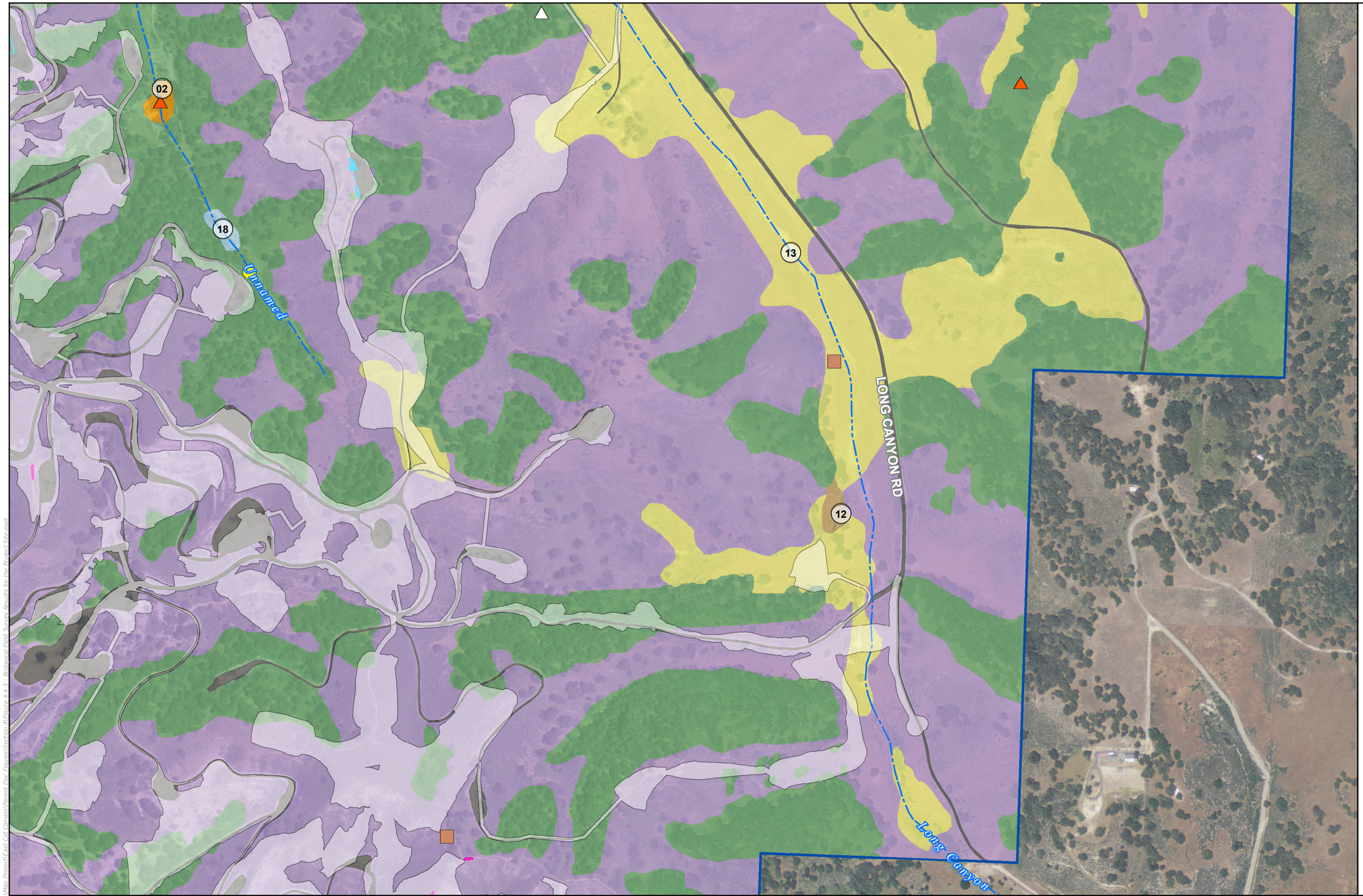
PROJECT NUMBER: 1002-0455

DATE: July 2015

# BIOLOGICAL FIELD SURVEY RESULTS FOR THE PROJECT SITE

FIGURE 5-3D

Z:\Kristin\GIS Maps\Map_Project\East Cat Canyon\Permit Doc Figures\Section 4\Figure 4.4-3_Biological Field Survey Results for the Project Site.mxd




LEGEND:

- Biological Survey Area (BSA)
- Project Footprint
- # Rapid Assessment and/or Releve Data Point
- Ephemeral Wetland Depression (2/2013)
- Hydrographic Feature

**Wildlife Observation**

- Americal kestrel nest
- Red-tailed hawk nest
- Common raven nest
- Golden eagle
- Rufous-crowned sparrow
- American badger

**Special Status Species**

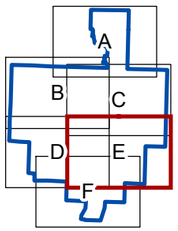
- Straight-awned spineflower

**Vegetation Community**

- Annual grasslands
- California coastal scrub
- California coffee berry scrub
- Coast live oak woodland
- Eucalyptus groves
- Previously Disturbed/Developed
- Red willow thicket
- Western rush marsh

N

FIGURE INDEX:




0 250 500
FEET

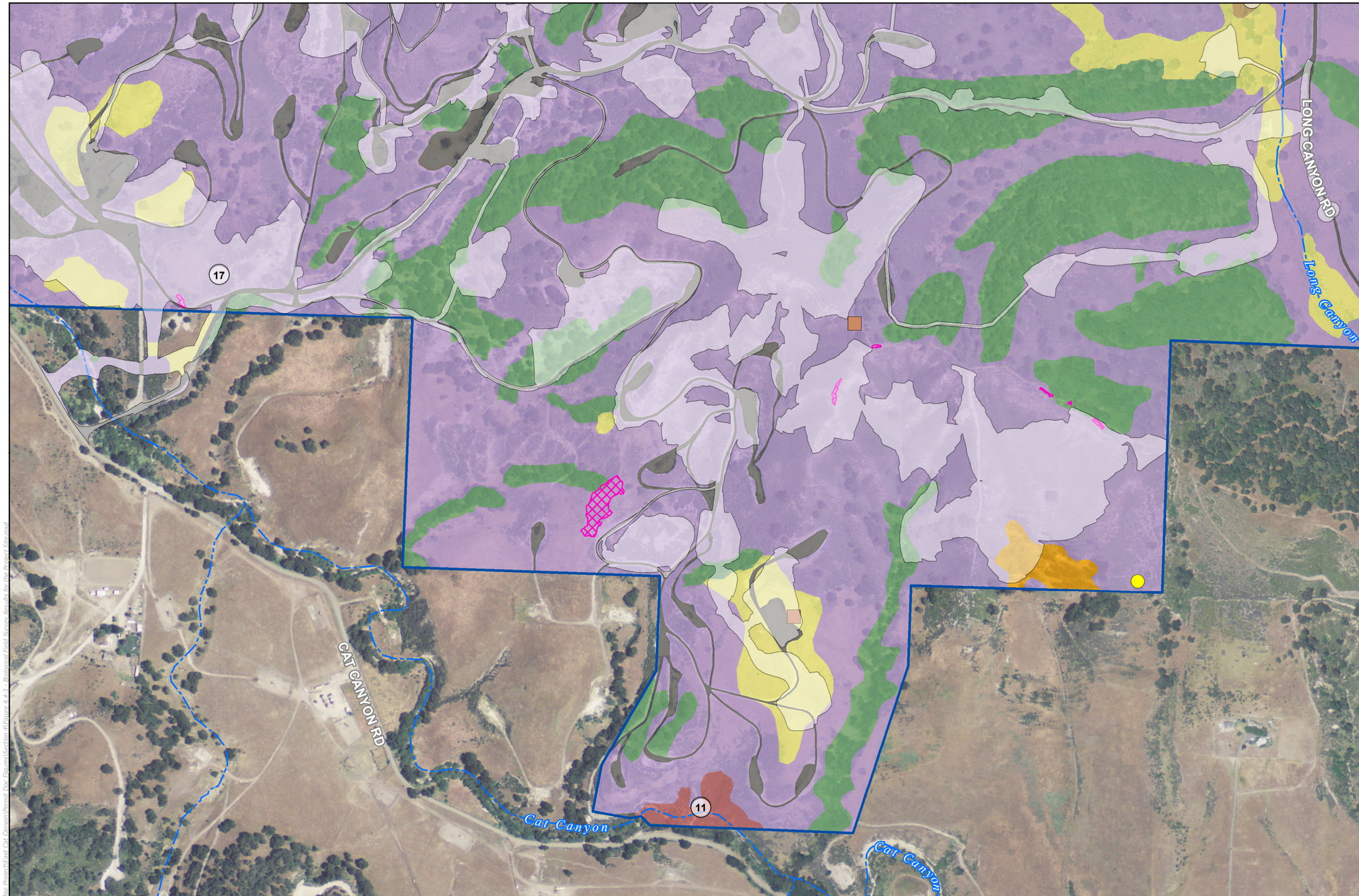
Source: NAIP 2012 Image, County of Santa Barbara, DPSI 2013, TJ Cross 8/20/2014
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposes only

| PROJECT NAME: | | |
|---|---|---|
| EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT | | |
| PROJECT NUMBER: 1002-0455 | DATE: July 2015 | |

BIOLOGICAL FIELD SURVEY RESULTS FOR THE PROJECT SITE

FIGURE 5-3E

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Permit Doc Figures\Section 4\Figure 4.4.3 - Biological Field Survey Results for the Project Site.mxd




## LEGEND:

- Biological Survey Area (BSA)
- Project Footprint
- Rapid Assessment and/or Releve Data Point
- Ephemeral Wetland Depression (2/2013)
- Hydrographic Feature

**Wildlife Observation**

- Americal kestrel nest
- Red-tailed hawk nest
- Common raven nest
- Golden eagle
- Rufous-crowned sparrow
- American badger

**Special Status Species**

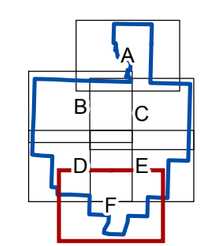
- Straight-awned spineflower

**Vegetation Community**

- Annual grasslands
- California coastal scrub
- California coffee berry scrub
- Coast live oak woodland
- Eucalyptus groves
- Previously Disturbed/Developed
- Red willow thicket
- Western rush marsh

N

## FIGURE INDEX:




0 250 500
FEET

Source: NAIP 2012 Image, County of Santa Barbara, DPSI 2013, TJ Cross 8/20/2014
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposes only

| PROJECT NAME: | | |
|---|---|---|
| EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT | | |
| PROJECT NUMBER: 1002-0455 | DATE: July 2015 | |

# BIOLOGICAL FIELD SURVEY RESULTS FOR THE PROJECT SITE

FIGURE 5-3F

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Permit Doc Figures\Section 4\Figure 4.4.3_ Biological Field Survey Results for the Project Site.mxd

### 5.4.1 Western Rush Marshes

Western rush marsh (*Juncus patens* Provisional Herbaceous Alliance) occurs in seasonally saturated soils on flats, depressions, and/or gentle slopes. This alliance is characterized by spreading rush (*Juncus patens)* as dominant in the herbaceous layer with intermittent to continuous cover (Sawyer et al., 2009). Based on field surveys, western rush marsh was observed at one location within the Project site, in a drainage feature within an opening in coast live oak woodland habitat (Figure 5-3 - Biological Field Survey Results). A quantitative vegetation assessment (Appendix H: data sheet ECC0018), identified native and non-native forb and grass species with spreading rush as the dominant species. Component species include ripgut grass (*Bromus diandrus*), soft chess (*Bromus hordaceous*), miniature lupine (*Lupinus bicolor*), rattail sixweeks grass, toad rush, and several seedling shrub and tree species including coyote brush (*Baccharis pilularis*) and coast live oak (*Quercus agrifolia*). Soils were not saturated and no pooled water was observed during April 2014 field visits.

### 5.4.2 Annual Grassland

The grasslands within the Project site consist of several native and non-native grass species that transition in dominance in relation to distinct topographical areas (e.g., valleys, flat ridge tops, moderately sloping hillsides, etc.). Field surveys, identified two distinct grassland vegetation types (i.e., MCVII alliances) within the Project site, including annual brome grasslands and wild oats grasslands, which are discussed in detail below. Note that in order to best represent the general vegetation types within the Project site, these two grassland alliances are mapped as components of annual grassland.

**Annual brome grasslands**. Annual brome grasslands (*Bromus* (*diandrus, hordeaceus*) – *Brachypodium distachyon*, Semi-Natural Herbaceous Stands) occur in all topographic settings in foothills, waste places, rangelands, and openings in woodlands. This alliance is characterized by ripgut grass as dominant or co-dominant with non-natives in the herbaceous layer and cover is intermittent to continuous (Sawyer et al., 2009). Based on field surveys, annual brome grasslands were observed throughout the Project site. The quantitative vegetation assessments (Appendix H: data sheets ECC003, ECC0010, and ECC0013) identified non-native annual grass species with ripgut grass as the co-dominant to component species within this vegetation type. Component species include slender wild oat (*Avena barbata*), soft chess, storksbill (*Erodium botrys*), red-stemmed filaree (*Erodium cicutarium*), and Italian ryegrass (*Festuca perennis*), all of which are non-native species to California.

**Wild oats grasslands**. Wild oats grasslands (*Avena barbata* and *fatua* Semi-Natural Herbaceous Stands) occur in open spaces, rangelands, and openings in woodlands. This alliance is characterized by slender wild oat or common wild oat as dominant or co-dominant in the herbaceous layer and cover is open to continuous (Sawyer et al., 2009). Wild oats grasslands were observed throughout the Project site during field surveys. The quantitative vegetation assessment (Appendix H: data sheet ECC0015) identified native and non-native annual grass species with slender wild oat as the dominant species within this vegetation type. Component species consist of mostly non-native grasses and include ripgut grass, soft chess, red brome (*Bromus madritensis* sp*. rubens*), storksbill, and tocalote (*Centauria melitensis*). Additionally, purple needlegrass (*Stipa pulchra*) was observed intermittently throughout the Project site during field surveys. The percent cover of needlegrass must meet or exceed the threshold value of ten percent cover to be considered an ESHA within Santa Barbara County. In order to determine the

sensitivity status of the intermittent/sparse populations of purple needlegrass occurring within the Project site, Padre located a representative population. The quantitative vegetation assessment (Appendix H: data sheet ECC0015) identified purple needlegrass as a component species of wild oats grassland at eight percent cover.

### 5.4.3 California Coffeeberry Scrub

California coffeeberry scrub (*Frangula californica* Shrubland Alliance) occurs on concave slopes, lower slopes, and along drainages and undulating moderate to steep slopes of sedimentary or serpentine substrates, where soils retain moisture much of the year. This alliance is characterized by California coffeeberry as dominant or co-dominant in the shrub canopy; the canopy is open to continuous and one or two tiered; and the herbaceous layer is open with a high amount of exposed soil and rock (Sawyer et al., 2009). California coffeeberry scrub was observed during field surveys in a small patch adjacent to a shallow ephemeral drainage parallel to Long Canyon Road (Figure 5-3 - Biological Field Survey Results). The quantitative vegetation assessment (Appendix H: data sheet ECC0012) identified native shrubs and forbs, with California coffeeberry as the dominant species within this vegetation type. Component species include California sagebrush (*Artemisia californica*), mock heather (*Ericameria ericoides*), coyote brush, coast live oak, and horehound (*Marrubium vulgare*).

### 5.4.4 California Coastal Scrub.

The coastal scrub habitat within the Project site consists of several perennial shrub species that transition in dominance in relation to distinct topographical areas (e.g., west facing hillsides, steep slopes, etc.). Field surveys identified four distinct coastal scrub vegetation types (MCVII alliances) within the Project site, including black sage scrub, California sagebrush scrub, mock heather stand, and coyote brush scrub, and are discussed in detail below. Note that in order to best represent the general vegetation types within the Project site, these four coastal scrub alliances are mapped as components of California coastal scrub.

**Black Sage Scrub**. Black sage scrub (*Salvia mellifera* Shrubland Alliance) occurs on dry slopes and alluvial fans where soils are shallow. This alliance is characterized by black sage as dominant or co-dominant in the shrub layer; canopy is continuous to intermittent; the herbaceous layer is variable, and grasses and herbs are seasonal (Sawyer et al., 2009). Black sage scrub was observed throughout the Project site during field surveys, primarily on steep hillsides, often transitioning with coyote brush scrub and California sagebrush scrub. The quantitative vegetation assessments (Appendix H: data sheets ECC0001 and ECC0014) identified native shrubs, with black sage as the dominant species within this vegetation type. Co-dominant to component shrub species include chaparral mallow (*Malacothamnix fasciculatus*), California brittlebush (*Encelia californica*), coyote brush, California sagebrush, poison oak (*Toxicodendon diversilobum*), California buckwheat (*Eriogonum fasciculatum*), and chaparral nightshade (*Solanum xanti*). Intermittent forb and grass species include sacapellote (*Acourtia microcephala*), California peony (*Paeonia californica*), imbricate phacelia (*Phacelia imbricata*), foothill needlegrass (*Stipa lepida*), prickly phlox (*Linanthus californicus*), and Cleveland's cryptantha (*Cryptantha clevlandii*).

**California Sagebrush Scrub**. California sagebrush scrub (*Artemisia californica* Shrubland Alliance) occurs on slopes that are usually steep and rarely flooded, low-gradient deposits along streams, soils are shallow. This alliance is characterized by California sagebrush as dominant or co-dominant species in the shrub layer; canopy is intermittent to continuous and herbaceous layer is variable both seasonally and annually (Sawyer et al., 2009). During field

surveys, California sagebrush scrub was observed throughout the Project site, primarily on steep hillsides. The quantitative vegetation assessments (Appendix H: data sheets ECC0005 and ECC0016), identified native and non-native shrubs, forbs and grasses, with California sagebrush as the dominant species within this vegetation type. Component shrub species include California croton (*Croton californicus*), coffeeberry, black sage, deerweed (*Acmispon glabra* [*Lotus scoparius*]), California aster (*Corethrogyne filaginifolia* [*Lessingia filaginifolia*]), canyon sunflower (*Venegasia carpesioides*), horseweed (*Conyza canadensis*), telegraph weed (*Heterotheca grandiflora*), and mock heather.

**Mock Heather Stand**. A distinct population of mock heather (*Ericameria ericoides*) was observed during field surveys at an abandoned well pad within the Project site. For the purposes of this Report, this distinct vegetation stand is referred to as mock heather stand, as there is no MCVII treatment for this species. The quantitative vegetation assessment (Appendix H: data sheet ECC0007) identified native and non-native shrub species, with mock heather as the dominant species within this vegetation type. Component species include storksbill, ripgut grass, bur clover (*Medicago polymorpha*), and California sagebrush.

**Coyote Brush Scrub**. Coyote brush scrub (*Baccharis pilularis* Shrubland Alliance) occurs in river mouths, stream sides, terraces, stabilized dunes of coastal bars, spits along the coastline, coastal bluffs, open slopes, and ridges. This alliance is characterized by coyote brush as dominant to co-dominant in the shrub canopy; canopy is variable (Sawyer et al., 2009). Coyote brush scrub was observed throughout the Project site during field surveys, often transitioning to California sagebrush scrub and coast live oak woodland, primarily on steep hillsides. The quantitative vegetation assessments (Appendix H: data sheets ECC0006 and ECC0017) identified native and non-native shrubs, forbs and grasses, with coyote brush as the dominant species within this vegetation type. Component species include California sagebrush, chaparral nightshade, California goosefoot (*Chenopodium californicum*), ripgut grass, red brome (*Bromus madritensis*), and California everlasting (*Pseudognaphalium californicum*).

### 5.4.5 Red Willow Thickets

Red willow thickets (*Salix laevigata* Woodland Alliance) occur in ditches, floodplains, lake edges, or low-gradient depositions along streams. This alliance is characterized by red willow as dominant or co-dominant species in the tree layer; the tree layer is open to intermittent and herbaceous layer is variable (Sawyer et al., 2009). Red willow thickets were observed during field surveys at one location within the southwestern portion of the Project site, in the dry bed of Cat Canyon Creek adjacent to Cat Canyon Road (Figure 5-3 - Biological Field Survey Results). The quantitative vegetation assessment (Appendix H: data sheet ECC0011) identified native shrubs with red willow as the dominant species within this vegetation type. Component shrub species include mulefat (*Baccharis salicifolia*), coyote brush, California mugwort (*Artemisia douglasiana*), California everlasting, and yellow sweet clover. Due to the dominance of red willow, this vegetation type is considered riparian habitat, and provided protection as a Natural Community of Special Concern by the CDFW.

### 5.4.6 Coast Live Oak Woodland

Coast live oak woodland (*Quercus agrifolia* Woodland Alliance) occurs on alluvial terraces, canyon bottoms, stream banks, slopes, or flats, with soils that are deep, sandy or loamy with high organic matter. This alliance is characterized by coast live oak as dominant or co-dominant in the tree canopy; canopy is open to continuous, shrub layer is sparse to intermittent, and

herbaceous layer is sparse (Sawyer et al., 2009). Coast live oak woodland is particularly important for its ability to support a wide variety of wildlife species due to its high value as foraging habitat and protective cover (e.g., acorn production, forest canopy, etc.). Further, oak woodland is considered to be an ESHA by Santa Barbara County.

Coast live oak woodland was identified during field surveys throughout the Project site on all topographic settings, ranging in cover from dense to intermittent. The quantitative vegetation assessments (Appendix H: data sheets ECC0004 and ECC0009) identified native and non-native shrubs, forbs and grasses, with coast live oak as the dominant species within this vegetation type. Component species include Italian thistle, ripgut grass, slender wild oat, Italian ryegrass (*Festuca perennis*), geranium (*Geranium m*olle), miner's lettuce (*Claytonia perfoliata*), woodmint (*Stachys bullata*), poison oak, and California hummingbird sage (*Salvia spathacea*).

### 5.4.7 Eucalyptus Groves

Eucalyptus groves (*Eucalyptus* [*globulus, camaldulensis*] Semi-Natural Woodland Stands) are characterized by gum trees as dominant in the tree canopy; canopy is intermittent, shrub and herbaceous layer is sparse to intermittent (Sawyer et al., 2009). Eucalyptus groves often provide suitable nesting habitat for birds and overwintering habitat for monarch butterflies. Eucalyptus groves were observed during field surveys at two distinct locations in the central portion of the Project site. The quantitative vegetation assessment (Appendix H: data sheet ECC0002) identified native and non-native trees, forbs, and grasses, with blue gum (*E. globulus*) as the dominant species within this vegetation type. Component species include ripgut grass, miner's lettuce, geranium, Italian thistle, California everlasting, and dense leaf litter layer.

### 5.4.8 Previously Disturbed

For the purposes of this report, "previously disturbed areas" include developed lands and areas of disturbed habitat. Generally, developed land is a term that describes areas where the land surface has been modified for commercial, residential, industrial, or infrastructure use such as buildings, parking lots, and paved roads. Disturbed habitat is a term used to describe areas that may support uncultivated plants and wildlife but have been significantly altered by land use practices. Developed lands typically do not support vegetative cover due to the presence of impervious surfaces; however, disturbed habitats that are not paved may support vegetative cover. Within the Project site, previously disturbed areas include office facilities, well pads, oil and gas facilities, and paved and unpaved access roads.

Overall, the Project site has extensive disturbance from historic and current land use activities. Plant cover within the previously disturbed areas ranges from bare ground to vegetated land consisting almost entirely of non-native, annual grasses and forb species tolerant of disturbance, with native shrubs scattered throughout. The dominant species observed within the previously disturbed areas include, but are not limited to, red brome, ripgut grass, soft chess, black mustard (*Brassica nigra*), telegraph weed, redstem filaree, tree tobacco (*Nicotiana glauca*), bur clover, and storksbill.

## 5.5 SPECIAL-STATUS PLANT SPECIES

Special-status plants are either listed as Endangered or Threatened under FESA or CESA, considered Rare under the California Native Plant Protection Act, or considered rare (but not legally listed) by resources agencies, professional organizations, and the scientific community.

For the purposes of this report, special-status plants are defined in Table 5-3 – Definitions of Special-Status Plant Species.

**Table 5-3. Definitions of Special-Status Plant Species**

| Special-Status Plant Species |
|---|
| • Plants listed or proposed for listing as Threatened or Endangered under the Federal Endangered Species Act (50 CFR 17.12 for listed plants and various notices in the Federal Register for proposed species).<br>• Plants that are candidates for possible future listing as Threatened or Endangered under the Federal Endangered Species Act (Federal Register Vol. 67, No. 114, pp.40657-4067, June 13, 2002).<br>• Plants that meet the definitions of rare or endangered species under the CEQA (State CEQA Guidelines, Section 15380).<br>• Plants considered by the CNPS to be "Rare, Threatened, or Endangered" in California (Ranks 1B and 2 in CNPS, 2011).<br>• Plants listed by CNPS as plants about which we need more information and plants of limited distribution (Ranks 3 and 4 in CNPS, 2011).<br>• Plants listed or proposed for listing by the State of California as Threatened or Endangered under the California Endangered Species Act (14 CCR 670.5).<br>• Plants listed under the California Native Plant Protection Act (California Fish and Game Code 1900 et seq.).<br>• Plants considered sensitive by other Federal agencies (i.e., U.S. Forest Service, Bureau of Land Management), state and local agencies or jurisdictions.<br>• Plants considered sensitive or unique by the scientific community or occurring at the limits of their natural range (State CEQA Guidelines). |

The desktop review and field surveys found that several special-status plant species have been recorded within the Project region and the Project site may provide suitable habitat for potentially occurring special-status species. Table 5-4 - Special-Status Plant Species of the Project Region lists these species, their current status, habitat description, nearest known occurrence to the Project site, as well as the potential for occurrence within the Project site. Figure 5-4 - Documented Special-Status Plants illustrates special-status plant species occurring within a five mile and ten mile radius from the Project site.

**Table 5-4. Special-Status Plant Species of the Project Region**

| **Common Name** ***Scientific Name*** *(Arranged alphabetically by common name)* | **Regulatory Status[3]** | **Habitat Description** *As described by CDFW, 2010; CDFW, 2014; and CNPS, 2013* | **Nearest Documented Occurrence** | **Project Site** | | | |
|---|---|---|---|---|---|---|---|
| | | | | Habitat Present | Occurrence ≤ Five Miles | Observed in Project Site | Potential for Occurrence |
| Black-flowered figwort *Scrophularia atrata* | Rank 1B.2 | Closed-cone coniferous forest, chaparral, coastal dunes, coastal scrub, riparian scrub. | North slope of Purisima Hills; 0.7 mile from Highway 1; 0.6 mile south of the intersection with Los Alamos-Casmalia Road; approximately 8.8 miles SW of the Project site (CDFW, 2014). | X | | | X |
| Blochman's leafy daisy *Erigeron blochmaniae* | Rank 1B.2 | Coastal dunes, coastal scrub. | SW of Santa Maria; along Black Road; approximately 14.0 miles NW of the Project site (CDFW, 2014). | X | | | X |

## Table 5-4. Special-Status Plant Species of the Project Region

| **Common Name** ***Scientific Name*** *(Arranged alphabetically by common name)* | **Regulatory Status[3]** | **Habitat Description** *As described by CDFW, 2010; CDFW, 2014; and CNPS, 2013* | **Nearest Documented Occurrence** | **Project Site** | | | |
|---|---|---|---|---|---|---|---|
| | | | | Habitat Present | Occurrence ≤ Five Miles | Observed in Project Site | Potential for Occurrence |
| Chaparral ragwort *Senecio aphanactis* | Rank 2.2 | Chaparral, cismontane woodland, coastal scrub. Sometimes alkaline. | South of Burton Mesa Road, Vandenberg Village; approximately 13.0 miles SW of the Project site (CDFW, 2014). | X | | | X |
| *Cladium californicum* California sawgrass | Rank 2.2 | Meadows and seeps, marshes and swamps. | Open marsh on Price Road; NE of Los Alamos; approximately 5.3 miles SW of the Project site (CDFW, 2014). | | | | |
| Dune larkspur *Delphinium parryi* ssp. *blochmaniae* | Rank 1B.2 | Maritime chaparral, coastal dunes. | 3.0 miles west of Bicknell; south of Orcutt; approximately 9.0 miles west of the Project site (CDFW, 2014). | | | | |
| Dwarf calycadenia *Calycadenia villosa* | Rank 1B.1 | Chaparral, cismontane woodland, valley and foothill grassland, meadows and seeps. | Los Alamos; approximately 5.5 miles south of the Project site (CDFW, 2014). | X | | | X |
| Eastwood's brittle-leaf manzanita *Arctostaphylos crustacea* ssp. *eastwoodiana* | Rank 1B.1 | Chaparral (Maritime). Sandy soils. | SW of Lompoc; about one mile south of Highway 246; approximately 15.0 miles SW of the Project site (CDFW, 2014). | | | | |
| Gambel's water cress *Nasturtium gambelii* Gambel's water cress | FE, ST, Rank 1B.1 | Marshes and swamps (freshwater or brackish). | Barka Slough; east side of San Antonia Road, San Antonio Valley; approximately 11.4 miles west of the Project site (CDFW, 2014). | | | | |
| Gaviota tarplant *Deinandra increscens* ssp. *villosa* | FE, SE Rank 1B.1 | Coastal scrub, valley and foothill grassland, coastal bluff scrub. | 3.5 miles west of Orcutt on Highway 1; approximately 13.0 miles NW of the Project site (CDFW, 2014). | X | | | X |
| Hoover's bent grass *Agrostis hooveri* | Rank 1B.2 | Dry sandy soils within closed-cone coniferous forest, chaparral, cismontane woodland, valley and foothill grassland. | Cat Canyon Oil Field in Soloman Hills near Santa Maria; within the Project site. (CDFW, 2014). | X | X | | X |
| La Graciosa thistle *Cirsium scariosum* var. *loncholepis* | FE, ST Rank 1B.1 | Mesic and sandy cismontane woodland, coastal dunes, riparian scrub, brackish marshes, valley and foothill grassland. | Canada de Las Flores; 2.5 miles north of Los Alamos Valley; approximately 4.0 miles SW of the Project site (CDFW, 2014). | X[2] | X[2] | | |

## Table 5-4. Special-Status Plant Species of the Project Region

| **Common Name** ***Scientific Name*** *(Arranged alphabetically by common name)* | **Regulatory Status[3]** | **Habitat Description** *As described by CDFW, 2010; CDFW, 2014; and CNPS, 2013* | **Nearest Documented Occurrence** | **Project Site** | | | |
|---|---|---|---|---|---|---|---|
| | | | | Habitat Present | Occurrence ≤ Five Miles | Observed in Project Site | Potential for Occurrence |
| La Purisima manzanita *Arctostaphylos purissima* | Rank 1B.1 | Chaparral, coastal scrub. Sandy soils. | NE of junction of Cebada Canyon Road and Highway 246; NE of Lompoc; approximately 15.0 miles SW of the Project site (CDFW, 2014). | X[1] | | | |
| Lompoc yerba santa *Eriodictyon capitatum* | FE, SR, Rank 1B.2 | Closed-cone coniferous forest, maritime chaparral. | Orcutt Oil Field; Graciosa Ridge; Solomon Hills; ~6.7 miles west of the Project site (CDFW, 2014). | | | | |
| Mesa horkelia *Horkelia cuneata* var. *puberula* | Rank 1B.1 | Chaparral, cismontane woodland, coastal scrub. | The Sisquoc; on Highway 176; east of Santa Maria; approximately 3.0 miles north of the Project site (CDFW, 2014). | X | X | | X |
| Miles' milkvetch *Astragalus didymocarpus* var. *milesianus* | Rank 1B.2 | Coastal scrub (clay). | Foxen Canyon; approximately 3.0 miles east of the Project site (CDFW, 2014). | X | X | | X |
| Pale-yellow layia *Layia heterotricha* | Rank 1B.1 | Cismontane woodland, pinyon-juniper woodland, valley and foothill grassland. | Along Rucker Road; 0.1 mile west of Calle Primera; Lompoc Mesa; approximately 13.0 miles SW of the Project site (CDFW, 2014). | X | | | X |
| Sand mesa manzanita *Arctostaphylos rudis* | Rank 1B.2 | Chaparral (maritime), coastal scrub. Sandy soils. | Upper Graciosa Valley; east of Highway 1 and Highway 135; approximately 7.2 miles west of the Project site (CDFW, 2014). | X[1] | | | |
| Santa Barbara honeysuckle *Lonicera subspicata var. subspicata* | Rank 1B.2 | Chaparral, cismontane woodland, coastal scrub. | La Purisima Mission State Historic Park, 1.2 miles north of Lompoc city limit; approximately 13.0 miles SW of the Project site (CDFW, 2014). | X | | | X |
| Santa Ynez groundstar *Ancistrocarphus keilii* | Rank 1B.1 | Chaparral, cismontane woodland. Sandy soils. | Between Buellton and Lompoc; Santa Ynez River drainage; approximately 12.6 miles SW of the Project site (CDFW, 2014). | X | | | X |
| Seaside bird's-beak *Cordylanthus rigidus* ssp. *littoralis* | SE Rank 1B.1 | Closed-cone coniferous forest, maritime chaparral, cismontane woodland, coastal dunes, coastal scrub. Sandy, often disturbed sites. | NE of La Purisima Mission; approximately 10.5 miles SW of the Project site (CDFW, 2014). | X | | | X |

### Table 5-4. Special-Status Plant Species of the Project Region

| **Common Name** ***Scientific Name*** *(Arranged alphabetically by common name)* | **Regulatory Status[3]** | **Habitat Description** *As described by CDFW, 2010; CDFW, 2014; and CNPS, 2013* | **Nearest Documented Occurrence** | **Project Site** | | | |
|---|---|---|---|---|---|---|---|
| | | | | Habitat Present | Occurrence ≤ Five Miles | Observed in Project Site | Potential for Occurrence |
| Straight-awned spineflower *Chorizanthe rectispina* | Rank 1B.3 | Chaparral, cismontane woodland, coastal scrub. | SW of Vandenberg village, just north of Highway 1; approximately 13.5 miles SW of the Project site (CDFW, 2014). **Observed by Padre within the Project site during 2013 surveys.** | X | X | X | X |
| Umbrella larkspur *Delphinium umbraculorum* | Rank 1B.3 | Cismontane woodland. | Colson Canyon; east of Santa Maria; approximately 9.5 miles NE of the Project site (CDFW, 2014). | X | | | X |
| Vandenberg monkeyflower *Mimulus fremontii* var. *vandenbergensis* | FC Rank 1B.1 | Chaparral (Burton Mesa), cismontane woodland. Sandy, often disturbed areas. | La Purisima Mission State Historic Park; approximately 11.8 miles SW of the Project site (CDFW, 2014). | X | | | X |

Notes:

[1] Although general coastal scrub habitat is present within the Project site, suitable ecological conditions consisting of maritime chaparral are absent, and no manzanita was observed during surveys. Therefore, this species is not expected to occur within the Project site.

[2] Although general grassland habitat is present within the Project site, and the nearest known occurrence is less than five miles from the Project site, preferable ecological conditions consisting of coastal dune coastal conditions are absent; therefore, this species is not expected to occur within the Project site.

[3] Status Codes:

FE Federal Endangered (USFWS)
FC Federal Species of Concern (USFWS)
SE State Endangered (CDFW)
ST State Threatened (CDFW)
SR State Rare (CDFW)
Rank 1B Plants Rare, Threatened, or Endangered in California and Elsewhere (CNPS)
0.1 Seriously Endangered in California
0.2 Fairly Endangered in California
0.3 Not very Endangered in California
Rank 2 Plants rare, Rare, Threatened, or Endangered in California, but More Common Elsewhere (CNPS)
Rank 4 Plants of Limited Distribution – A Watch List (CNPS)
G Global
S State Rank

Field surveys were conducted within the Project site during the appropriate blooming periods for the majority of special-status plants occurring within the region. The January survey had the greatest potential to capture the winter-blooming manzanita species, and the April survey captured the spring blooming periods for the herbaceous species. Refer to Table 5-5 - Blooming Period for Potentially Occurring Special-Status Plants, below, for blooming periods for special-status species listed above associated with the presence of suitable habitat within the Project site.

**Table 5-5. Blooming Period for Potentially Occurring Special-Status Plants**

| | Blooming Period[2] (month) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Scientific/Common Name** | **Jan** | **Feb** | **Mar** | **Apr** | **May** | **Jun** | **Jul** | **Aug** | **Sep** | **Oct** | **Nov** | **Dec** |
| Hoover's bent grass | | | | | | | | | | | | |
| Santa Ynez groundstar[1] | | | | | | | | | | | | |
| La Purisima Manzanita[1] | | | | | | | | | | | | |
| Sand mesa manzanita[1] | | | | | | | | | | | | |
| Miles' milkvetch | | | | | | | | | | | | |
| Dwarf calycadenia[1] | | | | | | | | | | | | |
| Straight-awned spineflower[1] | | | | | | | | | | | | |
| La Graciosa thistle | | | | | | | | | | | | |
| Seaside bird's beak | | | | | | | | | | | | |
| Gaviota tarplant[1] | | | | | | | | | | | | |
| Umbrella larkspur | | | | | | | | | | | | |
| Blochman's leafy daisy | | | | | | | | | | | | |
| Mesa horkelia[1] | | | | | | | | | | | | |
| Pale-yellow layia[1] | | | | | | | | | | | | |
| Santa Barbara honeysuckle | | | | | | | | | | | | |
| Vandenberg monkeyflower[1] | | | | | | | | | | | | |
| Black-flowered figwort[1] | | | | | | | | | | | | |
| Chaparral ragwort | | | | | | | | | | | | |

Notes:

[1] Reference population survey was conducted to utilize the bloom status for this known special-status species as a guide for the determination of an appropriate biological survey date that would capture the potentially occurring sensitive plant species within the Project site.

[2]Blooming period information was provided by Baldwin et al., 2012 and CNPS, 2013.

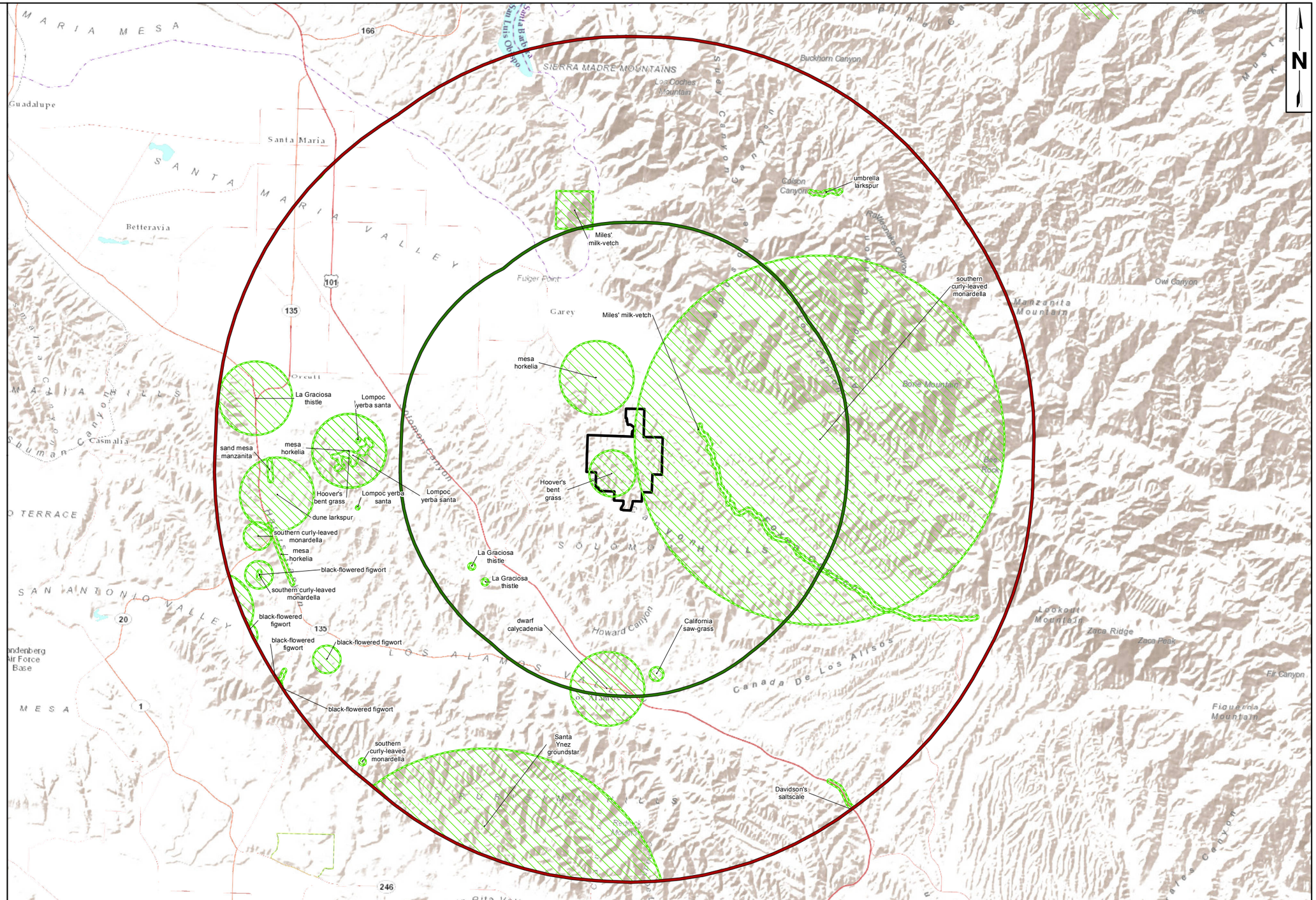
Variations in the absence, presence, and abundance of plants occurring in the Project site can vary annually as a result of a species' resistance to stresses such as annual fluctuations in precipitation, fire, non-native and/or invasive species, human disturbance, agricultural operations, and/or seed banks that can stay dormant for several years.

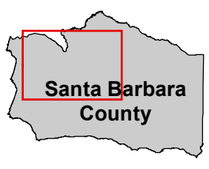
During field surveys, straight-awned spineflower (*Chorizanthe rectispina*) was observed within the Project site. In addition, Hoover's bent grass (*Agrostis hooveri*) was documented by the CNDDB within the Project site. The following descriptions briefly discuss biological information and ecological requirements for these species.

PAGE INTENTIONALLY BLANK

LEGEND:

- Area Energy LLC Property
- 5 mile Buffer of Property
- 10 mile Buffer of Property
- Special-Status Plants (CNDDB, 2014)




0 1.3 2.6
MILES

Source: ESRI Online Basemap, DPSI 2013, CNDDB 2014
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
This map was created for informational and display purposed only

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: | | |
|---|---|---|
| EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT | | |
| PROJECT NUMBER: 1002-0455 | DATE: September 2014 | |

DOCUMENTED SPECIAL STATUS PLANTS

FIGURE 5-4

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Permit Doc Figures\Bio\Documented Special Status Plants.mxd

### 5.5.1 Straight-awned spineflower

Straight-awned spineflower (*Chorizanthe rectispina*) is an annual herb in the Buckwheat (Polygonaceae) Family that occurs at elevations of approximately 280 to 3,400 feet, and is generally associated with sandy or gravel soils. The April 2013 survey was conducted during the expected blooming period for this species and suitable habitat occurs in coastal scrub habitat and associated soils within the Project site. Several distinct populations of straight-awned spineflower were observed within the Project site (Figure 5-3 - Biological Field Survey Results), primarily on rocky substrate and/or rocky outcrops. Location and ecological information was recorded appropriately on required CNDDB forms (Appendix K) and will be submitted to the CDFW prior to Project initiation.

### 5.5.2 Hoover's bent grass

No Hoover's bent grass was observed within the Project site. The CNDDB historical documentation (1973) of an occurrence of Hoover's bent grass within the Project site was investigated in the field using the CNDDB coordinates. This location consisted of coastal scrub vegetation, unpaved access roads, and rocky substrate comprised of scattered California sagebrush, coyote brush, sparse non-native grasses and intermittent patches (i.e., less than 10 percent cover) of purple needlegrass and foothill needlegrass. Hoover's bent grass was not observed at this location or elsewhere in the Project site.

No other special-status species were observed during field surveys. The following special-status plant species have the potential to occur within the Project site, based on presence of suitable habitat and/or documented occurrence within five miles of the Project site: Santa Ynez groundstar, Miles' milkvetch, dwarf calycadenia, La Graciosa thistle, seaside bird's beak, Gaviota tarplant, umbrella larkspur, Blochman's leafy daisy, mesa horkelia, pale-yellow layia, Santa Barbara honeysuckle, Vandenberg monkey flower, black-flowered figwort, and chaparral ragwort.

## 5.6 WILDLIFE OCCURRING WITHIN THE PROJECT SITE

Wildlife species were visually observed or detected by track, scat, skeletal remains, burrows, and/or vocalization during the field surveys conducted within the Project site. Complications in the quantitative assessment of terrestrial vertebrate (and terrestrial invertebrate) populations may have influenced observations made during field surveys. These complications include:

- Migrating species may occur in the area only for short periods;
- Many species of amphibians and reptiles become inactive during one or more seasons;
- Seasonal or annual fluctuations in climate or weather patterns may confound observations; and
- No mist-netting, trapping, or tracking surveys were completed during field surveys by Padre Biologists.

A list of wildlife species observed within the Project site during the field surveys, other wildlife that have been previously documented by other sources identified in the desktop review, and species that have the potential to utilize the Project site based on suitable habitat and other environmental conditions is provided in Appendix L. Descriptions of wildlife species that were

observed within Project site and have potential to occur within the Project site are further discussed below. Documentation for all special-status species identified during field surveys will be submitted to the CDFW's CNDDB. CNDDB documentation forms are provided in Appendix K.

### 5.6.1 Invertebrates

A wide variety of invertebrates are expected to occur in the Project site, including ground beetles (Order Coleoptera) and burrowing bugs (*Aethus* sp.), spiders (Order Araneida), millipedes (Class Diplopoda), butterflies (Order Lepidoptera), dragonflies (Order Odonata), and bees, wasps, and ants (Order Hymenoptera). Several of these common terrestrial invertebrates were observed during the field surveys; however, they were not collected and/or further identified to the species level. VPFS dip net surveys were completed during the wet season of 2014 of all suitable aquatic pools documented within the Project site (Figure 5-3 - Biological Field Survey Results). While VPFS were not found, dip net surveys resulted in the identification of seed shrimp (Ostracods), water boatman (Corixidae), midge larvae (Chironomidae), predaceous water beetle (Dystiscidae), and water strider (Gerridae).

### 5.6.2 Fish

The drainages within the Project site are ephemeral and therefore do not support fish. No water was observed in any of the stream channels/drainages throughout the Project site during field visits.

### 5.6.3 Amphibians

Small, shallow pools within the abandoned well pads occurring within the Project site may accumulate water for long enough durations to support breeding cycles for some amphibians. During field visits in January 2013, egg masses and tadpoles of Sierran treefrog (*Pseudacris regilla*) and California toad (*Anaxyrus boreas halophilus*) were observed in well pads that did contain water (illustrated in Figure 5-3 - Biological Field Survey Results). Oak habitat in the Project site provides shade, moist logs, and dense leaf litter that can hold adequate moisture throughout the year for terrestrial amphibians, such as: ensatina (*Ensatina eschscholtzii*), black-bellied slender salamander (*Batrachoseps nigriventris*), and arboreal salamander (*Aneides lugubris*). Of these, only ensatina was observed within the Project site during field surveys. Discussion regarding special-status amphibian species is further provided below.

### 5.6.4 Reptiles

Reptile species that may be expected to occur within the Project site based on the presence of suitable habitat include, but are not limited to: western rattlesnake (*Crotalus oreganus*), western yellow-bellied racer (*Coluber constrictor mormon*), California kingsnake (*Lampropeltis getula californiae*), and Skilton's skink (*Plestiodon skiltonianus skiltonianus*). Reptiles observed within the Project site during field surveys were limited to California whiptail (*Aspidoscelis tigris munda*), Blainville's horned lizard (*Phrynosoma blainvillii*), San Diego gopher snake (*Pituphis catenifer annectens*), and Coast Range fence lizard (*Sceloporus occidentalis bocourtii*).

### 5.6.5 Birds

Field surveys were completed in the Project site during the fall and spring months. Migratory birds that occur in the area for breeding would most likely to be observed between March and September, and were likely recorded with resident birds that remain in the area year-

round and for breeding, as documented in Appendix L. Birds that were observed in the Project site during the field surveys included, but not limited to, western scrub jay (*Aphelocoma californica*), American crow (*Corvus brachyrhynchos*), spotted towhee (*Pipilo maculatus*), northern flicker (*Colaptes auratus*), bushtit (*Psaltriparus minimus*), wrentit (*Chamaea fasciata*), California thrasher (*Toxostoma redivivum),* western kingbird (*Tyrannus verticalis*), lark sparrow (*Chondestes grammacus*), and red-tailed hawk (*Buteo jamaicensis*). These birds are likely to utilize surrounding habitats for breeding activities during the spring and summer months. Discussion of special-status birds is provided below.

### 5.6.6 Mammals

Mammals observed directly and/or through signs during the field survey included, but are not limited to, Audubon's cottontail (*Sylvilagus audubonii*), Botta's pocket gopher (*Thomomys bottae*), American badger (*Taxidea taxus*), coyote (*Canis latrans*), black-tailed jackrabbit (*Lepus californicus*), bobcat (*Lynx rufus*), mule deer (*Odocoileus hemionus*), striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), wild pig (*Sus scrofa*), and big-eared woodrat (*Neotoma macrotis*). Other common mammal species that may be expected to occur within the Project site based on the presence of suitable habitat and migratory corridors (i.e., ridgelines and roadways) included gray fox (*Urocyon cinereoargenteus*) and mountain lion (*Felis concolor*). Discussion of special-status species is provided below.

### 5.6.7 Migratory Corridors

Wildlife migration corridors are generally defined as connections between habitat patches that allow for physical and genetic exchange between otherwise isolated animal populations. Migration corridors may be local, such as those between foraging and nesting/denning areas, or they may be regional in nature. Migration corridors are not unidirectional access routes; however, reference is usually made to source and receiver areas in discussions of wildlife movement networks. "Habitat linkages" are migration corridors that contain contiguous strips of native vegetation between source and receiver areas. These natural linkages provide cover and forage sufficient for temporary inhabitation by a variety of ground-dwelling animal species. Wildlife migration corridors are essential to the regional fitness of an area as they provide avenues of genetic exchange and allow animals to access alternative territories as fluctuating dispersal pressures dictate.

The Project site consists of drainages and exposed roadways that could be utilized by wildlife moving through the region. The larger drainages occurring within the Project site include Cat Canyon Creek, Olivera Creek, and Long Canyon Creek. Cat Canyon Creek supports intermittent patches of dense willow scrub habitat mixed with oak woodland and open areas significantly disturbed by past land use activities. The portions of Cat Canyon Creek within the Project site consist of dense oak woodland and small patches of willow scrub. Long Canyon and Olivera Creek are significantly disturbed drainages that do not support riparian vegetation within the Project site. Other smaller drainages occur throughout Project site; however, these drainages consist of dense scrub habitat along steep hillsides that do not have open passageways allowing for convenient movement by wildlife.

## 5.7 SPECIAL-STATUS WILDLIFE SPECIES

Special-status wildlife species are either listed as Endangered or Threatened under FESA or CESA, considered rare by resources agencies, professional organizations, and the scientific community. For the purposes of this Report, special-status wildlife species are defined in Table 5-6 - Definitions of Special-Status Wildlife Species.

**Table 5-6. Definitions of Special-Status Wildlife Species**

| Special-Status Wildlife Species |
|---|
| • Animals listed or proposed for listing as Threatened or Endangered under the Federal Endangered Species Act (50 CFR 17.11 for listed animals and various notices in the Federal Register for proposed species).<br>• Animals that are candidates for possible future listing as Threatened or Endangered under the Federal Endangered Species Act (Federal Register Vol. 70, No. 90, pp. 24869-24934, May 11, 2005).<br>• Animals that meet the definitions of rare or endangered species under the CEQA (*State CEQA Guidelines*, Section 15380)<br>• Animal Species of Special Concern to the CDFW (Shuford and Gardali, 2008 for birds; Williams, 1986 for mammals; Moyle et al., 1989 for fish; and Jennings and Hayes, 1994 for amphibians and reptiles).<br>• Animals listed or proposed for listing by the State of California as Threatened and Endangered under the California Endangered Species Act (14 CCR 670.5).<br>• Animal species of special concern to the CDFW (Shuford and Gardali, 2008 for birds; Williams, 1986 for mammals).<br>• Animal species that are fully protected in California (California Fish and Game Code, Section 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians]).<br>• Animal species protected under the Marine Mammal Protection Act (as amended in 1994).<br>• Birds of Conservation Concern. Migratory and nonmigratory bird species (beyond those already designated as federally Threatened or Endangered) that represent the USFWS highest conservation priorities in effort to draw attention to species in need of conservation action (USFWS, 2008).<br>• Birds on the CDFW Watch List include “Taxa to Watch” (Shuford and Gardali, 2008) 1) not on the current Special Concern list but were on previous lists and they have not been state listed under CESA; 2) were previously state or federally listed and now are on neither list; or 3) are on the list of “Fully Protected” species.<br>• The Western Bat Working Group is comprised of agencies, organizations and individuals interested in bat research, management and conservation from the 13 western states and provinces. Species designated as “High Priority” are imperiled or are at high risk of imperilment based on available information on distribution, status, ecology and known threats.<br>• The CNDDB ranking element codes are part of the “Heritage Methodology” for special animals in which the CDFW is interested in tracking, regardless of their legal protection status. It is a shorthand formula that provides information about the status of a taxon, both throughout its entire range and within California. |

Table 5-7 - Special-Status Wildlife Species of the Project Region, lists special-status wildlife that have been documented within the Project region along with a checkbox of observations and an assessment of the potential for species occurrence within the Project site. Figure 5-5 - Documented Special-Status Wildlife depicts the location of occurrences of special-status wildlife documented within a five mile and ten mile radius from the Project site.

## Table 5-7. Special-Status Wildlife Species of the Project Region

| Common Name *Scientific Name* | Status | General Habitat Description | Nearest Documented Occurrence | Project Site | | | |
|---|---|---|---|---|---|---|---|
| | | | | Habitat Present | Occurrence < five-miles | Observed in Project Site | Potential for Occurrence |
| **Invertebrates** | | | | | | | |
| Monarch butterfly *Danaus plexippus* | G5, S3 | Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, cypress) with nectar and water sources nearby. | Nearest documented location: Santa Maria Country Club, greater than five miles from Project site (CDFW, 2014). **Observed within the Project site during 2013 field surveys by Padre Biologists.** | X | X | X | X |
| Lompoc grasshopper *Trimerotropis occulens* | GH, SH | Known only in San Luis Obispo and Santa Barbara counties. Limited information available. | Nearest known location: in Lompoc in 1938 (CDFW, 2014). | X | | | |
| Vernal pool fairy shrimp *Branchinecta lynchi* | FT | Vernal pools. | Wet season protocol-level VPFS surveys completed in 2013/2014 and dry season surveys completed in summer of 2014 within the Project site resulted in negative findings. Nearest occurrence in Sargent Fee (Padre, 2010), within five miles from the Project site. | X | | | |
| **Fish** | | | | | | | |
| Unarmored threespine stickleback *Gasterosteus aculeatus williamsoni* | FE, SE | Weedy pools, backwaters and emergent vegetation at the stream edge in small southern California streams. | Nearest known location: San Antonio Creek, greater than five miles from Project site (CDFW, 2014). | | X | | |
| Southern steelhead – southern California ESU *Oncorhynchus mykiss irideus* | FE, CSC | Warmer waters and more variable conditions from Santa Maria river into San Diego County. | USFWS critical habitat occurs along the Sisquoc River, within one mile of Project site. | | X | | |
| **Amphibians** | | | | | | | |
| Arroyo toad *Anaxyrus californicus* | FE, CSC | Rivers with sandy banks, willows, cottonwoods, and sycamores; loose, gravely areas of streams in drier parts of range. | Nearest known location: Sisquoc River, approximately 3.8 miles north-northwest of Project site (CDFW, 2014). | | X | | |
| California tiger salamander *Ambystoma californiense* | FE, ST, CSC | Need underground refuges, especially ground squirrel burrows and vernal pools or other seasonal water sources for breeding. | Nearest known location: east round pond located east of Highway 101, approximately 4.2 miles southwest of Project site (CDFW, 2014). | X | X | | X |
| California red-legged frog *Rana draytonii* | FT, CSC | Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. | Nearest known location: along the Sisquoc River, approximately 2.5 miles north and northeast of the Project site (CDFW, 2014). | | X | | X |

## Table 5-7. Special-Status Wildlife Species of the Project Region

| Common Name *Scientific Name* | Status | General Habitat Description | Nearest Documented Occurrence | Project Site | | | |
|---|---|---|---|---|---|---|---|
| | | | | Habitat Present | Occurrence < five-miles | Observed in Project Site | Potential for Occurrence |
| Western spadefoot *Spea hammondii* | CSC | Grassland habitats, valley-foothill hardwood woodlands, vernal pools are essential for egg laying and breeding. | Nearest documented occurrence located to the west of the Project site along Cat Canyon Road (Sage, 2012). | X | X | | X |
| **Reptiles** | | | | | | | |
| Blainville's (Coast) horned lizard *Phrynosoma blainvillii* | CSC | Wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. | **Observed within the Project site by Padre Biologists in 2012 and 2013.** | X | X | X | X |
| Coast patch-nosed snake *Salvadora hexalepis virgultea* | CSC | Brushy or shrubby vegetation in Southern California. Require small mammal burrows for refuge and overwintering sites. | Nearest known location: Avena Road, 2.19 miles NE of La Purisima Mission State Historical Park, greater than five miles from Project site (CDFW, 2014). | X | | | X |
| California legless lizard *Anniella pulchra* | CSC | Sandy or loose loamy soils, under sparse vegetation. Soil moisture is essential. | Nearest known location: South side of Sisquoc River, approximately 3.7 miles west-northwest of Project site (CDFW, 2014). | X | X | | X |
| Southern western pond turtle *Actinemys pallida* | CSC | Permanent or nearly permanent bodies of water in many habitat types (<6000 ft elevation). | Nearest documented location: south side of the Sisquoc River, approximately 2.0 miles north of Project site (CDFW, 2014). | X | X | | X |
| **Birds** | | | | | | | |
| Tricolored blackbird *Agelaius tricolor* | CSC, M | Requires open water and protected nesting substrate and foraging area with insect prey within a few km of the colony. | Documented along Cat Canyon Road by Padre Biologists, immediately adjacent from the Project site. | X | X | | X |
| Burrowing owl *Athene cunicularia* | CSC, M | Open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. | Nearest sighting in 2003, northwest of junction of Betteravia Road and Black Road, greater than five miles from Project site (CDFW, 2014). | X | X | | X |
| Yellow warbler *Dendroica petechia* | CSC, M | Riparian plant association; prefers willows, cottonwoods, aspens, sycamores and alders for nesting and foraging. | Nearest known location: Sisquoc River, approximately 2.3 miles north-northeast of Project site (CDFW, 2014). | X | X | | X |
| Southern California rufous-crowned sparrow *Aimophila ruficeps canescens* | M, WL | Coastal scrub. | **Observed within Project site during April 2013 field survey by Padre Biologists.** | X | X | X | X |
| California horned lark *Eremophila alpestris actia* | M, WL | Grasslands with low-lying vegetation. | **Observed within Project site during April 2013 field survey by Padre Biologists.** | X | X | X | X |

## Table 5-7. Special-Status Wildlife Species of the Project Region

| Common Name *Scientific Name* | Status | General Habitat Description | Nearest Documented Occurrence | Project Site | | | |
|---|---|---|---|---|---|---|---|
| | | | | Habitat Present | Occurrence < five-miles | Observed in Project Site | Potential for Occurrence |
| Loggerhead shrike *Lanius ludovicianus* | CSC, BCC, M | Open pastures and prairies with scattered bushes, hedgerows and trees. | No observations for this species were noted in the desktop review; however, suitable habitat is present within the Project site and Project site occurs within the current range of the species. | X | | | X |
| Purple martin *Progne subis* | M, CSC | Oak woodland, conifer forests | No observations for this species were noted in the desktop review; however, suitable habitat is present within the Project site and Project site occurs within the current range of the species. | X | | | X |
| Oak titmouse *Baeolophus inornatus* | M, BCC | Oak woodland | **Observed within Project site during April 2013 field surveys by Padre Biologists.** | X | X | X | X |
| Golden eagle *Aquila chrysaetos* | FP, M, WL, BCC | Open grasslands, foothills, prairies, open forests. | No observations for this species were noted in the desktop review. Suitable habitat present within the Project site. | X | X | | X |
| Least Bell's vireo *Vireo bellii pusillus* | FE, SE, M | Low riparian in vicinity of water or in dry river bottoms, below 2000 feet. | Nearest known location: Sisquoc River in Foxen Canyon, approximately three miles east-northeast of Project site. (CDFW, 2014). | | X | | |
| **Mammals** | | | | | | | |
| Pallid bat *Antrozous pallidus* (roost sites) | CSC | Deserts, grasslands, shrublands, woodlands, and forests, open dry habitats with rocky outcrops for roosting | Observed by Padre Biologists in Hammon Fee, West Cat Canyon, approximately one mile west of Project site. | X | X | | |
| Western red bat *Lasiurus blossevillii* (roost sites) | CSC | Prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging. | Nearest known location: Vandenberg Air Force Base, greater than five miles from Project site (CDFW, 2014). | X | | | |
| Hoary bat *Lasiurus cinereus* (roost sites) | CSC | Open habitats or open mosaics, with access to trees for cover and open areas or habitat edges for feeding. Requires water. | Nearest known location: Vandenberg Air Force Base, greater than five-miles from Project site (CDFW, 2014). | X | | | |
| Townsend's big-eared bat *Corynorhinus townsendii* (roost sites) | CSC | Roosts in the open, hanging from walls, ceilings. Roosting sites extremely sensitive to human disturbance. | Nearest known location: Vandenberg Air Force Base, greater than five miles from Project site (CDFW, 2014). | X | | | |
| Yuma myotis *Myotis yumanesis* (roost sites) | CSC | Distribution is closely tied to bodies of water. Maternity colonies in caves, mines, buildings or crevices. | Nearest known location: Vandenberg Air Force Base, greater than five-miles from Project site (CDFW, 2014). | X | | | |

## Table 5-7. Special-Status Wildlife Species of the Project Region

| Common Name *Scientific Name* | Status | General Habitat Description | Nearest Documented Occurrence | Project Site | | | |
|---|---|---|---|---|---|---|---|
| | | | | Habitat Present | Occurrence < five-miles | Observed in Project Site | Potential for Occurrence |
| American badger *Taxidea taxus* | CSC | Shrub, forest, and herbaceous habitats, with friable soils. | **Observed within Project site during 2012, 2013, and 2014 field surveys by Padre Biologists.** | X | X | X | X |
| San Diego desert woodrat *Neotoma lepida intermedia* | CSC | Coastal scrub habitat and forest associated with rocky outcrops. | Lompoc Oil Fields, south of Purisima Hills (CDFW, 2014) | X | | | X |

Status Codes:

| | | | |
|---|---|---|---|
| FE | Federal Endangered (USFWS/NMFS) | SE | State Endangered (CDFW) |
| FT | Federal Threatened (USFWS/NMFS) | ST | State Threatened (CDFW) |
| CSC | California Species of Special Concern (CDFW) | BCC | Bird of Conservation Concern (USFWS) |
| M | Migratory Bird Treaty Act (USFWS) | WL | Watch List (CDFW) |
| FP | Fully Protected (CDFW) | | |

CNDDB Conservation Status Element Ranks (CDFW)

G1/S1 Global/State Rank, less than 6 viable element occurrences (EOs) OR less than 1,000 individuals OR less than 2,000 acres. Critically Imperiled– At very high risk of extinction or elimination due to extreme rarity, very steep declines, or other factors.

G2/S2 Global/State Rank, 6-20 EOs OR 1,000-3,000 individuals OR 2,000-10,000 acres. Imperiled – At high risk of extinction or elimination due to very restricted range, very few populations or occurrences, steep declines, or other factors.

G3/S3 Global/State Rank, 21-80 EOs or 3,000-10,000 individuals OR 10,000-50,000. Vulnerable – At moderate risk of extinction or elimination due to a restricted range, relatively few populations or occurrences, recent and widespread declines, or other factors.

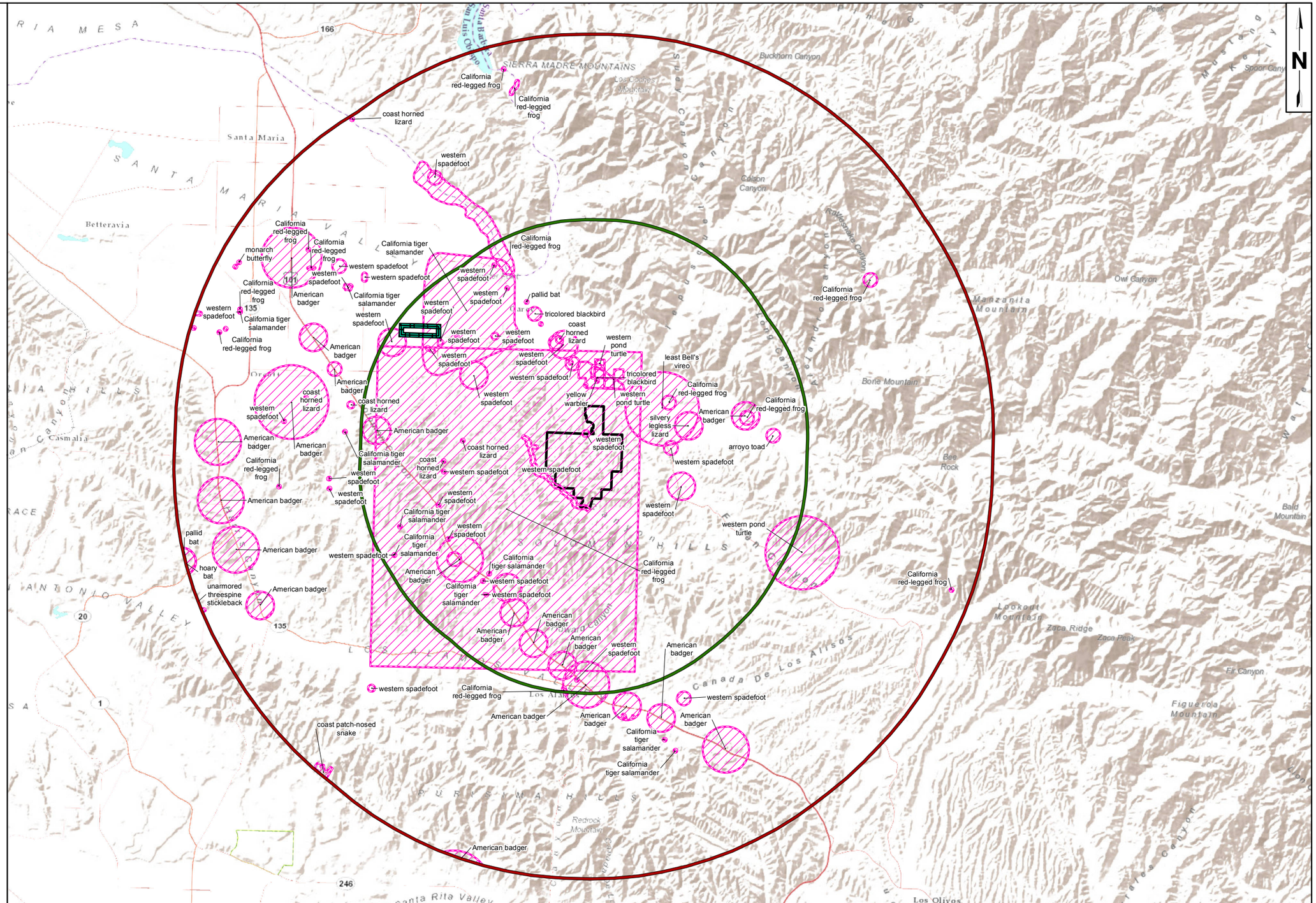
G4/S4 Global/State Rank. Apparently secure - this rank is clearly lower than S3 but factors exist to cause some concern; i.e. there is some threat, or somewhat narrow habitat

S5/G5 Global/State Rank. Common, widespread, and abundant. Population or stand demonstrably secure to ineradicable due to being commonly found in the world

SH/GH Global/State Rank. Possibly Extinct – Known from only historical occurrences but still some hope of rediscovery.

LEGEND:

- Area Energy LLC Property
- 5 mile Buffer of Property
- 10 mile Buffer of Property
- Special-Status Wildlife (CNDDB, 2014)
- Sargent Fee Site - VPFS, Burrowing owl, CTS Identified on Site



0 1.4 2.8
MILES

Source: ESRI Online Basemap, DPSI 2013, CNDDB 2014
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
This map was created for informational and display purposed only

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Permit Doc Figures\Bio\Documented Special Status Wildlife.mxd

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: | |
|---|---|
| EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT | |
| PROJECT NUMBER: 1002-0455 | DATE: September 2014 |

DOCUMENTED SPECIAL STATUS WILDLIFE

FIGURE 5-5

### 5.7.1 Invertebrates

5.7.1.1 Monarch Butterfly (*Danaus plexippus)*

This species is not formally listed as an Endangered or Threatened species; however, over-wintering monarch butterflies are considered to be a "special animal" by the CDFW. Monarch butterfly wintering sites are classified as "demonstrably secure" worldwide but within California they are considered of "restricted range; rare." Monarch butterflies will begin to abandon autumnal roosts within northern United States and Canada in early November to December to over-wintering sites in the warmer climates in southern California and Mexico. Monarch butterflies will fly north for breeding as the milkweed plants come into bloom in the spring. Wintering aggregations of monarch butterflies in California can primarily be found on Monterey pines (*Pinus radiata*) and in eucalyptus groves (Sakai and Calvert, 1991). Wintering habitat components frequently include sources of moisture such as streams, ponds, or abundant morning dew. Other habitat preferences include little direct sunlight, minimal wind, and moist ambient conditions. Monarch butterflies have been observed intermittently within the Project site, but not in large numbers, and no roosts have been observed within the Project site.

5.7.1.2 Vernal Pool Fairy Shrimp (*Branchinecta lynchi*)

The habitat communities mapped at the Project site are generally inconsistent with natural vernal pool systems typically occurring in valley and foothill grasslands. The majority of the Project site consists of steep topography, which supports scrub and woodland vegetative communities, and flatter, highly disturbed lands associated with past land use activities. Potential aquatic habitat is limited to man-made habitat, consisting of cattle watering stock ponds and ponded areas on highly compacted abandoned well pads or degraded paved areas. VPFS, however, are known to occur degraded areas by past land use activities.

Within Santa Barbara County, there is only one record of VPFS in the CNDDB; a 2004 occurrence on Porter Peak in the Los Padres National Forest located over 18 miles northeast of the Project site (CDFW, 2014). However, there are several other recent reported occurrences within Santa Barbara County that are not yet recorded in the CNDDB. Of these, the nearest to the Project site is a 2010 occurrence identified during a 2010 spring survey by Padre Biologists at the Chevron Sargent Fee Site located approximately 5.2 miles northwest (Padre, 2010).

Additionally, there are known occurrences at the Santa Maria Airport approximately ten miles northwest of the Project site (USFWS, 2007); Vandenberg Air Force Base over 15 miles west-southwest of the Project site (USFWS, 2007); near Lake Cachuma (associated with designated Critical Habitat areas) over 21 miles southeast of the Project site; and on the Las Varas Ranch Property over 31 miles south-southeast of the Project site (Collins and Gaede, 2014). Because they are not yet recorded in the CNDDB, the exact locations and dates of these occurrences are unknown.

Field surveys at the Project site included a reconnaissance-level visit documenting the extent of aquatic habitats on January 15 and 16, 2013. This survey followed a rain event on January 10, 2013 that resulted in a rainfall total of 0.13 inch. Field surveys identified 22 aquatic features at 16 locations throughout the Project site. The majority of these features are small ponded areas that occur on abandoned well pads. Following this visit, USFWS protocol-level surveys were initiated during the wet season in 2014 following discussions with the USFWS Ventura Field Office. The surveys were completed in accordance with USFWS Interim Survey

Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the *Endangered Species Act for the Listed Vernal Pool Brachiopods* (USFWS, 1996). Results of the wet season surveys produced negative findings (Appendix D). Following the wet season surveys, dry season surveys were completed by LSA Associates, Inc. on July 8 and 9, 2014, and the results also produced negative findings (Appendix E).

Results of the dry and wet protocol-level surveys in 2014 indicate absence of VPFS within the Project site; however, due to the drier than normal conditions, additional wet season sampling within the Project site may continue in the 2014/2015 wet season per USFWS guidance to determine absence of VPFS. .

### 5.7.2 Fishes

**Southern Steelhead and Unarmored Threespine Stickleback (*Gasterosteus aculeatus williamsoni*).** Southern steelhead and unarmored threespine stickleback are federally listed species known to occur in the region. Steelhead are an anadromous form of rainbow trout that reproduce in freshwater, but spend much of their life cycle in the ocean where increased prey density provides a greater growth rate and size. The nearby (within one mile of the Project site) Sisquoc River has been designated as Critical Habitat for the southern California ESU. Unarmored three-spine stickleback, however are not anadromous and occur in freshwater streams their entire life cycle. The nearest documented occurrence is San Antonio Creek, greater than five miles from the Project site. The Project site does not support streams that hold water for sufficient durations to support fish species; therefore, these species are not likely to occur within the Project site.

### 5.7.3 Amphibians

The following sensitive amphibian species have been documented within a five mile radius from the Project site: arroyo toad, western spadefoot toad, CTS, and CRLF. All of these species include both aquatic and terrestrial components in their life cycles, each requiring different water duration requirements to lay eggs and metamorphose into their adult stage. These requirements reflect different adaptive summer survival strategies in different upland habitats. Determining presence/absence is difficult due to the species limited movements (i.e., only travel at night or during rain events), limited pool availability in dry years, and wide ranging upland burrow habitats.

#### 5.7.4.1 Arroyo Toad (*Anaxyrus californicus*)

Arroyo toads have been documented in the Sisquoc River east of the Project site. Areas in the Sisquoc River have also been designated USFWS Arroyo Toad Critical Habitat (USFWS, 2011), within five miles from the Project site. Arroyo toads inhabit shallow pools, open sand, and gravel flood terraces of medium to large sized intermittent or perennial streams that flood on a regular basis (USFWS, 2011). Breeding pools for this species must persist for a minimum of two months for the completion of larval developments and must be less than six inches deep (USFWS, 2011). Suitable aquatic habitat was not observed within the Project site during field surveys. During discussions with the USFWS on November 6, 2013, no protocol-level surveys were deemed necessary due to lack of suitable habitat.

#### 5.7.4.2 California Tiger Salamander (*Ambystoma californiense*)

The Santa Barbara County population of the CTS is federally listed as Endangered and recently listed with the State of California as Threatened. Adults breed in ponds between

November and March after migrating from upland habitats during the first big rain within November/December. Females lay eggs in the pools, and the eggs metamorph within three to four months. The young migrate upland during May through August. Young CTS are strictly terrestrial for three to four years, remaining in small mammal burrows, moving through terrestrial habitats during the night, and rarely come to the surface to feed. Upland habitat includes grasslands, edge of oak savannas, sometimes chaparral and shrublands (in coastal areas), and may or may not be grazed by cattle. CTS regularly use California ground squirrel (*Otospermophilus beecheyi*) and Botta's pocket gopher burrows and other man-made structures (Shaffer et al., 1993, Barry and Shaffer, 1994) in upland habitats. Mature CTS migrate to aquatic habitats to breed. The aquatic habitats include ponds, vernal pools, and ditches. Breeding ponds must be non-permanent, but water must persist in these pools at least into May (preferably into July or August) to allow time for metamorphosis. While CTS are known to disperse up to 1.2 miles away from breeding ponds, 95 percent of adult and sub-adult CTS are found within 0.4 mile (approximately 2,100 feet) of breeding ponds (Trenham and Shaffer, 2005). The habitat with the highest conservation value for CTS is within 1.5 miles of the breeding pond.

The Project site is located within five miles from USFWS designated Critical Habitat for this species (USFWS, 2014b) and documented CTS breeding pools (Storrer, 2013). The USFWS has also identified several pools with aerial imagery that have not necessarily been surveyed and may or may not contain suitable breeding or upland habitat; however, the USFWS is interested in their protection. Two of these ponds are referred to as: Olivera Canyon Pond (SISQ-20) and Long Canyon Pond (SISQ-19). Olivera Canyon Pond is located within the Project site but does not hold water for long durations, did not hold water following any rain event in the winter months of 2013, and therefore has not been subject to aquatic sampling. Long Canyon Pond is located outside of the Project site on private property, and there is limited access and information available. However, based on historic aerial photo review, this feature appears to hold water for a significant period of time following rainfall. No aquatic surveys have been performed. A CTS habitat assessment completed by Mr. Vince Semenson in 2007 and a second completed by Storrer Environmental in 2011 determined that upland habitat within the Aera Property was not suitable for CTS. Despite these conclusions, discussions with the USFWS and CDFW indicated that CTS protocol-level surveys were necessary to determine presence or absence of the species occurring within the Project site. CTS upland drift fencing was installed within the Project site in October 2014 using an approved USFWS and CDFW design.

CRLF surveys completed by Sage Institute, Inc. (2012) identified several small stock ponds within the ERG property to the immediate west of the Project site that may also provide suitable habitat for CTS. Figure 5-1 - Regionally Occurring Sensitive Habitats identifies regional features that are potentially linked to CTS, including ponds mapped by ERG, ponds identified by Padre during the aerial imagery review, ponds which the USFWS have identified as occupied or potentially occupied by CTS, CTS Critical Habitat, and the nearest locations of documented CTS. Without conducting protocol-level surveys for this species, it is unknown if CTS occur within the Project site. Upon discussions with the USFWS and CDFW, an upland drift fence array has been designed to capture the most plausible CTS movements through the Project site. This 'most plausible pathways' drift fence survey approach was chosen over the standard USFWS protocol, due to the infeasibility of covering 95 percent of the property boundary. These surveys were initiated in October of 2014.

#### 5.7.4.3 California Red-Legged Frog (*Rana draytonii*)

CRLF are generally found along marshes, streams, ponds, and other permanent sources of water where dense scrubby vegetation such as willows, cattails, and bulrushes dominate. Breeding sites occur along watercourses with pools that remain inundated long enough for breeding and the development of larvae. Breeding time occurs between November and April, depending on locality (Stebbins, 1985; Storer, 1925). Permanent or nearly permanent pools are required for larval development, which takes 11 to 20 weeks (Storer, 1925; Calef, 1973).

Critical Habitat for the CRLF does not occur within the Project site; however, it does occur within a five mile radius of the Project site. The CNDDB database query resulted in the identification of several documented occurrences of CRLF within five miles of the Project site (CDFW, 2014). These occurrences are primarily located within pools/ponds along the Sisquoc River to the north of the Project site. No CRLF have been documented within the Project site during field surveys, including aquatic VPFS surveys. CRLF have been documented to the south of the Project site by Sage Institute, Inc. (2012) in a small stock pond (pond "E") during a CRLF eye-shine survey in June of 2011. Suitable breeding habitat does not occur within the Project site, however, CRLF may utilize portions of the Project site for migratory routes to suitable breeding ponds. Following discussions with the USFWS, protocol-level CRLF surveys were deemed not warranted due to lack of suitable habitat.

5.7.4.4 Western Spadefoot Toad (*Spea hammondii*)

Western spadefoot toad is not seen during most of the year, as it resides in burrows up to nine months with infrequent nocturnal sojourns. The species is typically associated with sandy, friable soils. They emerge during spring rains and breed in temporary pools from January to May. Oviposition (egg laying) will not occur until water temperatures reach a minimum of 48°F, usually between late February and late May (Jennings and Hayes, 1994). Eggs hatch within three to four days and tadpoles will transform within 11 weeks, depending on food availability and the duration of the pool. Spadefoot require temporary breeding pools that must last for at least 30 days or larvae will not survive. Suitable habitat occurs within drainage features that are capable of providing pooled areas that hold water at least 30 days following a rain event. These pooled areas may vary from year to year and are temporary in nature; therefore, it may be impossible to locate all potential breeding pool areas. Determining presence/absence is difficult due to this temporary nature of the ponds and also due to the specific requirements, such as temperature and rain events, which trigger spadefoot toads to emerge from their underground burrows. This species has been identified within the Cat Canyon valley and documented by Sage Institute, Inc. (2012) during CRLF aquatic protocol-level surveys. There is a potential that western spadefoot toad will occur within the Project site.

### 5.7.4 Reptiles

5.7.3.1 Blainville's Horned Lizard (*Phrynosoma blainvillii*)

Balainville's horned lizard inhabit open areas of sandy soil and low vegetation in valleys and foothills throughout northern California to Baja California. They are found in grasslands, coniferous forests, woodlands, and chaparral, with open areas and patches of loose soil, including sandy washes and along unpaved roads. This species was observed within the Project site during field surveys and is expected to occur throughout the Project site.

5.7.3.2 Coast Patch-Nose Snake (*Salvadora hexalepis virgultea*)

Coast patch-nosed snake occur in California from the northern Carrizo Plains in San Luis Obispo County, south through the coastal zone, south and west of the deserts, into coastal northern Baja California. They inhabit semi-arid brushy areas and chaparral in canyons, rocky hillsides, and plains. This snake is considered uncommon along the southern coast area due to land changes from heavy grazing, development, and loss of former habitat, though it's natural history and abundance have never been well-known or extensively studied. Coast patch-nose snake were not observed during surveys, however, suitable habitat occurs within the Project site.

5.7.3.3 California Legless Lizard (*Anniella pulchra*)

California legless lizards occur in moist warm loose soil found in sparsely vegetated areas of beach dunes, chaparral, sandy washes, and stream terraces with oaks and is often found under surface objects such as rocks, boards, and logs (Stebbins, 2003). The range for this species is from the southern edge of San Joaquin River in northern Contra Costa County south to northwestern Baja California. This species was identified within the Sisquoc River within five miles from the Project site. This river is dry for most of the year and provides a sandy river bed that support suitable habitat for legless lizards. California legless lizards have not been identified within the Project site, however, suitable loose sandy soils occur within Cat Canyon Creek within the Project site (which exhibit similar conditions to the Sisquoc River bed, when dry).

5.7.3.4 Southern Western Pond Turtle (*Actinemys pallida*)

The southern western pond turtle is an aquatic turtle inhabiting streams, marshes, ponds, and irrigation ditches within woodland, grassland, and open forest communities. This species requires upland sites, usually along stream or pond margins, for nesting and over-wintering. Stream habitat must contain large, deep pool areas with moderate-to-good plant and debris cover, and rock and cobble substrates for escape retreats. Females dig upland nests between April and August and hatchlings emerge in early fall or over winter (Stebbins, 2003; Behler and King, 1992). Within and adjacent to the Project site, the Cat Canyon Creek corridor may provide habitat for turtles during periods following rainfall where aquatic pools are present and basking habitat is available. The upland oak woodland and scrub habitats within the Project Site may provide habitat for overwintering; however, they do not provide optimum nesting habitat.

### 5.7.5 Birds

5.7.5.1 Birds of Prey

Red-tailed hawk, American kestrel (*Falco sparverius*), Cooper's hawk, (*Accipiter cooperii*), merlin (*Falco columbarius*), turkey vulture (*Cathartes aura*), and golden eagle (*Aquila chrysaetos*) are wide ranging birds of prey that could use the Project site for the purposes of foraging during migration and/or movement through the region. Birds of prey may also utilize the Project site for nest sites, which are protected by federal and/or state agencies. Nests are often used year after year and the CDFW and USFWS do provide protection of these nest sites. Several birds of prey were observed within the Project site and it is expected that birds of prey nests will occur within the Project site.

5.7.5.2 Other Protected Birds

A number of bird species potentially occurring within the Project site are protected during their nesting period under the provisions of the federal MBTA. The MBTA restricts the killing,

taking, collecting, and selling or purchasing of native bird species or their parts, nests, or eggs. During the field surveys within the Project site, several bird species protected by the MBTA were observed, including nest sites. Unlike raptors, most birds may return to the nest site, or near vicinity, year after year to breed; however, new nests are typically created. Appendix L contains a complete list of birds observed during the field surveys completed by Padre within the Project site, and other protected bird species expected to utilize the area. It is expected that protected birds and their nests will occur within the Project site.

#### 5.7.5.3 Tricolored Blackbird (*Agelaius tricolor*)

Tricolored blackbirds are a colonial nesting species breeding from mid-March through early August (Beedy and Hamilton, 1999). They nest at colony sites near freshwater marshes (Neff, 1937), in canopies of willows and other riparian trees. They require open areas accessible to water, a protected nesting substrate within flooded areas or thorny or spiny vegetation, and a suitable foraging space providing adequate insect prey near the colony (Beedy and Hamilton, 1999). Wintering tricolored blackbirds congregate in flocks with mixed-species of blackbirds that forage in grasslands and agricultural fields with low-growing vegetation and at dairies and feedlots (Shuford and Gardali, 2008). Preferred foraging habitats include agriculture fields (e.g., rice, alfalfa, oats, and wheat). Degradation of habitat from human activities, such as converting grassland and pastures to vineyards or developed lots, is the greatest threat to the sustainability of this species (Beedy and Hamilton, 1999). Tricolored blackbirds have been observed foraging along Cat Canyon Road adjacent to the Project site in open non-native grassland communities. It is expected that tricolored blackbirds will occur within the Project site.

#### 5.7.5.4 Burrowing Owl (*Athene cunicularia*)

Burrowing owls are year-round residents in annual and perennial grasslands or other vegetation communities that support little to no tree or shrub cover. In California, the species is typically found in close association with California ground squirrels, which create burrows that are used by burrowing owls for year-round shelter and seasonal nesting habitat. They may also utilize badger, coyote and fox dens, or holes (Ronan, 2002), as well as human-made structures such as culverts, corrugated metal pipes, debris piles, or openings beneath pavement as shelter and nesting habitat (CDFW, 2012). Typical burrowing owl breeding season in California is from March to August, but can begin as early as February and extend into December (Rosenberg and Haley, 2004). Burrowing owls have not been identified within the Project site; however, suitable habitat does occur within grassland habitats within the Project site. There is potential for burrowing owl to occur within the Project site.

#### 5.7.5.5 Yellow Warbler (*Dendroica petechia*)

Yellow warbler generally occupy riparian vegetation in close proximity to water (Lowther et al., 1999) and are a common nesting species in riparian habitats in San Luis Obispo and Santa Barbara counties. This species occurs in California as a migrant and summer resident from late March through early October, and during breeding from April through late July (Dunn and Garrett, 1997). There is potential for this species to occur within the willow thickets within the Project site during the breeding season and/or as a migratory stop-over.

#### 5.7.5.6 Least Bell's Vireo (*Vireo bellii pusillus*)

Least Bell's vireos nest in riparian forests during the spring months in California and winters south into southern Baja and along the coast of Mexico. They prefer: dense, low, shrubby

vegetation in riparian areas; brushy fields; young second-growth forest or woodland; scrub oak; coastal chaparral; and mesquite brushlands, often near water. Least Bell's vireos begin to return to southern California breeding sites in mid- to late-March and are generally present on the breeding grounds until late September before migrating to wintering grounds in southern Baja California, Mexico. Current breeding distribution is concentrated in Ventura and San Diego counties but is known to occur in the Sisquoc and Santa Ynez rivers to the south of the Project site. Along the Santa Ynez River, least Bell's vireos have occurred mainly in mugwort, mulefat, and willow shrubs (*Salix* spp.) (Olson and Gray, 1989). The least Bell's vireos have been documented along the Sisquoc River within five miles from the Project site. Critical Habitat occurs approximately 40 miles south of the Project site. Protocol-level surveys were completed in 2014 along portions of willow scrub habitat occurring within the willow scrub community identified along Cat Canyon Creek within the Project site. The results of the surveys are provided in a Least Bell's Vireo Survey Report as Appendix G. No least Bell's vireos were identified during protocol-level presence/absence surveys, therefore, least Bell's vireo is considered absent from the Project site and no further focused surveys are required.

#### 5.7.5.7 Purple Martin (*Progne subis*)

Purple martins are distributed throughout California in central and northern coastal conifer forests, interior foothills, and southern California forests. They occur primarily from mid-March to late September in California and breeds from May to mid-August (Williams, 1998). Purple martins rely on cavities in trees, bridges, utility poles, lava tubes, and buildings. Most tree nest sites in San Luis Obispo and Santa Barbara counties occur in large oaks and sycamores. Purple martin populations have been threatened primarily by removal of large snags, specifically from post-fire salvage logging, and competition from European starlings. Purple martins were not observed within the Project site; however, large oak trees with snags and/or many abandoned woodpecker holes that occur within the oak woodland habitats in the Project site may provide suitable habitat for martin nesting colonies. There is potential for purple martin to occur within the Project site.

#### 5.7.5.8 Southern California Rufous-Crowned Sparrow (*Aimophila ruficeps canescens*)

Southern California rufous-crowned sparrow are resident within southwest California on the slopes of the Transverse and Coastal ranges from northern Santa Barbara and Ventura counties south to Baja California Norte. The CNDDB does not document this bird in the region; however, Southern California rufous-crowned sparrows were identified by Padre Biologists during the April 2013 field survey within the Project site among hillsides consisting of sage scrub, specifically along Foxen Canyon. This sparrow nests on the ground, often wedged in hollows among rocks or under clumps of grass, low bushes, or shrubs on open brush or grass-covered rocky hillsides from mid-March through mid-July (Cogswell and Phillips, 1968; Wolf, 1977; Harrison, 1978; Shuford, 1993; and Rising, 1996). It appears to prefer coastal sage scrub dominated by California sagebrush (*Artemisia californica*) (Grinnell and Miller, 1944), but they can also be found breeding in coastal bluff scrub, low-growing serpentine chaparral, and along the edges of tall chaparral habitats (Thorngate and Parsons, 2005). Southern California rufous-crowned sparrows are expected to occur in the Project site.

#### 5.7.5.9 California Horned Lark (*Eremophila alpestris actia*)

California horned lark commonly occur in grasslands and other open habitats with low, sparse vegetation, often flocking together in small groups. They nest in low lying vegetation during the spring months. California horned larks commonly occur in grasslands and other open

habitats with low, sparse vegetation, often flocking together in small groups. Their breeding season begins in late February and they will build nests on the ground in small areas at the base of small shrubs or in crevices in rock clusters. Horned larks were observed by Padre Biologists during the April 2013 field surveys within the Project site. California horned larks are expected to occur in the Project site.

5.7.5.10 Oak Titmouse (*Baeolophus inornatus*)

Oak titmouse are a USFWS Bird of Conservation Concern species. Oak titmouse occur in oak woodland and mixed riparian habitats. They nest in natural cavities in tree trunks in mid-March. This species mates for life and defend their nesting territories year-round. Oak titmouse was identified in the oak woodland habitats within the Project site during field surveys. It is expected that oak titmouse will occur in the Project site.

### 5.7.6 Mammals

5.7.6.1 San Diego Desert Woodrat (*Neotoma lepida intermedia*)

San Diego desert woodrat is not formally listed as Endangered or Threatened; however, it is a Species of Special Concern protected by the CDFW. San Diego desert woodrat has not been documented within five miles from the Project site. Desert woodrats are typically associated with rocky outcroppings and coastal sage scrub habitats along the coast, dominated by California sagebrush and coyote brush, as well as coast sunflower (*Encelia californica)*, black sage (*Salvia mellifera*), and giant ryegrass (*Leymus condensatus*). This species typically constructs a nest structure with twigs, sticks, cactus parts, and various other materials.

Similar to the San Diego desert woodrat, the big-eared woodrat (*N. macrotis*) is not protected by the CDFW. Big-eared woodrats are common to Santa Barbara County and are morphologically and genetically differentiated from San Diego desert woodrats. Woodrat nests were observed throughout the Project site. No focused biological surveys were completed (i.e., trapping) to determine which species occurs in the Project site; however, the larger-sized nests, which were observed at the base of trees or up in tree branches in the Project site, are more typical of big-eared woodrat and other dusky-footed woodrat species. Therefore, it is likely that big-eared woodrat occurs in the Project site.

5.7.6.2 American Badger (*Taxidea taxus*)

American badger is a California Species of Special Concern, which typically inhabits grasslands, farmland, and forest edges within friable soils (CDFW, 1986). Badgers dig elliptical burrows with 8 to 12-inch openings, which they utilize for cover, sleeping, hunting, caching food, and breeding (Williams, 1986). They breed in the months of July and August (National Audubon Society, 1996). Badgers do not hibernate; however, they will occupy their burrows during torpor in the coldest part of the winter, remaining in the burrow for several days per week (National Audubon Society, 1996). This species typically preys on small burrowing mammals, such as ground squirrels, rats, and mice, and will also feed on birds, snakes, and other reptiles. Badgers are nocturnal; however, they are well known to be active during the day as well. A badger's home range varies from 590 to 4,200 acres. Badger activity has been identified within grassland habitats within the Project site. It is expected that American badgers will occur in the Project site.

5.7.6.3 Sensitive Bats

Special-status bat species that have been documented in the Project region include Townsend's bat, pallid bat, hoary bat, and western red bat. No bats or signs of bat roosts were observed during field surveys; however, no specific bat surveys were completed by Padre Biologists. Maternal colonies for most bats occur between April and August. Most bat species will migrate from maternal roosts to wintering sites and some bats will migrate out of the area to warmer climates during the winter months.

Padre Biologists and Central Coast Bat Research Group completed a bat survey in the western extent of Cat Canyon on June 19, 2008 in support of an unrelated project effort. Numerous bats were observed and/or detected as part of this survey effort via Anabat acoustic detectors including several species in the *Myotis* genus (e.g., California myotis [*Myotis californicus*]), Mexican free-tailed bat (*Tadarida brasiliensis*), and the special-status pallid bat]. Specifically, the bats were observed emerging from the crevice spacing of tank structures that have since been removed. Bats, including special-status species, may occur within the Project site for foraging during the night; however, the Project site does not contain suitable habitat for bat roosting sites.

PAGE INTENTIONALLY BLANK

# 6.0 IMPACT DISCUSSION

The following impact discussion provides an overview of Santa Barbara County guidelines for determining significance of impacts, and discusses temporary and permanent impacts resulting from Project activities specific to ecological communities, plants, and wildlife. Temporary and permanent impacts are assessed by short-term and long-term Project activities and their overall impact to the Project site and surrounding region.

Short-term Project activities result in temporary impacts to biological resources while long-term Project activities result in permanent impacts to biological resources. Short-term, temporary impacts include disturbance to above-ground vegetation, minor soil displacement, and wildlife disturbance. Specifically, Project activities that are expected to result in short-term, temporary impacts include grading of cut/fill slopes and above-ground pipeline installation that will require temporary ground disturbance and cutting back plant communities that may be revegetated. Fuel management activities will also result in temporary impacts to plant communities and are expected to be implemented for the life of the Project. Permanent impacts include landscape fragmentation, loss of habitat, and wildlife displacement as a result of removal of vegetation for well pads, roads, laydown areas, facility areas, detention basins (initial grading and long term maintenance), and installation of culverts. Complete discussions of impacts are provided in the following sections.

## 6.1 THRESHOLD OF SIGNIFICANCE

The following impact discussion incorporates FESA, CESA, and Santa Barbara County biological resource policies for determining the level of the effect of the Project on biological resources. The thresholds of significance were evaluated based on information provided in the 2008 Santa Barbara County Environmental Thresholds and Guidelines Manual, Biological Resource Section (6)(C)(3)(a-c), outlined below.

a. "**Types of Impacts to Biological Resources.** Disturbance to habitats or species may be significant, based on substantial evidence in the record (not public controversy or speculation), if they substantially impact significant resources in the following ways:

   1. Substantially reduce or eliminate species diversity or abundance.
   2. Substantially reduce or eliminate quantity or quality of nesting areas.
   3. Substantially limit reproductive capacity through losses of individuals or habitat.
   4. Substantially fragment, eliminate, or otherwise disrupt foraging areas and/or access to food sources.
   5. Substantially limit or fragment range and movement (geographic distribution or animals and/or seed dispersal routes).
   6. Substantially interfere with natural processes, such as fire or flooding, upon which the habitat depends.

b. **Less than Significant Impacts.** There are many areas in the County where there is little or no importance to a given habitat and it is presumed that disruption would not create a significant impact. Examples of areas where impacts to habitat are presumed to be insignificant include:

1. Small acreages of non-native grassland if wildlife values are low.
2. Individuals or stands of non-native trees if not used by important animal species such as raptor or monarch butterflies.
3. Areas of historical disturbance such as intensive agriculture.
4. Small pockets of habitats already significantly fragmented or isolated, and degraded or disturbed.
5. Areas of primarily ruderal species resulting from pre-existing man-made disturbance.

c. **Impact Assessment Factors.** In addition to the criteria listed in a [above], the following questions and factors are used in assessing the significance of project impacts on biological resources.

1. **Size.** How much of the resource in question both on and off the project site would be impacted? (percentage of the whole area and square footage and/or acreage are both useful to know)

   How does the area or species that would be impacted relate to the remaining populations off the project site? (percentage of total area or species population, either quantitatively or qualitatively)

2. **Type of Impact.** Would it adversely indirectly affect wildlife (light, noise, barriers to movement, etc.)?

   Would it remove the resource or cause an animal to abandon the area or a critical activity (e.g., nesting) in that area?

   Would it fragment the area's resource?

3. **Timing.** Would the impact occur at a critical time in the life cycle of an important plant or animal (e.g., breeding, nesting, or flowing periods)?

   Is the impact temporary or permanent? If it is temporary, how long would the resource take to recover?

   Would the impact be periodic, of short duration, but recur again and again?"

Additionally, the 2008 Santa Barbara County Environmental Thresholds and Guidelines Manual, Biological Resources Section (6)(D) provides the following habitat-specific impact assessment guidelines pertinent to the resources occurring within the Project site. Section (6)(D)(4)(b) is as follows for wetlands and woodlands:

"**Wetland Impact Assessment Guidelines.** The following types of project-created impacts may be considered significant:

1. Projects which result in a net loss of important wetland area or wetland habitat value, either through direct or indirect impacts to wetland vegetation, degradation of water quality, or would threaten the continuity of wetland-dependent animal or plant species are considered to have a potentially significant effect on the environment.

2. Wildlife access, use, and dispersal in wetland habitats are key components of their ecosystem value. For example, many upland species of wildlife could not persist without access to water. Movement between contiguous habitats through

riparian areas (e.g., from mountainous chaparral to valley grassland or coastal mesa) allows for many species to continue to persist and prevents genetic isolation. Projects which substantially interrupt wildlife access, use and dispersal in wetland areas would typically be considered to have potentially significant impacts.

3. The hydrology of wetlands systems must be maintained if their function and values are to be preserved. Therefore, maintenance of hydrological conditions, such as the quantity and quality of run-off, etc., must be assessed in project review."

"**Impact Assessment Guidelines for Woodlands and Forest Habitat Areas**. Project-created impacts may be considered significant due to changes in habitat value and species composition such as the following:

1. Habitat fragmentation.
2. Removal of understory.
3. Alteration to drainage patterns.
4. Disruption of the canopy.
5. Removal of a significant number of trees that would cause a break in the canopy or disruption in animal movement in and through the woodland."

**"Impact Assessment for Individual Native Trees.**

1. Description. Native specimen trees, regardless of size, are potentially significant, and rare native trees, which are very low in number or isolated in distribution (such as Island Oak) may be particularly significant. This significance evaluation is done on a case-by-case basis and considers tree size, numbers, location, relationship to habitat, etc.
2. Definition. Specimen trees are defined, for biological assessment purposes, as mature trees that are healthy and structurally sound and have grown into the natural stature particular to the species.
3. Native Tree Impact Assessment. In general, the loss of 10 percent or more of the trees of biological value on a project site is considered potentially significant."

## 6.2 IMPACTS TO VEGETATION TYPES

Based on the proposed Project footprint, temporary impacts to vegetation are expected to occur as a result of cut/fill slope grading (for all vegetation types other than oak woodland) and above-ground pipeline and electrical transmission line installation activities. In addition, fuel management activities associated with defensible space standards, as required by the SBCFD, are expected to result in temporary impacts. Temporary impacts associated with fuel management activities are categorized separately because the fuel management zones extend beyond the Project footprint depicted on Project plans. Fuel management zones and associated fuel reduction activities required within each zone are described within the Fuel Management Plan (Appendix A).

Permanent impacts include landscape-scale habitat fragmentation, loss of habitat, and wildlife displacement as a result of removal of vegetation for well pads, roads, laydown areas, facility areas, detention basins (initial grading and long term maintenance), and installation of culverts. In addition, for the oak woodland vegetation type, grading of cut/fill slopes will be considered a permanent impact due to the need for oak tree removal.

A summary of permanent and temporary impacts are provided in Table 6-1 - Summary of Vegetation Impacts Resulting from Project Activities and discussed in greater detail in the paragraphs below.

**Table 6-1. Summary of Vegetation Impacts Resulting from Project Activities**

| Vegetation Type | Total Within Project Site (acres) | Phase I Impacts (acres) | | | | | Phase II Impacts (acres) | | | | | PROJECT TOTAL - Phase I and Phase II Impacts (acres) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Temporary Fuel Management[3] | Temporary | Permanent | Total Phase I | Percent of Vegetation Type Impacted Within Project Site | Temporary Fuel Management[3] | Temporary | Permanent | Total Phase II | Percent of Vegetation Type Impacted Within Project Site | Temporary Fuel Management[3] | Temporary | Permanent | Total Phase I and II[4] | Total Percent of Vegetation Type Impacted Within Project Site[4] |
| Western Rush Marshes | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| California Coffeeberry Scrub | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Red Willow Thickets | 2.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Coast Live Oak Woodland[1] | 449.2 | 3.4 | 0.6 | 13.4 | 17.4 | 3.9 | 2.8 | 0.7 | 8.3 | 11.8 | 2.6 | 6.2 | 1.3 | 21.7 | 29.2 | 6.5 |
| Annual Grassland (annual brome and wild oats grassland) | 509.9 | 1.0 | 6.1 | 5.9 | 13.0 | 2.5 | 1.8 | 15.2 | 23.6 | 40.6 | 8.0 | 2.8 | 21.3 | 29.5 | 53.6 | 10.5 |
| California Coastal Scrub (California sage scrub, black sage scrub, mock heather stand, and coyote brush scrub)[5] | 1,025.8 | 10.4 | 37.9 | 51.4 | 99.7 | 9.7 | 8.7 | 31.2 | 44.9 | 84.8 | 8.3 | 19.1 | 69.1 | 96.3 | 184.5 | 18.0 |
| Eucalyptus Groves | 3.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 0.3 | 1.0 | 27.0 | 0.0 | 0.7 | 0.3 | 1.0 | 27.0 |
| Previously Disturbed[6] | 119.1 | 1.1 | 8.9 | 39.0 | 49.0 | 41.1 | 1.3 | 2.0 | 14.6 | 17.9 | 15.0 | 2.4 | 10.9 | 53.6 | 66.9 | 56.2 |
| **TOTAL** | **2,111.0** | **15.9** | **53.5** | **109.7** | **179.1** | **8.5** | **14.6** | **49.8** | **91.7** | **156.1** | **7.4** | **30.5** | **103.3** | **201.4** | **335.2** | **15.9** |
| Coast Live Oak Trees[2] | N/A | N/A | N/A | N/A | 1,005 trees | N/A | N/A | N/A | N/A | 499 trees | N/A | N/A | N/A | N/A | 1,504 trees | N/A |

NOTES:
1. Includes tree trimming and understory removal but not tree removal.
2. Tree counts include all oak trees with a DBH of six inches or greater that are proposed for removal from within the Aera Energy LLC Property boundary. Oak trees within the portions of the Project footprint located on adjacent parcels (not owned by Aera Energy LLC) were not inventoried, but were estimated based on GIS canopy analysis. Inventory data that included both of six inches or greater DBH and eight inches or greater DBH oak trees was used to calculate the typical ratio of six inch to eight inch DBH oak trees within a canopy. Using the eight inch DBH or greater field inventory data, and the computed ratio, the number of six inch or greater DBH trees was estimated and used in areas where there was no six inch or greater field inventory data. There are approximately 10.6 percent more mature trees when oak trees six inch to less than eight inch DBH are included.
3. Temporary Fuel Management impact acreages only reflect the area of Fuel Management that extends beyond the Project footprint.
4. Includes Temporary Fuel Management Impacts.
5. These numbers were erroneously reported in the April 2015 permit application submittal due to a GIS query that categorized cut/fill grading impacts as permanent rather than temporary. The new numbers correctly present cut/fill grading impacts as temporary.
6. Error with rounding to the nearest tenth.

PAGE INTENTIONALLY BLANK

### 6.2.1 Western Rush Marsh

No temporary or permanent impacts are anticipated for the 0.5 acre of western rush occurring within the Project site.

### 6.2.2 California Coffeeberry Scrub

No temporary or permanent impacts are anticipated for the 0.6 acre of California coffeeberry scrub occurring within the Project site.

### 6.2.3 Red Willow Thickets

No temporary or permanent impacts are anticipated for the 2.2 acres of red willow thickets occurring within the Project site.

### 6.2.4 Oak Woodlands/Coast Live Oak

Of the total 449.2 acres of coast live oak woodland occurring within the Project site, approximately 29.2 acres, or 6.5 percent, will be impacted (temporarily and permanently) by Project activities. Discussions of temporary and permanent impacts are included below.

**Temporary Impacts**. Approximately 6.2 acres of oak woodlands will be temporarily impacted by fuel management activities (Table 6-1); however, no individual oak trees will be removed. An additional 1.3 acres of oak woodlands will be temporarily impacted by Project activities including above-ground pipeline and electrical transmission line installation (Table 6-1), without the removal of individual oak trees. In addition, during initial grading and construction activities, individual coast live oak trees within proximity of the Project footprint may be temporarily impacted from soil compaction within the critical root zone (use of heavy equipment, piling of debris, soil fill, or parking vehicles), trenching/excavation activities that may cut into the root structure, or tree limbing. These activities could cause a tree to die by significantly damaging its root structure; however, an Oak Tree Protection Plan (Appendix M) will be incorporated into Project design plans to avoid the critical root zone of coast live oak trees that are not planned for removal and provide measures to ensure these oak trees will not result in death. In addition, a Fuel Management Plan will be incorporated into the Project and will provide guidance for vegetation removal activities to minimize impacts to oak trees to the greatest extent possible. With the incorporation of the Oak Tree Protection Plan (Appendix M), and minimization and avoidance measures of the Project Fuel Management Plan (Appendix A), temporary impacts to oak trees not proposed for removal will be less than significant.

During grading, drilling, and maintenance activities, increased dust due to ground disturbance and vehicle traffic may create indirect impacts along the immediate road shoulders. Dust that accumulates on the leaves of oak trees blocks sunlight and reduces photosynthesis. Dust will be a temporary impact reduced to less than significant with the incorporation of dust control methods into Project design plans. Dust control will include the watering of soils within Project work areas during heavy construction and periodic watering of roads during periods of heavy vehicle traffic. These measures are outlined in Section 7.0, Avoidance and Minimization Measures.

**Permanent Impacts.** The Project will result in the permanent removal of 21.7 acres of coast live oak woodland. Based on the County's thresholds of significance for "Woodlands and Forest Habitat Areas", the Project may result in a potentially significant impact by substantially

impacting local wildlife resources through fragmentation of the oak woodland canopy. Fragmentation of the woodland landscape may result in the disruption of foraging and nesting habitat for much of the local wildlife species that utilize the Project area. The removal of oak trees will be a permanent loss in the Project footprint and replaced by well pads, roads, and facilities that do not support wildlife habitat.

Oak tree field inventories and desktop estimations were completed within the Project site and a total of 1,504 coast live oak trees six inches or greater in DBH were identified for removal (1,005 trees in Phase I and 499 trees in Phase II) (Table 6-1). Oak tree locations within the Project footprint were gathered during field inventories utilizing GPS units and are depicted in Figure 6-1 - Oak Inventory Study Areas (Note: This figure has been updated). Due to a change in survey methodology, not all oak trees six inches or greater DBH were inventoried in the field. In some instances, desktop estimation was used to calculate the number of six-inch (or greater) oak trees in these locations, as depicted in Figure 6-1. No deciduous oaks were identified within the Project site. Trees recorded within the Project footprint were observed within dense to intermittent stands of young and mature oak trees.

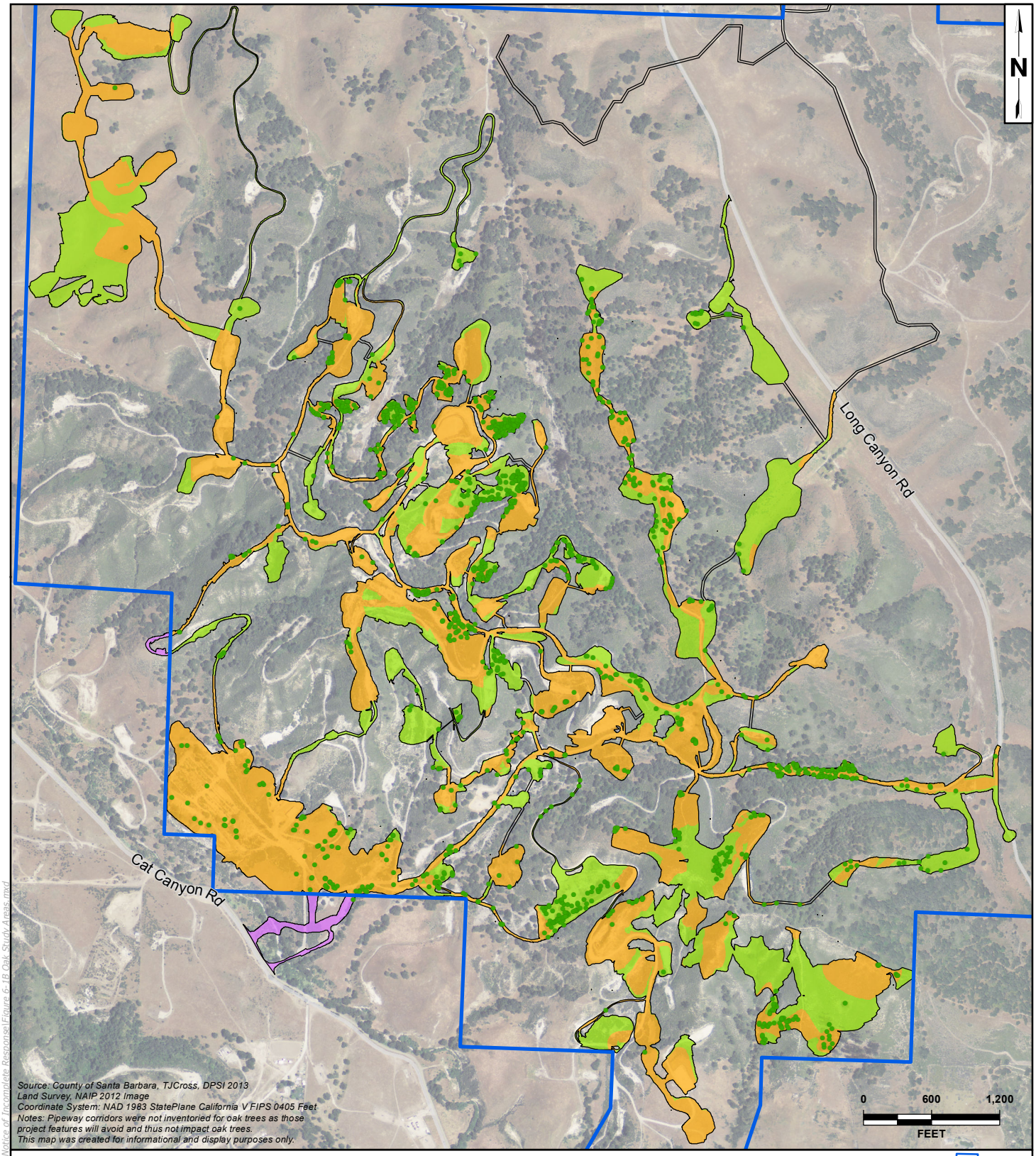
The removal of 1,504 coast live oak trees will result in the loss of an estimated 7.0 percent of the total number of trees within the Project site, which is less than the 10 percent threshold of significance for “Individual Native Trees” identified by the County. This is an estimated percent impact because the entire Project site was not inventoried for oak trees. The estimate was calculated based upon a desktop canopy study completed using aerial imagery and geographical information system (GIS) techniques. Canopy areas and the tree inventory data collected within them were used to determine the typical number of trees per canopy acre (approximately 43 mature live oak trees per canopy acre). Based on that ratio and the total canopy areas measured using GIS, the estimated total number of mature live oak trees (six inches in DBH or greater) within the Project site (based on a total oak woodland canopy cover of 498.75 acres) is 21,446 mature live oak trees.

The Project is designed to minimize land disturbance by maximizing the use of existing roads, well pads, cleared areas, and contours wherever possible. Care was taken to avoid oak tree removals by minimizing the number and size of new well pads, by routing new roads and pipeline corridors around canopies, and by designing the new facility campus as a network of smaller parking lot and building spaces that better fit in the existing spaces between oak tree canopies. The Project will incorporate avoidance and minimization measures to the greatest extent possible as outlined in the Oak Tree Protection Plan (Appendix A). However, an Oak Tree Replacement Plan (Appendix N) has been developed to provide an adaptive replacement plan for successful mitigation for the unavoidable removal of the mature oak trees. This Plan is consistent with Santa Barbara County standards, ordinances, and guidance documents. The Oak Tree Replacement Plan proposes mitigation using any combination of the following replacement alternatives:

- For every mature live oak tree (greater than six inches in DBH) removed, ten acorns or ten one gallon saplings or smaller containers that support a longer taproot, will be planted within a designated planting area. Saplings may include those salvaged from the Project disturbance areas (10:1 - acorns or young saplings); and/or

- For every mature live oak tree (greater than six inches in DBH) removed, three 15 gallon saplings will be planted within a designated planting area (3:1 – 15 gallon saplings); and/or
- For every mature live oak tree (greater than six inches in DBH) removed, ten naturally occurring oak tree saplings between six inches and six feet tall will be protected and nurtured within a designated planting area or in the Project site (10:1 – sapling/nurture trees); and/or
- Mature oak trees (greater than six inches in DBH) identified within the Project disturbance area and proposed for removal, will be transplanted to a designated planting area in order to salvage the tree. (1:1 – transplanted mature oak trees); and/or
- Some amount of off-site planting and nurturing, in other conservation or restoration areas, such as La Purisima, or in burn areas of public lands, as agreed to by the County, may also be considered as a portion of the mitigation for on-site removals.

PAGE INTENTIONALLY BLANK




*Source: County of Santa Barbara, TJCross, DPSI 2013*
*Land Survey, NAIP 2012 Image*
*Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet*
*Notes: Pipeway corridors were not inventoried for oak trees as those project features will avoid and thus not impact oak trees.*
*This map was created for informational and display purposes only.*

Aera Energy LLC Property
Project Footprint
Impacted Oak Tree DBH ≥ 6 in
Oak Inventory of DBH ≥ 8 in.; Estimate of DBH 6 in. to <8 in.
Oak Inventory of DBH ≥ 6 in.
Oak Inventory Desktop Extrapolation

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: EAST CAT CANYON SANTA BARBARA COUNTY, CA

PROJECT NUMBER: 1002-0455

DATE: August 2015

OAK INVENTORY STUDY AREAS

FIGURE 6-1

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Notice of Incomplete Response\Figure 6-1B Oak Study Areas.mxd

PAGE INTENTIONALLY BLANK

Following Santa Barbara County approval, the Oak Tree Replacement Plan will be implemented. Trees will be planted in a designated "Planting Area" located outside the Project disturbance footprint, identified within the Oak Tree Replacement Plan. The 237.2 acre area was selected based on a desktop evaluation of planting suitability (i.e., slope, plant community, and soil conditions), property access/ownership constraints, and existing and future land use considerations. The Planting Area has the potential to support a maximum of 16,545 planted trees (spaced on 20 foot centers), which will be planted in stages and grouped into smaller management areas referred to as Oak Planting Units (OPUs).

Maintenance and monitoring of the Planting Area will include irrigating, weeding, mulching, installation and maintenance of protective caging/fencing if and where needed, and additional planting/seeding for a five year monitoring period for each OPU. Monitoring of the OPUs will include documentation of tree height, site photographs, and documentation of site conditions for any additional maintenance activities. Success will be achieved if, at the end of the five years, 60 percent or more of the planted trees are in good health and demonstrate vigor by signs of new growth without supplemental watering. In the event the OPU does not reach success criteria following the five year monitoring period, contingency measures (such as further nurturing or replacement planting) will be implemented and additional monitoring years may be required in order to reach success. The Planting Area will be protected from significant erosion, overgrazing, agriculture activities, and development activities. Additionally, the existing and planted trees within the Planting Area will be addressed in an oak woodland long term management and conservation strategy, which will be developed prior to Project implementation.

### 6.2.5 Annual Grasslands

A total of 53.6 acres of the 509.9 acres of annual grasslands occurring within the Project site (or 10.5 percent) will be impacted (temporarily and permanently) by Project activities (Table 6-1). Discussions of temporary and permanent impacts are provided below.

**Temporary Impacts.** Temporary impacts to annual grasslands will result from fuel management activities along roads and adjacent to structures, installation of above-ground pipelines and electrical transmission lines, and cut/fill grading along slopes of roads and well pads. Project temporary impacts to annual grasslands include 24.1 acres during Phase I and Phase II activities. Of the 24.1 acres of annual grassland temporary impacts, 21.3 acres will result from construction of the Project and 2.8 acres will result from fuel management activities. Fuel management activities within annual grasslands will consist of mowing vegetation to less than four inches in height for the life of the Project. A Fuel Management Plan (Appendix A) will be incorporated into the Project and will provide guidance for vegetation removal activities and minimize impacts to annual grasslands to the greatest extent possible.

Heavy equipment use and increased human activities during above-ground pipeline and electrical transmission line installation may temporarily disturb annual grassland vegetation, which is expected to recover following completion of activities. Cut/fill grading will remove small areas consisting primarily of non-native plant species where wildlife values are low and/or occur in areas that have been significantly disturbed or degraded from past land use activities. Implementation of avoidance and minimization measures (Section 7.0), including a Project revegetation plan and the Fuel Management Plan, will ensure that impacts to annual grasslands are less than significant.

**Permanent Impacts.** Permanent Impacts to annual grasslands resulting from Project construction activities include the removal and conversion of approximately 29.5 acres of annual grassland habitat within the Project footprint, as a result of Phase I and Phase II activities (Table 6-1). Removal of vegetation may result in the disruption of foraging areas and/or access to food sources for local wildlife. The Project will implement pre-activity surveys, and nesting bird surveys (as described in Section 7.0) to reduce impacts to native communities and local wildlife. The Project will implement a revegetation plan to reduce impacts to less than significant.

### 6.2.6 California Coastal Scrub

A total of 184.5 acres of the 1,025.8 acres of California coastal scrub occurring within the Project site (or 18.0 percent) will be impacted by Project activities (Table 6-1). Discussions of temporary and permanent impacts are provided below.

**Temporary Impacts.** Temporary impacts to California coastal scrub will result from fuel management activities along roads and adjacent to structures, installation of above-ground pipelines and electrical transmission lines, and cut/fill grading along slopes of roads and well pads. Project temporary impacts to California coastal scrub include 69.1 acres during Phase I and Phase II activities. Of the 69.1 acres of California coastal scrub temporary impacts, 50.0 acres will result from construction of the Project and 19.1 acres will result from fuel management activities (Table 6-1). Fuel management activities within California coastal scrub will consist of selective thinning, by cutting the shrubs near the base of the plant, leaving the root system in place to allow for regrowth allowing for species regeneration year after year. Thinning will be used to create a vegetation mosaic containing approximately 75 percent uncut shrubs and 25 percent cut re-sprouting shrubs to minimize fragmentation. A Fuel Management Plan (Appendix A) will be incorporated into the Project and will provide guidance for vegetation removal activities and minimize impacts to California coastal scrub to the greatest extent possible.

Heavy equipment use and increased human activities during above-ground pipeline and electrical transmission line installation may temporarily disturb California coastal scrub vegetation, which is expected to recover following completion of activities. Cut/fill grading will result in the removal of small acreages of California coastal scrub; however, implementation of avoidance and minimization measures (Section 7.0), including a Project revegetation plan and the Fuel Management Plan, will ensure that impacts to California coastal scrub are less than significant.

During grading, drilling, and maintenance activities, increased dust due to ground disturbance and vehicle traffic may create indirect impacts along the immediate road shoulders. Dust that accumulates on the leaves of coastal scrub species blocks sunlight and reduces photosynthesis. Dust will be a temporary impact reduced to less than significant with the incorporation of dust control methods into Project design plans. Dust control will include the watering of soils within Project work areas during heavy construction and periodic watering of roads during periods of heavy vehicle traffic. These measures are outlined in Section 7.0, Avoidance and Minimization Measures.

**Permanent Impacts.** Permanent impacts to California coastal scrub include the removal and conversion of approximately 96.3 acres of California coastal scrub habitat within the Project footprint, as a result of Phase I and Phase II activities (Table 6-1). The permanent removal of vegetation will substantially disrupt foraging areas and/or access to food sources for local wildlife. The Project will implement a revegetation plan that will specify revegetation of removed habitat.

The Project will implement pre-activity surveys and nesting bird surveys (as described in Section 7.0) to reduce impacts to native communities and local wildlife to less than significant.

### 6.2.7 Eucalyptus Groves

A total of 1.0 acre (or 27.0 percent) of the 3.7 acres of eucalyptus groves occurring within the Project site will be impacted by Project activities (Table 6-1). Discussions of temporary and permanent impacts are provided below.

**Temporary Impacts.** Approximately 0.7 acres of temporary impacts to eucalyptus groves will result from above-ground pipeline and electrical transmission line installation and cut/fill grading activities along slopes of roads and well pads. These activities will require limbing, sapling displacement, and/or understory vegetation clearance. No temporary impacts are expected to occur as a result of fuel management activities. Eucalyptus are a non-native species; however, these groves provide suitable foraging and nesting habitat for wildlife. Discussion of potential wildlife impacts are included in subsequent sections of this Report. The Project will be incorporating pre-activity surveys and nesting bird surveys (as described in Section 7.0) to reduce impacts to local wildlife to less than significant

**Permanent Impacts.** Permanent impacts to eucalyptus groves include the removal and conversion of approximately 0.3 acres of eucalyptus grove habitat within the Project footprint, as a result of Phase II activities (Table 6-1). The Project will incorporate pre-activity surveys and nesting bird surveys (as described in Section 7.0) to reduce impacts to local wildlife to less than significant.

## 6.3 IMPACTS TO WATERS AND WETLANDS

Waters and wetlands perform numerous beneficial functions, including groundwater recharge, stream recharge, pollution filtration, flood control, and wildlife habitat. Impacts that reduce or eliminate the wetland functions would be considered significant. Waters and ephemeral depressional pools that occur within the Project site may be afforded protection by the ACOE, CDFW, and/or Santa Barbara County. In addition, portions of Cat Canyon Creek support riparian vegetation (willow thickets) may be afforded protection by the CDFW.

**Temporary Impacts.** The main drainages that occur within the Project site will be avoided by Project activities, with the exception of road improvements during construction along Cat Canyon Creek and Long Canyon Creek. Appropriate agency permits will be acquired before Project initiation and will incorporate agency approved avoidance and minimization measures to reduce impacts to regulated waters to less than significant. In addition, Project activities will incorporate erosion control measures and buffers from waters, further outlined in the avoidance and minimization measures (Section 7.0), resulting in less than significant impacts.

**Permanent Impacts.** Construction of the Project will result in the removal of Pool A (Figure 5-3 - Biological Field Survey Results). During the April 2013 field surveys, this pool supported a hydrophytic plant community and was covered by shallow water at some time during the growing season. The plant community was dominated by non-native species located in a previously disturbed area. Pool A is used by cattle and may be the only natural source of water within the Project site that supports local upland wildlife (e.g., deer, bobcat, etc.). The permanent removal of Pool A may be considered significant because of the loss of a water source for local wildlife. Removal of Pool A will result in a total of 0.11 acres (4791.6 square feet) of wetland

habitat that may be protected by Santa Barbara County. Pool A does not support special-status aquatic species, hydric soils, and is not located adjacent to a non-navigable tributary, therefore, is not provided protection by state or federal agencies.

In addition, operation of the Project could result in spills of hazardous materials due to geologic hazards, mechanical failure, structural failure, corrosion, or human error. Such spills could potentially result in water quality impacts to creeks and shallow groundwater. Small leaks or spills, which generally are contained and remediated quickly, may have minor or negligible impacts to water resources. In contrast, large spills such as from pipeline or tank ruptures or undetected leaks, which spread to surface waters and/or groundwater, may substantially degrade water quality, with potential long-term impacts to biological resources. The potential impacts to biological resources as a result of a crude oil spill that degrades surface or groundwater quality are considered significant. The Project will incorporate a Spill Prevention and Response Plan that will describe spill prevention measures and drainage controls as an avoidance and minimization measure (Section 7.0), and impacts are considered less than significant.

## 6.4 IMPACTS TO SPECIAL-STATUS PLANT SPECIES

### 6.4.1 Straight-awned Spineflower

**Temporary Impacts.** Special-status plant species that were documented during field surveys were limited to straight-awned spineflower, a species of conservation concern listed with the CNPS (Rank 1B.3). The location of straight-awned spineflower is illustrated on Figures 5-3A-F. The Project footprint avoids temporary impacts to known spineflower populations; however, plant populations vary year to year based on environmental conditions and Project activities have the potential to result in the removal to new populations that were not identifiable during the 2013 and 2014 field surveys. Impacts to these populations are considered temporary with the incorporation of a species-specific revegetation/relocation plan that includes seed collection and topsoil salvage, further discussed in Section 7.0.

During grading, drilling, and maintenance activities, increased dust due to ground disturbance and vehicle traffic may create indirect impacts along the immediate road shoulders where straight-awned spineflower may occur. Dust that accumulates on these plants may block sunlight and reduces photosynthesis. Dust will be a temporary impact reduced to less than significant with the incorporation of dust control methods into Project design plans. Dust control will include the watering of soils within Project work areas during heavy construction and periodic watering of roads during periods of heavy vehicle traffic.

With the implementation of avoidance and minimization measures (Section 7.0), including dust control measures and a revegetation plan, impacts to the local straight-awned spineflower populations will be reduced to less than significant.

**Permanent Impacts.** The Project will remove approximately 0.23 acre of straight-awned spineflower habitat. With the implementation of avoidance and minimization measures (Section 7.0), including dust control measures and a revegetation plan, impacts to the local straight-awned spineflower populations will be reduced to less than significant.

## 6.5 IMPACTS TO WILDLIFE SPECIES

### 6.5.1 General Impacts to Wildlife

Heavy equipment operation and associated noise, dust generated by grading and excavation activities, and the increase of human presence may disrupt foraging and denning activities of some wildlife, including special-status species. This could potentially result in mortality of less mobile species, particularly ground-dwelling species such as California ground squirrel, Botta's pocket-gopher, broad-footed mole, and amphibian species that inhabit burrows during the dry season. During Project activities, local wildlife populations (including potentially occurring special-status species) may be adversely affected by the loss of food, cover, and nesting/denning habitat. Local wildlife will be temporarily displaced into adjacent habitats and likely experience greater competition for food and nest sites. Disruptions from the increased intensity of Project activities may include: nest abandonment, stress-related reduced fecundity, reduced foraging efficiency, and increased flight response. These disruptions may indirectly result in difficulty in providing food to young, possibly leading to loss of young. Project activities may also disrupt migratory patterns, foraging activities, home-range size, and breeding activities to all wildlife, including special-status species. In addition, night operations are expected throughout the life of the Project, which may displace foraging bat species. The use of lights during operation, however, may increase the abundance of insects, thus attracting bat species into the Project site. These impacts to wildlife are indirect and temporary and will be reduced to less than significant with the implementation of avoidance and minimization measures (Section 7.0), such as delineation of Project disturbance limits, pre-activity woodrat nest removal, and pre-activity nesting bird surveys.

### 6.5.2 Impacts to Special-Status Wildlife

#### 6.5.2.1 Monarch Butterfly

Monarch butterflies have been observed intermittently within the Project site, but not in large numbers; no roosts have been observed. Small eucalyptus groves occur within the southern boundary of the Project site and will be removed as part of Project activities; however, monarch butterflies are not likely dependent on eucalyptus groves found within the Project site for autumnal roosts. In addition, avoidance and minimization measures have been provided below to ensure the protection of the species. Impacts to this species are not expected to result from Project activities.

#### 6.5.2.2 California Tiger Salamander

**Potential Suitable Habitat.** The Project site lies 2.99 miles south of CTS Critical Habitat Area Unit 2 and 3.3 miles northeast of CTS Critical Habitat Area Unit 3, as designated by the USFWS (2010). No impacts to CTS Critical Habitat will occur as a result of the proposed Project.

A CTS habitat assessment prepared for the Project site concluded that there was a low potential for CTS to occur within the boundaries of the Project site (Storrer, 2013). CTS have not been recorded within the limits of the Project site. There are no documented CTS breeding ponds within the maximum recorded dispersal distance of 1.3 miles. CTS have not been found during three years of upland and aquatic surveys on the adjacent West Cat Canyon Oil and Gas Lease (Collins and Gaede, 2014).

Three potential CTS breeding ponds within the maximum recorded 1.3 mile dispersal distance from the Project site were identified by the USFWS as SISQ-19, SISQ-20, and ERG Pond D (Figures 6-4). SISQ-20 lies within the Project site boundary, but outside of the Project disturbance footprint. SISQ 19 and ERG Pond D lie outside of the Project site. The Project site contains upland habitat that may be suitable for CTS migrating from these potential breeding ponds. Aquatic surveys of potential CTS breeding pond SISQ-20 were planned for 2012, 2013, and 2014, but were not possible due to lack of surface water. Aquatic surveys of the ERG Pond D were carried out by ERG Resources LLC consultant, Paul Collins, and concluded that no CTS were found (Collins, 2014). Discussions with USFWS and CDFW in 2014 concluded that further sampling of ERG Pond D would not likely provide any additional useful information. Pond SISQ-19 lies outside of the Project site on private property and was not surveyed.

Protocol-level surveys to determine presence or absence of CTS within the Project site as endorsed by the USFWS and CDFW (USFWS, 2003) are infeasible due to the large size of the Project site and logistical constraints posed by steep terrain and other access limitations. Limited upland drift fence surveys, while not completely consistent with Protocol, have been approved by CDFW and USFWS, and are planned for fall and winter of 2014 - 2015. For purposes of this impact analysis only, CTS have been presumed to be present in suitable upland habitat which makes up 1,992.3 acres within the Project site (Table 6-3 - Project Impacts Based on CTS Potential).

Potential for CTS to occur within various portions of the Project site was ranked as *high*, *medium*, or *low* on the basis of two criteria: 1) distance from potential CTS breeding ponds; and, 2) habitat suitability as inferred by vegetation type. The ranking criteria are summarized in Table 6-2 - Ranking of Potential for CTS to occur within Project site.

**Table 6-2 - Ranking of Potential for CTS to occur within Project Site**

| Potential for CTS to Occur | Distance from potential CTS breeding pond | Habitat Type |
|---|---|---|
| **High** | Within 2,200 feet radii | Annual grassland and oak woodland |
| **Moderate** | Within 2,200 feet radii | Coastal sage scrub and coffeeberry scrub |
| **Low** | Outside 2,200 feet radii from potential CTS breeding ponds | -- |

Trenham and Shaffer (2005) found that 95 percent of the population of CTS associated with a particular pond was most likely to use upland habitat within 2,200 feet of its perimeter. Oak woodland and annual grasslands have been considered within this Report to be the most suitable upland habitat, with high densities of small mammals whose burrows provide underground refugia for CTS. Portions of the Project site supporting oak woodland or annual grassland within 2,200 feet of potential CTS breeding ponds were classified as *high* potential for CTS occurrence. Scrub habitats (e.g., coastal scrub, coffeeberry scrub) are considered less suitable and were classified as having *moderate* potential for CTS occurrence where they lie within 2,200 feet of a potential breeding pond. Portions of the Project site beyond 2,200 feet from potential breeding ponds were

classified as having *low* potential for CTS occurrence. Project impacts based on this classification of habitat for CTS occurrence potential are included in Table 6-3 - Project Impacts Based on CTS Potential. Areas of existing development such as roads and well pads are classified as having no significant suitability for CTS occurrence and were excluded from the calculation of Project impacts.

**Temporary and Permanent Impacts.** Construction-related impacts to CTS could include injury or mortality from equipment operations and vehicle traffic. Mortality could also occur through exposure should CTS become entrapped in open excavations while migrating between upland habitat and breeding ponds. Measures to avoid or minimize the potential for these adverse effects will be implemented during construction.

Impacts from Project operations could include mortality from vehicle encounters or exposure to hazards associated with repair and maintenance work (e.g. operation of equipment, open excavations). CTS will be most vulnerable to these effects when dispersing between upland habitat and aquatic breeding sites. Dispersal typically occurs during winter season rain events during nighttime hours. Direct mortality impacts will be reduced to less than significant with the incorporation of avoidance and minimization measures (Section 7.0).

**Table 6-3. Project Impacts Based on CTS Occurrence Potential**

| Habitat Value Based on California Tiger Salamander Potential | Total Upland Habitat within the Project site (acres) | Percent of Total Upland Habitat within the Project site | Temporary Impacts (acres)[1] | Permanent Impacts (acres)[1] |
|---|---|---|---|---|
| **High** | 178.7 | 8.5 | 8.1 | 12.9 |
| **Moderate** | 158.3 | 7.5 | 6.5 | 5.7 |
| **Low** | 1,655.3 | 78.4 | 90.0 | 117.3 |
| **Total** | **1,992.3** | **--** | **104.6** | **135.9** |

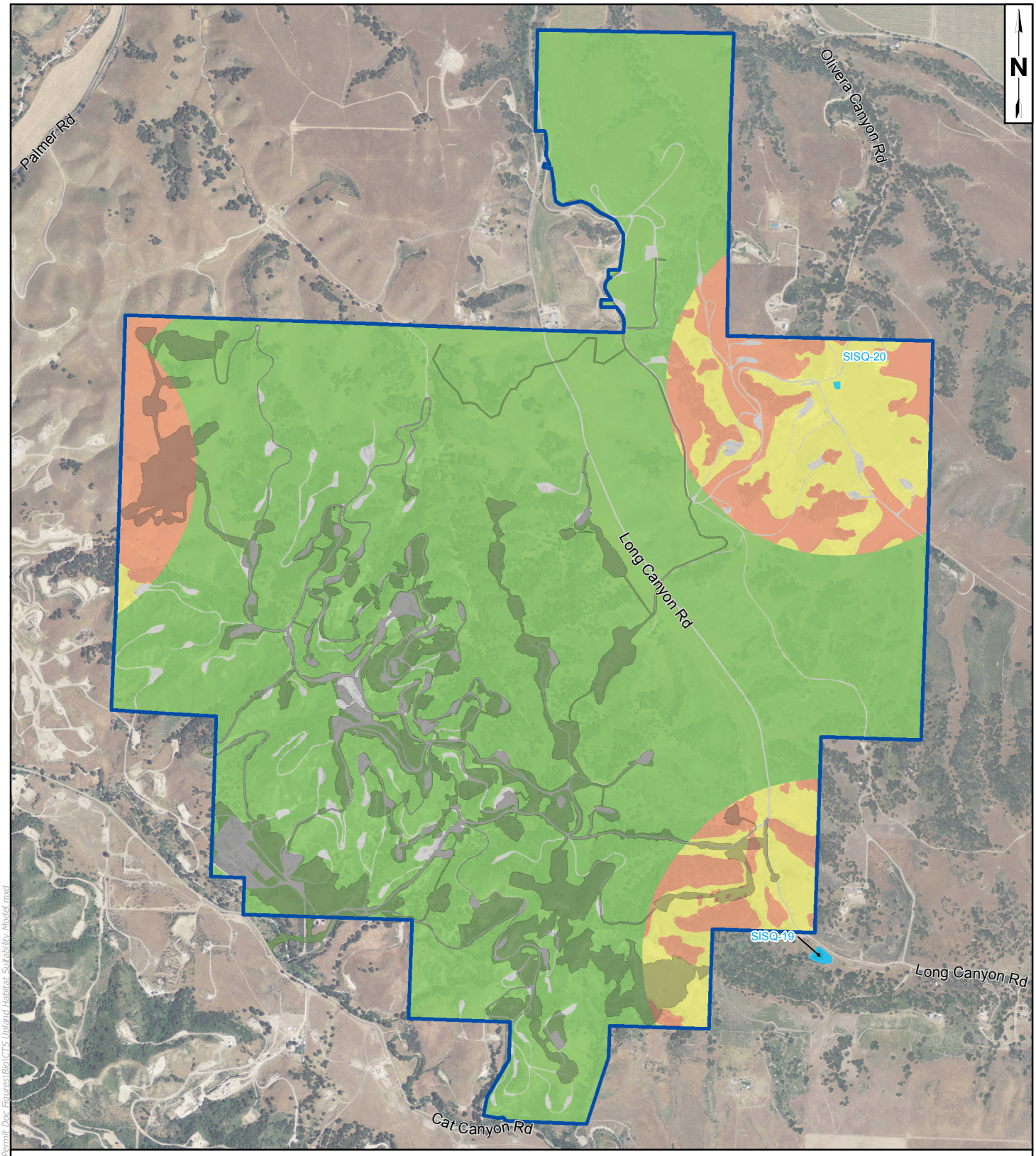
Notes:
[1]Impacts generated from 8/20/14 Grading Plan with on-site pipelines. Existing disturbed areas (existing roads, pads, structures) not included in this calculation.

Based on the presumption of presence and the habitat-based occurrence likelihood classifications described above, a total of 104.6 acres will be temporarily impacted, and then restored with native vegetation following development. A total of 135.9 acres with varying degrees of CTS occurrence potential will be permanently impacted by the proposed Project (refer to Table 6.3 and Figure 6-2 – CTS Upland Habitat Suitability Model).

Potential temporary and permanent impacts to CTS upland habitat will be adverse and significant, but mitigable for the following reasons:

- The area of permanent impact (135.9 acres) makes up 6.8 percent of the total upland habitat area (1,992.3 acres) that is available within the Project site to potentially occurring CTS;

- The area subject to temporary impacts (104.6 acres) makes up 5.3 percent of total available upland habitat area (1,992.3 acres) that is available within the Project site to potentially occurring CTS, and will be restored following construction;
- The majority of Project construction will occur beyond 2,200 feet from potential breeding ponds;
- Project activities that could impact potentially occurring CTS, (e.g. vehicle movement, construction) are minimal on rainy nights, when CTS upland dispersal is most likely to occur;
- Avoidance and minimization measures will be implemented during construction and operation of facilities that will further reduce the potential for incidental take;
- No Project impacts to CTS potential breeding habitat will occur; and
- No Project impacts to CTS Critical Habitat, as designated by the USFWS will occur.




Aera Energy LLC Property
Project Footprint

**Habitat Potential Catagory**
High
Moderate
Low
Existing Developed Area - No Potential

0 900 1,800
FEET

*Source: County of Santa Barbara, TJCross 8-20-14, DPSI 2013 Land Survey, NAIP 2012 Image, Terra Solutions, Storrer Environmental Services*
*Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet*
*Notes: This map was created for informational and display purposes only.*

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: | | CTS UPLAND HABITAT SUITABILITY MODEL | FIGURE |
|---|---|---|---|
| EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT | | | 6-2 |
| PROJECT NUMBER: 1002-0455 | DATE: September 2014 | | |

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Permit Doc Figures\Bio\CTS Upland Habitat Suitability Model.mxd

PAGE INTENTIONALLY BLANK

Aera has consulted with both the CDFW and USFWS throughout the Project planning stages. Upland and aquatic surveys have been approved by the agencies and are planned for fall, winter, and spring of 2014 - 2015. Fish and Game Code Section 2081(b)(2) (CESA) requires compensatory mitigation for permanent loss and temporary disturbance of upland refuge habitat. Aera will provide one or more of the following mitigation alternatives to preserve CTS habitat of equal or greater quality than that affected by the Project:

- Permanent onsite easement(s);
- Permanent offsite easement(s);
- Funds for the acquisition of permanent easements to a qualified easement holder; and/or
- Contribution to an established "conservation bank".

Aera proposes to mitigate for the permanent removal and temporary disturbance of upland habitat based on mitigation ratios developed to reflect the potential presence of CTS within the acreage that would be impacted by Project activities. These ratios are shown in Table 6-4 - Mitigation for Loss of Potential California Tiger Salamander Upland Habitat.

**Table 6-4. Mitigation for Loss of Potential California Tiger Salamander Upland Habitat**

| Habitat Value Based on California Tiger Salamander Potential | Temporary Impacts | | | Permanent Impacts | | |
|---|---|---|---|---|---|---|
| | Acres | Mitigation Ratio | Mitigation Acreage | Acres | Mitigation Ratio | Mitigation Acreage |
| **High** | 8.1 | 2:1 | 16.2 | 12.9 | 4:1 | 51.6 |
| **Moderate** | 6.5 | 0.5:1 | 3.25 | 5.7 | 2:1 | 11.4 |
| **Low** | 90.0 | 0.1:1 | 9.0 | 117.3 | 1:1 | 117.3 |
| **Total** | 104.6 | -- | **33.18** | 135.9 | -- | **180.3** |

Notes:
[1]Impacts generated from 8/20/14 Grading Plan with on-site pipelines. Existing disturbed areas (existing roads, pads, structures) not included in this calculation.

#### 6.5.2.3 Southern Western Pond Turtle, California Red-Legged Frog, and Western Spadefoot

Southern western pond turtle, CRLF, and western spadefoot are species that utilize both upland and aquatic habitats for portions of their life cycle and are primarily actively moving between these habitats during rain events, particularly at night. Potential western spadefoot and southern western pond turtle habitat occurs in the sandy, friable soils along Cat Canyon Creek and Long Canyon Creek. Project activities are limited in these areas to the construction of drainage crossings that will support Project traffic. Additionally, these species are primarily active during rainy nights when they emerge from burrows and overwintering grounds in seek of ephemeral pools for breeding. Due to the increase in traffic that will result from the Project, impacts to CRLF, western spadefoot, and southern western pond turtles may also include the mortality of individuals along the roads during night operations. Impacts due to Project activities

proposed within Cat Canyon Creek and Long Canyon Creek are considered temporary and no permanent loss of habitat will occur. With the implementation of avoidance and minimization measures (Section 7.0), such as pre-activity raking surveys, use of cover boards, avoiding Project activities in creek channels during the rainy season when water is present within the channels, and minimizing traffic during rainy nights, these impacts are considered less than significant.

6.5.2.4 Blainville's Horned Lizard, Coast Patch-Nosed Snake, California Legless Lizard

Blainville's horned lizard, coast patch-nosed snake, and California legless lizard are all species that utilize upland habitats, specifically sandy soils, and may occur under dense brush and loose layers of soil. Blainville's horned lizard have been documented within the Project site on multiple field visits and are expected to occur within the Project footprint during construction and operations. Coast patch-nosed snake or California legless lizard were not observed within the Project site during field visits by Padre; however, suitable habitat does occur and may occur within Project footprints. Initial grading activities may result in the mortality of these species during construction. In addition, due to the increased traffic resulting from the Project, impacts to Blainville's horned lizard may include the mortality of individuals along the roads. Project grading activities and Project facilities and operations will not create any significant barriers and suitable habitat will not be significantly removed as a result of the Project. Impacts to Blainville's horned lizard from Project activities are temporary and with the implementation of avoidance and minimization measures outlined in Section 7.0, these impacts are considered less than significant.

6.5.2.5 Nesting Birds and Roosting Bats

A number of bird species could potentially nest in the grassland, scrub, and oak woodland habitat areas throughout the Project site. These include ground nesters (e.g., California horned lark, killdeer, and lark sparrow), small tree/shrub nesters (e.g., bushtit, American robin, house finch, Acorn woodpecker, and lesser goldfinch), and several raptors that require large trees for nesting (e.g., red-tailed hawk and American kestrel). Nest destruction from tree removal and ground-clearing activities could destroy nests, nestlings, or hatchlings, and result in a violation of the MTBA (16 USC 703-712). Some unoccupied nests are legally protected by statutes other than the MBTA, including nests of Threatened and Endangered migratory bird species and bald and golden eagles, within certain parameters. In addition the destruction of unoccupied nests during or near the nesting season could result in a significant level of take. With the implementation of avoidance and minimization measures outlined in Section 7.0, including pre-activity surveys by a qualified biologist, Project activities will minimize these impacts to nesting birds and roosting bats to less than significant.

6.5.2.6 Woodrats

Woodrat nests were observed throughout the Project site during field surveys. It is expected that the common big-eared woodrat occupies the Project site; however, San Diego desert woodrat, which is provided protection by the CDFW, may also occur in the Project site. These species cannot be differentiated with certainty unless the species is trapped and genetically tested. Temporary impacts to woodrats will occur during initial ground disturbance and vegetation removal activities. Woodrat nests may be directly removed by such activities and woodrats may be indirectly impacted by Project activities, including increases in traffic, fuel management activities, increases in noise, and removal of oak woodland and scrub habitats. With the incorporation of pre-activity surveys and other avoidance and minimization measures outlined in Section 7.0, woodrat nests will be knocked down prior to initial ground disturbance and vegetation

removal activities to provide adequate time for the woodrats to vacate their nests into adjacent habitats outside the immediate work areas.

6.5.2.7 American Badger and Burrowing Owl

American badger and burrowing owl are both species that utilize burrows underground. Evidence of American badger has been observed throughout the Project site, and badgers can be expected to occur throughout the Project footprint due to the presence of suitable habitat. Burrowing owls have not been identified within the Project site; however, suitable habitat does occur within the Project site. Equipment moving through the Project area could potentially injure or kill badgers/owls that remain in dens. In addition, denning badgers/owls may be indirectly impacted by increased noise and human presence. Adjacent habitat is available for American badger and burrowing owl to retreat and occupy. Impacts to American badger and burrowing owl from Project activities are temporary and with the implementation of avoidance and minimization measures (Section 7.0), such as pre-activity surveys and buffers around natal dens, these impacts are considered less than significant.

PAGE INTENTIONALLY BLANK

## 7.0 AVOIDANCE AND MINIMIZATION MEASURES

Past and current land use practices (i.e., oil field operations and grazing) have impacted the extent and diversity of the biological resources existing within the Project site; however, as indicated in this report, the Project site contains large sections of undisturbed habitats suitable to support wide species diversity, including special-status species. The Project will incorporate avoidance of sensitive resources as the first priority and will implement the following avoidance and minimization measures throughout the life of the Project to reduce impacts to less than significant.

1. **Agency Permitting.** Prior to Project initiation, all applicable permits, including California Department of Fish and Wildlife, U.S. Army Corps of Engineers, Central Coast Regional Water Quality Control Board, and Santa Barbara County permits, will be obtained, as necessary. Avoidance, minimization, and/or mitigation measures required by these agencies will be incorporated into the Project.

2. **Oak Tree Protection Plan.** The Project Oak Tree Protection Plan, provided as Appendix M, will be submitted to the County for review and approval. The approved Plan will be incorporated into the Project.

3. **Oak Tree Replacement Plan.** The Project will implement an Oak Tree Replacement Plan for oak trees that will be removed. The Project Oak Tree Replacement Plan, provided as Appendix N, will be submitted to Santa Barbara County for approval. Following approval, the Plan will be implemented to mitigate oak tree removals. The Plan prescribes that each removed live oak tree greater than six inches in diameter at breast height (mature live oak tree) will be mitigated using any combination of the following replacement alternatives:

    - For every mature live oak tree removed, ten acorns or ten one gallon saplings or smaller containers that support a longer taproot, will be planted within the Planting Area. Saplings may include those salvaged from the Project disturbance areas (10:1 - acorns or young saplings); or
    - For every mature live oak tree removed, three 15 gallon saplings will be planted within the Planting Area (3:1 – 15 gallon saplings); or
    - For every mature live oak tree removed, ten naturally occurring oak tree saplings between six inches and six feet tall will be protected and nurtured within Planting Area or in the Project site (10:1 – sapling/nurture trees); or
    - Mature oak trees identified within the Project disturbance area and proposed for removal, will be transplanted to the Planting Area in order to salvage the tree (1:1 – transplanted mature oak trees).Some amount of off-site planting and nurturing, in other conservation or restoration areas, such as La Purisima, or in burn areas of public lands, as agreed to by the County, may also be considered as a portion of the mitigation for on-site removals.

4. **Dust Control Measures.** During construction activities and periods of high vehicle/equipment traffic along unpaved roads and work areas, dust control methods to minimize dust impacts to surrounding vegetation will be implemented. Dust control methods include, but are not limited to, the following:

    - Light water spray or soil stabilizer application on stockpiles;

- Watering vehicle movement surface areas to prevent the generation of fugitive dust;
- Reducing vehicle speed; and
- Suspending earth moving or other dust-producing activities during periods of high winds or when dust control measures are not able to prevent visible dust plumes.

5. **Fuel Management Plan.** The Project Fuel Management Plan, provided as Appendix A, will be submitted to the County for review and approval. The approved Plan will be incorporated into the Project.

6. **Erosion Control Measures.** A Storm Water Pollution Prevention Plan (SWPPP) for all applicable Project activities will be implemented. Erosion and sediment controls (e.g., silt fences, straw wattles, mulching, and hydroseeding) will be installed properly and maintained regularly. Other Best Management Practices (BMPs) will also be implemented as necessary and/or as required by Project permits.

7. **Environmental Sensitivity Orientation.** A Project-specific environmental sensitivity orientation will be prepared by a biologist familiar with the Project region and incorporated into site-specific training that will be required for Project personnel working on-site. The purpose of the orientation is to educate Project personnel on local special-status wildlife species that may occur within the Project area and to provide an overview of the avoidance and minimization measures to be adhered to during the Project. In addition, personnel will be briefed on the reporting process in the event that an inadvertent injury should occur to a special-status species during construction or operations.

8. **Delineation of Project Disturbance Limits.** Prior to initial grading or construction, Project disturbance limits will be delineated in the field, under the guidance of a qualified biologist using high visibility fencing or flagging to avoid impacts to special-status plant populations and other adjacent sensitive habitat areas. The use of heavy equipment and vehicles will be limited to the proposed work areas, existing roadways, and defined staging areas/access points.

9. **Pre-Activity Surveys.** Pre-activity surveys will be conducted prior to initial grading, excavation, and vegetation removal activities within two weeks of planned work. Pre-activity surveys will be completed by a qualified biologist experienced with regional wildlife and plant species. These surveys will consist of the following activities:

    - Woodrat nest destruction using hand tools to knock down nests and deter animals out of the immediate work area. Woodrat nest destruction will first be approved by the CDFW by written or verbal approval;
    - Large burrows which display signs of badger or owls, will be scoped and dusted around the entrance for three consecutive days to determine if the burrow is active. All active and non-active American badger burrows will be avoided to the greatest extent possible; however, if the burrow cannot be avoided and the burrow is active, then the burrow will be closed by collapsing the soil around the entrance to deter the badgers out of the work area. If the burrow is an active natal den during the breeding season (February through August), then

that burrow will be avoided until the pups have grown and left the burrow. All active burrowing owl burrows will be avoided within a 300 foot buffer. The CDFW will be contacted to determine additional minimization measures for natal dens, if necessary. In the event a burrow is being used by a burrowing owl, the burrow will be avoided until the CDFW is notified to determine appropriate avoidance and minimization measures;

- Biologists will place cover boards in the work area to attract reptiles using the area. The cover boards will be checked immediately prior to ground disturbing activities to capture and relocate reptiles to adjacent suitable habitat and out of harm's way. Raking of sandy soils within the immediate work areas will also be incorporated into pre-activity surveys to help observe, capture, and relocate reptiles that may lie just under the soil surface;
- Biologists will identify, flag, and map with a GPS any special-status plant species identified in the work area. These plant populations will be avoided the extent practicable; however, if avoidance is not practicable, a revegetation/relocation plan will be implemented.

10. **Straight-awned Spineflower Avoidance or Revegetation Plan.** Project activities will avoid special-status species populations to the greatest extent practicable; however where straight-awned spineflower has been documented within the Project grading footprint, and in any other cases where Project activities cannot avoid straight-awned spineflower, an agency approved revegetation plan will be implemented. The revegetation plan will provide guidelines for seed collection and topsoil salvage to ensure impacts to the population are reduced to the greatest extent possible. The plan will also incorporate monitoring and reporting methods for revegetated populations to ensure success.

11. **Revegetation Plan.** Project activities that require the temporary removal of vegetation for cut/fill slopes, above-ground pipeline installation, and electrical transmission line installation activities will be revegetated per a County-approved revegetation plan. The plan will be prepared and submitted to the appropriate regulatory agencies for approval. The revegetation plan will incorporate goals, implementation methods, and maintenance and monitoring measures to ensure successful revegetation of native plant communities. The plan for salvaging and restoring straight-awned spineflower will be included in this revegetation plan.

12. **Nesting Bird Surveys.** In the event that Project initial ground disturbing and vegetation removal activities are scheduled during the nesting bird season (March 15 through September 15), a nesting bird survey will be completed by a qualified biologist with experience in bird identification and nest searching within 24 hours of disturbance activities. No active nests of native bird species protected by the Migratory Bird Treaty Act will be removed by Project activities and appropriate buffers will be incorporated into the Project plans to ensure the protection of the nest. Buffers will be delineated by a qualified biologist based on an appropriate distance to minimize disturbance to the active nest, a standard of 300 feet for passerines and 500 feet for raptors, or as required by Project permits. These buffers may be minimized by a qualified biologist on a case-by-case basis, and consistent with permit conditions, where birds are not impacted by Project activities.

13. **Rainy Night Traffic Minimization.** To minimize impacts to migrating amphibians that travel to aquatic breeding grounds during rainy nights (i.e., spadefoot, California red legged frog, California tiger salamander), vehicle travel will be avoided during rainy nights to the extent practicable. In the event that vehicles must travel on roads within the Project area during rainy nights, speeds will be reduced. In the event a California red legged frog or California tiger salamander is identified on a road, the U.S. Fish and Wildlife Service will be contacted immediately for further direction.

14. **Spill Response Plan.** A Spill Response Plan will be prepared prior to Project activities and will be implemented for the life of the Project. The Plan will include appropriate measures for containment of spills, agency notifications, clean-up protocols, and procedures for restoring lay down areas and other impacted areas to pre-disturbance conditions. Spill containment equipment will be available on-site during all Project drilling and fuel handling activities. The Plan will also include protocols for locating fueling equipment at least 50 feet from stream channels and other standing water, and inspecting and maintaining equipment to prevent leaks.

15. **Removal of Trash.** All food-related items and trash will be contained in trash bins with lids and will be removed from the work areas at the end of each working day.

16. **California Tiger Salamander Habitat Mitigation.** Aera proposes to provide mitigation for the permanent removal and temporary disturbance of upland habitat based on mitigation ratios developed to reflect the potential occurrence of California tiger salamander within the acreage that would be impacted by Project activities. Mitigation includes the following:

    <u>Temporary Impacts</u>

    - 2 acres of mitigation for every 1 acre classified as *high* habitat value
    - 0.5 acres of mitigation for every 1 acre classified as *moderate* habitat value
    - 0.1 acres of mitigation for every 1 acre classified as *low* habitat value

    <u>Permanent Impacts</u>

    - 4 acres of mitigation for every 1 acre classified as *high* habitat value
    - 2 acres of mitigation for every 1 acre classified as *moderate* habitat value
    - 1 acre of mitigation for every 1 acre classified as *low* habitat value

## 8.0 REFERENCES

Alden, Peter, Heath, Fred. National Audubon Society Field Guide to California. National Audubon Society, New York, NY.

Baldwin, Bruce G., Goldman, Douglas H., Keil, David J., Rosatti, Thomas J. The Jepson Manual: Vascular Plants of California, Second Edition. 2012. University of California Press. Berkeley, Ca.

Barry, S.J. and H.B. Shaffer. 1994. The Status of the California tiger salamander *Ambystoma californiense* at Lagunita: A 50 year update. Journal of Herpetology 28:159-164.

Beedy, E.C., and Hamilton, W. J., III. 1999. Tricolored blackbird (*Agelaius tricolor*), in The Birds of North America (A. Poole and F. Gill, eds.), No. 423. Birds North America, Philadelphia.

Behler, John L., & F. Wayne King. 1992. The Audubon Society Field Guide to North American Reptiles and Amphibians. Alfred A. Knopf.

Calef, G.W. 1973. Natural mortality of tadpoles in a population of Rana aurora. Ecology 54: 741:758.

California Department of Fish and Wildlife (CDFW). 1988. California's Wildlife, Amphibians and Reptiles, California Newt. California Wildlife Habitat Relationships System.

------ 2010. List of Vegetation Alliances and Associations. Vegetation Classification and Mapping Program, California Department of Fish and Wildlife. Sacramento, CA. September 2010.

------ 2011. Special Animals (898 taxa) Biogeographic Data Branch. California natural Diversity Database. Available online at: http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/SPAnimals.pdf

------ 2012. Staff Report on Burrowing Owl Mitigation. May 7, 2012.------ 2014. California Natural Diversity Database (CNDDB) Rare Find. Twitchell Dam, Tepusquet Canyon, Sisquoc, Orcutt, Lompoc, Los Alamos, Zaca Creek, Foxen Canyon, and Santa Maria Quadrangles.

California Division of Oil, Gas, and Geothermal Resources. 2013. DOGGR Online Mapping System. Website: http://maps.conservation.ca.gov/doms/index.html

California Native Plant Society (CNPS). 2011. Protocol for Combined Vegetation Rapid Assessment and Relevè Sampling (VRAP).

California Native Plant Society (CNPS). 2013. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society. Sacramento, CA. Available Online: http://www.rareplants.cnps.org. Accessed Thursday, October 10, 2013.

Carraway L.N.; Verts, B.J. 1991. *Neotoma fuscipes*. Mammalian Species 386: 1-10. American Society of Mammalogists.

Cogswell, H. L. and A.R, Phillips. 1968. Life Histories of North American Cardinals, Grosbeaks, Buntings, Towhees, Finches, Sparrows, and Allies. U.S. Natl. Mus. Bull., 237: 919-956.

Collins, Paul W. and Peter Gaede. 2014. California Tiger Salamanders (*Ambystoma californiense*) Upland and Aquatic Survey Results 2013/2014 ERG West Cat Canyon Lease

in Northern Santa Barbara County, California. Prepared for ERG Operating Company LLC, Santa Maria, CA.

County of Santa Barbara. 2002. County of Santa Barbara Environmental Thresholds and Guidelines Manual. County of Santa Barbara Planning and Development Department.

County of Santa Barbara, 2003. Amendment to the Conservation Element and Land Use Element of the Santa Barbara County Comprehensive Plan; Resolution No. 03-120; Oak Tree Protection Policy 1; Development Standard 1;. Protection of All Species of Mature Oak Trees. County Board of Supervisors, April 2003.

County of Santa Barbara. 2008. Environmental Thresholds and Guidelines Manual. Website: http://www.sbcountyplanning.org/pdf/manualsreports/manuals/environmental%20thresholds%20october%202008%20corrected%206-1-2009.pdf

Dunn, J. L., and K. L. Garrett. 1997. A Field Guide to Warblers of North America. Houghton Mifflin, Boston.

Grinnell, J., and A. H. Miller. 1944. The distribution of the birds of California. Pac. Coast Avifauna no. 27. Cooper Ornith. Society. 608pp.

Harrison, C. 1978. A Field Guide to the Nests, Eggs, and Nestlings of North American Birds. W. Collins and Sons and Co., Cleveland, OH.

Hickman, James C. 1993. The Jepson Manual, Higher Plants of California. University of California Press. Berkeley, CA.

Holland, R. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. Unpublished Report. California Fish and Game, Natural Heritage Division. Sacramento, CA.

Jameson, Jr. E.W., Peeters, Hans J. 1988. California Mammals. University of California Press. Berkeley, CA.

Jennings, M. and M. Hayes. 1994. Amphibian and Reptile Species of Special Concern in California. California

Linsdale, J. M. & Tevis, L. 1951. The dusky-footed woodrat. Berkeley and Los Angeles: University of California Press.

Lowther, P.E., C. Celada, N.K. Klein, C.C. Rimmer, and D.A. Spector. 1999. Yellow Warbler (Dendroica petechia). In The Birds of North America, No. 454 (A. Poole and F. Gill, Eds.). Academy of Natural Sciences, Philadelphia, and American Ornithologists' Union, Washington, D.C.

LSA Associates, Inc. 2014. Results of 2014 Dry Season Fairy Shrimp Surveys for the Aera Energy LLC's East Cat Canyon Oil Field Site, Santa Barbara County.

Moyle, P., J. Williams, and E. Wikramanayake. 1989. Fish Species of Special Concern of California. California Department of Fish and Game. Sacramento, CA.

National Audubon Society. 1996. Field Guide to North American Mammals. New York, New York.

National Marine Fisheries Service. 1997. Endangered and Threatened Species: Listing of Several Evolutionary Significant Units (ESUs) of West Coast Steelhead. Federal Register 62(159): 43937-43953.

National Oceanic and Atmospheric Administration (NOAA). 1996. Status Review of West Coast Steelhead. Northwest Fisheries Science Center, Technical Memo 27.

------ August 2005a. Southern Steelhead Critical Habitat – NOAA [ds122]. Calif. Dept. of Fish and Game. Biogeographic Information and Observation System (BIOS). Retrieved November 10, 2009.

------ September 2005b. Endangered and Threatened Species; Designation of Critical Habitat for Seven Evolutionarily Significant Units of Pacific Salmon and Steelhead in California; Final Rule. Federal Register 70 (170): 52488-52585. September 2, 2005.

Neff, J.A. 1937. Nesting distribution of the tricolored red-wing. Condor 39:61-81.

Olson, T. E. and M. V. Gray. 1989. Characteristics of least Bell's vireo nest sites along the Santa Ynez River. In: Proceedings of the California Riparian Systems Conference: protection, management, and restoration for the 1990's; September 22-24; Davis, CA. Dana L. Abell, ed., Gen. Tech. Rep. PSW-110, Berkeley, CA., pp. 278-284.

Padre Associates, Inc. May 2010. 90-Day Report on Mid-Wet Season Fairy Shrimp Identification Survey for the Chevron Sargent Fee Site, Santa Maria Valley, Santa Barbara County, CA. Prepared for Chevron.

Padre Associates, Inc. May 2011a. Biological Resources Report for the Aera Energy, LLC. Two-Dimensional Seismic Survey Project within the Cat Canyon Oil Field. Prepared for Aera Energy, LLC.

Padre Associates, Inc. May 2011b. Biological Resources Survey Report for the Aera Exploratory Drilling Project, East Cat Canyon Oil Field. Prepared for Aera Energy, LLC.

Padre Associates, Inc. March 2013. Protocol-Level Red-Legged Frog Survey Report for the Chevron Alva Paul Canyon Pipeline Removal Project. Prepared for Chevron Environmental Management Company.

Padre Associates, Inc. 2014a. 90-Day Report on Wet Season Vernal Pool Branchiopod Surveys for the Aera Energy LLC East Cat Canyon Oil Field, Santa Barbara County, California. Prepared for Aera Energy, LLC

Padre Associates, Inc. 2014b. Least Bell's Vireo Survey Results. Prepared by Padre Associates, Inc. Prepared for Aera Energy LLC.

Padre Associates, Inc. 2014c. Oak Tree Protection Plan for the East Cat Canyon Oil Field Redevelopment Project, Santa Barbara County, California. Prepared for Aera Energy LLC.

Padre Associates, Inc. 2015. Oak Tree Replacement Plan for the East Cat Canyon Oil Field Redevelopment Project, Santa Barbara County, California. Prepared for Aera Energy LLC.

Rising, J. and D. Beadle. 1996. A guide to the Identification and Natural History of the Sparrows of the United States and Canada. San Diego: Academic Press.

Ronan, N. A. 2002. Habitat selection, reproductive success, and site fidelity of burrowing owls in a grassland ecosystem. M.S. Thesis, Oregon State University, Corvallis, OR.

Rosenberg, D. K., and K.L. Haley. 2004. The ecology of Burrowing Owls in the agroecosystem of the Imperial Valley, California. Studies Avian Biol. 27:120–135.

Sage Institute, Inc. July 2012. ERG Operating Company, LLC. Los Alamos Fee "Pond E" California Red-Legged Frog Survey Results. Letter prepared for ERG Operating Company, LLC.

Sakai, W., and W. Calvert. 1991. Statewide Monarch Butterfly Management Plant for the State of California Department of Parks and Recreation – Final Report. Life Sciences Department, Santa Monica College, 1900 Pico Blvd., Santa Monica, CA 90405.

Sawyer, John O., Keeler-Wolf, Todd, Evans, Julie M. 2009. A Manual of California Vegetation Second Edition. California Native Plant Society. Berkeley, CA.

Semonsen, Vince. 2007. Initial Field Assessment for California Tiger Salamander for the Aera East Cat Canyon Oil and Gas Field. Prepared by Vince Semenson of VJS Biological Consulting. Prepared for Aera Energy LLC.

Shaffer, H.B., R.N. Fisher, and S.E. Stanley. 1993. Status Report: The California tiger salamander (*Ambystoma californiense*). Final report to California Department of fish and Game, Inland fisheries division, contract #FG9422 and FG1393.

Shuford, W. D. 1993. The Marin County Breeding Bird Atlas: A Distributional and Natural History of Coastal California Birds. California Avifauna Series 1. Bushtit Books, Bolinas, CA.

Shuford, W. Davis and Thomas Gardali, Editors. 2008. California Bird Species of Special Concern. Western Field Ornithologists and California Department of Fish and Game. Sacramento, CA.Sibley, David Allen. 2003. The Sibley field guide to birds of western North America. Alfred A. Knopf, New York.

Smith, Clifton F. 1976. A Flora of the Santa Barbara Region, California. Santa Barbara Museum of Natural History.

Stebbins, Robert C. 1985. A Field Guide to Western Reptiles and Amphibians, Second Edition Houghton Mifflin Company. New York, NY.

Stebbins, Robert C. 2003. A Field Guide to Western Reptiles and Amphibians. 3rd Edition. Houghton Mifflin Company.

Storer, Tracy. 1925. A Synopsis of the Amphibia of California. University of California Publications in Zoology - Volume 27. The University of California Press

Storrer Environmental. 2011. Habitat Assessment for California Tiger Salamander for the Aera Two-dimensional Seismic Survey Test Plan. Prepared for Aera Energy LLC.

Storrer Environmental. 2013. Habitat Assessment for California Tiger Salamander (*Ambystoma californiense*), Aera East Cat Canyon Production Plan, Santa Barbara County, California. Prepared for Padre Associates, San Luis Obispo, California. September 19.

Thorngate, N. and M. Parsons. 2005. Rufous-crowned Sparrow (*Aimophila ruficeps*). In The Coastal Scrub and Chaparral Bird Conservation Plan: a strategy for protecting and managing coastal scrub and chaparral habitats and associated birds in California. California Partners in Flight.

Trenham, P. C., and H. B. Shaffer. 2005. Amphibian upland habitat use and its consequences for population viability. Ecological Applications 15:1158–1168.

U. S. Fish and Wildlife Service (USFWS). 1996. Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods. U.S. Department of the Interior, April 19, 1996.

------ 2002a. Recovery Plan for the California Red-legged Frog (*Rana aurora draytonii*). U.S. Fish and Wildlife Service, Portland, Oregon. viii + 173 pp.

------- 2002b. 50 CFR Part 17 Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for *Eriodictyon* capitatum (Lompoc yerba santa) and *Deinandra increscens* ssp*. villosa* (Gaviota tarplant); Final Rule.

------- 2003. Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander.

------- 2005a. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the California Tiger Salamander, Central Population. Final Rule. Federal Register Vol. 70, No. 162.

------- 2005c. USFWS Revised Guidance on Site Assessments and Field Surveys for California Red-Legged Frog.

------- 2007. Vernal Pool Fairy Shrimp (*Branchinecta lynchi*) 5-Year Review: Summary and Evaluation. Sacramento Fish and Wildlife Office, Sacramento, California. September 2007.

------- 2009. Endangered and Threatened Wildlife and Plants; Revised Designation of Critical Habitat for *Cirsium loncholepis* (La Graciosa Thistle). Final Rule. Federal Register. Vol. 74, No. 211.

------- 2010. Ventura Fish and Wildlife Office GIS. California Tiger Salamander Pond Habitats – Northern Area.

------- 2011. Endangered and Threatened Wildlife and Plants; Revised Critical Habitat for Arroyo Toad. Final Rule. Federal Register Volume 76, Number 27. February 9, 2011. 50 CFR Part 17.

------ 2014a. National Wetland Inventory. Last modified on May 1, 2014. Available on-line at: http://www.fws.gov/wetlands/Data/Mapper.html

------ 2014b. Critical Habitat Portal. http://criticalhabitat.fws.gov/crithab/

University of California. 2014. The Jepson Online Interchange California Floristics. University of California, Berkeley, CA. http://ucjeps.berkeley.edu/interchange.html.

Vestal, E.H. 1938. Biotic relations of the woodrat (*Neotoma fuscipes*) in the Berkeley Hills. Journal of Mammalogy 18: 364.

Whitson, Tom D., Burill, Larry C., Dewey, Steven A., Cudney, David W., Nelson, B.E., Lee, Richard D., Parker, Robert. 1999. Weeds of the West. Western Society of Weed Science, Newark, CA.

Williams, D. F. 1986. Mammalian Species of Special Concern in California. Prepared for the State of California: Resource Agency, Department of Fish and Game.

Williams, B.D.C. 1998. Distribution, habitat associations, and conservation of Purple Martins breeding in California. M.S. Thesis, Calif. St. Univ., Sacramento.

Wolf, L.L. 1977. Species relationships in the avian genus *Aimophila*. Ornithological Monographs No. 23. American Ornithologists' Union.

Zeiner, D., W. Laudenslayer, Jr. and K. Mayer. 1988. California's Wildlife, Volume I, Amphibians and Reptiles. California Department of Fish and Game. Sacramento, CA.

Zeiner, D., W. Laudenslayer, Jr., K. Mayer, and M. White. 1990a. California's Wildlife, Volume II, Birds. California Department of Fish and Game. Sacramento, CA.

Zeiner, D., W. Laudenslayer, Jr., K. Mayer, and M. White. 1990b. California's Wildlife, Volume III, Mammals. California Department of Fish and Game. Sacramento, CA.

# APPENDIX A

## FUEL MANAGEMENT PLAN

# FUEL MANAGEMENT PLAN

## EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT

## SANTA BARBARA COUNTY, CALIFORNIA

**Prepared for:**

Aera Energy LLC
10000 Ming Avenue
Bakersfield, California 93311

**Prepared by:**

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

369 Pacific Street
San Luis Obispo, California 93401

**NOVEMBER 2014**

**PROJECT NO. 1002-0455**

## TABLE OF CONTENTS

**1.0 INTRODUCTION ..... 1**

1.1 DEFINITIONS ..... 1

**2.0 PROJECT SETTING ..... 3**

**3.0 REGULATORY SETTING ..... 5**

3.1 FEDERAL REGULATIONS ..... 5

3.1.1 Endangered Species Act ..... 5
3.1.2 Migratory Bird Treaty Act ..... 5

3.2 STATE REGULATIONS ..... 5

3.2.1 California Fish and Game Code ..... 5
3.2.2 Department of Forestry and Fire Protection ..... 5

3.3 SANTA BARBARA COUNTY REGULATIONS ..... 6

**4.0 MANAGEMENT OF DEFENSIBLE SPACE ..... 7**

4.1 DEFENSIBLE SPACE FOR STRUCTURES ..... 7

4.1.1 Zone 1: 0 to 30 Feet From Proposed Structures ..... 7
4.1.2 Zone 2: 31 to 100 Feet From Proposed Structures ..... 9

4.2 DEFENSIBLE SPACE FOR ROADWAYS AND DRIVEWAYS ..... 9

4.3 DEFENSIBLE SPACE WITH CONTINUOUS CANOPY ..... 10

**5.0 FUEL MANAGEMENT AVOIDANCE AND MINIMIZATION MEASURES ..... 13**

**6.0 REFERENCES ..... 15**

## TABLE

Table 4-1. Vegetation Spacing Guidelines ..... 8

## FIGURE

Figure 4-1. Vegetation, Roadway, And Continuous Canopy Clearance Guidelines ..... 11

## ACRONYMS

| | |
|---|---|
| BCC | Birds of Conservation Concern |
| BOF | California Board of Forestry and Fire Protection |
| CDFW | California Department of Fish and Wildlife |
| CEQA | California Environmental Quality Act |
| CESA | California Endangered Species Act |
| CNDDB | California Natural Diversity Database |
| CNPS | California Native Plant Society |
| DBH | Diameter at breast height |
| EPA | Environmental Protection Agency |
| ESA | Endangered Species Act |
| ESHA | Environmentally Sensitive Habitat Areas |
| FESA | Federal Endangered Species Act |
| MBTA | Migratory Bird Treaty Act |
| NMFS | National marine Fisheries Service |
| SB | Senate Bill |
| SBCFD | Santa Barbara County Fire Department |
| USFWS | United States Fish and Wildlife Service |
| USGS | United States Geological Survey |

# 1.0 INTRODUCTION

This Fuel Management Plan (Plan) has been prepared by Padre Associates, Inc. (Padre) on behalf of Aera Energy LLC (Aera) for the proposed East Cat Canyon Oil Field Redevelopment Project (Project), Santa Barbara County (County), California. The primary purpose of this Plan is to provide guidelines for fuel reduction activities to be implemented throughout the life of the Project, consistent with applicable State and County defensible space standards to prevent fire hazards and regulations, while providing protection for sensitive biological resources. Provided in the Plan is a summary of these applicable standards, regulations, and guidelines for all fuel reduction activities associated with the Project to ensure compliance with agencies, creation of defensible spaces, and avoidance and/or minimization of impacts to sensitive biological resources.

## 1.1 DEFINITIONS

The following provides a definition of terms frequently used in this Plan, per Santa Barbara County Fire Department (SBCFD) Defensible Space Standards – Development Standards 6.

**Combustible Materials:** weeds, stubble, brush rubbish, litter, dry grass, dry leaves or other flammable materials that are readily ignitable and endanger the public safety.

**Defensible Space:** an area surrounding a building or structure where basic wildlife protection measures are implemented, providing the key point of defense from an approaching wildfire or escaping structure fire. The area is characterized by the establishment of fuel modification measures.

**Fire Hazard:** anything or act that increases or could cause an increase of the hazard or menace of fire to a greater degree than that customarily recognized as normal by persons in the public service regularly engaged in preventing, suppressing or extinguishing fire or anything or act that could obstruct, delay, hinder or interfere with the operations of the fire department or the egress of occupants in the event of fire. When a fire hazard has been determined to exist by the Fire Marshal, or his or her designee, the fire hazard shall be considered to be nuisance.

**Reduced Fuel Zone:** a fuel break within 30 feet to 100 feet from each building or structure and is created by disrupting the vertical and horizontal continuity of flammable and combustible vegetation with the goal of reducing fire intensity, inhibiting fire in the crowns of trees, reducing the rate of fire spread and providing a safer environment for firefighters to suppress wildfire.

PAGE INTENTIONALLY BLANK

## 2.0 PROJECT SETTING

The Project includes the 2,100 acre East Cat Canyon Oil Field, located within the Solomon Hills and the Gato Ridge mountain range, east of the City of Santa Maria, Santa Barbara County, California (Project site). The Project site is surrounded by oil field parcels and various large lots primarily used for cattle ranching, farming, and/or residential purposes. The Project site consists of a network of narrow and steep dirt and/or remnant asphalt roads, abandoned well pads, and rugged terrain, creating inaccessible areas that are relatively undisturbed. In addition, there is currently a field office, warehouse, four sampling/test wells, several groundwater wells, and five oil production wells on site. The production wells are operated by ERG Resources, LLC. The regional topography is generally comprised of steeply to moderately incised canyons and drainages, moderate to steep hills, valleys, and flat areas reserved for agriculture. The existing vegetation within the Project site, and surrounding areas, generally consists of oak woodland, grasslands, and coastal scrub plant communities. Several sensitive habitats (i.e., coast live oak woodland and red willow thickets) occur within the Project site. These are afforded protection by Federal, State, and/or local authority, and may support special-status plants and wildlife. Regulations regarding the protection of these biological resources are further described in the following section.

The East Cat Canyon Oil Field Redevelopment Project will re-establish oil production in an existing oil field by implementing a thermal enhanced oil recovery process that is technically, economically, and environmentally feasible for oil recovery. Project plans include construction and restoration of approximately 73 well pads, construction and restoration of over nine miles of field access roads, and drilling of up to 315 wells (Project footprint). Planned wells include oil/gas production wells, steam injection wells, observation wells, non-potable water production wells, water injection wells, and fresh groundwater wells.

Defensible space is an area surrounding a building or structure where basic wildfire protection measures are implemented, providing the key point of defense from an approaching wildfire or escaping structure fire. The SBCFD also requires defensible space around roads and driveways. For this Project, defensible spaces must be created in vegetated areas surrounding buildings, roads, wells, pipelines, and other standing structures that may pose a fire risk during construction and operations throughout the life of the Project.

PAGE INTENTIONALLY BLANK

# 3.0 REGULATORY SETTING

This section identifies and discusses the regulations and standards administered by agencies pertaining to fuel management and biological resources that are known to exist within the Project footprint. These regulations provide guidance for fuel management planning within the Project footprint.

## 3.1 FEDERAL REGULATIONS

### 3.1.1 Endangered Species Act

The Federal Endangered Species Act (FESA), administered by the U.S. Fish and Wildlife Service (USFWS), and the National Marine Fisheries Service (NMFS), provides protection to species listed, and those proposed to be listed, as Threatened or Endangered, and Critical Habitat designated for the protection of such species.

### 3.1.2 Migratory Bird Treaty Act

The USFWS administers the Federal Migratory Bird Treaty Act (MBTA) of 1918 (16 USC 703-711). The MBTA established federal responsibilities for the protection of nearly all species of birds, their eggs, and their nests. Under the MBTA, it is unlawful to kill, collect, take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR 10, including feathers or other parts, nests, eggs or products, except as allowed by implementing regulations.

## 3.2 STATE REGULATIONS

### 3.2.1 California Fish and Game Code

The California Department of Fish and Wildlife (CDFW) administers a number of laws and programs designed to protect fish and wildlife resources. Principal of these is the California Endangered Species Act of 1984 (CESA), enacted by Fish and Game Code Section 2050, that regulates the listing and take of state Endangered and Threatened species. CDFW also maintains lists of Candidate- species, which are afforded the same protection regardless of listing or candidacy. In addition, CDFW designates Species of Special Concern, which are species with limited distribution, declining populations, and/or habitat. Further, CDFW manages the California Native Plant Protection Act of 1977 (Fish and Game Code Section 1900, *et seq.*), which was enacted to identify, designate, and, protect rare plants. CDFW also maintains the *List of Vegetation Alliances and Associations* (CDFW, 2010) to assist in the determination of natural communities (i.e., vegetation types) of special concern that are of limited distribution statewide or within a county, or region, and are often vulnerable to environmental effects of projects (CDFW, 2014).

### 3.2.2 Department of Forestry and Fire Protection

The California Board of Forestry and Fire Protection (BOF) is a government-appointed body within the Department of Forestry and Fire Protection. The BOF is responsible for developing the general forest policy of the state, for determining guidance policies of the Department, and for representing the state's interest in federal forestland in California. In addition, the BOF is charged with protecting the forest resources of all wildland areas of California that are not under federal jurisdiction. For the purpose of this Plan, the BOF provides the guidelines for creating defensible space, which has been adopted by the County of Santa Barbara and the Santa Barbara County Fire Department Development Standards.

## 3.3 SANTA BARBARA COUNTY REGULATIONS

Requirements for the protection of biological resources in the unincorporated areas of Santa Barbara County are provided within the County's Comprehensive Plan Conservation Element, Environmental Resources Management Element, Land Use Element, Community Plans, and the Coastal Land Use Plan. These documents identify sensitive habitats and species, and provide measures to direct project design and policies to protect biological resources. These Plans/Elements provide a framework of policies designed to protect special-status species and environmentally sensitive habitat areas (ESHA). The *Environmental Thresholds and Guidelines Manual*, published in October of 2008 by Santa Barbara County, is used to assist in determining levels of impacts to sensitive areas and appropriate methods for avoidance, minimization, and/or mitigation.

The SBCFD is responsible for the administration of the Defensible Space Program as outlined in California's Public Resource Code 4291, which has been incorporated into the Government Code 51175-51189, Santa Barbara County Code of Ordinances, and SBCFD Development Standards. Specific defensible space requirements are outlined in SBCFD Development Standard Number 6.

# 4.0 MANAGEMENT OF DEFENSIBLE SPACE

This section provides guidelines for vegetation maintenance, based on SBCFD Standards 6.2, 6.3, and 6.4 for managing defensible space for structures, roadways and driveways, and areas with continuous canopies.

## 4.1 DEFENSIBLE SPACE FOR STRUCTURES

Defensible space is an area surrounding a building or structure where basic wildfire practices are implemented, providing the key point of defense from an approaching wildfire or escaping structure fire. The area is characterized by fuel modification measures including vegetation removal within designated buffer zones (BOF, 2006). SBCFD Standard 6.2.1 requires a minimum vegetation clearance of 100 feet around all buildings or structures. Within the 100 foot defensible space buffer, there are two defined zones: Zone 1 is from 0 to 30 feet from proposed structures, and Zone 2 is 31 to 100 feet from proposed structures. Both zones are to be maintained throughout the year for the life of the Project. The following describes how the vegetation maintenance requirements within each defensible space zone will be met by the Project.

### 4.1.1 Zone 1: 0 to 30 Feet From Proposed Structures

A defensible space (or firebreak) that extends 30 feet from structures or to the Project footprint boundary (whichever is closer) will be maintained around each proposed structure on the Project site, per SBCFD Standard 6.2.1.1. Maintenance for this zone will include the removal and clearing of all flammable vegetation and other combustible groundcover. Dead and dying woody surface fuels and aerial fuels from taller trees within this zone will also be removed, but occasional (approximately one per acre) standing dead trees (snags) that are well-spaced from other vegetation and that will not fall on buildings or structures or on roadways/driveways may be retained. Native tree and shrub species will be retained provided they are well-spaced, well-pruned, and create a condition that avoids spread of fire to other vegetation or to a structure. Horizontal clearances will depend on height of plants and the steepness of slopes. Fuel separation between trees over ten feet in height will include the pruning of branches to a minimum height of six feet above ground level and appropriately spaced, depending on slope. For trees and large shrubs under ten feet in height, the lower third of the branches will be pruned. Table 4-1 provides a summary of vegetation spacing guidelines recommended by SBCFD.

**Table 4-1. Vegetation Spacing Guidelines**

| Horizontal Spacing | | |
|---|---|---|
| **Trees** | **Slope (percent)** | **Spacing (feet)** |
| | **Minimum horizontal space between edges tree canopies** | |
| | 0 to 20 | 10 |
| | 20 to 40 | 20 |
| | > 40 | 30 |
| **Shrubs** | **Minimum horizontal space between edges of shrubs** | |
| | 0 to 20 | 2 X the height of the shrub |
| | 20 to 40 | 4 X the height of the shrub |
| | > 40 | 6 X the height of the shrub |
| **Vertical Spacing** | | |
| **Trees** | **Height (feet)** | **Spacing (feet)** |
| | **Minimum vertical space between ground level and lower branches** | |
| | >10 | 6 |
| | <10 feet | Lower third |
| **Shrubs** | <10 feet | Lower third |

As listed in Table 4-1, trees will be spaced 10 to 30 feet apart depending on slope and size of the tree. Mature canopy will be kept no closer than ten feet from the outlet of any stovepipes. Roofs will be cleared of dry vegetative material such as leaves or needles, as per SBCFD Standard 6.2.2. In sloped areas, the spacing between low lying shrubs will also be increased. In general, shrubs will be spaced two times the height of the shrub on slopes between 0 percent and 20 percent, four times the height of the shrub on slopes 20 percent to 40 percent, and six times the height to the shrub on slopes greater than 40 percent. Figure 4-1 illustrates the vegetation spacing guidelines that will be utilized by the Project.

Oak trees that occur within Zone 1 will not be removed as part of fuel reduction. Woody low lying shrubs, such as coyote brush (*Baccharis pilularis*), black sage (*Salvia mellifera*), and California sagebrush (*Artemesia californica*), will be selectively thinned by cutting the shrub near the base of the plant leaving the root system in place to allow for re-growth.

Loose surface litter, normally consisting of fallen leaves or needles, twigs, bark, cones, and small branches, will be permitted to a depth of three inches, but will be removed from the roof of all buildings and structures. Generally, all surface fuels greater than four inches in height that would readily burn will be removed. Grasses and other forbs less than 18 inches in height above the ground may be retained when these grasses are isolated from other fuels or where necessary to stabilize the soil and prevent erosion. Down logs or stumps that are embedded in the soil within 100 feet from a structure, may be retained when isolated from other vegetation anywhere within this zone.

### 4.1.2 Zone 2: 31 to 100 Feet From Proposed Structures

Per SBCFD Standard 6.2.1.2, an additional 70 feet past the 30 foot Zone 1, or to the Project footprint boundary, whichever is closer, will be maintained from each proposed structure within the Project site. Flammable vegetation in Zone 2 will be spaced as to reduce plant-to-plant, plant-to-tree, and tree-to-tree transfer of fire both vertically and horizontally. Retained trees will have the lower branches pruned from six to 15 feet (depending on their height), or the lower third of the branches for trees under ten feet. Oak trees that occur in Zone 2 will not be removed as part of fuel reduction.

In this zone, woody low lying shrubs, such as coyote brush, black sage, and California sagebrush, will be selectively thinned by cutting the shrub near the base of the plant leaving the root system in place to allow for re-growth. Thinning will be used to create a vegetation mosaic containing approximately 75 percent uncut shrubs and 25 percent cut re-sprouting shrubs in this zone.

Grasses will not exceed four inches in height, and all grass trimmings will be removed after mowing; however, grass and other forbs less than 18 inches in height above the ground may be retained when these grasses are isolated from other fuels or where necessary to stabilize the soil and prevent erosion. The roof of all buildings and structures will be maintained free of leaves, needles, or other dry vegetative materials. Vegetation maintenance will be done regularly to ensure the defensible space is kept consistent throughout the year. Dead trees and fallen trees on the surface will be removed in this zone, but occasional (approximately one per acre) snags that do not present any potential hazards may be retained.

Clearance distances between vegetation will depend on the slope, vegetation size, vegetation type (trees, shrub, or grass), and other fuel characteristics (fuel compaction, chemical content, etc.), as required by the guidance illustrated in Figure 4-1. Vegetation around buildings/structures on the Project site with greater fire hazards will require greater separation between fuels. For example, structures near steep slopes having large vegetation will provide greater spacing between individual trees and bushes. It should be noted that some tree removal may be necessary to achieve the desired spacing required by SBCFD. Any oak tree removal will be performed in accordance with County regulations summarized in a County-approved Project Oak Tree Replacement Plan.

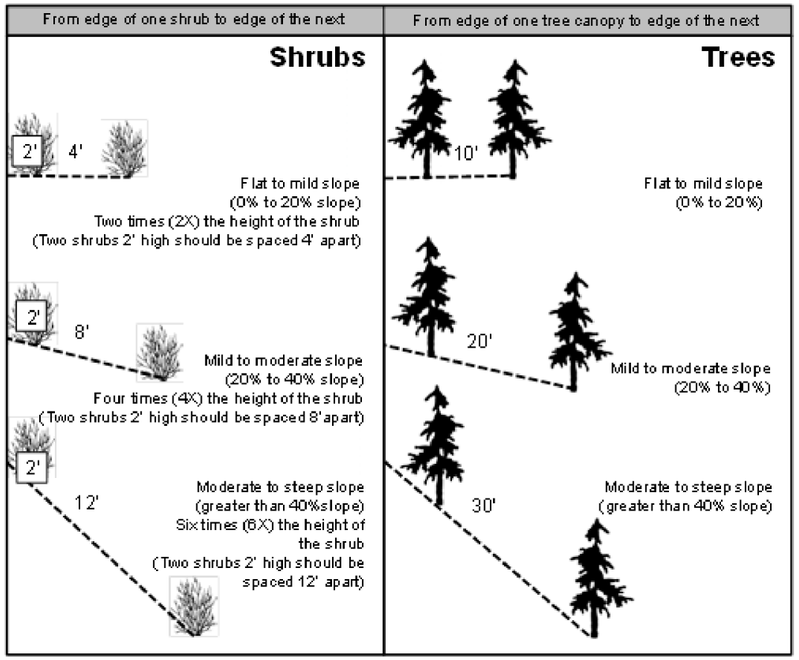
## 4.2 DEFENSIBLE SPACE FOR ROADWAYS AND DRIVEWAYS

For all access roads and driveways at the Project site, flammable vegetation will be reduced to a maximum stubble height of four inches, or completely removed, for a distance of no less than ten feet from both shoulders of the roadway as outlined in SBCFD Standard 6.3. Within the ten-foot firebreak, trees will be well maintained, spaced to reduce the chance of tree-to-tree spread of fire, and will not hang over or into the roadways to ensure that fire department vehicles have a clear path in case of an emergency, as per SBCFD Standard 6.3.2. In addition, a minimum vertical clearance of 13.5 feet will be maintained for any trees along all roadways on the Project site. Figure 4-1 illustrates the defensible space standards for roadways and driveways. The pruning of any oak trees, which occur along the roadways, will be conducted in accordance with guidelines outlined in a County-approved Project Oak Tree Protection Plan.

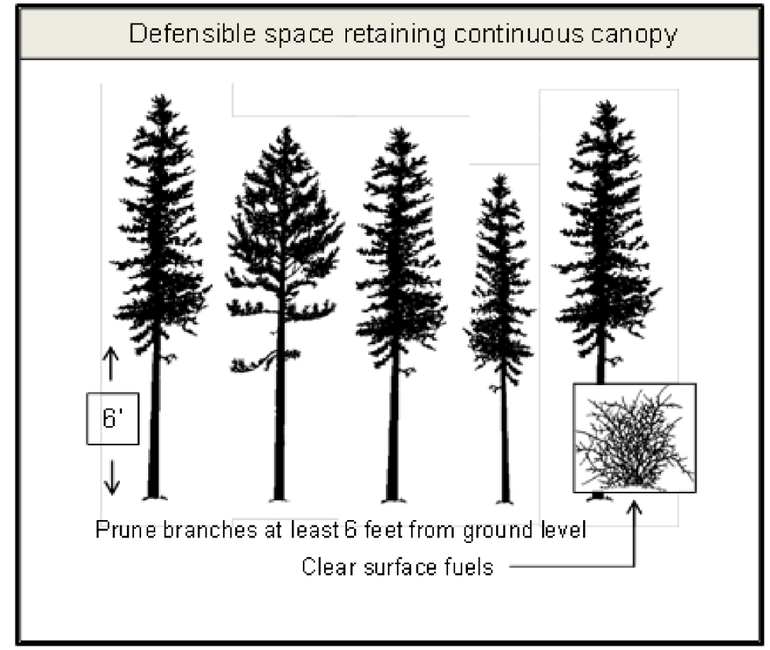
## 4.3 DEFENSIBLE SPACE WITH CONTINUOUS CANOPY

To achieve defensible space while maintaining the integrity of a larger stand of trees with a continuous canopy, the following guidelines, as outlined in SBCFD Standard 6.4, will be followed.

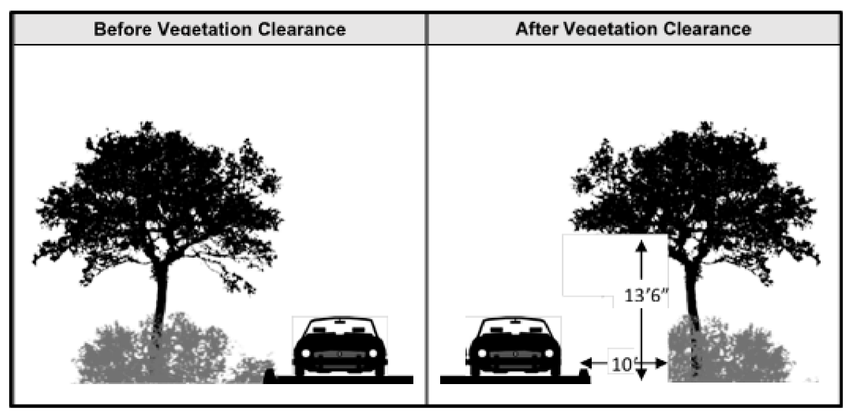
Branches will be pruned to a minimum of six feet above ground level on trees greater than ten feet in height, and the lower third of branches will be pruned for trees less than six feet in height. In addition, all ground fuels will be reduced to a minimum of four inches in height. Figure 4-1 illustrates the defensible space standards for continuous canopy.




Vegetation Clearance Guidelines




Continuous Canopy Clearance Guidelines




Roadway Vegetation Clearance Guidelines

Source: Figures adapted from SBCFD, (2014) and BOF, (2006)
Notes: This map was created for informational and display purposes only.

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT
PROJECT NUMBER: 1002-0455
DATE: September 2014

VEGETATION, ROADWAY, AND CONTINUOUS CANOPY CLEARANCE GUIDLINES

FIGURE 4-1

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Figure 4-1 Vegetation Clearance Guidelines.mxd GRT 9/18/2014

PAGE INTENTIONALLY BLANK

## 5.0 FUEL MANAGEMENT AVOIDANCE AND MINIMIZATION MEASURES

Based upon the regulations and guidelines set forth by the federal, state, and County authorities, it is recommended that the following measures be implemented during fuel management activities in order to reduce potential impacts to biological resources, including but not limited to ESHA's and special-status species, to a less than significant level. Vegetation maintenance will occur within the three general vegetation types that occur on the Project site including oak woodland, coastal scrub, and grasslands. Palmer's spineflower (*Chorizanthe palmeri*), a special-status plant species, has been documented to occur as a component of coastal scrub vegetation throughout the Project site, and has the potential to be impacted as a result of fuel reduction activities. Therefore, the following avoidance and minimization measures will be implemented and are discussed below.

1. Prior to initial fuel reduction activities in previously undisturbed areas, work areas, including equipment staging and laydown areas, will be clearly defined and marked with visible flagging and/or orange protective fencing;
2. Fuel reduction activities will be limited to mowing vegetation with the use of a raised mower, weed whipper, and/or hand tools, without any grading or application of herbicides and restricted to thinning of shrubs and lower branches of trees, avoiding the removal of trees to the greatest extent feasible. In the event an oak tree must be removed, the Project Oak Tree Replacement Plan and the appropriate Project permitting measures will be implemented;
3. An environmental sensitivity orientation will be presented to all on-site personnel at the beginning of the initial fuel reduction activities. The orientation will discuss special-status species and sensitive habitats with potential to occur in the work areas. The orientation will explain the importance of minimizing disturbance, adhering to all permit conditions, and proper reporting of observations or incidents. The orientation will be repeated if additional personnel are added to the Project;
4. At the beginning of initial fuel reduction activities in previously undisturbed areas, a qualified biologist will conduct pre-activity surveys to inspect the immediate work areas for special-status species and other sensitive biological resources. In the event that a special-status plant species is observed, individuals and/or populations will be flagged with the appropriate buffer during vegetation removal activities, and agency consultation will be conducted, as necessary, prior to vegetation clearance. Observations of special-status species shall be reported to the CDFW and/or USFWS, as required;
5. In the event that fuel reduction/vegetation removal activities are scheduled during the nesting bird season (between March 15 and September 15), a nesting bird survey shall be completed by a qualified biologist with experience in bird identification and nest searching. No active nests of native bird species protected under the MBTA shall be removed by project activities and appropriate buffers shall be incorporated into the Project plan to ensure the protection of the nest. Buffers shall be delineated by a qualified biologist based on an appropriate distance to minimize disturbance to the active nest;
6. In the event that fuel reduction activities require trimming, pruning, and/or limbing of oak trees, the County-approved Project Oak Tree Protection Plan will be implemented; and

7. Fuel vegetation removal activities will avoid removal of coast live oak trees greater than eight inches in diameter at breast height to the greatest extent feasible. In the event that oak tree removal is unavoidable, the oak tree will be documented and incorporated into the County-approved Project Oak Tree Replacement Plan.

Implementation of the above-mentioned measures will reduce impacts to existing biological resources, including special-status species within fuel management zones to a less than significant level.

## 6.0 REFERENCES

California Department of Fish and Wildlife (CDFW). 2010. List of Vegetation Alliances and Associations. Vegetation Classification and Mapping Program, California Department of Fish and Game. Sacramento, CA. September 2010.

County of Santa Barbara, Planning and Development (County). 2014. Biogeographic Data Branch. VegCamp. Natural Communities; Background Information. Available online at: http://www.dfg.ca.gov/biogeodata/vegcamp/ natural_comm_background.asp Website accessed August 2014.

County of Santa Barbara, Planning and Development (County). April 2003. Appendix A Grading Ordinance Guidelines for Native Oak Tree Removal. Santa Barbara, CA.

County of Santa Barbara, Planning and Development (County). 2003. Deciduous Oak Tree Protection and Regeneration. Article IX of Chapter 35, Santa Barbara County Code. Santa Barbara, CA.

County of Santa Barbara, Planning and Development (County). 2006. Inland Zoning Ordinance. Article III of Chapter 35, Santa Barbara County Code. Santa Barbara, CA.

County of Santa Barbara, Planning and Development (County). 2008. Environmental Thresholds and Guidelines Manual. Santa Barbara, CA.

County of Santa Barbara, Planning and Development (County). 2011. A Planner's Guide to Conditions of Approval and Mitigation Measures. Santa Barbara County, CA.

NatureServe, 2014. NatureServe Explorer 2014 Global Conservation Status Definitions. Available online at: http://www.natureserve.org/explorer/granks.htm.

Santa Barbara County Fire Department (SBCFD). 2014. Development Standard Number 6. Santa Barbara County Fire Department Planning and Engineering. http://www.sbcfire.com/special-ops/. Website accessed August 2014.

State Board of Forestry (BOF). 2006. General Guidelines for Creating Defensible Space. California Department of Forestry and Fire Protection. February 2006.

Sawyer, John O., Keeler-Wolf, Todd, Evans, Julie M. 2009. A Manual of California Vegetation Second Edition. California Native Plant Society. Berkeley, CA.

# APPENDIX B

## CNDDB NINE QUADRANGLE QUERY RESULTS

# Selected Elements by Common Name

## California Department of Fish and Wildlife

## California Natural Diversity Database

**Query Criteria:** Quad is (Sisquoc (3412073) or Foxen Canyon (3412072) or Lompoc (3412064) or Los Alamos (3412063) or Orcutt (3412074) or Santa Maria (3412084) or Tepusquet Canyon (3412082) or Twitchell Dam (3412083) or Zaca Creek (3412062))

| Species | Element Code | Federal Status | State Status | Global Rank | State Rank | Rare Plant Rank/CDFW SSC or FP |
|---|---|---|---|---|---|---|
| **American badger**<br>*Taxidea taxus* | AMAJF04010 | None | None | G5 | S4 | SSC |
| **arroyo toad**<br>*Anaxyrus californicus* | AAABB01230 | Endangered | None | G2G3 | S2S3 | SSC |
| **black-flowered figwort**<br>*Scrophularia atrata* | PDSCR1S010 | None | None | G2G3 | S2S3 | 1B.2 |
| **Blochman's leafy daisy**<br>*Erigeron blochmaniae* | PDAST3M5J0 | None | None | G2 | S2 | 1B.2 |
| **burrowing owl**<br>*Athene cunicularia* | ABNSB10010 | None | None | G4 | S3 | SSC |
| **California red-legged frog**<br>*Rana draytonii* | AAABH01022 | Threatened | None | G2G3 | S2S3 | SSC |
| **California saw-grass**<br>*Cladium californicum* | PMCYP04010 | None | None | G4 | S2 | 2B.2 |
| **California tiger salamander**<br>*Ambystoma californiense* | AAAAA01180 | Threatened | Threatened | G2G3 | S2S3 | SSC |
| **Central Coast Arroyo Willow Riparian Forest**<br>*Central Coast Arroyo Willow Riparian Forest* | CTT61230CA | None | None | G3 | S3.2 | |
| **Central Maritime Chaparral**<br>*Central Maritime Chaparral* | CTT37C20CA | None | None | G2 | S2.2 | |
| **chaparral ragwort**<br>*Senecio aphanactis* | PDAST8H060 | None | None | G3? | S2 | 2B.2 |
| **coast horned lizard**<br>*Phrynosoma blainvillii* | ARACF12100 | None | None | G3G4 | S3S4 | SSC |
| **coast patch-nosed snake**<br>*Salvadora hexalepis virgultea* | ARADB30033 | None | None | G5T4 | S2S3 | SSC |
| **Davidson's saltscale**<br>*Atriplex serenana var. davidsonii* | PDCHE041T1 | None | None | G5T1 | S1 | 1B.2 |
| **dune larkspur**<br>*Delphinium parryi ssp. blochmaniae* | PDRAN0B1B1 | None | None | G4T2 | S2 | 1B.2 |
| **dwarf calycadenia**<br>*Calycadenia villosa* | PDAST1P0B0 | None | None | G3 | S3 | 1B.1 |
| **Eastwood's brittle-leaf manzanita**<br>*Arctostaphylos crustacea ssp. eastwoodiana* | PDERI041H4 | None | None | G4T2? | S2? | 1B.1 |
| **Gambel's water cress**<br>*Nasturtium gambelii* | PDBRA270V0 | Endangered | Threatened | G1 | S1 | 1B.1 |
| **Gaviota tarplant**<br>*Deinandra increscens ssp. villosa* | PDAST4R0U3 | Endangered | Endangered | G4G5T2 | S2 | 1B.1 |

| Species | Element Code | Federal Status | State Status | Global Rank | State Rank | Rare Plant Rank/CDFW SSC or FP |
|---|---|---|---|---|---|---|
| **hoary bat**<br>*Lasiurus cinereus* | AMACC05030 | None | None | G5 | S4? | |
| **Hoover's bent grass**<br>*Agrostis hooveri* | PMPOA040M0 | None | None | G2 | S2 | 1B.2 |
| **La Graciosa thistle**<br>*Cirsium scariosum var. loncholepis* | PDAST2E1N0 | Endangered | Threatened | G5T1 | S1 | 1B.1 |
| **La Purisima manzanita**<br>*Arctostaphylos purissima* | PDERI041A0 | None | None | G2? | S2? | 1B.1 |
| **least Bell's vireo**<br>*Vireo bellii pusillus* | ABPBW01114 | Endangered | Endangered | G5T2 | S2 | |
| **Lompoc grasshopper**<br>*Trimerotropis occulens* | IIORT36310 | None | None | G1G2 | S1S2 | |
| **Lompoc yerba santa**<br>*Eriodictyon capitatum* | PDHYD04040 | Endangered | Rare | G2 | S2 | 1B.2 |
| **mesa horkelia**<br>*Horkelia cuneata var. puberula* | PDROS0W045 | None | None | G4T1 | S1 | 1B.1 |
| **Miles' milk-vetch**<br>*Astragalus didymocarpus var. milesianus* | PDFAB0F2X3 | None | None | G5T2 | S2 | 1B.2 |
| **monarch butterfly**<br>*Danaus plexippus* | IILEPP2010 | None | None | G5 | S3 | |
| **pale-yellow layia**<br>*Layia heterotricha* | PDAST5N070 | None | None | G2 | S2 | 1B.1 |
| **pallid bat**<br>*Antrozous pallidus* | AMACC10010 | None | None | G5 | S3 | SSC |
| **Robinson's pepper-grass**<br>*Lepidium virginicum var. robinsonii* | PDBRA1M114 | None | None | G5T3 | S3 | 4.3 |
| **San Diego desert woodrat**<br>*Neotoma lepida intermedia* | AMAFF08041 | None | None | G5T3? | S3? | SSC |
| **sand mesa manzanita**<br>*Arctostaphylos rudis* | PDERI041E0 | None | None | G2 | S2 | 1B.2 |
| **Santa Barbara honeysuckle**<br>*Lonicera subspicata var. subspicata* | PDCPR030R3 | None | None | G5T2 | S2 | 1B.2 |
| **Santa Ynez groundstar**<br>*Ancistrocarphus keilii* | PDASTD5020 | None | None | G1 | S1 | 1B.1 |
| **seaside bird's-beak**<br>*Cordylanthus rigidus ssp. littoralis* | PDSCR0J0P2 | None | Endangered | G5T2 | S2 | 1B.1 |
| **silvery legless lizard**<br>*Anniella pulchra pulchra* | ARACC01012 | None | None | G3G4T3T4Q | S3 | SSC |
| **Southern California Steelhead Stream**<br>*Southern California Steelhead Stream* | CARE2310CA | None | None | GNR | SNR | |
| **Southern California Threespine Stickleback Stream**<br>*Southern California Threespine Stickleback Stream* | CARE2320CA | None | None | GNR | SNR | |

| Species | Element Code | Federal Status | State Status | Global Rank | State Rank | Rare Plant Rank/CDFW SSC or FP |
|---|---|---|---|---|---|---|
| **Southern Cottonwood Willow Riparian Forest**<br>*Southern Cottonwood Willow Riparian Forest* | CTT61330CA | None | None | G3 | S3.2 | |
| **southern curly-leaved monardella**<br>*Monardella sinuata ssp. sinuata* | PDLAM18161 | None | None | G3T2 | S2 | 1B.2 |
| **southern steelhead - southern California DPS**<br>*Oncorhynchus mykiss irideus* | AFCHA0209J | Endangered | None | G5T2Q | S2 | SSC |
| **Southern Vernal Pool**<br>*Southern Vernal Pool* | CTT44300CA | None | None | GNR | SNR | |
| **Southern Willow Scrub**<br>*Southern Willow Scrub* | CTT63320CA | None | None | G3 | S2.1 | |
| **straight-awned spineflower**<br>*Chorizanthe rectispina* | PDPGN040N0 | None | None | G1 | S1 | 1B.3 |
| **Townsend's big-eared bat**<br>*Corynorhinus townsendii* | AMACC08010 | None | Candidate Threatened | G3G4 | S2S3 | SSC |
| **tricolored blackbird**<br>*Agelaius tricolor* | ABPBXB0020 | None | None | G2G3 | S1S2 | SSC |
| **umbrella larkspur**<br>*Delphinium umbraculorum* | PDRAN0B1W0 | None | None | G3 | S3 | 1B.3 |
| **unarmored threespine stickleback**<br>*Gasterosteus aculeatus williamsoni* | AFCPA03011 | Endangered | Endangered | G5T1 | S1 | FP |
| **Vandenberg monkeyflower**<br>*Mimulus fremontii var. vandenbergensis* | PDSCR1B381 | Proposed Endangered | None | G3G5T1 | S1 | 1B.1 |
| **western pond turtle**<br>*Emys marmorata* | ARAAD02030 | None | None | G3G4 | S3 | SSC |
| **western red bat**<br>*Lasiurus blossevillii* | AMACC05060 | None | None | G5 | S3? | SSC |
| **western spadefoot**<br>*Spea hammondii* | AAABF02020 | None | None | G3 | S3 | SSC |
| **yellow warbler**<br>*Setophaga petechia* | ABPBX03010 | None | None | G5 | S3S4 | SSC |
| **Yuma myotis**<br>*Myotis yumanensis* | AMACC01020 | None | None | G5 | S4? | |

**Record Count: 56**

# APPENDIX C

## CALIFORNIA RED-LEGGED FROG HABITAT ASSESSMENT (PADRE, 2013)

# CALIFORNIA RED-LEGGED FROG HABITAT ASSESSMENT FOR THE AERA ENERGY LLC CAT CANYON PROPERTY SANTA BARBARA COUNTY, CALIFORNIA

**Prepared for:**

Aera Energy LLC
3030 Saturn Street Suite 101
Brea, CA 92821

**Prepared by:**

Padre Associates, Inc.
369 Pacific Street
San Luis Obispo, California 93401

**September 2013**

**Project No. 1002-0455**

# Authenticity and Signature Page

**Padre Associates, Inc.**
**369 Pacific Street**
**San Luis Obispo, California 93401**

Padre Associates, Inc. hereby certifies that all statements furnished in the following California Red-Legged Frog Habitat Assessment and all supporting information required for this evaluation are true and correct to the best of our knowledge and belief. Further, we certify that all field surveys associated with this report were performed by Padre using standards accepted by Santa Barbara County and U.S. Fish and Wildlife Service, and accurately represent all information retained from field visits to the Aera Energy LLC East Cat Canyon Property located in northern Santa Barbara County, California.

**Eric Snelling**
Senior Project Manager

**Thea Benson**
Senior Biologist

PAGE INTENTIONALLY BLANK

## TABLE OF CONTENTS

**1.0 INTRODUCTION ..... 1**
**2.0 SETTING ..... 2**
**3.0 CALIFORNIA RED-LEGGED FROG LIFE HISTORY ..... 4**
**4.0 METHODOLOGY ..... 7**
4.1 LITERATURE AND DATABASE REVIEW ..... 7
4.2 FIELD VISITS ..... 8
**5.0 RESULTS ..... 9**
5.1 CRLF CRITICAL HABITAT ..... 9
5.2 OCCURRENCES OF CRLF WITHIN FIVE MILES OF THE AERA PROPERTY ..... 9
5.3 AQUATIC FEATURES WITHIN ONE MILE OF THE AERA PROPERTY ..... 10
**6.0 SUMMARY ..... 15**
**7.0 REFERENCES ..... 17**

## TABLES

1 CRLF Documented Occurrences within Five-Miles of the Aera Property
2 Aquatic Features within One Mile of the Aera Property
3 Summary of Potential Suitable CRLF Habitat within the Aera Property

## FIGURES

1 Project Location
2 CRLF Documented Occurrences and USFWS Designated Critical Habitat
3 Potential Aquatic Habitat for CRLF within One Mile from the Aera Property

## APPENDICES

A CRLF Habitat Site Assessment Data Sheets
B Site Photographs

PAGE INTENTIONALLY BLANK

# 1.0 INTRODUCTION

This Habitat Assessment has been prepared on behalf of Aera Energy LLC (Aera) to identify and analyze potential suitable habitat for the federally threatened California red-legged frog (*Rana draytonii*) (CRLF) within the East Cat Canyon Property (Aera Property) located within northern Santa Barbara County, California. Refer to Figure 1 – Project Location. Padre Associates, Inc. (Padre) has provided this assessment for Aera to assist in evaluation, planning, and design for potential oil field redevelopment activities. This assessment will also be used to obtain guidance from the U.S. Fish and Wildlife Service (USFWS) on the possible need for additional (protocol-level) surveys to further determine the presence/absence of CRLF on the Aera Property. This Assessment follows the *USFWS Revised Guidance on Site Assessments and Field Surveys for the California Red-Legged Frog (*USFWS, 2005*)*, herein referred to as *USFWS Revised Guidance*. Information on the methodologies and findings of a desktop review and field surveys are detailed in this assessment, including an account of reported occurrences of CRLF and available suitable habitat within the surrounding region of the Aera Property limits.

PAGE INTENTIONALLY BLANK

## 2.0 SETTING

The Aera Property is located within the Solomon Hills and the Gato Ridge mountain ranges in East Cat Canyon, approximately nine miles southeast of the City of Santa Maria, Santa Barbara County, California. The regional topography is generally comprised of steeply to moderately incised canyons and ephemeral drainages within the majority of the Aera Property. Small flat grassland valleys occur between regional mountain ranges in the outer-most property limits and surrounding area, and are primarily used for crop agriculture (including vineyards), open rangeland, and oil operations. Much of the Aera Property consists of dense scrub and woodland habitats interposed with small patchy grassland openings. Integrated within the scrub and woodland habitats, are signs of previous disturbance by decades of past oil production activities, including abandoned well pads and a network of dirt and asphalt roads that transect the entire property. Some areas, however, mostly in steep terrain, have been left undisturbed. As a result, several ephemeral drainages have been preserved throughout the Area Property that consist of loose, dry, and sandy alluvial fans near their bases.

The Aera Property consists of two significant low-lying drainages: Long Canyon to the east and Cat Canyon to the west. There is evidence that Long Canyon may flow ephemerally during periods of heavy and consistent rainfall, but does not hold water for long durations or support riparian vegetation. The valley of this canyon consists of grassland swales, confined drainages bordered by dense scrub vegetation, and irrigation ditches that divert agriculture irrigation water to the Sisquoc River. The Cat Canyon valley drains into Cat Canyon Creek, which transects a small portion of the southern boundary of the Aera Property and continues to flow north through oil fields, rangeland, crop lands, and residential areas, eventually discharging into the Sisquoc River. The Cat Canyon Creek is a sandy bottom ephemeral drainage that flows only following heavy rainfall. Some drainages along the western facing slopes of the Aera Property drain into Cat Canyon Creek. These tributaries are severely eroded and introduce large amounts of sandy sediments. Cat Canyon Creek supports riparian habitat along portions of the channel, specifically within the upper reaches of the creek, including reaches within the Aera Property.

The Sisquoc River and associated floodplain is located approximately one mile to the north of the Aera Property. This river is subject to moderate to heavy seasonal flows and provides suitable habitat for a variety of wildlife, including several special-status plants and wildlife. The Sisquoc River is a much wider drainage, fed by multiple drainages throughout the region, and provides a significant nexus to the Pacific Ocean.

PAGE INTENTIONALLY BLANK

## 3.0 CALIFORNIA RED-LEGGED FROG LIFE HISTORY

The CRLF is federally listed as threatened under the Federal Endangered Species Act (FESA), administered by the USFWS, and is a California Species of Special Concern under the California Endangered Species Act (CESA), administered by the California Department of Fish and Wildlife (CDFW). Historically, this species occupied numerous foothill and coastal watersheds west of the Sierra-Cascade Mountains at elevations below 4,900 feet (Jennings and Hayes, 1986; USFWS, 1996). The eastern range limit of this species was Shasta County to Tulare County and spanned the Great Central Valley from Mendocino County south to Baja California (Fellers, 2005). By the early 1990s, this species had been extirpated from approximately 70 percent of its historical range (Jennings, 1988; Jennings and Hayes, 1994).

The CRLF range is now restricted to the far western coastline and in isolated localities in the Sierra Nevada, northern Central Coast ranges, and northern Transverse ranges. Currently, the largest extent of occupied habitat occurs in Monterey, San Luis Obispo, and Santa Barbara counties (USFWS, 2007). Thus, the Aera Property is within the current and historic range of the species. USFWS designated Critical Habitat for CRLF in 2006 (revised in March of 2010), which includes designated areas occupied by CRLF at the time of its listing and/or areas containing the physical and biological features essential to the conservation the species.

CRLF is generally found along marshes, streams, ponds, and other permanent sources of water where dense scrubby wetland/riparian vegetation, such as willows (*Salix* sp.), cattails (*Typha* sp.), and bulrushes (*Schoenoplectus* sp.), dominate. However, CRLF may also utilize agricultural ponds, specifically in the Santa Maria Valley region, that may have poor water quality and may not provide typical emergent vegetation, or breeding habitat essentials. Essential breeding habitat requires pools that remain inundated for a minimum of 20 weeks in all but the driest year. This 20 week hydroperiod is necessary for CRLF egg, larval, and tadpole development. Wetland areas with a hydroperiod of less than 20 weeks will not support breeding, but may provide important areas for shelter, foraging, predator avoidance, and dispersal opportunities for juvenile and adult CRLFs. A pond that may not provide for successful breeding for CRLF in the driest years, may provide suitable habitat in years that provide more rainfall.

The breeding season occurs for brief periods between November and April depending on local conditions (Stebbins, 1985; USFWS, 1997). During this time, the adults engage in complex courtship behavior resulting in females laying between 2,000 and 6,000 eggs in a loose mass attached to emergent vegetation in the shallows of the body of water (USFWS, 1997). Cook (2002) reported strong site fidelity for egg-laying in CRLF. He also most frequently observed egg masses attached to spikerush (*Eleocharis* sp.), smartweed (*Polygonum* sp.), and cattails, but none on bulrushes presumably due to smooth stem surfaces that inhibit attachment.

Each egg measures 2 to 3 mm in diameter and is enclosed in a gelatinous envelope attached to vegetation, which helps keep the mass afloat, rather than sinking into the mud or silt (Storer, 1925; USFWS, 1997). Eggs are generally laid in the warmest section of the waterbody and, depending on temperature, the eggs hatch within six to 15 days into small, delicate tadpoles. The tadpoles metamorphose into juvenile frogs after five to seven months (USFWS, 1997b), and in rare circumstances some tadpoles will overwinter to the next year. Young CRLF tend to stay in the shallows of breeding waters, but may also occur in slow moving, shallow riffles

of creeks (USFWS, 1997b). After metamorphosis, froglets disperse from natal ponds to escape predation by adults. Juveniles typically disperse in a radial fashion. Older CRLFs may be found around ponds or deep pools during summer taking shelter amid emergent vegetation, semi-submerged rootballs, or in undercut banks (USFWS, 1997). Some adults will stay at breeding ponds all year, while others will disperse to summer retreats. Adults that disperse to summer habitat return to breeding ponds at the first rains. Bulger (1999) noted that only between 10 and 20 percent of adult frogs at a given pond will disperse, and most adults spend the vast majority of their time within 200 feet of a pond.

Upland habitat, consisting of predominately open grasslands, occurs adjacent to or surrounding breeding and non-breeding aquatic habitat. CRLFs will use small mammal burrows and moist leaf litter in the upland habitats to retreat during summer months when wetland habitat is unavailable or when dispersing among aquatic sites to increase genetic variability, minimize overcrowding, and scout for additional habitat that may remain wet for longer periods of time (Jennings and Hayes, 1994). Dispersal habitat is also an important habitat component for CRLF between upland and aquatic sites. CRLF can travel up to one mile over the course of a wet season, typically in a straight line across the landscape without apparent regard to vegetation type or topography, and not dependent on stream corridors or contiguous strips of wetland habitat (N. Scott and G. Rathbun, 1998; and Bulger, et al., 2003). Stream corridors, however, typically provide areas of pooled water that can be occupied during dispersal periods and may provide essential breeding and non-breeding habitat. CRLF dispersal distances and numbers of individual CRLF movements vary year to year due to environmental conditions. During extremely dry periods, local populations can be extirpated (Fellers and Kleeman, 2007).

Threats to this species include: overexploitation from hunting as a food supply that occurred in the late-1800s (Jennings and Hayes, 1985); habitat loss and fragmentation (Jennings, 1988); the introduction of bullfrogs (*Lithobates catesbeiana*) (Moyle, 1973; Hayes and Jennings, 1986) that are both predatory and compete for food sources and habitat; forestry, agricultural, and grazing activities (USFWS, 1996; USFWS, 2002); alien predatory fish (Hayes and Jennings, 1986; Fisher and Shaffer, 1996; USFWS, 1996; USFWS, 2002; Gilliland, 2010);and potentially chytridiomycosis (chytrid fungus) (Padgett-Flohr, 2008).

# 4.0 METHODOLOGY

This assessment included a research (literature and database review) component and a survey (field visit) component.

## 4.1 Literature and Database Review

A literature and database review was initially conducted to determine current and historical range of CRLF, compiling recorded occurrences of CRLF within five miles of the Aera Property, and identifying potential suitable habitat within a one mile radius of the Aera Property boundaries. This review consisted of a query of the CDFW California Natural Diversity Database (CNDDB) for sighting records, a review of previous biological survey reports conducted within the area, interviews with resource professionals having knowledge of CRLF distribution within the vicinity of the Aera Property, and a review of aerial imagery. The following reports were included in this review:

- *Initial Field Assessment for California Tiger Salamander for the Aera East Cat Canyon Oil and Gas Field*. January 22, 2007. Prepared by Mr. Vince Semonsen of VJS Biological Consulting.
- *Habitat Assessment for California Tiger Salamander for the Aera Two-dimensional Seismic Survey Test Plan*. September 8, 2011. Prepared by Storrer Environmental.
- *Biological Resources Report for the Aera Energy, LLC. Two-Dimensional Seismic Survey Project*. May 2011a. Prepared by Padre Associates, Inc.
- *Biological Resources Survey Report for the Aera Exploratory Drilling Project, East Cat Canyon Oil Field*. May 2011b. Prepared by Padre Associates, Inc.
- *ERG Operating Company, LLC., Los Alamos Fee "Pond E" California Red-Legged Frog (Rana draytonii) Survey Results.* July 30, 2011. Letter to ERG Operating Company, LLC. Prepared by Sage Institute, Inc.
- *California Tiger Salamanders (Ambystoma californiense) and Other Special-Status Amphibians at Five Wetlands on the ERG West Cat Canyon Lease in Northern Santa Barbara County, California.* June 14, 2012. Prepared by Paul W. Collins, Peter Gaede, and Vince Semonsen.
- CDFW California Natural Diversity Database (Rarefind 4). February 2013. Quadrangle: Sisquoc.

All documented occurrences of CRLF within five miles from the Aera Property boundaries, as well as all critical habitat areas designated by the USFWS within the region, are depicted in Figure 2 – CRLF Documented Occurrences and USFWS Designated Critical Habitat.

Aerial imagery of the Aera Property and vicinity were examined to identify potential CRLF aquatic habitats. Potential aquatic habitats, including natural and man-made ponds, creeks, and other wetland features, were mapped within a one-mile radius of the Aera Property. These data, along with topography contours, aquatic resources documented with the National Wetland Inventory (NWI), and USFWS GIS shapefiles for California tiger salamander (CTS) ponds (last

updated in July 2010),[1] were compiled into a Geographical Information System (GIS) for analysis. The resulting aquatic features are illustrated in Figure 3 - Potential Suitable Habitat Areas for CRLF within One Mile from the Aera Property.

### 4.2 Field Visits

Ms. Thea Benson (Padre Project Biologist) and Ms. Sarah Powell (Padre Project Biologist) completed the January 15 and 16 field visits five days following a rain event and documented all pooled water features within the Aera Property using a Trimble GPS unit. These pools were re-visited on February 13, 2013 by Ms. Benson and Mr. Brian Dugas (Terra Verde Principal Biologist). Information on the pooled areas that retained water during February 13 is provided in the USFWS Habitat Assessment Data Forms included in Appendix A and depicted as WPP-3, WPP-5, and WPP-7 (Padre, 2013) in Figure 3. Both a daytime survey and a nighttime eyeshine survey were performed on February 13. The night weather was cool, no wind, and the moon was a waxing crescent. Only the aquatic features within the Aera Property, not including potential aquatic features within one-mile of the Property, were evaluated in the field due to access restrictions in adjacent properties. Site photographs were taken on each field visit and are provided in Appendix B.

[1] The USFWS CTS pond data were released by the USFWS for purposes of planning and do not constitute a comprehensive list of all the ponds that have the potential to be CTS breeding ponds in Santa Barbara County; however, the information in the shapefiles has provided information on nearby aquatic habitats.

# 5.0 RESULTS

## 5.1 CRLF Critical Habitat

Critical habitat for the CRLF does not occur within the Aera Property. The nearest locations are: STB-1 approximately 7.4 miles to the northeast; STB-3 approximately 13.2 miles to the east; and, STB-2 approximately 9.0 miles to the west (Figure 2).

## 5.2 Occurrences of CRLF within Five Miles of the Aera Property

The *USFWS Revised Guidance* advises that reported localities of CRLF within five-miles from the perimeter of the Project Site be identified. The CNDDB database query resulted in the identification of seven documented occurrences of CRLF within the five-mile from the Aera Property boundaries (refer to Figure 2). These occurrences are primarily located within pools/ponds along the Sisquoc River to the north of the Aera Property. No CRLFs have been documented within the Aera Property. In addition to CNDDB references, CRLF has also been documented within a five mile radius from the property by Sage Institute, Inc. (2011) in a small stock pond (pond “E”) south of the Aera Property during a CRLF eye-shine survey in June of 2011. Sage Institute also documented western spadefoot (*Spea hammondii*) at this pond in 2011. Table 1 below provides a comprehensive list of CRLF occurrences within five-mile from the Aera Property and describes their location and habitat type.

**Table 1. CRLF Documented Occurrences within Five Miles from the Aera Property Boundaries**

| CNDDB Occurrence No./Aquatic Feature Name | Location | Habitat Type |
|---|---|---|
| 1030 | Accuracy of CNDDB occurrence is 260 feet; therefore, CNDDB has mapped a square occurrence range overlapping the Aera Property; however, the CNDDB states that this location is to the north of the Aera Property in a residential backyard pond within five miles from the northern perimeter of the Aera Property. | Residential backyard pond |
| 359 | Approximately three miles to the north of Aera Property | Sisquoc River |
| 357 | Approximately two miles to the north of Aera Property | Seasonally ponded, abandoned gravel pit located immediately adjacent to the Sisquoc River |
| 823 | Approximately two miles to the north of Aera Property | Sisquoc River |
| 356 | Approximately three miles to the northeast of Aera Property | Sisquoc River |
| 355 | Approximately five miles northeast of the Aera Property | Sisquoc River |
| E | Approximately 1.5 miles south of Aera Property | Man-made stock pond |

## 5.3 Aquatic Features within One Mile of the Aera Property

The *USFWS Revised Guidance* advises that potential CRLF habitat within a one-mile radius of the perimeter of the Project limits be identified. An analysis of aerial photographs identified aquatic features that hold water long enough to support CRLF. In addition, aquatic survey results reported by Collins et al., (2012) and Sage Institute (2011) also identified potential habitat within one-mile of the Aera Property boundaries. Aquatic features identified on aerial imagery, during field surveys, and in maps from surveys completed near the Property are provided in Table 2. Aquatic features identified in the Aera Property during field visits that may hold water for longer periods of time and/or supported egg masses (further discussed in the section below) were included in Table 2. These aquatic features do not necessarily provide suitable habitat for CRLF but provide aquatic resources that CRLF may use temporarily for dispersal.

Aquatic features that were observed during Padre field visits within the Aera Property are included in this discussion and potential suitable CRLF habitat is further summarized in Table 2, below.

**Table 2. Aquatic Features within One-Mile from the Aera Property Boundary**

| Feature Name | Location | Habitat Type |
|---|---|---|
| ***Drainages*** | | |
| Cat Canyon Creek | Along far southwestern boundary of Aera Property. Portions of the creek occur within the Property. | Ephemeral drainage consisting of sandy soils. Dry during January and February 2013 field visits by Padre. |
| Sisquoc River | Within one mile north of the Aera Property. | Intermittent drainage consisting of sandy soils. |
| ***Pools Observed January 15 and 16, 2013 within Aera Property*** | | |
| WPP-3 | Padre identified aquatic pool: located within Aera Property | Pool within a previously used reuse mixing site, lined with visqueen plastic. 0.219 acre at 60-90 cm depth during January 2013 field survey. Water still present during February 2013 field survey. Treefrog egg masses observed in pool. |
| WPP-5 | Padre identified aquatic pool: located within Aera Property | Well pad catchment pool. 0.114 acre at 60-90 cm depth during January 2013 field survey. Water still present during February 2013 field survey. Treefrog egg masses observed in pool. |
| WPP-7 | Padre identified aquatic pool: located within Aera Property | Well pad pool. 0.038 acre at 15 cm depth during January 2013 field survey. Dry during 2013 field survey. Treefrog egg masses observed in pool. |
| C | USFWS Identified Potential Breeding Pond: ERG Property, 1.5 miles northwest from Aera Property | Well pad pool. Collins (2012) aquatic surveys resulted in no CRLF. |
| ***Man-made Ponds*** | | |
| SISQ-19 | Private Property, less than 0.5 mile from Aera Property | USFWS Identified Potential Breeding Pond for CTS. Man-made cattle stock pond |
| SISQ-20 | Within eastern portion of Aera Property | USFWS Identified Potential Breeding Pond for CTS. Man-made pond. |
| B | ERG Property, 1.4 miles west from Aera Property | USFWS Identified Potential Breeding Pond. Man-made pond. Erosion control basin. |

| Feature Name | Location | Habitat Type |
|---|---|---|
| D | ERG Property, 1.1 miles northwest from Aera Property | USFWS Identified Potential Breeding Pond. Man-made pond. |

***Drainages.*** The drainages identified within the Aera Property during field surveys are ephemeral and consist of sandy bottoms and only small patches of riparian cover, primarily willows. No standing water was observed in any of these drainages, including Cat Canyon Creek, which flows through portions of the extreme southern limits of the Aera Property. The Cat Canyon Creek is primarily vegetated with oak woodland and coyote brush scrub, however, patchy areas of willow-dominated riparian habitat do occur along the banks. The portion of the Cat Canyon Creek occurring within the Aera Property is identified in Figure 3. Refer to Photographs 12, 13, and 14 in Appendix B and Appendix A for Aquatic Data Sheets.

The Sisquoc River occurs within a one mile radius to the north of the Aera Property. Similar to Cat Canyon Creek, the Sisquoc River also consists of sandy, loose soils. It has a wide floodplain that is utilized by crop agriculture and sand mining activities. CRLF in the region may be attracted by areas where water pools for longer durations and/or supports wetland vegetation.

**Pools.** There are many small ephemeral pools, between 0.002 and 0.219 acre, that remain ponded briefly (less than 60 days) following heavy rain events in areas previously graded for well pads. Two pools within the Aera Property, specifically, appeared to be large enough to potentially hold water for sufficient durations to support CRLF lifecycles; however, no emergent vegetation was present, and surrounding upland habitat was densely vegetated with oak woodland and scrub habitat. Refer to Photograph 1 in Appendix B for a representative photograph of the scrub and woodland habitat in the Aera Property. These pools are depicted as WPP-3 and WPP-5 in Figure 3.

WPP-3 is a reuse mixing site previously used as part of past oil operations. It is fenced to exclude cattle and lined with a heavy plastic. Sierran treefrog (*Pseudacris sierra*) (formerly Pacific treefrog [*P. regilla*]) were observed in this pool during the January and February 2013 field visits by Padre. Refer to Photographs 4, 5, and 6 in Appendix B and Appendix A for Aquatic Data Sheets. Due to the presence of dense oak woodland and scrub habitat surrounding this pond and lack of emergent vegetation within this pool, suitable CRLF habitat is minimal to none and CRLF are not likely to occur in this pool.

WPP-5 was a similar sized pool located directly down a steep hillside from WPP-3 in a large graded area, likely used as a well pad and/or stockpile area. WPP-5 is not lined with plastic and allows for some small grassy vegetative growth along the water's edge that was too immature to identify during field surveys. This pool was not fenced and cattle have access to this pool. Treefrog and California toad (*Anaxyrus boreas halophilus*) tadpoles were observed in this pool during the January and February 2013 field visits by Padre. Refer to Photographs 7, 8, and 9 in Appendix B. Due to the presence of dense oak woodland and scrub habitat surrounding this pond and lack of emergent vegetation within this pool, suitable CRLF habitat is minimal to none and CRLF are not likely to occur in this pool.

WPP-7 is an ephemeral well pad pool within the Aera Property. This pool had some grassy bottom vegetation that was too immature to identify during field surveys and contained treefrog and California toad tadpoles. Vegetation surrounding this pool also consists of dense oak woodland and scrub habitat. Cattle have access to this pool. Refer to Photographs 10 and 11 in Appendix B. Due to the presence of dense oak woodland and scrub habitat surrounding this pond and lack of emergent vegetation within this pool, suitable CRLF habitat is minimal to none and CRLF are not likely to occur in this pool.

The remainder of the well pad pools and other small pools located within the Aera Property occurred in the flat area of abandoned well pads and only retained water ephemerally immediately after rainfall events. These pools had dramatically decreased in size, with most of the ponds becoming dry between the January and February field visits. None of the pools contained emergent vegetation and surrounding vegetation consists of dense oak woodland and scrub habitat. Aquatic data sheets were not completed for these areas due to ephemeral hydroperiods not suitable for CRLF. Refer to Photograph 3 in Appendix B. Due to the presence of dense oak woodland and scrub habitat surrounding this pond and lack of emergent vegetation within this pool, suitable CRLF habitat is minimal to none and CRLF are not likely to occur in this pool.

Pool C is also a well pad aquatic feature occurring within the ERG Property to the west of the Aera Property. Aquatic surveys were completed by Collins et al. (2012) in April and May of 2012. No CRLF were observed; however, western spadefoot toads were documented in this pool. Since the scope of this field study was limited to Aera Property, Padre did not conduct site visits to this pool and thus, no aquatic data sheets or photographs of this pool are provided in this document. Surrounding habitat consists of open grassland habitat bounded by oak woodland and scrub habitat, thus, may provide suitable upland habitat for CRLF.

***Man-Made Ponds.*** Unlike the well pad pools, these ponds are not part of previous oil operations, but were created primarily for livestock. Only one man-made pond (SISQ-20, also known as Olivera Canyon Pond) was inspected during January field visits. The feature was dry and consisted only of dried cocklebur (*Xanthium strumarium*). This pond is accessible to cattle. Aquatic data sheets were completed at this location due to potential ponding in this depression during heavy rain years. Please refer to Photograph 2 in Appendix B and Appendix A for aquatic data sheets. This pond is surrounded by dense scrub habitat and not suitable upland habitat for CRLF. The pond may provide suitable aquatic habitat for CRLF when inundated; however, this pool may not hold water for long enough periods to support breeding activities.

There were three other man-made ponded features occurring within one mile outside the Aera Property limits (SISQ-19 and ponds B and D). These ponds were not inspected by Padre due to the scope of this study being limited to the Aera property, and the potential difficulties in accessing some private properties. SISQ-19 (also known as Long Canyon Pond) was visited by Storrer (2011) in July of 2011 and contained sufficient water to suggest that it holds water for an extended period of time. The pond supported sparse patches of spikerush. In the aerial imagery review, this pond is encompassed by some grassland habitat that may support CRLF during the non-breeding/dry season. Due to possible upland and aquatic habitat that may support CRLF lifecycles, CRLF may occur at this location.

Similarly, ponds B and D are pools that hold water for longer durations and thus may provide suitable habitat for CRLF. These ponds were not inspected by Padre during field visits due to onsite scope limitations. Collins et al. (2012) conducted CTS surveys in these ponds in April and May of 2012 for the adjacent ERG property to the west. These surveys reported no CRLF; however, western spadefoot were documented in Pond B and Pond D which provides evidence that these pools may support suitable aquatic habitat for CRLF. These pools are also encompassed by grassland habitat that may also provide suitable upland habitat for CRLF.

**Table 3. Summary of Potential Suitable CRLF Habitat within the Aera Property**

| Feature Name | CRLF Aquatic Breeding Habitat | CRLF Upland Habitat |
|---|---|---|
| ***Drainages*** | | |
| Cat Canyon Creek | Creek is ephemeral and does not support pooled water for long enough duration to support CRLF aquatic breeding. | Sandy soils consisting of scrub and riparian habitat that does not provide suitable upland habitat for CRLF. |
| ***Pools Observed January 15 and 16, 2013*** | | |
| WPP-3 | Pool may hold water for long enough to support breeding CRLF; however, no emergent vegetation present within pool. | Habitat surrounding pool consists of dense scrub and woodland habitat that does not provide suitable upland habitat for CRLF. |
| WPP-5 | Pool may hold water for long enough to support breeding CRLF; however, no emergent vegetation present within pool. | Habitat surrounding pool consists of dense scrub and woodland habitat that does not provide suitable upland habitat for CRLF. |
| WPP-7 | Pool is ephemeral and shallow, not likely to hold water for long enough duration to support breeding CRLF. | Habitat surrounding pool consists of dense scrub and woodland habitat that does not provide suitable upland habitat for CRLF. |
| ***Man-made Ponds*** | | |
| SISQ-20 | Pool is ephemeral and shallow, not likely to hold water for long enough duration to support breeding CRLF. | Habitat surrounding pool consists of dense scrub that does not provide suitable upland habitat for CRLF. |

## 6.0 SUMMARY

No CRLF (adults, tadpoles, or egg masses) were observed during field visits to the Aera Property. Amphibians observed during field surveys were limited to Sierra treefrog and California toad. Also, all aquatic features containing water during field visits were isolated pools where no bullfrogs, fishes, crayfish, or other CRLF predators were observed.

Review of the CNDDB and information obtained from the Sage Institute (2011) resulted in seven documented locations of CRLF within a five mile radius of the Aera Property boundaries). The nearest of these sightings(occurred two miles to the north/northeast of the Property boundaries within the Sisquoc River and approximately two miles to the south of the Property boundaries within the ERG property. These two occurrences of CRLF are documented in the lower elevations where grassland habitat is more abundant, and provides suitable upland habitat for CRLF during non-breeding periods.

Results of the field surveys and desktop review indicate that aquatic habitats within the Aera Property consist of primarily ephemeral well pad pools that pond water only for short durations following rain events. All but two of the pools identified during the January 2013 survey were dry during the follow-up February survey.

The two aquatic features within the Aera Property that may hold water for a sufficient duration to support CRLF are WPP-3 and WPP-5. These two features are surrounded by oak woodland and scrub habitats among steep hillsides do not provide essential upland habitat suitable to support CRLF; however, literature suggests that this terrain may not deter CRLF dispersal activities in effort to reach isolated pools. These pools, however, do not support emergent vegetation which is an essential component for CRLF breeding activities. An eye shine survey was completed in February (2013) at these two pool locations (the only pools that still retained water) and Sierran treefrog and California toad were the only amphibians observed.

One man-made pool located on the eastern portion of the Aera Property (SIQ-20) may provide aquatic habitat for CRLF during periods of inundation; however, this pool does not hold water long enough to support breeding activities for CRLF. Further, it does not support emergent vegetation and is surrounded by steep hillsides of oak woodland and scrub habitats, not suitable upland habitat for CRLF.

The Cat Canyon Creek flows through portions of the southern extent of the Aera Property. However, due to the ephemeral flows and sandy bottom, this creek does not support pooled water essential for CRLF breeding habitat.

During the desktop review, suitable aquatic resources occurring within one mile from the Aera Property boundary included man-made stock ponds: SISQ-19, pool B, pool C, and pool D. These ponds also consist of grassland habitat surrounding the ponds that may provide suitable upland habitat for CRLF.

Due to the presence of aquatic habitat within one mile of the Aera Property boundary and lack of information regarding presence/absence of CRLF at these locations, CRLF have some potential to utilize these habitats and then disperse during wet weather to other nearby aquatic habitats, including the WPP-3 and WPP-5 pools within the Aera Property. Suitable upland

grassland habitat occurs in patchy locations throughout the Aera Property and surrounding regions that may also provide suitable upland habitat for CRLF. The steep and densely vegetated terrain within the Aera Property may provide impediments for CRLF movement during wet weather dispersal periods, however, it is possible for CRLF to cross through rough terrain (Scott and Rathbun, 1998; Bulger et al., 2003; and Fellers and Kleeman, 2007).

## 7.0 REFERENCES

Adams M. J., C. A. Pearl, and R.B. Bury. 2003. *Indirect facilitation of an anuran invasion by non-native fishes.* Ecology Letters 6: 343-351.

Bulger, J. 1999. Terrestrial Activity and Conservation of California Red-legged Frogs (*Rana aurora draytonii*) in Forested Habitats of Santa Cruz County, California. Report prepared for the Land Trust of Santa Cruz.

Bulger, J. N. Scott, Jr. , and R. Seymour. 2003. Terrestrial activity and conservation of adult California red-legged frogs *Rana aurora draytonii* in coastal forests and grasslands. Biological Conservation 110:. 85-95.

California Natural Diversity Database (CNDDB). 2013. Rarefind 4 Query. Sisquoc Quadrangle. California Department of Fish and Wildlife. Sacramento, California

Collins, P., P. Gaede, and V. Semonsen. June. 14, 2012. California Tiger Salamanders (*Ambystoma californiense*) and Other Special-Status Amphibians at Five Wetlands on the ERG West Cat Canyon Lease in Northern Santa Barbara County, California.

Cook, D. 2002. Microhabitat Use and Reproductive Success of the California Red-legged Frog (*Rana aurora draytonii*) and Bullfrog (*Rana catesbeiana*) in an Ephemeral Marsh. In: *A California Red-Legged Frog Workshop*. Sacramento-Shasta Chapter of The Wildlife Society. April 8-10, 2002. Marshall, CA.

Fellers, G.M. 2005. *Rana draytonii*. Pgs: 552-554. In: M. Lannoo (Ed.). *Amphibian Declines Conservation Status of United States Species*. University of California Press, Berkeley, California.

Fellers, G. M. and P. M. Kleeman. 2007. California red-legged frog (*Rana draytonii*) movement and habitat use: Implications for conservation. Journal of Herpetology 41:276–286.

Gilliland, K. 2010. The presence of *Micropterus salmoides* (largemouth bass) influences the populations of *Rana draytonii* (California red-legged frog) and *Pseudacris regilla* (Pacific treefrog) in two ponds in Santa Barbara County, Ca, MSc. Thesis.

Hayes M. and M. Jennings. 1986. Decline of ranid frog species in western North America: are bullfrogs *(Rana catesbeiana)* responsible? Journal of Herpetology 20: 490-509.

Jennings, M. and M. Hayes. 1985. Pre-1900 overharvest of California red-legged frog (*Rana aurora draytonii*): the inducement for bullfrog (*Rana catesbeiana*) introduction. Herpetologica 41: 94-103.

Jennings, M. and M. Hayes. 1994. *Amphibian and Reptile Species of Special Concern in California*. California Department of Fish and Game, Inland Fisheries Division. Sacramento, California.

Kiesecker, J.M. and A.R. Blaustein. 1998. Effects of introduced bullfrogs and smallmouth bass on microhabitat use, growth, and survival of native red-legged frogs *(Rana aurora).* Conservation Biology 12(4): 776-787.

Kruse, K.C. and M.G. Francis. 1977. A predation deterrent in the larvae of the bullfrog *(Rana catesbeiana).* Transactions of the American Fisheries Society. 106: 248-252.

Padre Associates, Inc. May 2011a. Biological Resources Report for the Aera Energy, LLC. Two-Dimensional Seismic Survey Project.

Padre Associates, Inc. May 2011b. Biological Resources Survey Report for the Aera Exploratory Drilling Project, East Cat Canyon Oil Field.

Padgett-Flohr, G.E. 2008. Pathogenicity of *Batrachochytrium dendrobatidis* in two threatened California amphibians: *Rana draytonii* and *Ambystoma californiense*. Herpetological Conservation and Biology 3(2): 182-191.

Rathbun, G. and N. Scott. 2002. An Overview of the Biology and Ecology of the California Red-Legged Frog. In: *A California Red-Legged Frog Workshop*. Sacramento-Shasta Chapter of The Wildlife Society. April 8-10, 2002. Marshall, CA.

Rathbun, G.B., N.J. Scott, and T.G. Murphey. 1997. *Rana aurora draytonii* (California red-legged frog). Behavior. Herpetological Review 28: 85-86.

Sage Institute, Inc. July 30, 2011. Letter to ERG Operating Company, LLC. Los Alamos Fee "Pond E" California Red-Legged Frog (*Rana draytonii*) Survey Results.

Stebbins, Robert C. 2003. *A Field Guide to Western Reptiles and Amphibians, Third Edition.* Houghton Mifflin Company. New York.

Storer, T. 1925. A Synopsis of the Amphibia of California. University of California Publications In Zoology 27:1-342.

Storrer Environmental. September 8, 2011. *Habitat Assessment for California Tiger Salamander for the Aera Two-dimensional Seismic Survey Test Plan.*

U.S. Fish and Wildlife Service. 1996. Endangered and Threatened Wildlife and Plants; Determination of Threatened Status for the California Red-legged Frog. Portland, Oregon.

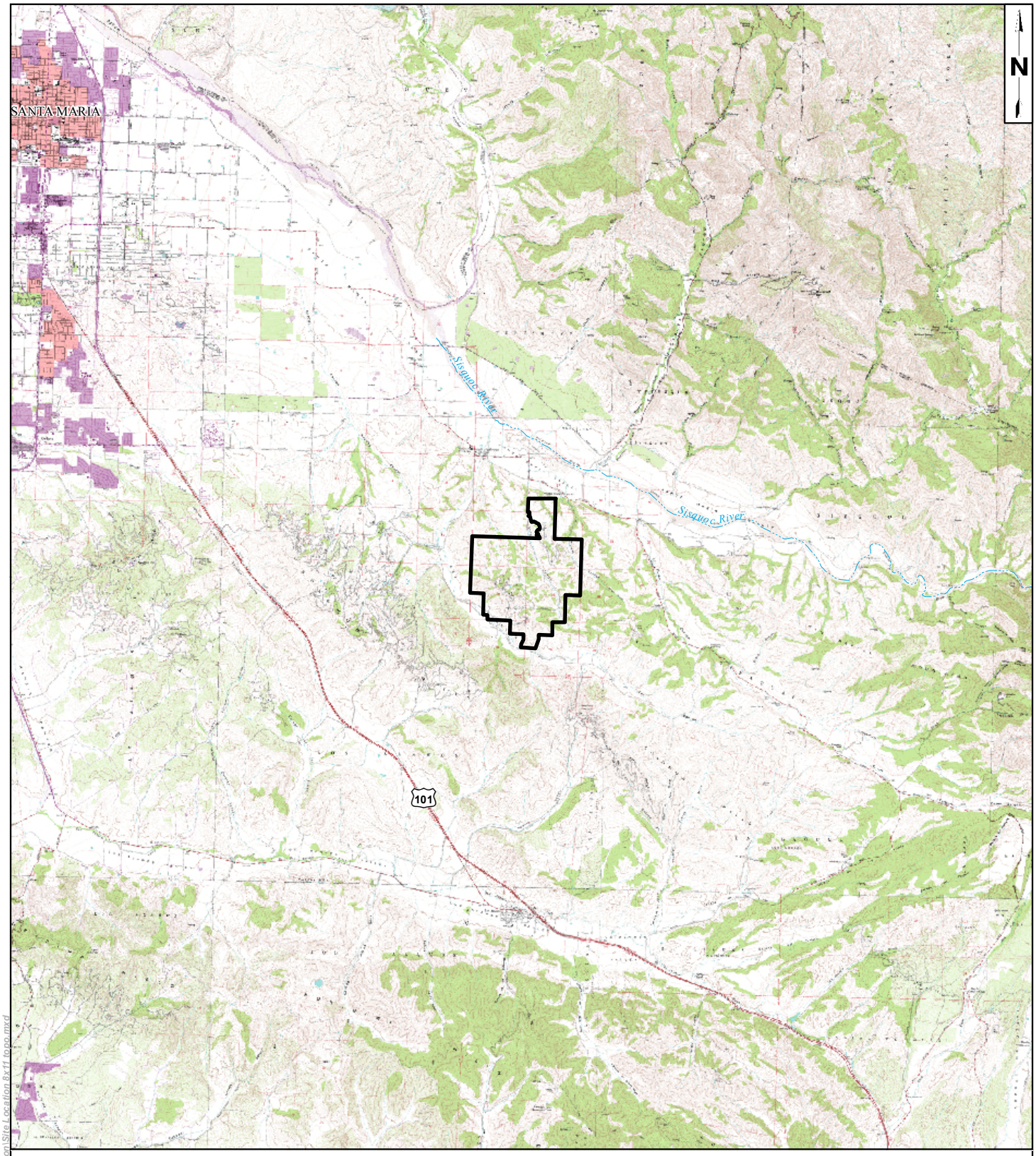
U.S. Fish and Wildlife Service. 1997. Guidance on Site Assessment and Field Surveys for California Red-Legged Frog. Sacramento, CA.

U.S. Fish and Wildlife Service. 2002. Recovery Plan for the California Red-legged Frog (Rana aurora draytonii). U.S. Fish and Wildlife Service, Portland, Oregon.

U.S. Fish and Wildlife Service. 2005. Revised guidance on site assessments and field surveys for the California red-legged frog. U.S. Fish and Wildlife Service, Portland, Oregon.

VJS Biological Consulting. January 22, 2007. Initial Field Assessment for California Tiger Salamander for the Aera East Cat Canyon Oil and Gas Field.

# FIGURES




LEGEND:

Project Site

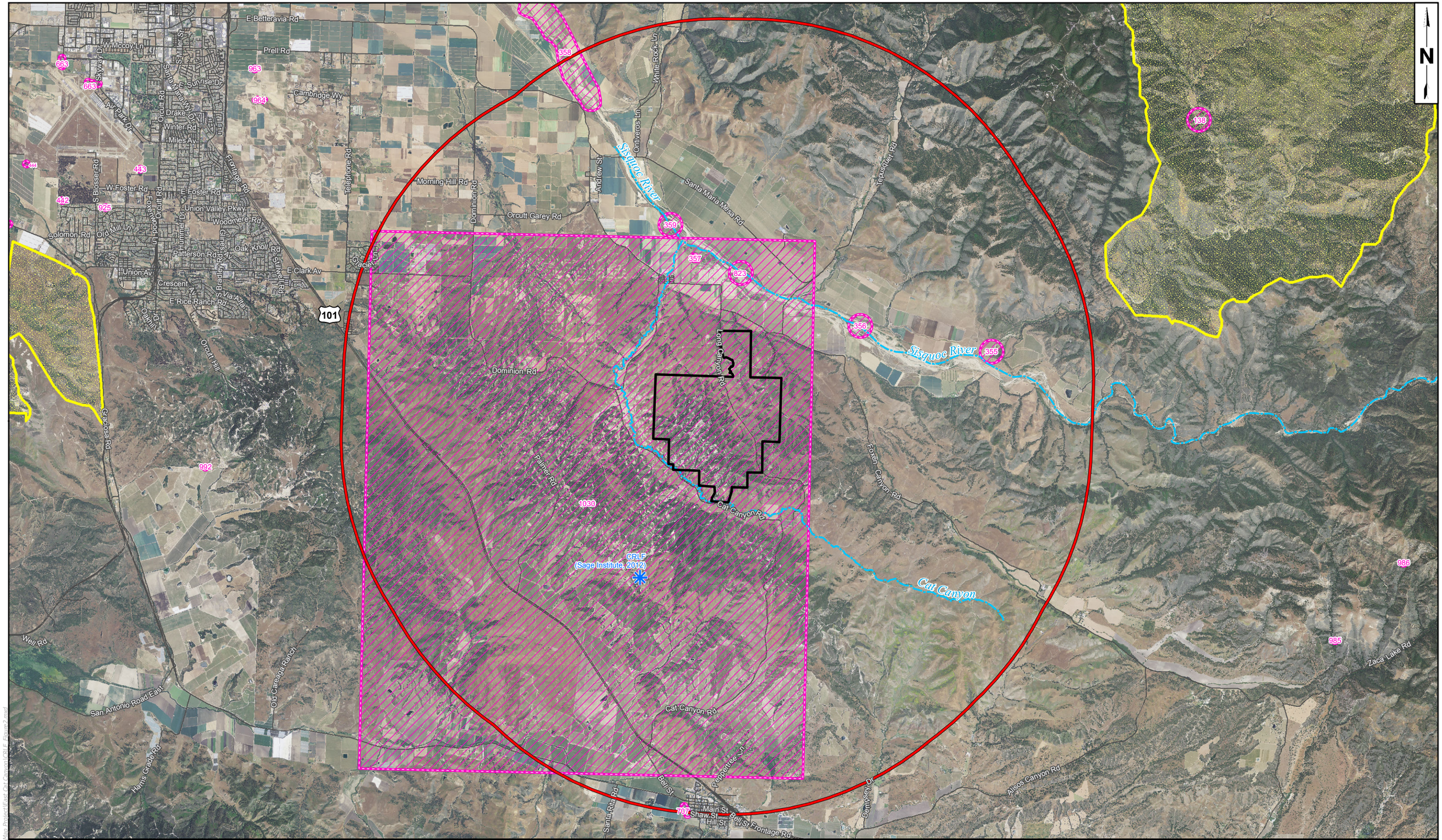
0 1.25 2.5
MILES

Source: USGS Topo Quad, Santa Barbara County, TIGER
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposed only

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: | | | FIGURE |
|---|---|---|---|
| EAST CAT CANYON<br>SANTA BARBARA COUNTY, CA | | PROJECT LOCATION | 1 |
| PROJECT NUMBER: 1002-0455 | DATE: June 2013 | | |

Z:\Kristin\GIS\Maps\Map Project\East Cat Canyon\Site Location 8x11 topo.mxd



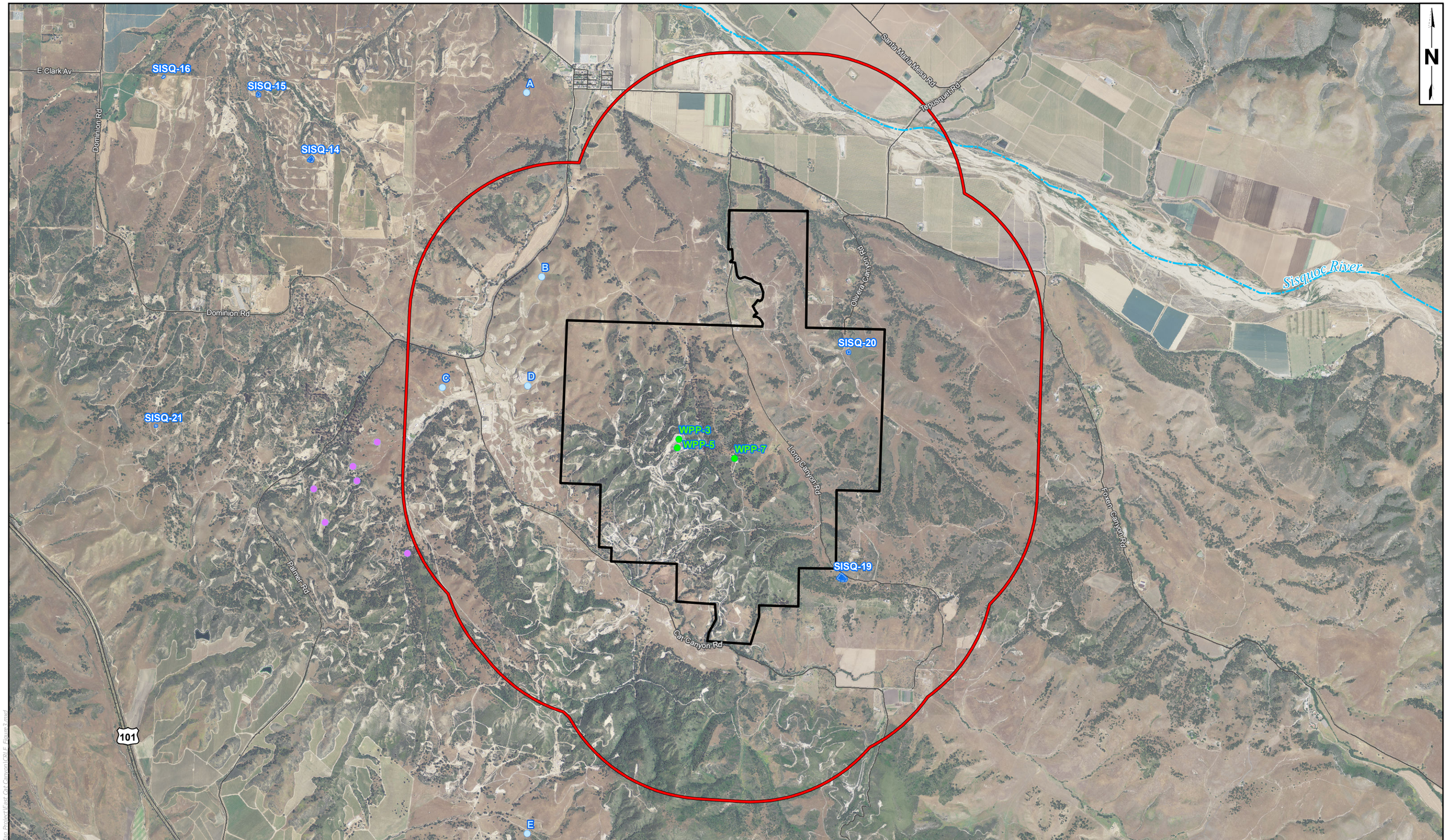

0 1.25 2.5
MILES

Source: CNDDB 1/2013, USFWS Critical Habitat, NAIP 2012 Image, Santa Barbara County Roads & Channels
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposed only.

Project Site
5-mile Buffer of Project Site
CRLF (Sage Institute, 2012)
CRLF CNDDB Occurrences
CRLF Critical Habitat

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: EAST CAT CANYON SANTA BARBARA COUNTY, CA | CRLF DOCUMENTED OCCURRENCES AND USFWS DESIGNATED CRITICAL HABITAT | FIGURE 2 |
|---|---|---|
| PROJECT NUMBER: 1002-0455 / DATE: February 2013 | | |




Source: USFWS CTS data, Digitized features from Collins, et. al., report, NAIP 2012 Image, Santa Barbara County Roads & Channels
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: USFWS CTS data is for planning purposes only and data is not to be distributed. The mapped ponds do not constitute a comprehensive list of all the ponds that have the potential to be CTS breeding ponds in Santa Barbara County

- Project Site
- 1-mile Buffer of Project Site
- CTS Potential Breeding Pool (USFWS)
- CRLF Potential Habitat (Padre, 2013)
- Sampled Pond (Collins, et. al., 2012)
- Identified Undocumented Pond (Collins, et. al., 2012)

0 1,500 3,000
FEET

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: EAST CAT CANYON SANTA BARBARA COUNTY, CA

PROJECT NUMBER: 1002-0455

DATE: February 2013

POTENTIAL AQUATIC HABITAT FOR CRLF WITHIN ONE MILE OF THE AERA PROPERTY

FIGURE 3

Z:\Kristin\GIS Maps\Map Projects\East Cat Canyon\CRLF Figure 3.mxd

# APPENDIX A
# AQUATIC DATA SHEETS

**Appendix D.**
**California Red-legged Frog Habitat Site Assessment Data Sheet**

**Site Assessment reviewed by** _____ _____ _____
(FWS Field Office) (date) (biologist)

**Date of Site Assessment:** 01-15-2013
(mm/dd/yyyy)

**Site Assessment Biologists:** Benson Theu
(Last name) (first name) (Last name) (first name)

(Last name) (first name) (Last name) (first name)

**Site Location:** Santa Barbara County, East Cat Canyon Oil Field
**(County, General location name, UTM Coordinates or Lat./Long. or T-R-S ).**

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Cat Canyon Oil Field Development
Brief description of proposed action:
Development of abandoned oil pads, access roads, installation of production wells and associated facilities and pipelines.

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

## GENERAL AQUATIC HABITAT CHARACTERIZATION

*(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)*

**POND**: Former oil catchment pond WPP-3
Size: _____ Maximum depth: ~2.5 ft

Vegetation: emergent, overhanging, dominant species: NONE

Substrate: Concrete or similar hardened surface

**Perennial or Ephemeral** *(circle one)*. If ephemeral, date it goes dry: _____
remains wet into April

* pacific chorus frog egg masses

**Appendix D.**
**California Red-legged Frog Habitat Site Assessment Data Sheet**

**STREAM**:

Bank full width: _____
Depth at bank full: _____
Stream gradient: _____

Are there pools (circle one)? YES NO
If yes,
Size of stream pools: _____
Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: _____
_____
_____

Vegetation: emergent, overhanging, dominant species: _____
_____
_____

Substrate: _____
_____

Bank description: _____
_____
_____

**Perennial or Ephemeral** *(circle one)*. If ephemeral, date it goes dry: _____

| Other aquatic habitat characteristics, species observations, drawings, or comments: |
|---|
| pacific chorus frog egg masses |

**Necessary Attachments:**

1. All field notes and other supporting documents
2. Site photographs
3. Maps with important habitat features and species location

## Appendix D.
## California Red-legged Frog Habitat Site Assessment Data Sheet

**Site Assessment reviewed by** _____ _____ _____
(FWS Field Office) (date) (biologist)

**Date of Site Assessment:** 01/15/2013
(mm/dd/yyyy)

**Site Assessment Biologists:** Benson Thea _____
(Last name) (first name) (Last name) (first name)

_____ _____
(Last name) (first name) (Last name) (first name)

**Site Location:** Santa Barbara County, East Cat Canyon Oil Field
**(County, General location name, UTM Coordinates or Lat./Long. or T-R-S ).**

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: East Cat Canyon Oil Production and Development
Brief description of proposed action:
Development of abandoned oil pads, access roads, installation of wells and production plant, and associated pipelines and facilities.

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

## GENERAL AQUATIC HABITAT CHARACTERIZATION

*(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)*

**POND:** OLD OIL ~~[illegible]~~ BELOW catchment POND WPP-5

Size: _____ Maximum depth: ~4 ft

Vegetation: emergent, overhanging, dominant species: NO emergent vegetation, new sprouts of polypogon along pond margin

Substrate: old oil pad base and hardened oil, clay material

**Perennial or Ephemeral** *(circle one)*. If ephemeral, date it goes dry: _____
stays wet into April



- pacific chorus frog egg masses

**Appendix D.**
**California Red-legged Frog Habitat Site Assessment Data Sheet**

**STREAM**:

Bank full width: _____
Depth at bank full: _____
Stream gradient: _____

Are there pools (circle one)? YES NO
If yes,
Size of stream pools: _____
Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: _____

Vegetation: emergent, overhanging, dominant species: polypogon along margins.

Substrate: clay-like, old oil pad base, hardened oil

Bank description: severely disturbed and eroded, Baccharis and tree tobacco along slope

**Perennial or Ephemeral** *(circle one)*. If ephemeral, date it goes dry: _____

Other aquatic habitat characteristics, species observations, drawings, or comments:
Pacific chorus frog egg masses, few small aquatic organisms

**Necessary Attachments:**

1. All field notes and other supporting documents
2. Site photographs
3. Maps with important habitat features and species location

~~pond 1: lined w/ plastic~~
~~pond 2: pool below this one~~

**Appendix D.**
**California Red-legged Frog Habitat Site Assessment Data Sheet**

**Site Assessment reviewed by** _____ _____ _____
(FWS Field Office) (date) (biologist)

**Date of Site Assessment:** 01-15-2013
(mm/dd/yyyy)

**Site Assessment Biologists:** Benson Thea _____
(Last name) (first name) (Last name) (first name)

_____ _____
(Last name) (first name) (Last name) (first name)

**Site Location:** Santa Barbara Co, East Cat Canyon Oil Field
**(County, General location name, UTM Coordinates or Lat./Long. or T-R-S ).**

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: CAT CANYON OIL FIELD DEVELOPMENT PROJECT
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

## GENERAL AQUATIC HABITAT CHARACTERIZATION

*(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)*

**POND:** WPP-7 (SISQ-20)

Size: _____ Maximum depth: 0

Vegetation: emergent, overhanging, dominant species: Cocklebur (Xanthium sp.)

Substrate: _____

**Perennial or Ephemeral** *(circle one)*. If ephemeral, date it goes dry: Dry at time of survey
- extremely ephemeral

**Appendix D.**
**California Red-legged Frog Habitat Site Assessment Data Sheet**

**STREAM**:

Bank full width: _____
Depth at bank full: _____
Stream gradient: _____

Are there pools (circle one)? YES NO
If yes,
Size of stream pools: _____
Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: _____
_____
_____

Vegetation: emergent, overhanging, dominant species: _____
_____
_____

Substrate: _____
_____

Bank description: _____
_____
_____

**Perennial or Ephemeral** *(circle one)*. If ephemeral, date it goes dry: _____

Other aquatic habitat characteristics, species observations, drawings, or comments:

Cattle -no ponded water
-surrounding habitat consists of
dense coyote brush scrub

**Necessary Attachments:**

1. All field notes and other supporting documents
2. Site photographs
3. Maps with important habitat features and species location

# APPENDIX B
# SITE PHOTOGRAPHS

Photo 1. Cat Canyon scrub and woodland habitat within Aera Property.

Photo 2. SISQ-20 documented on January 16, 2013.

Photo 3. Representative ephemeral well pad aquatic features on January 16, 2013.

Photo 4. Sierran treefrog egg mass observed in WWP-3 pool on January 15, 2013.

Photo 5. WWP-3 Pool within Aera Property on February 13, 2013, aspect southwest.

Photo 6. WWP-3 Pool within Aera Property on February 13, 2013, aspect southwest.

Photo 7. WWP-5 Pool within Aera Property on February 13, 2013, aspect north.

Photo 8. WWP-5 Pool within Aera Property on February 13, 2013, aspect west.

Photo 9. WWP-5 Pool within Aera Property on February 13, 2013.

Photo 10. WWP-7 Pool within Aera Property on February 13, 2013.

Photo 11. WWP-7 Pool within Aera Property on February 13, 2013.

Photo 12. Cat Canyon Creek within Aera Property on February 13, 2013.

Photo 13. Cat Canyon Creek within Aera Property on February 13, 2013.

Photo 14. Ephemeral drainage into Cat Canyon Creek within Aera Property on February 13, 2013

# APPENDIX D

## VERNAL POOL FAIRY SHRIMP WET-SEASON REPORT (PADRE, 2014a)

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

August 29, 2014

Chris Kofron
Recovery Permit Coordinator
Ventura Fish and Wildlife Office
U.S. Fish and Wildlife Service
2493 Portola Road, Suite B
Ventura, CA 93003

Re: 90-Day Report on Wet Season Vernal Pool Branchiopod Surveys for the Aera Energy LLC East Cat Canyon Oil Field, Santa Barbara County, California (USFWS Reference Nos. 08EVEN00-2012-B-0024 [Aera Cat Canyon Oil Exploration Activities]; 81440-2010-B-0026 [Sarah Powell])

Dear Mr. Kofron:

Padre Associates, Inc. (Padre) conducted wet season surveys of the Aera Energy LLC (Aera) East Cat Canyon Oil Field (Project Site) during the 2013/2014 wet season. Protocol surveys were required to determine the presence or absence of the listed vernal pool fairy shrimp (VPFS) (*Branchinecta lynchi*) and/or other federally listed branchiopods within the Project Site. This is the first comprehensive branchiopod wet season survey conducted on the Project Site. This report outlines the results of a wet season survey effort focusing on depressional features that were identified during a Habitat Assessment completed in September 2013 (Padre, 2013).

**ENVIRONMENTAL SETTING**

The Project Site is located within the Solomon Hills and the Gato Ridge mountain ranges in East Cat Canyon, approximately nine miles southeast of the City of Santa Maria, Santa Barbara County, California (Figure 1). The regional topography is generally comprised of steeply to moderately incised canyons and ephemeral drainages within the majority of the Project Site. Small flat grassland valleys occur between regional mountain ridges in the outermost property limits and surrounding area, and are primarily used for crop agriculture (including vineyards), open rangeland, and oil production operations. Much of the Project Site consists of dense scrub and woodland habitats interposed with small patchy grassland openings. The Project Site has been disturbed by decades of past oil production activities, remnants of this include former oil well pads and a network of dirt and asphalt roads that transect the entire property; however, some of the steep terrain remains undisturbed. Portions of the Project Site are currently used for cattle grazing.

The habitat communities mapped at the Project Site are generally not consistent with natural vernal pool systems typically occurring in valley and foothill grasslands. The majority of the Project Site supports steep topography, scrub and woodland vegetative communities, and disturbed lands associated with the past oil field operations. Potential aquatic habitat is limited to

manmade features consisting of cattle watering stock ponds and ponded areas on highly compacted former oil well pads or degraded/buried paved areas.

Based on the focused Habitat Assessment field surveys, 23 aquatic features at 16 locations were mapped throughout the Project Site. The majority of these features occur as ponded shallow depressions on former oil well pads and small cattle watering stock ponds (Table 1). In addition to the 23 features originally mapped during the Habitat Assessment field surveys, 16 additional features were identified during the 2013/2014 wet season surveys for a total of 39 potential habitat features mapped onsite. Figure 2 depicts the location of all of the individual features within the context of the overall Project Site, and Figures 3A through 3R provide a detailed view of each potential habitat feature mapped in the field.

## METHODS

Authorization to conduct wet season surveys was received from Julie Vanderwier (U.S. Fish and Wildlife Service) via email on November 26, 2013. The wet season surveys were initiated in February 2014 upon initial inundation. The surveys were conducted by Padre Biologists Sarah Powell (Permit No. TE-063427-1) and Michaela Hoffman, in accordance with the U.S. Fish and Wildlife Service's (USFWS) survey protocols. This letter, along with data sheets for each of the sampling events (Appendix A) and figures depicting site locations of the depressional features sampled, comprise the 90-day report required by the Interim Survey Guidelines for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods (USFWS, 1996).

Each sampling episode was conducted in accordance with USFWS survey protocols. Thirty-two depressions on the Project Site became inundated during the 2013/2014 wet season and were included in the wet season surveys. During each sampling episode, each ponded depression was sampled at multiple locations and at various depths. Contents of the dip net were examined following each dip, and organisms were identified to a taxonomic level necessary to determine that it was not a listed branchiopod. The surface area and depth of the ponded area at each depression was measured during each sampling episode and recorded on data sheets. Additionally, water characteristics including temperature, electrical conductivity, and pH were measured, and weather conditions were recorded. Representative photographs were taken of the depressions during each sampling event (Appendix B) to visually compare conditions among sampling episodes.

## RESULTS

Thirty-two depressional features became ponded and were sampled during the 2013/2014 wet season. A total of nine sampling events between February and June 2014 were conducted during the period of inundation; however, the majority of features were only sampled one or two times during the season due to the limited hydroperiod (Table 1). Surveys were considered complete upon final drying of the pool or after they had experienced 120 days of continuous inundation. All depressional features within the Project Site were checked for inundation within 24 hours of each rain event throughout the wet season. Initial inundation for 15 depressions began following two rain events during the first week of February, and these features were first sampled on February 13, 2014. An additional 16 depressions became inundated following a rain event

during the last week of February, and those features were first sampled on February 27, 2014. One feature did not become inundated until April, and only remained inundated long enough for one sampling event. All depressions, except for one (P-13), had dried completely by May 20, 2014. P-13 was the only feature that experienced 120 days of continuous inundation and it is suspected that ponding in this feature is supplemented by an artificial water source, such as a leaky irrigation line. Seven of the features that were identified during the Habitat Assessment never became ponded during the 2013/2014 wet season surveys, and therefore, no sampling was conducted within those depressions.

No branchiopod species were observed during the 2013/2014 wet season surveys. Aquatic invertebrate species observed included water flea (Cladocerans), copepods, seed shrimp (Ostracods), midge larvae (Chironomidae), mosquito larvae (Culicidae), beetle larvae (Dytiscidae), water boatmen (Corixidae), and larval stage amphibians including Sierran treefrog tadpoles (*Pseudacris sierra*) and western toad tadpoles (*Anaxyrus boreas*).

**Table 1. Sample Dates and Inundation Status of Features Included in the Vernal Pool Branchiopod Protocol Surveys Aera East Cat Canyon Project Site**

| Pool No. | Feature Description | 2/13/14[1] | 2/27/14[2] | 3/13/14 | 3/25/14 | 4/8/14 | 4/22/14 | 5/6/14 | 5/20/14 | 6/4/14 | Duration of Continuous Inundation (Days) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **WPP-1** | Former oil well pad | | | | | | | | | | 11 |
| **WPP-2** | Former oil well pad | | | | | | | | | | 11 |
| **WPP-3** | Lined permitted beneficial use soil mixing pad | | | | | | | | | | 100 |
| **WPP-4** | Toe of berm | | | | | | | | | | 18 |
| **WPP-5** | Stockpond | | | | | | | | | | 100 |
| **WPP-6** | Former oil well pad | | | | | | | | | | 11 |
| **WPP-7** | Former oil well pad | | | | | | | | | | 75 |
| **WPP-7a** | Former oil well pad | | | | | | | | | | 0 |
| **WPP-7b** | Former oil well pad | | | | | | | | | | 0 |
| **WPP-7c** | Former oil well pad | | | | | | | | | | 35 |
| **WPP-7d** | Former oil well pad | | | | | | | | | | 11 |
| **WPP-8a** | Former oil well pad | | | | | | | | | | 41 |
| **WPP-8b** | Former oil well pad | | | | | | | | | | 35 |
| **WPP-8c** | Former oil well pad | | | | | | | | | | 11 |
| **WPP-9a** | Former oil well pad | | | | | | | | | | 11 |
| **WPP-9b** | Former oil well pad | | | | | | | | | | 35 |

**Table 1. Sample Dates and Inundation Status of Features Included in the Vernal Pool Branchiopod Protocol Surveys Aera East Cat Canyon Project Site**

| Pool No. | Feature Description | 2/13/14[1] | 2/27/14[2] | 3/13/14 | 3/25/14 | 4/8/14 | 4/22/14 | 5/6/14 | 5/20/14 | 6/4/14 | Duration of Continuous Inundation (Days) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **WPP-10a** | Former oil well pad | | | | | | | | | | 0 |
| **WPP-10b** | Former oil well pad | | | | | | | | | | 0 |
| **WPP-11** | Former oil well pad | | | | | | | | | | 20 |
| **P-12** | Stockpond | | | | | | | | | | 41 |
| **P-13** | Former oil well pad | | | | | | | | | | 120 |
| **P-14** | Stockpond | | | | | | | | | | 18 |
| **SP-15** | Dry stockpond | | | | | | | | | | 0 |
| **WPP-16a** | Former oil well pad | | | | | | | | | | 0 |
| **WPP-16b** | Former oil well pad | | | | | | | | | | 0 |
| **WPP-17** | Roadway depression | | | | | | | | | | 35 |
| **WPP-18** | Former oil well pad | | | | | | | | | | 11 |
| **WPP-19a** | Active well pad | | | | | | | | | | 35 |
| **WPP-19b** | Active well pad | | | | | | | | | | 35 |
| **WPP-19c** | Active well pad | | | | | | | | | | 35 |
| **WPP-19d** | Active well pad | | | | | | | | | | 35 |
| **WPP-19e** | Active well pad | | | | | | | | | | 11 |
| **WPP-20** | Active well pad | | | | | | | | | | 35 |

**Table 1. Sample Dates and Inundation Status of Features Included in the Vernal Pool Branchiopod Protocol Surveys Aera East Cat Canyon Project Site**

| Pool No. | Feature Description | 2/13/14[1] | 2/27/14[2] | 3/13/14 | 3/25/14 | 4/8/14 | 4/22/14 | 5/6/14 | 5/20/14 | 6/4/14 | Duration of Continuous Inundation (Days) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **WPP-21** | Former oil well pad | | | | | | | | | | 11 |
| **P-22** | Roadway depression | | | | | | | | | | 11 |
| **WPP-23a** | Former oil well pad | | | | | | | | | | 11 |
| **WPP-23b** | Former oil well pad | | | | | | | | | | 11 |
| **WPP-23c** | Former oil well pad | | | | | | | | | | 11 |
| **SP-24** | Stockpond | | | | | | | | | | 11 |

Legend:
= not inundated on this sample date
= inundated on this sample date

Notes:
[1]Initial Inundation on 2/3/14 for features sampled beginning 2/13/14
[2]Initial Inundation on 2/26/14 for features sampled beginning 2/27/14

## DISCUSSION

The features sampled at the Project Site consisted primarily of two types of ponded areas that could provide potential vernal pool branchiopod habitat: stockponds and depressions occurring on active or former oil well pads. In addition, several ponded areas within or adjacent to roadways or created by tire ruts were included in the survey. All potential habitat features are non-natural manmade features associated with current and previous activities onsite (oil production and cattle grazing). Many of the features are highly disturbed and considered poor to marginal potential habitat, and many of the compacted well pad depressions are very shallow and lack vegetation altogether. Some of the ponded areas on highly disturbed and unvegetated well pads are unlikely to provide habitat for listed shrimp species and, in fact, no aquatic invertebrates were observed at all in 20 of the well pad features that ponded and were sampled during the 2013/2014 wet season. This is likely due to a combination of short duration of ponding as well as high level of active disturbance.

Based on a period of record from 1948 to 2013, the average annual precipitation for the Santa Maria WSO Airport weather station (047946) is 13.0 inches (Western Regional Climate Center, 2014). Rainfall measured on the Project Site with an onsite weather station during the 2013/2014 wet season was 4.9 inches, which is slightly higher than rainfall totals reported in the greater Santa Maria area (Table 2). Rainfall at the Project Site during the 2013/2014 wet season was 38 percent of normal based on the average annual precipitation.

**Table 2. Rainfall Totals by Storm**
**Aera East Cat Canyon Project Site**

| Storm Date | Precip Totals (inches)[1] | Precip Totals (inches)[2] | Precip Totals (inches)[3] | Status of Inundation |
|---|---|---|---|---|
| Feb 2-3 | 0.17 | 0.17 | 0.30 | Initial Inundation - sampling begins 2/13/14 |
| Feb 6-10 | 0.23 | 0.26 | 0.10 | Partial inundation |
| Feb 26 - Mar 2 | 1.9 | 2.24 | 2.78 | Initial Inundation additional features - sampling begins 2/27/14 |
| Mar 25-26 | 0.13 | 0.14 | 0.24 | Partial inundation |
| Mar 29 - Apr 2 | 1.07 | 1.06 | 1.296 | Partial inundation |
| Apr 25-27 | 0.12 | 0.12 | 0.18 | Partial inundation |
| **Season Total** | **3.62** | **3.99** | **4.896** | |

[1]Based on rainfall totals reported for the Santa Maria Airport (Lindsay, 2014)
[2]Based on rainfall totals reported on AccuWeather (AccWeather, Inc, 2014)
[3]Based on rainfall totals collected from Aera ECC weather station

Although it was a drier than normal year, six of the features sampled were ponded long enough for at least three consecutive sampling episodes (inundation duration of 41 days or longer). The remaining features had only two consecutive sampling episodes or less

(inundation duration of 35 days or less). The average time to maturity for VPFS is 41 days; however, it has been recorded in as little as 14 or 18 days under optimal conditions and warm water temperatures (daytime water temperature of at least 20°C) (Eriksen and Belk, 1999; Gallagher, 1996; Helm, 1998). Therefore, the six features ponded for 41 days or longer should have been inundated long enough for vernal pool fairy shrimp (VPFS) to hatch and mature if present.

Additionally, it should be noted that VPFS monitoring surveys conducted by Padre at other sites on the central coast (e.g., the former Chevron San Luis Obsipo Tank Farm Site) during the same timeframe yielded positive results for presence of mature VPFS in three of four features sampled during the 2013/2014 wet season (these features were ponded for a period of 13 to 26 days at temperatures of 16 to 23°C) (Padre, 2014). The occurrence of mature individuals of VPFS at other locations is noted in this report as a regional reference for successful hatching and maturity of VPFS during the drier than normal 2013/2014 wet season.

No listed species of VPFS or tadpole shrimp were observed in the features surveyed on the Project Site during the 2013/2014 wet season. Dry season sampling has been conducted and is currently being processed to complete the protocol surveys for this site. Results from the dry season sampling will be submitted independently.

I certify that the information in this survey report and the attached exhibits fully and accurately represent my work. Please contact Sarah Powell at (916) 333-5920 ext. 21 or by email at spowell@padreinc.com if you have any questions or require additional information.

Sincerely,

**PADRE ASSOCIATES, INC.**

Sarah Powell
Senior Biologist
Permit No. TE-063427-1

Michaela Hoffman
Staff Biologist

Enclosures

cc: Susan Perrell, Aera Energy LLC
Eric Snelling, Padre Associates, Inc.
Julie Vanderwier, U.S. Fish and Wildlife Service
Jeff Phillips, U.S Fish and Wildlife Service

## REFERENCES

Eriksen, C.H., and D. Belk. 1999. *Fairy Shrimps of California's Puddles, Pools, and Playas*. Mad River Press, Eureka, CA.

Gallagher, S.P. 1996. *Seasonal Occurrence and Habitat Characteristics of Some Vernal Pool Branchiopoda in Northern California*, U.S.A. Journal of Crustacean Biology 16:323-329.

Helm, B. 1998. *The Biogeography of Eight Large Branchiopods Endemic to California*. Pp. 124-139 In C.W. Witham, E. Bauder, D. Belk, W. Ferren, and R. Ornduff (eds.)Ecology, Conservation, and Management of Vernal Pool Ecosystems - Proceedings from a 1996 Conference. California Native Plant Society, Sacramento, CA.

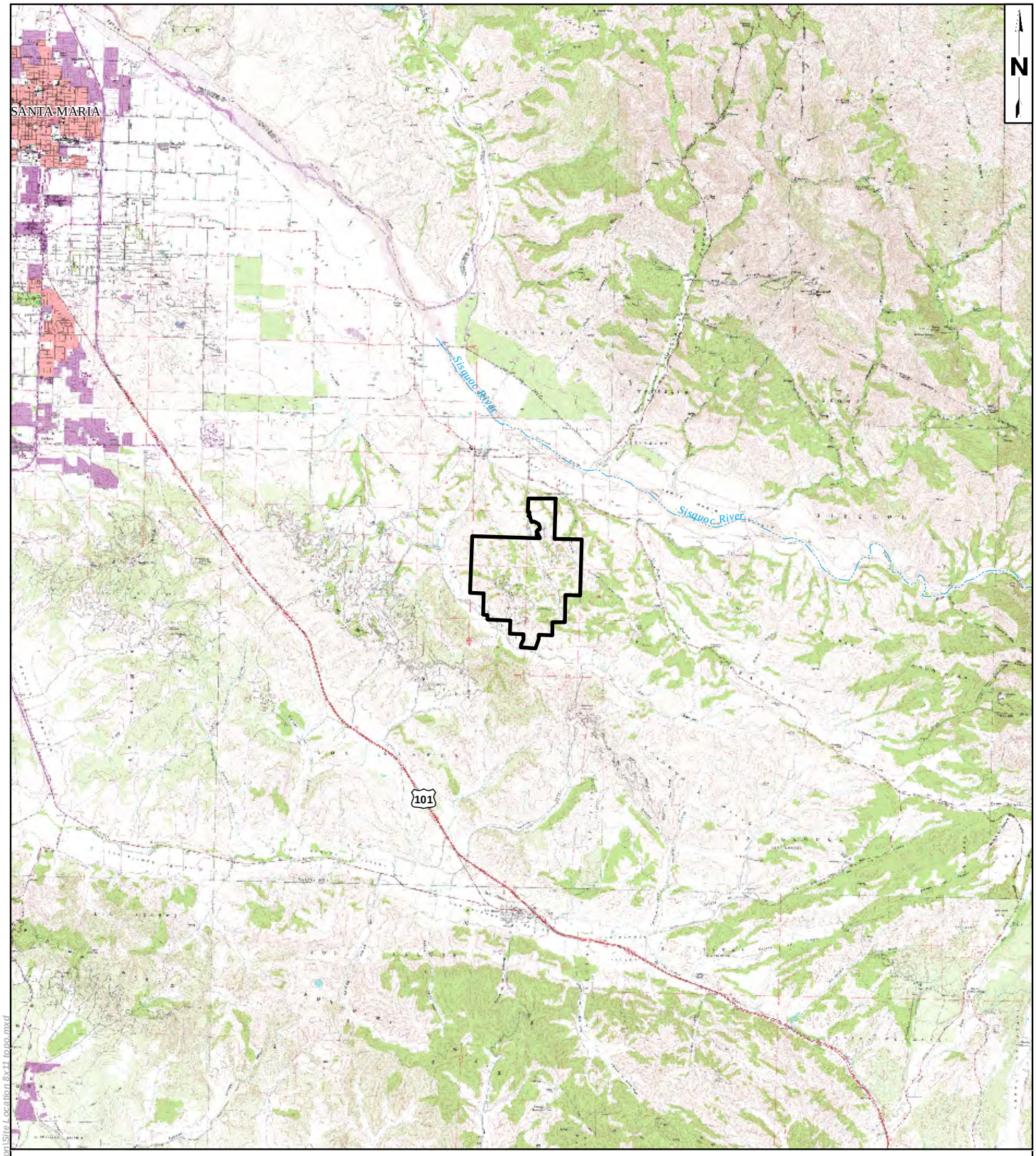
Padre Associates, Inc. (Padre). 2013. Vernal Pool Fairy Shrimp Habitat Assessment for the Aera Cat Canyon Oil Field, Santa Barbara County, California. Prepared for Aera Energy LLC. September 2013.

Padre Associates, Inc. (Padre). 2014. 2013/2014 Wet Season VPFS Monitoring Report (Year-2) for the San Luis Obispo Tank Farm Cultural Resources Survey and Waste Characterization Survey Projects. Prepared for Chevron Environmental Management Company. August, 2014.

U.S. Fish and Wildlife Service. 1996. *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods*. U.S. Department of the Interior, April 19, 1996.

Western Regional Climate Center (WRCC). 2014. Santa Maria WSO ARPT, California (047946) – Period of Record Monthly Climate Summary. http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7946. *accessed August 5, 2014.*

# FIGURES




LEGEND:

Project Site

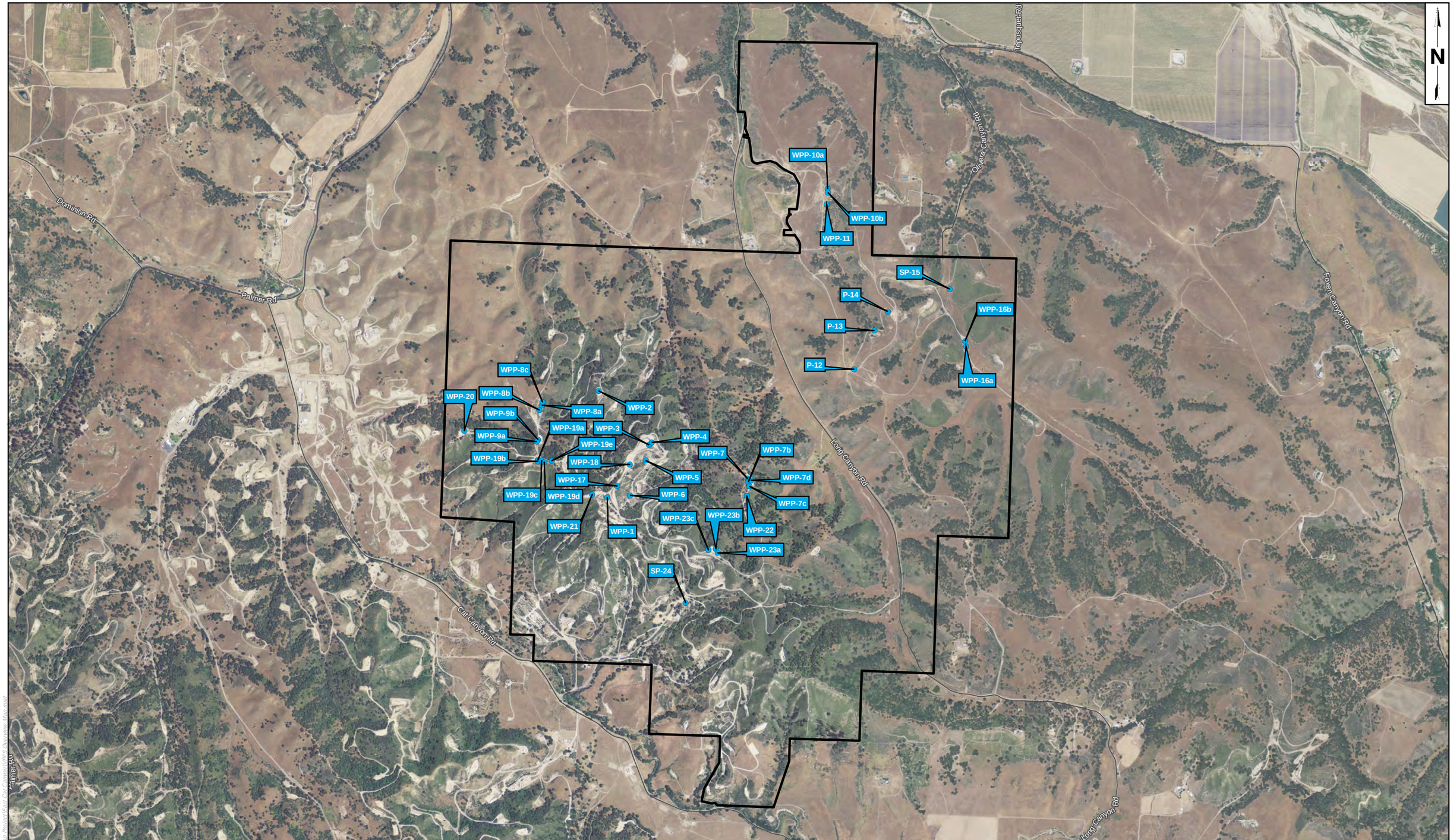
0 1.25 2.5
MILES

*Source: USGS Topo Quad, Santa Barbara County, TIGER*
*Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet*
*Notes: This map was created for informational and display purposed only*

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: | | | FIGURE |
|---|---|---|---|
| EAST CAT CANYON<br>SANTA BARBARA COUNTY, CA | | PROJECT LOCATION | 1 |
| PROJECT NUMBER: 1002-0455 | DATE: June 2013 | | |

Z:\Kristin\GIS\Maps\Map Projects\East Cat Canyon\Site Location 8x11 topo.mxd




0 850 1,700
FEET

Source: NAIP 2012 Image
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposes only.

VPFS Potential Habitat Location

Project Site

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: EAST CAT CANYON
SANTA BARBARA COUNTY, CA

PROJECT NUMBER: 1002-0455

DATE: August 2014

FEATURES INCLUDED IN 2013/2014 WET SEASON SURVEY

FIGURE 2

LEGEND:

Aera Energy LLC Property

January 2013 Limits of Inundation

0 25 50
FEET

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| | | |
|---|---|---|
| PROJECT NAME: EAST CAT CANYON SANTA BARBARA COUNTY, CA | DETAILED VIEW OF POTENTIAL HABITAT FEATURES | FIGURE 3A |
| PROJECT NUMBER: 1002-0455 / DATE: August 2014 | | |

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\VPFS Report 2.mxd

LEGEND:

Aera Energy LLC Property

January 2013 Limits of Inundation

0 25 50
FEET

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: | | DETAILED VIEW OF POTENTIAL HABITAT FEATURES | FIGURE |
|---|---|---|---|
| EAST CAT CANYON<br>SANTA BARBARA COUNTY, CA | | | 3B |
| PROJECT NUMBER: 1002-0455 | DATE: August 2014 | | |

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\VPFS Report 2.mxd

LEGEND:

Aera Energy LLC Property

January 2013 Limits of Inundation

0 25 50
FEET

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: | | DETAILED VIEW OF POTENTIAL HABITAT FEATURES | FIGURE |
|---|---|---|---|
| EAST CAT CANYON SANTA BARBARA COUNTY, CA | | | 3C |
| PROJECT NUMBER: 1002-0455 | DATE: August 2014 | | |

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\VPFS Report 2.mxd

LEGEND:

Aera Energy LLC Property

January 2013 Limits of Inundation

0 25 50
FEET

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: | | DETAILED VIEW OF POTENTIAL HABITAT FEATURES | FIGURE |
|---|---|---|---|
| EAST CAT CANYON SANTA BARBARA COUNTY, CA | | | 3D |
| PROJECT NUMBER: 1002-0455 | DATE: August 2014 | | |

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\VPFS Report 2.mxd

LEGEND:

Aera Energy LLC Property

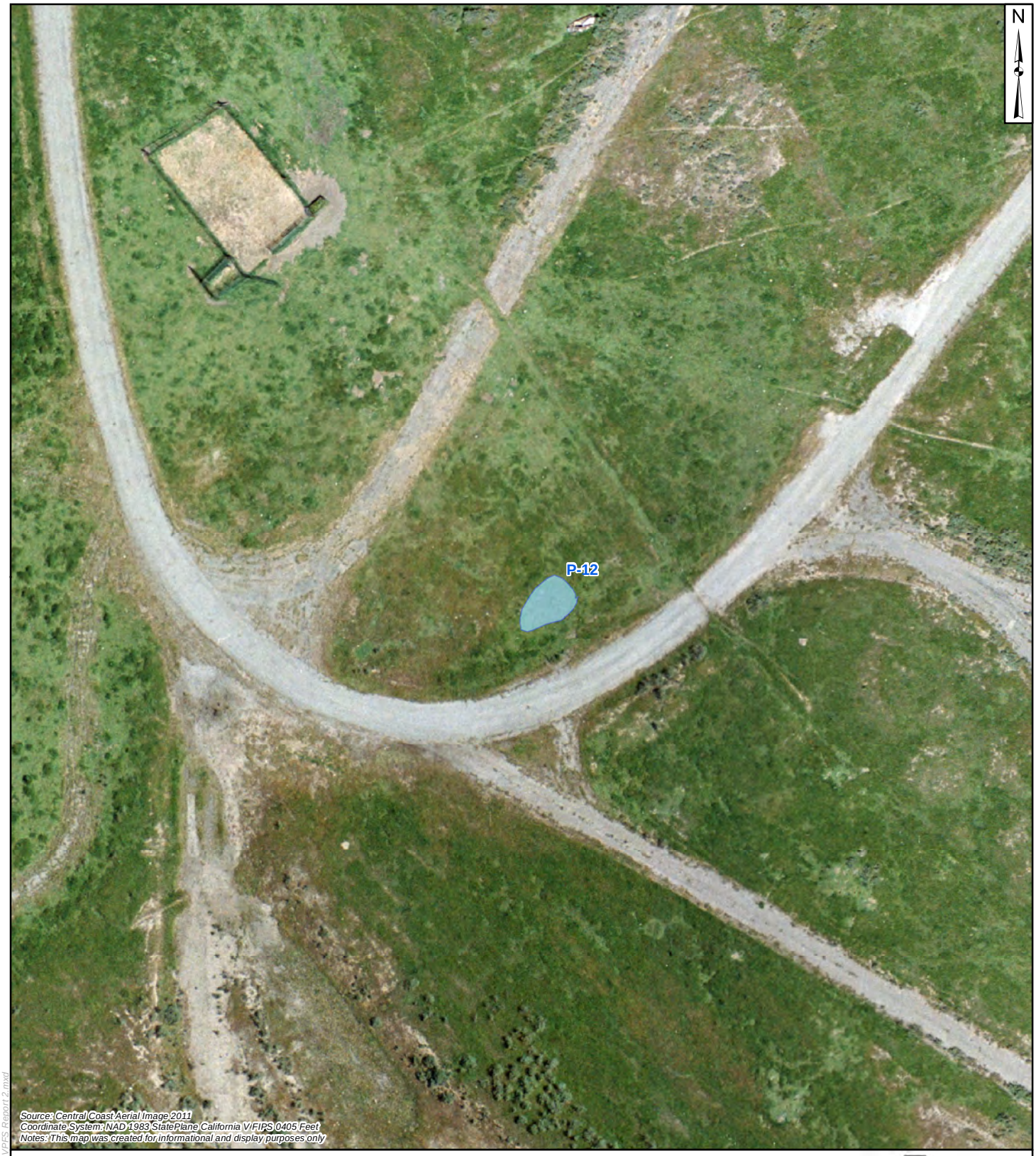
January 2013 Limits of Inundation

0 25 50
FEET

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: | | DETAILED VIEW OF POTENTIAL HABITAT FEATURES | FIGURE |
|---|---|---|---|
| EAST CAT CANYON<br>SANTA BARBARA COUNTY, CA | | | 3E |
| PROJECT NUMBER: 1002-0455 | DATE: August 2014 | | |

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\VPFS Report 2.mxd




LEGEND:

Aera Energy LLC Property

January 2013 Limits of Inundation

0 25 50
FEET

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: | | DETAILED VIEW OF POTENTIAL HABITAT FEATURES | FIGURE |
|---|---|---|---|
| EAST CAT CANYON<br>SANTA BARBARA COUNTY, CA | | | 3F |
| PROJECT NUMBER: 1002-0455 | DATE: August 2014 | | |

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\VPFS Report 2.mxd

LEGEND:

- Aera Energy LLC Property
- February 2014 Limits of Inundation
- January 2013 Limits of Inundation

0 25 50
FEET

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| | | |
|---|---|---|
| PROJECT NAME: EAST CAT CANYON SANTA BARBARA COUNTY, CA | DETAILED VIEW OF POTENTIAL HABITAT FEATURES | FIGURE 3G |
| PROJECT NUMBER: 1002-0455 / DATE: August 2014 | | |

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\VPFS Report 2.mxd

LEGEND:

Aera Energy LLC Property

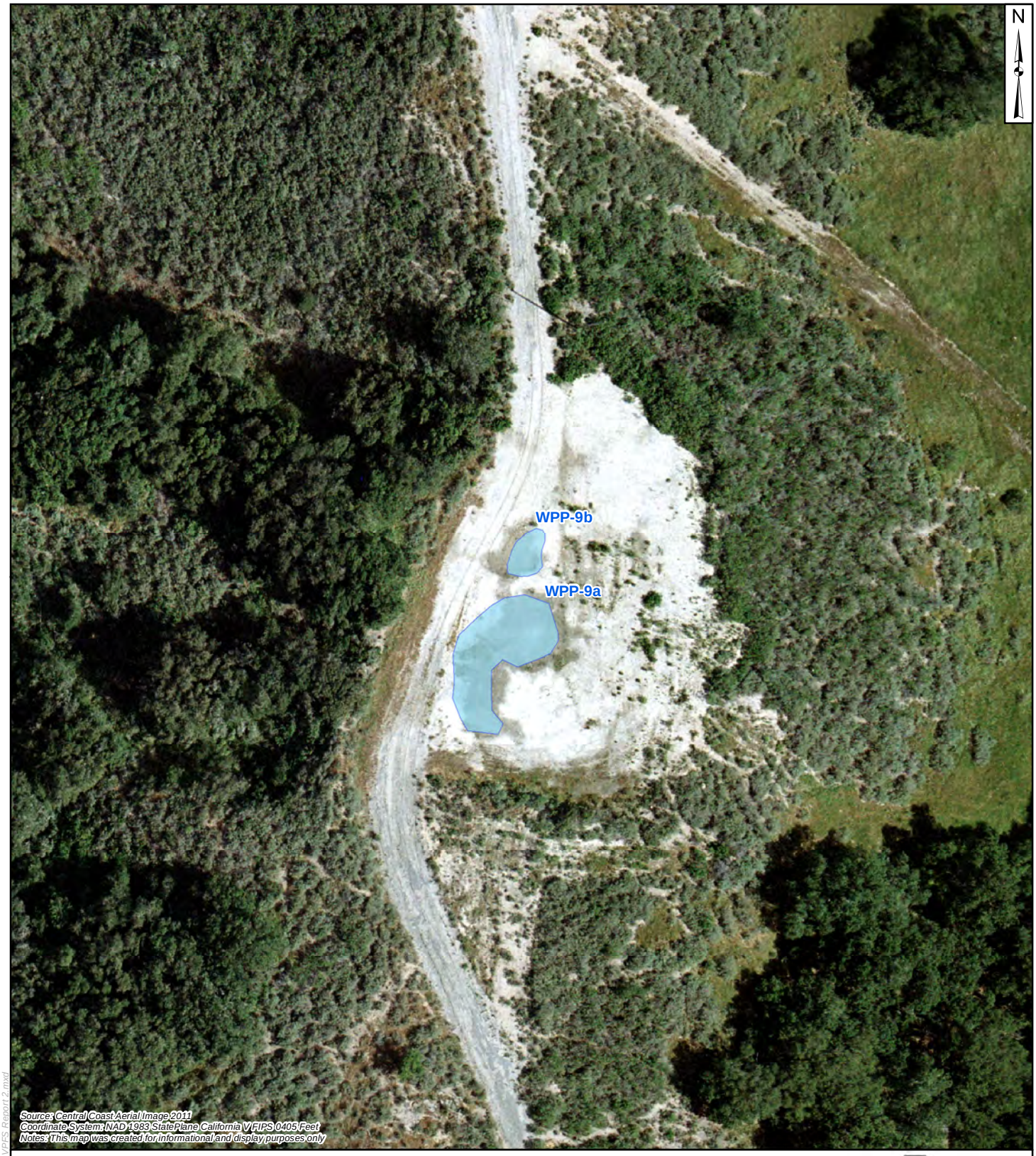
February 2014 Limits of Inundation

0 25 50
FEET

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: | | DETAILED VIEW OF POTENTIAL HABITAT FEATURES | FIGURE |
|---|---|---|---|
| EAST CAT CANYON<br>SANTA BARBARA COUNTY, CA | | | 3H |
| PROJECT NUMBER: 1002-0455 | DATE: August 2014 | | |

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\VPFS Report 2.mxd




LEGEND:

Aera Energy LLC Property

January 2013 Limits of Inundation

0 25 50
FEET

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: | | DETAILED VIEW OF POTENTIAL HABITAT FEATURES | FIGURE |
|---|---|---|---|
| EAST CAT CANYON SANTA BARBARA COUNTY, CA | | | 3I |
| PROJECT NUMBER: 1002-0455 | DATE: August 2014 | | |

Z:\Kelsh\GIS Maps\Map Project\East Cat Canyon\VPS Report 2.mxd

LEGEND:

Aera Energy LLC Property

January 2013 Limits of Inundation

0 25 50
FEET

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: | | DETAILED VIEW OF POTENTIAL HABITAT FEATURES | FIGURE |
|---|---|---|---|
| EAST CAT CANYON<br>SANTA BARBARA COUNTY, CA | | | 3J |
| PROJECT NUMBER: 1002-0455 | DATE: August 2014 | | |

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\VPFS Report 2.mxd

LEGEND:

Aera Energy LLC Property

February 2014 Limits of Inundation

0 25 50
FEET

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| | | |
|---|---|---|
| PROJECT NAME: EAST CAT CANYON SANTA BARBARA COUNTY, CA | DETAILED VIEW OF POTENTIAL HABITAT FEATURES | FIGURE 3K |
| PROJECT NUMBER: 1002-0455 / DATE: August 2014 | | |

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\VPFS Report 2.mxd

LEGEND:

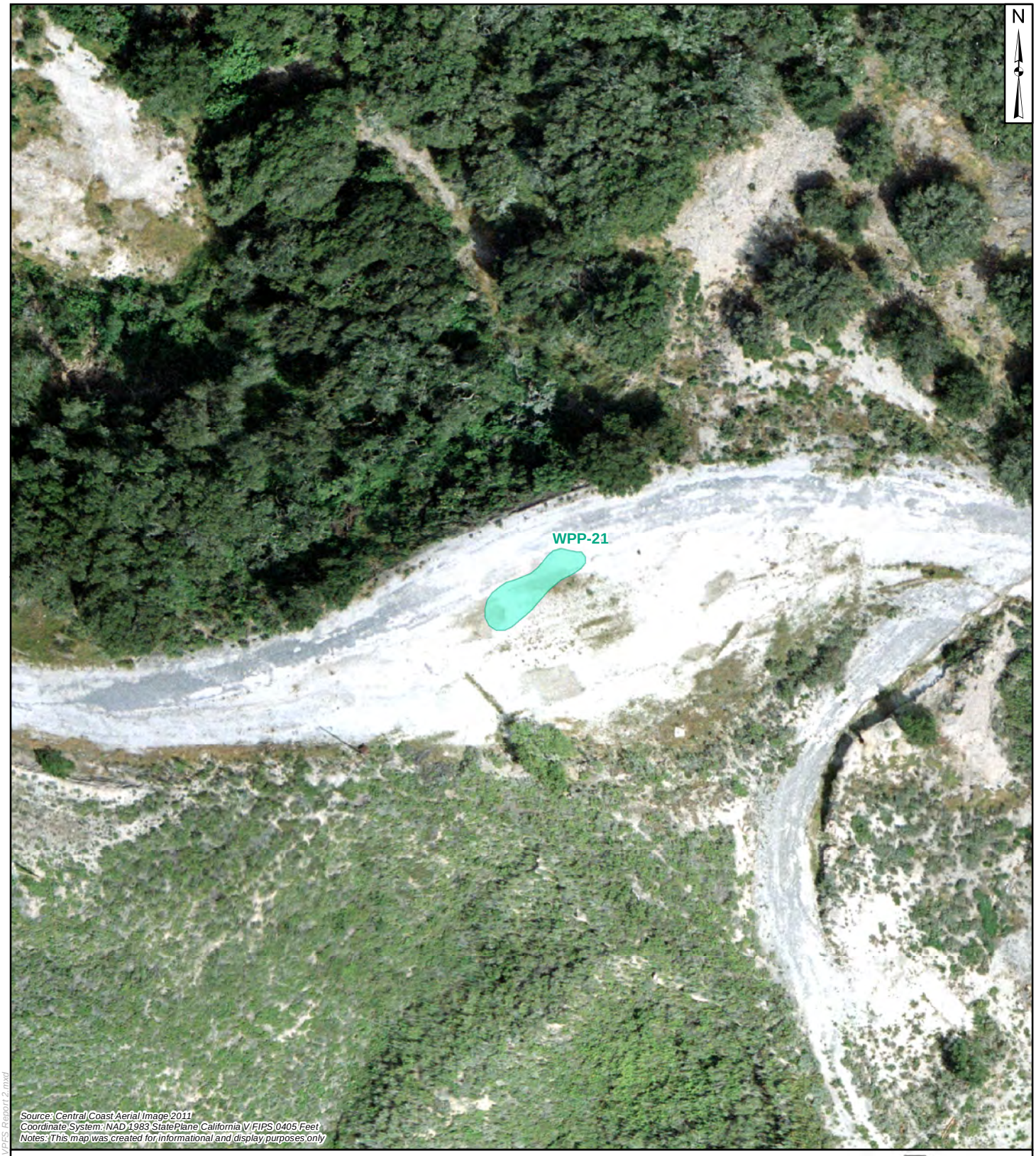
- Aera Energy LLC Property
- February 2014 Limits of Inundation
- January 2013 Limits of Inundation

0 25 50
FEET

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: | | DETAILED VIEW OF POTENTIAL HABITAT FEATURES | FIGURE |
|---|---|---|---|
| EAST CAT CANYON<br>SANTA BARBARA COUNTY, CA | | | 3L |
| PROJECT NUMBER: 1002-0455 | DATE: August 2014 | | |

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\VPFS Report 2.mxd




LEGEND:

Aera Energy LLC Property

February 2014 Limits of Inundation

0 25 50
FEET

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: | | DETAILED VIEW OF POTENTIAL HABITAT FEATURES | FIGURE |
|---|---|---|---|
| EAST CAT CANYON<br>SANTA BARBARA COUNTY, CA | | | 3M |
| PROJECT NUMBER: 1002-0455 | DATE: August 2014 | | |

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\VPFS Report 2.mxd

LEGEND:

- Aera Energy LLC Property
- February 2014 Limits of Inundation
- January 2013 Limits of Inundation

0 25 50
FEET

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\VFFS Report 2.mxd

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: EAST CAT CANYON
SANTA BARBARA COUNTY, CA

PROJECT NUMBER: 1002-0455

DATE: August 2014

DETAILED VIEW OF POTENTIAL HABITAT FEATURES

FIGURE 3N

LEGEND:

Aera Energy LLC Property

January 2013 Limits of Inundation

0 25 50
FEET

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: | | DETAILED VIEW OF POTENTIAL HABITAT FEATURES | FIGURE |
|---|---|---|---|
| EAST CAT CANYON SANTA BARBARA COUNTY, CA | | | 3O |
| PROJECT NUMBER: 1002-0455 | DATE: August 2014 | | |

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\VPFS Report 2.mxd

LEGEND:

- Aera Energy LLC Property
- February 2014 Limits of Inundation
- January 2013 Limits of Inundation

0 25 50
FEET

| | | | |
|---|---|---|---|
| padre associates, inc. ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS | PROJECT NAME: EAST CAT CANYON SANTA BARBARA COUNTY, CA | DETAILED VIEW OF POTENTIAL HABITAT FEATURES | FIGURE 3P |
| | PROJECT NUMBER: 1002-0455 / DATE: August 2014 | | |

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\VPFS Report 2.mxd

LEGEND:

Aera Energy LLC Property

February 2014 Limits of Inundation

0 25 50
FEET

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: | | DETAILED VIEW OF POTENTIAL HABITAT FEATURES | FIGURE |
|---|---|---|---|
| EAST CAT CANYON<br>SANTA BARBARA COUNTY, CA | | | 3Q |
| PROJECT NUMBER: 1002-0455 | DATE: August 2014 | | |

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\VPFS Report 2.mxd

LEGEND:

Aera Energy LLC Property

February 2014 Limits of Inundation

0 25 50
FEET

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: | | DETAILED VIEW OF POTENTIAL HABITAT FEATURES | FIGURE |
|---|---|---|---|
| EAST CAT CANYON SANTA BARBARA COUNTY, CA | | | 3R |
| PROJECT NUMBER: 1002-0455 | DATE: August 2014 | | |

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\VPFS Report 2.mxd

# APPENDIX A
# WET SEASON SURVEY DATASHEETS

**VERNAL POOL SAMPLING DATA SHEET**
**AERA EAST CAT CANYON - WET SEASON SURVEY**

padre associates, inc. ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

**Site/Project Name:** Aera East Cat Canyon **Date** 2/13/14 **Time:** 0800-1400 **Surveyor:** Sarah Powell and Michaela Hoffman **Permit #:** TE-063427-1

**County:** Santa Barbara Co **USGS Quad:**_____ **Lat:** _____ **Long:**_____ **Section, Township, Range:** Sections 19, 20, 29, 30, T-9NS, R-32W

**Land use:** Oil Field / Grazing **Disturbance and intensity (LMH):** high

| Pool ID | Depth (cm) | | Area of Inundation ($m^2$) | | Water temp (°C) | pH | EC (µmhos) | Fairy shrimp presence (species / maturity) | Other fauna | Photo # | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Est. max | Max today | Est. max | Max today | | | | | | | |
| **WPP-1** | | Dry | | - | - | - | - | - | - | 1-GPS | |
| **WPP-2** | | Dry | | - | - | - | - | - | - | SP | |
| **WPP-3** | | 56 | | 760 | 15.4 | 9.20 | 623 | None | OST shells | 4-GPS | |
| **WPP-4** | | Dry | | - | - | - | - | - | - | SP | |
| **WPP-5** | | 15 | | 89 | 16.4 | 8.09 | 872 | None | Egg mass (PTF), OST shells | SP | Stockpond algal sheen |
| **WPP-6** | | Dry | | - | - | - | - | - | - | SP | |
| **WPP-7** | | 9 | | 3 | 22.6 | 8.74 | 236 | None | Water strider (G) | SP | |
| **WPP-7a** | | Dry | | - | - | - | - | - | - | SP | |
| **WPP-7b** | | Dry | | - | - | - | - | - | - | SP | |
| **WPP-7c** | | 4 | | 9 | 22.9 | 7.10 | 186 | None | None | SP | |
| **WPP-8a** | | 14 | | 60 | 20.6 | 9.36 | 431 | None | None | SP | |
| **WPP-8b** | | 6 | | 4 | 19.7 | 9.99 | 431 | None | None | SP | |
| **WPP-9a** | | Dry | | - | - | - | - | - | - | SP | Not previously mapped, GPS location captured |
| **WPP-9b** | | 6 | | 3 | 21.5 | 9.59 | 255 | None | Beetle (Dystiscidae) | SP | |
| **WPP-10a** | | Dry | | - | - | - | - | - | - | SP | |
| **WPP-10b** | | Dry | | - | - | - | - | - | - | SP | |
| **WPP-11** | | Dry | | - | - | - | - | - | - | SP | |

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

# VERNAL POOL SAMPLING DATA SHEET
# AERA EAST CAT CANYON - WET SEASON SURVEY

| Pool ID | Depth (cm) | | Area of Inundation ($m^2$) | | Water temp (°C) | pH | EC (µmhos) | Fairy shrimp presence (species / maturity) | Other fauna | Photo # | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Est. max | Max today | Est. max | Max today | | | | | | | |
| **P-12** | | 13 | | 48 | 25.5 | 7.43 | 634 | None | None | SP | |
| **P-13** | | 3 | | 0.5 | 25.4 | 8.60 | 2300 | None | None | SP | |
| **P-14** | | Dry | | - | - | - | - | - | - | SP | |
| **SP-15** | | Dry | | - | - | - | - | - | - | SP | |
| **WPP-16a** | | Dry | | - | - | - | - | - | - | SP | |
| **WPP-16b** | | Dry | | - | - | - | - | - | - | SP | |
| **WPP-17** | | 2.8 | 15 | 4 | 14.8 | 7.97 | 690 | None | None | SP | Photo on GPS |
| **WPP-18** | | Dry | | - | - | - | - | - | - | SP | |
| **WPP-19a** | | 3.0 | | 16 | 19.7 | 8.56 | 1185 | None | None | SP | |
| **WPP-19b** | | 3.0 | | 45 | 20.5 | 8.81 | 1707 | None | None | SP | |
| **WPP-19c** | | 6.0 | | 7 | 16 | 8.03 | 749 | None | None | SP | |
| **WPP-19d** | | 3.0 | | 8 | 18.1 | 8.55 | 609 | None | None | SP | |
| **WPP-8c** | | 10 | | 18 | 19.8 | 9.84 | 397 | None | None | SP | |
| **WPP-20** | | 6 | | 74 | 19.6 | 8.69 | 797 | None | None | SP | |
| **WPP-21** | | Dry | | - | - | - | - | - | - | SP | |

**OTHER NOTES:** **WEATHER: wind: 0-5 mph** **cloud cover: 0 %** **rain/fog/other: 0** **Air Temp (°C): 65-75°F.**

**Fairy shrimp**: M = mature
IM = immature
BL = *Branchinecta lynchi*
LO = *Linderiella occidentalis*

**Other fauna**:
A = Anisoptera
CLAD = Cladocerans
CONC = Conchostracans
COP = Copepods
OST = Ostracods
N = Notonectidae
Z = Zygoptera
H = Hydrophilidae
D = Dystiscidae
C = Corixidae
B = Belostomatidae
G = Gerridae
M = Mosquito (Diptera: Culicidae)
P = Phantom midge (Diptera: Chaoboridae)
CHIR = Nonbiting midge (Diptera: Chironomidae)
PTF = Pacific Tree Frog
AMPH = Amphipod
E = Ephemerata
Other: amphibians, birds, etc.

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

**Observations:**

Added pools:

WPP-21 was dry during this site visit, but inundated during site visit 2/11/14 (already dried)p;.

GPS location captured. Photo by SP.

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

# VERNAL POOL SAMPLING DATA SHEET
# AERA EAST CAT CANYON - WET SEASON SURVEY

**Site/Project Name:** _Aera East Cat Canyon__ **Date** ___2/27/14__ **Time:** _1100-1600___ **Surveyor:** Sarah Powell and Michaela Hoffman_ **Permit #:** TE-063427-1 _

**County:** _Santa Barbara Co_ **USGS Quad:**_____ **Lat:** _____ **Long:**_____ **Section, Township, Range:** _Sections 19, 20, 29, 30, T-9NS, R-32W_____

**Land use:** _Oil Field / Grazing_____ **Disturbance and intensity (LMH):**__high___

| Pool ID | Depth (cm) | | Area of Inundation ($m^2$) | | Water temp (°C) | pH | EC (µmhos) | Fairy shrimp presence (species / maturity) | Other fauna | Photo # | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Est. max | Max today | Est. max | Max today | | | | | | | |
| **WPP-1** | | 6.0 | | 27 | 24.0 | 7.77 | 156 | None | Dead fire ants | 1064 | |
| **WPP-2** | | 4.0 | | 24 | 24.4 | 7.95 | 75 | None | - | 1072 | |
| **WPP-3** | | | | | 23.1 | 8.04 | 391 | None | OST. White unidentified insect larva | 1067 & 1068 | |
| **WPP-4** | | 1 (<3) | | | - | - | - | - | - | 1069 | Not sampled (<3 cm today) |
| **WPP-5** | | 14.0 | | 50.3 | 23.3 | 7.59 | 592 | None | - | 1070 | |
| **WPP-6** | | 6.0 | | 1 | 24.6 | 6.82 | 765 | None | D. water mite | 1071 | |
| **WPP-7** | | 5.0 | | 70 | 24.9 | 7.91 | 155 | None | - | 1086 | |
| **WPP-7a** | | Dry | | - | - | - | - | - | - | 1087 | |
| **WPP-7b** | | Dry | | - | - | - | - | - | - | 1088 | |
| **WPP-7c** | | 8.0 | | 27 | 23.0 | 7.68 | 121 | None | - | 1089 | |
| **WPP-7d** | | 5.0 | | 7 | 25.3 | 8.19 | 126 | None | Midge larva | 1090 | |
| **WPP-8a** | | 12.0 | | 78.5 | 24.3 | 8.67 | 304 | None | OST shells | 1079 | |
| **WPP-8b** | | 8.0 | | 38.5 | 24.6 | 8.19 | 386 | None | - | 1080 | |
| **WPP-8c** | | 8.0 | | 19.5 | 23.8 | 8.21 | 174 | None | - | 1081 | |
| **WPP-9a** | | 7.0 | | 2 | 24.3 | 9.26 | 242 | None | - | 1077 | Photo 1078 unnumbered pool in road |
| **WPP-9b** | | 5.0 | | 15 | 25.9 | 9.86 | 244 | None | - | 1076 | |
| **WPP-10a** | | Dry | | - | - | - | - | - | - | 1103 | |

**VERNAL POOL SAMPLING DATA SHEET**
**AERA EAST CAT CANYON - WET SEASON SURVEY**

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| Pool ID | Depth (cm) | | Area of Inundation ($m^2$) | | Water temp (°C) | pH | EC (µmhos) | Fairy shrimp presence (species / maturity) | Other fauna | Photo # | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Est. max | Max today | Est. max | Max today | | | | | | | |
| **WPP-10b** | | Dry | | - | - | - | - | - | - | 1104 | |
| **WPP-11** | | Dry | | - | - | - | - | - | - | 1102 | |
| **P-12** | | 18.0 | | 50.3 | 23.1 | 7.67 | 396 | None | - | 1096 | Heavy cattle use |
| **P-13** | | 10.0 | | 7.5 | 21.0 | 7.75 | 620 | None | - | 1098 | Cattle use |
| **P-14** | | 6.0 | | 0.5 | 21.6 | 7.53 | 1173 | None | - | 1097 | Heavy cattle use |
| **SP-15** | | Dry | | - | - | - | - | - | - | 1101 | Not sampled |
| **SP-24** | | 14.0 | | 154.0 | 23.5 | 8.53 | 220 | None | - | 1095 | |
| **WPP-16a** | | Dry | | - | - | - | - | - | - | 1099 | Not sampled |
| **WPP-16b** | | Dry | | - | - | - | - | - | - | 1100 | Not sampled |
| **WPP-17** | | 7.0 | | 5.0 | 24.5 | 7.68 | 275 | None | - | 1065 | |
| **WPP-18** | | 5.0 | | 87.5 | 25.3 | 8.35 | 195 | None | - | 1066 | |
| **WPP-19a** | | 5.0 | | 25.0 | 22.9 | 8.17 | 288 | | - | 1083 | Turbid, green/white color |
| **WPP-19b** | | 5.0 | | 126.0 | 23.2 | 8.99 | 395 | | - | 1083 | Turbid |
| **WPP-19c** | | 8.0 | | 20.0 | 21.3 | 8.40 | 355 | | - | 1082 | Turbid, green color with sheen |
| **WPP-19d** | | 5.0 | | 24.0 | 22.3 | 8.36 | 158 | | - | 1084 | Turbid, green color with sheen |
| **WPP-19e** | | 4.0 | | 6.0 | 24.1 | 7.98 | 242 | None | - | 1085 | New pool in road |
| **WPP-20** | | 5.0 | | 10.0 | 23.5 | 8.39 | 231 | | - | 1073, 1074, &1075 | Most of the original 20 has been dispersed by truck traffic |
| **WPP-21** | | 6.0 | | 56.0 | 24.6 | 7.69 | 170 | None | Dead unidentified insect | 1062 | |
| **P-22** | | 4.0 | | 8.0 | 25.5 | 7.73 | 139 | None | - | 1091 | New pool in road |

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

# VERNAL POOL SAMPLING DATA SHEET
# AERA EAST CAT CANYON - WET SEASON SURVEY

| Pool ID | Depth (cm) | | Area of Inundation ($m^2$) | | Water temp (°C) | pH | EC (µmhos) | Fairy shrimp presence (species / maturity) | Other fauna | Photo # | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Est. max | Max today | Est. max | Max today | | | | | | | |
| **WPP-23a** | | 5.0 | | 16.0 | 24.2 | 8.10 | 196 | None | - | 1092 | |
| **WPP-23b** | | 5.0 | | 24.0 | 23.0 | 9.26 | 422 | None | - | 1093 | |
| **WPP-23c** | | 5.0 | | 70.0 | 19.9 | 9.24 | 146 | None | - | 1094 | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

**OTHER NOTES:** **WEATHER: wind:** **1-3 mph** **cloud cover:** **50** **%** **rain/fog/other:** **0** **Air Temp (°C):** **18.3** **.**

**Fairy shrimp**: M = mature
IM = immature
BL = *Branchinecta lynchi*
LO = *Linderiella occidentalis*

**Other fauna**:
A = Anisoptera
CLAD = Cladocerans
CONC = Conchostracans
COP = Copepods
OST = Ostracods
N = Notonectidae
Z = Zygoptera
H = Hydrophilidae
D = Dystiscidae
C = Corixidae
B = Belostomatidae
G = Gerridae
M = Mosquito (Diptera: Culicidae)
P = Phantom midge (Diptera: Chaoboridae)
CHIR = Nonbiting midge (Diptera: Chironomidae)
PTF = Pacific Tree Frog
AMPH = Amphipod
E = Ephemerata
Other: amphibians, birds, etc.

**VERNAL POOL SAMPLING DATA SHEET**
**AERA EAST CAT CANYON - WET SEASON SURVEY**

padre associates, inc. ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

**Site/Project Name:** Aera East Cat Canyon **Date** 3/13/14 **Time:** 0830-1300 **Surveyor:** Sarah Powell and Michaela Hoffman **Permit #:** TE-063427-1

**County:** Santa Barbara Co **USGS Quad:** _____ **Lat:** _____ **Long:** _____ **Section, Township, Range:** Sections 19, 20, 29, 30, T-9NS, R-32W

**Land use:** Oil Field / Grazing **Disturbance and intensity (LMH):** high

| Pool ID | Depth (cm) | | Area of Inundation ($m^2$) | | Water temp (°C) | pH | EC (µmhos) | Fairy shrimp presence (species / maturity) | Other fauna | Photo # | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Est. max | Max today | Est. max | Max today | | | | | | | |
| **WPP-1** | | Dry | | - | - | - | - | - | - | 578-579 | |
| **WPP-2** | | Dry | | - | - | - | - | - | - | 596 | |
| **WPP-3** | | 50 | | 957 | 15.9 | 8.32 | 406 | None | OST, PTF Tads and egg masses | 584-585 | Refilled since last sampling |
| **WPP-4** | | 12 | | 124 | 15.9 | 9.21 | 1483 | None | C, strider, OST, midge larva | 586-587 | Dead M larva |
| **WPP-5** | | 45 | | 284 | 19.5 | 8.05 | 401 | None | OST, M Larva, Midge, PTF Tads, western toad tads | 588-589 | PTF Egg masses |
| **WPP-6** | | Dry | | - | - | - | - | - | - | 595 | |
| **WPP-7** | | 13 | | 80 | 23.3 | 8.87 | 215 | None | CLAD, OST, PTF Tads, Midge Larva, COP | 611 | |
| **WPP-7a** | | Dry | | - | - | - | - | - | - | 612 | |
| **WPP-7b** | | Dry | | - | - | - | - | - | - | 613 | |
| **WPP-7c** | | Dry | | - | - | - | - | - | - | 614 | |
| **WPP-7d** | | Dry | | - | - | - | - | - | - | No photo | |
| **WPP-8a** | | 4 | | 01 | 22.1 | 8.55 | 1291 | None | OST | 609 | |
| **WPP-8b** | | Dry | | - | - | - | - | - | - | 608 | |
| **WPP-8c** | | Dry | | - | - | - | - | - | - | 609 | |
| **WPP-9a** | | Dry | | - | - | - | - | - | - | 605 | |
| **WPP-9b** | | Dry | | - | - | - | - | - | - | 606 | 607 small ponded area in road. Sampled but not mapped on 2/27/14 |
| **WPP-10a** | | Dry | | - | - | - | - | - | - | 622 | |

**VERNAL POOL SAMPLING DATA SHEET**
**AERA EAST CAT CANYON - WET SEASON SURVEY**

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| Pool ID | Depth (cm) | | Area of Inundation ($m^2$) | | Water temp (°C) | pH | EC (µmhos) | Fairy shrimp presence (species / maturity) | Other fauna | Photo # | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Est. max | Max today | Est. max | Max today | | | | | | | |
| **WPP-10b** | | Dry | | - | - | - | - | - | - | 623 | |
| **WPP-11** | | Dry | | - | - | - | - | - | - | 624 | |
| **P-12** | | 8 | | 3 | 25.7 | 7.66 | 470 | None | PTF Tads, OST | 625 | |
| **P-13** | | 5 | | 0.5 | 24.3 | 7.70 | 1263 | None | OST | 626 | |
| **P-14** | | 4 | | 0.25 | 23.4 | 9.10 | 417 | None | OST | 627-628 | Ponded by seep or leaky irrigation from hillside. |
| **SP-15** | | Dry | | - | - | - | - | - | - | 631 + 632 +634 | |
| **WPP-16a** | | Dry | | - | - | - | - | - | - | 630 | |
| **WPP-16b** | | Dry | | - | - | - | - | - | - | 629 | |
| **WPP-17** | | Dry | | - | - | - | - | - | - | 580 | |
| **WPP-18** | | Dry | | - | - | - | - | - | - | 581, 582, 583 | |
| **WPP-19a** | | Dry | | - | - | - | - | - | - | 600-601 | Pump jack pads. |
| **WPP-19b** | | Dry | | - | - | - | - | - | - | 600-601 | Pump jack pads. |
| **WPP-19c** | | Dry | | - | - | - | - | - | - | 599 | Pump jack pads. |
| **WPP-19d** | | Dry | | - | - | - | - | - | - | 598 | Pump jack pads. |
| **WPP-19e** | | Dry | | - | - | - | - | - | - | 597 | Pump jack pads. |
| **WPP-20** | | Dry | | - | - | - | - | - | - | 602-604 | Pump jack pads. |
| **WPP-21** | | Dry | | - | - | - | - | - | - | 576+577 | |
| **P-22** | | Dry | | - | - | - | - | - | - | 610 | |
| **WPP-23a** | | Dry | | - | - | - | - | - | - | 615 | |
| **WPP-23b** | | Dry | | - | - | - | - | - | - | 616 | |

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

# VERNAL POOL SAMPLING DATA SHEET
# AERA EAST CAT CANYON - WET SEASON SURVEY

| Pool ID | Depth (cm) | | Area of Inundation ($m^2$) | | Water temp (°C) | pH | EC (µmhos) | Fairy shrimp presence (species / maturity) | Other fauna | Photo # | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Est. max | Max today | Est. max | Max today | | | | | | | |
| **WPP-23c** | | Dry | | - | - | - | - | - | - | 617 | |
| **SP-24** | | Dry | | - | - | - | - | - | - | 618 | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

**OTHER NOTES:** **WEATHER: wind: 0-3mph** **cloud cover: 5 %** **rain/fog/other: 0** **Air Temp (°C): 68°F.**

**Fairy shrimp**: M = mature
IM = immature
BL = *Branchinecta lynchi*
LO = *Linderiella occidentalis*

**Other fauna**:
A = Anisoptera
CLAD = Cladocerans
CONC = Conchostracans
COP = Copepods
OST = Ostracods
N = Notonectidae
Z = Zygoptera
H = Hydrophilidae
D = Dystiscidae
C = Corixidae
B = Belostomatidae
G = Gerridae
M = Mosquito (Diptera: Culicidae)
P = Phantom midge (Diptera: Chaoboridae)
CHIR = Nonbiting midge (Diptera: Chironomidae)
PTF = Pacific Tree Frog
AMPH = Amphipod
E = Ephemerata
Other: amphibians, birds, etc.

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

**Observations:**

3/13/14: Rain gage measured 1.5" this am. Last rain ~12-13 days ago. Weather has been warm and dry for ~7 days.

Tree down along south road. Tag hidden. #235 west, #228 south knocked down with tree (No quad number on tag).

SP-15 has upland coastal scrub vegetation (*Baccharis pilularis* and *Artemisia californica*) growing in feature. This feature has not been observed ponded and does not appear to have been inundated for several years.

**VERNAL POOL SAMPLING DATA SHEET**
**AERA EAST CAT CANYON - WET SEASON SURVEY**

padre associates, inc. ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

**Site/Project Name:** _Aera East Cat Canyon__ **Date** __3/25/14____ **Time:** _0930-1130__ **Surveyor:** Sarah Powell and Michaela Hoffman **Permit #:** TE-063427-1

**County:** _Santa Barbara Co_ **USGS Quad:**_____ **Lat:** _____ **Long:**_____ **Section, Township, Range:** _Sections 19, 20, 29, 30, T-9NS, R-32W_____

**Land use:** _Oil Field / Grazing_____ **Disturbance and intensity (LMH):**__high___

| Pool ID | Depth (cm) | | Area of Inundation ($m^2$) | | Water temp (°C) | pH | EC (µmhos) | Fairy shrimp presence (species / maturity) | Other fauna | Photo # | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Est. max | Max today | Est. max | Max today | | | | | | | |
| **WPP-1** | | Dry | - | - | - | - | - | - | - | - | |
| **WPP-2** | | Dry | - | - | - | - | - | - | - | - | |
| **WPP-3** | | 38 | | 450 | 15.2 | 7.68 | 730 | None | OST, PTF tads, CHIR, C | 20 | |
| **WPP-4** | | dry | - | - | - | - | - | - | - | 21-22 | |
| **WPP-5** | | 40 | | 200 | 16.8 | 7.49 | 500 | None | OST, PTF tads, WT tads, CHIR, M larva, *Neuoptera* larva, *Ephencroptera* larva | 23 | |
| **WPP-6** | | Dry | - | - | - | - | - | - | - | - | |
| **WPP-7** | | 4 | | .5 | 17.2 | 7.47 | 600 | None | OST | 24 | |
| **WPP-7a** | | Dry | - | - | - | - | - | - | - | 25 | |
| **WPP-7b** | | Dry | - | - | - | - | - | - | - | 27 | |
| **WPP-7c** | | Dry | - | - | - | - | - | - | - | 27 | |
| **WPP-7d** | | Dry | - | - | - | - | - | - | - | 26 | |
| **WPP-8a** | | Dry | - | - | - | - | - | - | - | 18 | |
| **WPP-8b** | | Dry | - | - | - | - | - | - | - | 19 | |
| **WPP-8c** | | Dry | - | - | - | - | - | - | - | 18 | |
| **WPP-9a** | | Dry | - | - | - | - | - | - | - | - | |
| **WPP-9b** | | Dry | - | - | - | - | - | - | - | - | |
| **WPP-10a** | | Dry | - | - | - | - | - | - | - | - | |

**VERNAL POOL SAMPLING DATA SHEET**
**AERA EAST CAT CANYON - WET SEASON SURVEY**

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| Pool ID | Depth (cm) | | Area of Inundation ($m^2$) | | Water temp (°C) | pH | EC (µmhos) | Fairy shrimp presence (species / maturity) | Other fauna | Photo # | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Est. max | Max today | Est. max | Max today | | | | | | | |
| **WPP-10b** | | Dry | - | - | - | - | - | - | - | - | |
| **WPP-11** | | Dry | - | - | - | - | - | - | - | - | |
| **P-12** | | Dry | - | - | - | - | - | - | - | 28 | |
| **P-13** | | 4 | | 1 | 22.4 | 7.82 | 620 | None | OST | 30-31 | |
| **P-14** | | Dry | - | - | - | - | - | - | - | 29 | |
| **SP-15** | | Dry | - | - | - | - | - | - | - | - | |
| **WPP-16a** | | Dry | - | - | - | - | - | - | - | - | |
| **WPP-16b** | | Dry | - | - | - | - | - | - | - | - | |
| **WPP-17** | | Dry | - | - | - | - | - | - | - | - | |
| **WPP-18** | | Dry | - | - | - | - | - | - | - | - | |
| **WPP-19a** | | Dry | - | - | - | - | - | - | - | - | |
| **WPP-19b** | | Dry | - | - | - | - | - | - | - | - | |
| **WPP-19c** | | Dry | - | - | - | - | - | - | - | - | |
| **WPP-19d** | | Dry | - | - | - | - | - | - | - | - | |
| **WPP-19e** | | Dry | - | - | - | - | - | - | - | - | |
| **WPP-20** | | Dry | - | - | - | - | - | - | - | - | |
| **WPP-21** | | Dry | - | - | - | - | - | - | - | - | |
| **P-22** | | Dry | - | - | - | - | - | - | - | - | |
| **WPP-23a** | | Dry | - | - | - | - | - | - | - | - | |
| **WPP-23b** | | Dry | - | - | - | - | - | - | - | - | |

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

# VERNAL POOL SAMPLING DATA SHEET
# AERA EAST CAT CANYON - WET SEASON SURVEY

| Pool ID | Depth (cm) | | Area of Inundation ($m^2$) | | Water temp (°C) | pH | EC (µmhos) | Fairy shrimp presence (species / maturity) | Other fauna | Photo # | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Est. max | Max today | Est. max | Max today | | | | | | | |
| **WPP-23c** | | Dry | - | - | - | - | - | - | - | - | |
| **SP-24** | | Dry | - | - | - | - | - | - | - | - | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

**OTHER NOTES:** **WEATHER: wind:** **none** **cloud cover:** **100** **%** **rain/fog/other:** **40% chance of rain** **Air Temp (°C):** **12.7 .**

**Fairy shrimp**: M = mature
IM = immature
BL = *Branchinecta lynchi*
LO = *Linderiella occidentalis*

**Other fauna**:
A = Anisoptera
CLAD = Cladocerans
CONC = Conchostracans
COP = Copepods
OST = Ostracods
N = Notonectidae
Z = Zygoptera
H = Hydrophilidae
D = Dystiscidae
C = Corixidae
B = Belostomatidae
G = Gerridae
M = Mosquito (Diptera: Culicidae)
P = Phantom midge (Diptera: Chaoboridae)
CHIR = Nonbiting midge (Diptera: Chironomidae)
PTF = Pacific Tree Frog
AMPH = Amphipod
E = Ephemerata
Other: amphibians, birds, etc.

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

**Observations:**

No rain since previous surveys. Much of the water on site has evaporated. Some pools are still inundated probably due to soil layers or lining which hinders percolation.

**VERNAL POOL SAMPLING DATA SHEET**
**AERA EAST CAT CANYON - WET SEASON SURVEY**

padre associates, inc. ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

**Site/Project Name:** _Aera East Cat Canyon__ **Date** _4/8/2014__ **Time:** _0900-1330___ **Surveyor:** Sarah Powell and Michaela Hoffman _ **Permit #:** TE-063427-1 _

**County:** _Santa Barbara Co_ **USGS Quad:**_____ **Lat:** _____ **Long:**_____ **Section, Township, Range:** _Sections 19, 20, 29, 30, T-9NS, R-32W_____

**Land use:** _Oil Field / Grazing_____ **Disturbance and intensity (LMH):**__high___

| Pool ID | Depth (cm) | | Area of Inundation ($m^2$) | | Water temp (°C) | pH | EC (µmhos) | Fairy shrimp presence (species / maturity) | Other fauna | Photo # | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Est. max | Max today | Est. max | Max today | | | | | | | |
| **WPP-1** | | Dry | - | - | - | - | - | - | - | 702-703 | |
| **WPP-2** | | Dry | - | - | - | - | - | - | - | 715 | |
| **WPP-3** | | 38.0 | | 260 | 22.9 | 7.69 | 645 | None | C, COP, OST, PTF tads, beetle larva, mayfly larva | 707-708 | |
| **WPP-4** | | Dry | - | - | - | - | - | - | - | 709-710 | |
| **WPP-5** | | 39.0 | | 490 | 26.7 | 7.78 | 534 | None | PTF and western toad tads, C, OST, M, Midge, mayfly, and beetle larva | 711-712 | |
| **WPP-6** | | Dry | | - | - | - | - | - | - | 713-714 | |
| **WPP-7** | | 7.0 | | 4 | 28.4 | 8.13 | 453 | None | OST | 733 | |
| **WPP-7a** | | Dry | | - | - | - | - | - | - | 734 | |
| **WPP-7b** | | Dry | | - | - | - | - | - | - | 735 | |
| **WPP-7c** | | 4.0 | | 3 | 26.9 | 7.14 | 391 | None | None | 736 | |
| **WPP-7d** | | Dry | | - | - | - | - | - | - | 737 | |
| **WPP-8a** | | 7.0 | | 14 | 28.2 | 8.44 | 888 | None | OST | 723 | |
| **WPP-8b** | | Dry | | | | | | | | 724 | |
| **WPP-8c** | | 8.0 | | 8 | 26.7 | 8.86 | 652 | None | None | 725 | |
| **WPP-9a** | | Dry | | - | - | - | - | - | - | 721 | |
| **WPP-9b** | | Dry | | - | - | - | - | - | - | 722 | |
| **WPP-10a** | | Dry | | - | - | - | - | - | - | 739 | |

**VERNAL POOL SAMPLING DATA SHEET**
**AERA EAST CAT CANYON - WET SEASON SURVEY**

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| Pool ID | Depth (cm) | | Area of Inundation ($m^2$) | | Water temp (°C) | pH | EC (µmhos) | Fairy shrimp presence (species / maturity) | Other fauna | Photo # | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Est. max | Max today | Est. max | Max today | | | | | | | |
| **WPP-10b** | | Dry | | - | - | - | - | - | - | 740 | |
| **WPP-11** | | 6.0 | | 3 | 31.5 | 8.09 | 331 | None | OST, CLAD | 741 | |
| **P-12** | | 8.0 | | 8 | 30.8 | 8.10 | 785 | None | OST | 742 | |
| **P-13** | | 3.0 | | < 1 | 30.5 | 8.81 | 367 | None | OST | 744-745 | |
| **P-14** | | Dry | | - | - | - | - | - | - | 743 | |
| **SP-15** | | Dry | | - | - | - | - | - | - | 746 | |
| **WPP-16a** | | Dry | | - | - | - | - | - | - | 748 | |
| **WPP-16b** | | Dry | | - | - | - | - | - | - | 747 | |
| **WPP-17** | | Dry | | - | - | - | - | - | - | 704 | |
| **WPP-18** | | Dry | | - | - | - | - | - | - | 705-706 | |
| **WPP-19a** | | Dry | | - | - | - | - | - | - | 720 | |
| **WPP-19b** | | Dry | | - | - | - | - | - | - | 719-720 | |
| **WPP-19c** | | Dry | | - | - | - | - | - | - | 718 | |
| **WPP-19d** | | Dry | | - | - | - | - | - | - | 717 | |
| **WPP-19e** | | Dry | | - | - | - | - | - | - | 716 | |
| **WPP-20** | | Dry | | - | - | - | - | - | - | 726-728 | |
| **WPP-21** | | Dry | | - | - | - | - | - | - | 701 | |
| **P-22** | | Dry | | - | - | - | - | - | - | 732 | |
| **WPP-23a** | | Dry | | - | - | - | - | - | - | 731 | |
| **WPP-23b** | | Dry | | - | - | - | - | - | - | 730 | |

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

# VERNAL POOL SAMPLING DATA SHEET
# AERA EAST CAT CANYON - WET SEASON SURVEY

| Pool ID | Depth (cm) | | Area of Inundation ($m^2$) | | Water temp (°C) | pH | EC (µmhos) | Fairy shrimp presence (species / maturity) | Other fauna | Photo # | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Est. max | Max today | Est. max | Max today | | | | | | | |
| **WPP-23c** | | Dry | | - | - | - | - | - | - | 729 | |
| **SP-24** | | Dry | | - | - | - | - | - | - | 738 | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

**OTHER NOTES:** **WEATHER: wind:** **1-3 mph** **cloud cover:** **0** **%** **rain/fog/other:** **sun** **Air Temp (°C):** **25 .**

**Fairy shrimp**: M = mature
IM = immature
BL = *Branchinecta lynchi*
LO = *Linderiella occidentalis*

**Other fauna**:
A = Anisoptera
CLAD = Cladocerans
CONC = Conchostracans
COP = Copepods
OST = Ostracods
N = Notonectidae
Z = Zygoptera
H = Hydrophilidae
D = Dystiscidae
C = Corixidae
B = Belostomatidae
G = Gerridae
M = Mosquito (Diptera: Culicidae)
P = Phantom midge (Diptera: Chaoboridae)
CHIR = Nonbiting midge (Diptera: Chironomidae)
PTF = Pacific Tree Frog
AMPH = Amphipod
E = Ephemerata
Other: amphibians, birds, etc.

**VERNAL POOL SAMPLING DATA SHEET**
**AERA EAST CAT CANYON - WET SEASON SURVEY**

padre associates, inc. ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

**Site/Project Name:** _Aera East Cat Canyon__ **Date** _4/22/2014__ **Time:** _0915-1130___ **Surveyor:** Sarah Powell and Michaela Hoffman_ **Permit #:** TE-063427-1 _

**County:** _Santa Barbara Co_ **USGS Quad:**_____ **Lat:** _____ **Long:**_____ **Section, Township, Range:** _Sections 19, 20, 29, 30, T-9NS, R-32W_____

**Land use:** _Oil Field / Grazing_____ **Disturbance and intensity (LMH):**__high___

| Pool ID | Depth (cm) | | Area of Inundation ($m^2$) | | Water temp (°C) | pH | EC (µmhos) | Fairy shrimp presence (species / maturity) | Other fauna | Photo # | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Est. max | Max today | Est. max | Max today | | | | | | | |
| **WPP-1** | | Dry | - | - | - | - | - | - | - | - | |
| **WPP-2** | | Dry | - | - | - | - | - | - | - | - | |
| **WPP-3** | | 38.0 | | 25 | 20.9 | 7.62 | 774 | None | C, PTF tads, mayfly | 803-804 | |
| **WPP-4** | | Dry | - | - | - | - | - | - | - | | |
| **WPP-5** | | 32.0 | | 153 | 22.3 | 7.92 | 660 | None | PTF and western toad tads, C, OST, mayfly larva | 805-806 | |
| **WPP-6** | | Dry | | - | - | - | - | - | - | | |
| **WPP-7** | | Dry | | | | | | | | 810 | |
| **WPP-7a** | | Dry | | - | - | - | - | - | - | 811 | |
| **WPP-7b** | | Dry | | - | - | - | - | - | - | 812 | |
| **WPP-7c** | | Dry | | - | - | - | - | - | - | 813 | |
| **WPP-7d** | | Dry | | - | - | - | - | - | - | 814 | |
| **WPP-8a** | | Dry | | - | - | - | - | - | - | 807 | |
| **WPP-8b** | | Dry | | - | - | - | - | - | - | 808 | |
| **WPP-8c** | | Dry | | - | - | - | - | - | - | 809 | |
| **WPP-9a** | | Dry | | - | - | - | - | - | - | 721 | |
| **WPP-9b** | | Dry | | - | - | - | - | - | - | 722 | |
| **WPP-10a** | | Dry | | - | - | - | - | - | - | 739 | |

**VERNAL POOL SAMPLING DATA SHEET**
**AERA EAST CAT CANYON - WET SEASON SURVEY**

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| Pool ID | Depth (cm) | | Area of Inundation ($m^2$) | | Water temp (°C) | pH | EC (µmhos) | Fairy shrimp presence (species / maturity) | Other fauna | Photo # | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Est. max | Max today | Est. max | Max today | | | | | | | |
| **WPP-10b** | | Dry | | - | - | - | - | - | - | | |
| **WPP-11** | | Dry | | - | - | - | - | - | - | 802 | |
| **P-12** | | Dry | | - | - | - | - | - | - | 798 | |
| **P-13** | | 6.0 | | 2.5 | 20.1 | 8.23 | 446 | None | OST. CLAD, M | 799-800 | |
| **P-14** | | Dry | | - | - | - | - | - | - | | |
| **SP-15** | | Dry | | - | - | - | - | - | - | 801 | |
| **WPP-16a** | | Dry | | - | - | - | - | - | - | | |
| **WPP-16b** | | Dry | | - | - | - | - | - | - | | |
| **WPP-17** | | Dry | | - | - | - | - | - | - | | |
| **WPP-18** | | Dry | | - | - | - | - | - | - | | |
| **WPP-19a** | | Dry | | - | - | - | - | - | - | | |
| **WPP-19b** | | Dry | | - | - | - | - | - | - | | |
| **WPP-19c** | | Dry | | - | - | - | - | - | - | | |
| **WPP-19d** | | Dry | | - | - | - | - | - | - | | |
| **WPP-19e** | | Dry | | - | - | - | - | - | - | | |
| **WPP-20** | | Dry | | - | - | - | - | - | - | | |
| **WPP-21** | | Dry | | - | - | - | - | - | - | | |
| **P-22** | | Dry | | - | - | - | - | - | - | | |
| **WPP-23a** | | Dry | | - | - | - | - | - | - | | |
| **WPP-23b** | | Dry | | - | - | - | - | - | - | | |

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

# VERNAL POOL SAMPLING DATA SHEET
# AERA EAST CAT CANYON - WET SEASON SURVEY

| Pool ID | Depth (cm) | | Area of Inundation ($m^2$) | | Water temp (°C) | pH | EC (µmhos) | Fairy shrimp presence (species / maturity) | Other fauna | Photo # | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Est. max | Max today | Est. max | Max today | | | | | | | |
| **WPP-23c** | | Dry | | - | - | - | - | - | - | | |
| **SP-24** | | Dry | | - | - | - | - | - | - | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

**OTHER NOTES:** **WEATHER: wind:** **5-7 mph** **cloud cover:** **0** **%** **rain/fog/other:** **sun** **Air Temp (°C):** **15 .**

**Fairy shrimp**: M = mature
IM = immature
BL = *Branchinecta lynchi*
LO = *Linderiella occidentalis*

**Other fauna**:
A = Anisoptera
CLAD = Cladocerans
CONC = Conchostracans
COP = Copepods
OST = Ostracods
N = Notonectidae
Z = Zygoptera
H = Hydrophilidae
D = Dystiscidae
C = Corixidae
B = Belostomatidae
G = Gerridae
M = Mosquito (Diptera: Culicidae)
P = Phantom midge (Diptera: Chaoboridae)
CHIR = Nonbiting midge (Diptera: Chironomidae)
PTF = Pacific Tree Frog
AMPH = Amphipod
E = Ephemerata
Other: amphibians, birds, etc.

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

**Observations:**

4/22/14: Most features dry. No rain since last sampling event. Features inundated from 4/8/14 have dramatically decreased in size or dried completely.

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

# VERNAL POOL SAMPLING DATA SHEET
# AERA EAST CAT CANYON - WET SEASON SURVEY

**Site/Project Name:** _Aera East Cat Canyon__ **Date** _5/6/2014__ **Time:** _0930-1100___ **Surveyor:** Sarah Powell and Michaela Hoffman_ **Permit #:** TE-063427-1 _

**County:** _Santa Barbara Co_ **USGS Quad:**_____ **Lat:** _____ **Long:**_____ **Section, Township, Range:** _Sections 19, 20, 29, 30, T-9NS, R-32W_____

**Land use:** _Oil Field / Grazing_____ **Disturbance and intensity (LMH):**__high___

| Pool ID | Depth (cm) | | Area of Inundation ($m^2$) | | Water temp (°C) | pH | EC (µmhos) | Fairy shrimp presence (species / maturity) | Other fauna | Photo # | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Est. max | Max today | Est. max | Max today | | | | | | | |
| **WPP-1** | | Dry | - | - | - | - | - | - | - | - | |
| **WPP-2** | | Dry | - | - | - | - | - | - | - | - | |
| **WPP-3** | | 18.0 | | 7 | 18.0 | 8.38 | 930 | None | C, PTF tads, | 818 | |
| **WPP-4** | | Dry | - | - | - | - | - | - | - | | |
| **WPP-5** | | 23.0 | | 64 | 19.0 | 8.25 | 1103 | None | PTF tads, OST, C | 819 | |
| **WPP-6** | | Dry | | - | - | - | - | - | - | - | |
| **WPP-7** | | Dry | | | | | | | | 820 | |
| **WPP-7a** | | Dry | | - | - | - | - | - | - | 821 | |
| **WPP-7b** | | Dry | | - | - | - | - | - | - | 822 | |
| **WPP-7c** | | Dry | | - | - | - | - | - | - | 823 | |
| **WPP-7d** | | Dry | | - | - | - | - | - | - | 824 | |
| **WPP-8a** | | Dry | | - | - | - | - | - | - | 815 | |
| **WPP-8b** | | Dry | | - | - | - | - | - | - | 816 | |
| **WPP-8c** | | Dry | | - | - | - | - | - | - | 817 | |
| **WPP-9a** | | Dry | | - | - | - | - | - | - | - | |
| **WPP-9b** | | Dry | | - | - | - | - | - | - | - | |
| **WPP-10a** | | Dry | | - | - | - | - | - | - | - | |

**VERNAL POOL SAMPLING DATA SHEET**
**AERA EAST CAT CANYON - WET SEASON SURVEY**

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| Pool ID | Depth (cm) | | Area of Inundation ($m^2$) | | Water temp (°C) | pH | EC (µmhos) | Fairy shrimp presence (species / maturity) | Other fauna | Photo # | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Est. max | Max today | Est. max | Max today | | | | | | | |
| **WPP-10b** | | Dry | | - | - | - | - | - | - | | |
| **WPP-11** | | Dry | | - | - | - | - | - | - | 825 | |
| **P-12** | | Dry | | - | - | - | - | - | - | 826 | |
| **P-13** | | 6.0 | | 2.0 | 26.0 | 7.80 | 862 | None | None | 827-828 | |
| **P-14** | | Dry | | - | - | - | - | - | - | | |
| **SP-15** | | Dry | | - | - | - | - | - | - | | |
| **WPP-16a** | | Dry | | - | - | - | - | - | - | | |
| **WPP-16b** | | Dry | | - | - | - | - | - | - | | |
| **WPP-17** | | Dry | | - | - | - | - | - | - | | |
| **WPP-18** | | Dry | | - | - | - | - | - | - | | |
| **WPP-19a** | | Dry | | - | - | - | - | - | - | | |
| **WPP-19b** | | Dry | | - | - | - | - | - | - | | |
| **WPP-19c** | | Dry | | - | - | - | - | - | - | | |
| **WPP-19d** | | Dry | | - | - | - | - | - | - | | |
| **WPP-19e** | | Dry | | - | - | - | - | - | - | | |
| **WPP-20** | | Dry | | - | - | - | - | - | - | | |
| **WPP-21** | | Dry | | - | - | - | - | - | - | | |
| **P-22** | | Dry | | - | - | - | - | - | - | | |
| **WPP-23a** | | Dry | | - | - | - | - | - | - | | |
| **WPP-23b** | | Dry | | - | - | - | - | - | - | | |

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

# VERNAL POOL SAMPLING DATA SHEET
# AERA EAST CAT CANYON - WET SEASON SURVEY

| Pool ID | Depth (cm) | | Area of Inundation ($m^2$) | | Water temp (°C) | pH | EC (µmhos) | Fairy shrimp presence (species / maturity) | Other fauna | Photo # | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Est. max | Max today | Est. max | Max today | | | | | | | |
| **WPP-23c** | | Dry | | - | - | - | - | - | - | | |
| **SP-24** | | Dry | | - | - | - | - | - | - | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

**OTHER NOTES:** **WEATHER: wind:** **1-8 mph** **cloud cover:** **50** **%** **rain/fog/other:** **sun & partial cloud cover** **Air Temp (°C):** **15.5 .**

**Fairy shrimp**: M = mature
IM = immature
BL = *Branchinecta lynchi*
LO = *Linderiella occidentalis*

**Other fauna**:
A = Anisoptera
CLAD = Cladocerans
CONC = Conchostracans
COP = Copepods
OST = Ostracods
N = Notonectidae
Z = Zygoptera
H = Hydrophilidae
D = Dystiscidae
C = Corixidae
B = Belostomatidae
G = Gerridae
M = Mosquito (Diptera: Culicidae)
P = Phantom midge (Diptera: Chaoboridae)
CHIR = Nonbiting midge (Diptera: Chironomidae)
PTF = Pacific Tree Frog
AMPH = Amphipod
E = Ephemerata
Other: amphibians, birds, etc.

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

**Observations:**

5/6/14: Most features dry. Last rain event occurred 4/25/14 with approx. 0.10 in of rain. No new inundated pools.

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

# VERNAL POOL SAMPLING DATA SHEET
# AERA EAST CAT CANYON - WET SEASON SURVEY

**Site/Project Name:** _Aera East Cat Canyon__ **Date** _5/20/2014__ **Time:** _0800-1020___ **Surveyor:** Sarah Powell and Michaela Hoffman_ **Permit #:** TE-063427-1 _

**County:** _Santa Barbara Co_ **USGS Quad:**_____ **Lat:** _____ **Long:**_____ **Section, Township, Range:** _Sections 19, 20, 29, 30, T-9NS, R-32W_____

**Land use:** _Oil Field / Grazing_____ **Disturbance and intensity (LMH):**__high___

| Pool ID | Depth (cm) | | Area of Inundation ($m^2$) | | Water temp (°C) | pH | EC (µmhos) | Fairy shrimp presence (species / maturity) | Other fauna | Photo # | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Est. max | Max today | Est. max | Max today | | | | | | | |
| **WPP-1** | | Dry | - | - | - | - | - | - | - | | |
| **WPP-2** | | Dry | - | - | - | - | - | - | - | | |
| **WPP-3** | | Dry | | | | | | | | 877-878 | |
| **WPP-4** | | Dry | - | - | - | - | - | - | - | | |
| **WPP-5** | | Dry | | | | | | | | 879-880 | |
| **WPP-6** | | Dry | | - | - | - | - | - | - | | |
| **WPP-7** | | Dry | | | | | | | | | |
| **WPP-7a** | | Dry | | - | - | - | - | - | - | | |
| **WPP-7b** | | Dry | | - | - | - | - | - | - | | |
| **WPP-7c** | | Dry | | - | - | - | - | - | - | | |
| **WPP-7d** | | Dry | | - | - | - | - | - | - | | |
| **WPP-8a** | | Dry | | - | - | - | - | - | - | | |
| **WPP-8b** | | Dry | | - | - | - | - | - | - | | |
| **WPP-8c** | | Dry | | - | - | - | - | - | - | | |
| **WPP-9a** | | Dry | | - | - | - | - | - | - | - | |
| **WPP-9b** | | Dry | | - | - | - | - | - | - | - | |
| **WPP-10a** | | Dry | | - | - | - | - | - | - | - | |

**VERNAL POOL SAMPLING DATA SHEET**
**AERA EAST CAT CANYON - WET SEASON SURVEY**

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| Pool ID | Depth (cm) | | Area of Inundation ($m^2$) | | Water temp (°C) | pH | EC (µmhos) | Fairy shrimp presence (species / maturity) | Other fauna | Photo # | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Est. max | Max today | Est. max | Max today | | | | | | | |
| **WPP-10b** | | Dry | | - | - | - | - | - | - | | |
| **WPP-11** | | Dry | | - | - | - | - | - | - | | |
| **P-12** | | Dry | | - | - | - | - | - | - | | |
| **P-13** | | 4.0 | | 0.5 | 22.2 | 8.35 | 677 | None | None | 881-883 | |
| **P-14** | | Dry | | - | - | - | - | - | - | | |
| **SP-15** | | Dry | | - | - | - | - | - | - | | |
| **WPP-16a** | | Dry | | - | - | - | - | - | - | | |
| **WPP-16b** | | Dry | | - | - | - | - | - | - | | |
| **WPP-17** | | Dry | | - | - | - | - | - | - | | |
| **WPP-18** | | Dry | | - | - | - | - | - | - | | |
| **WPP-19a** | | Dry | | - | - | - | - | - | - | | |
| **WPP-19b** | | Dry | | - | - | - | - | - | - | | |
| **WPP-19c** | | Dry | | - | - | - | - | - | - | | |
| **WPP-19d** | | Dry | | - | - | - | - | - | - | | |
| **WPP-19e** | | Dry | | - | - | - | - | - | - | | |
| **WPP-20** | | Dry | | - | - | - | - | - | - | | |
| **WPP-21** | | Dry | | - | - | - | - | - | - | | |
| **P-22** | | Dry | | - | - | - | - | - | - | | |
| **WPP-23a** | | Dry | | - | - | - | - | - | - | | |
| **WPP-23b** | | Dry | | - | - | - | - | - | - | | |

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

# VERNAL POOL SAMPLING DATA SHEET
# AERA EAST CAT CANYON - WET SEASON SURVEY

| Pool ID | Depth (cm) | | Area of Inundation ($m^2$) | | Water temp (°C) | pH | EC (µmhos) | Fairy shrimp presence (species / maturity) | Other fauna | Photo # | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Est. max | Max today | Est. max | Max today | | | | | | | |
| **WPP-23c** | | Dry | | - | - | - | - | - | - | | |
| **SP-24** | | Dry | | - | - | - | - | - | - | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

**OTHER NOTES:** **WEATHER: wind:** **1-8 mph** **cloud cover:** **50** **%** **rain/fog/other:** **sun & partial cloud cover** **Air Temp (°C):** **15.5 .**

**Fairy shrimp**: M = mature
IM = immature
BL = *Branchinecta lynchi*
LO = *Linderiella occidentalis*

**Other fauna**:
A = Anisoptera
CLAD = Cladocerans
CONC = Conchostracans
COP = Copepods
OST = Ostracods
N = Notonectidae
Z = Zygoptera
H = Hydrophilidae
D = Dystiscidae
C = Corixidae
B = Belostomatidae
G = Gerridae
M = Mosquito (Diptera: Culicidae)
P = Phantom midge (Diptera: Chaoboridae)
CHIR = Nonbiting midge (Diptera: Chironomidae)
PTF = Pacific Tree Frog
AMPH = Amphipod
E = Ephemerata
Other: amphibians, birds, etc.

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

**Observations:**

5/20/14: All features dry with the exception of feature #13 on east side. Suspect that there is a leaky irrigation line contributing water to this feature. Rain sprinkles this morning, but no measurable precipitation recorded. Removed weather station from the site at the request of Lyndon Lee.

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

# VERNAL POOL SAMPLING DATA SHEET
# AERA EAST CAT CANYON - WET SEASON SURVEY

**Site/Project Name:** _Aera East Cat Canyon__ **Date** _6/3/2014__ **Time:** _1430-1530___ **Surveyor:** Sarah Powell and Michaela Hoffman_ **Permit #:** TE-063427-1 _

**County:** _Santa Barbara Co_ **USGS Quad:**_____ **Lat:** _____ **Long:**_____ **Section, Township, Range:** _Sections 19, 20, 29, 30, T-9NS, R-32W_____

**Land use:** _Oil Field / Grazing_____ **Disturbance and intensity (LMH):**__high___

| Pool ID | Depth (cm) | | Area of Inundation ($m^2$) | | Water temp (°C) | pH | EC (µmhos) | Fairy shrimp presence (species / maturity) | Other fauna | Photo # | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Est. max | Max today | Est. max | Max today | | | | | | | |
| **WPP-1** | | Dry | - | - | - | - | - | - | - | - | |
| **WPP-2** | | Dry | - | - | - | - | - | - | - | - | |
| **WPP-3** | | Dry | - | - | - | - | - | - | - | - | |
| **WPP-4** | | Dry | - | - | - | - | - | - | - | | |
| **WPP-5** | | Dry | - | - | - | - | - | - | - | - | |
| **WPP-6** | | Dry | | - | - | - | - | - | - | - | |
| **WPP-7** | | Dry | | | | | | | | - | |
| **WPP-7a** | | Dry | | - | - | - | - | - | - | - | |
| **WPP-7b** | | Dry | | - | - | - | - | - | - | - | |
| **WPP-7c** | | Dry | | - | - | - | - | - | - | - | |
| **WPP-7d** | | Dry | | - | - | - | - | - | - | - | |
| **WPP-8a** | | Dry | | - | - | - | - | - | - | - | |
| **WPP-8b** | | Dry | | - | - | - | - | - | - | - | |
| **WPP-8c** | | Dry | | - | - | - | - | - | - | - | |
| **WPP-9a** | | Dry | | - | - | - | - | - | - | - | |
| **WPP-9b** | | Dry | | - | - | - | - | - | - | - | |
| **WPP-10a** | | Dry | | - | - | - | - | - | - | - | |

**VERNAL POOL SAMPLING DATA SHEET**
**AERA EAST CAT CANYON - WET SEASON SURVEY**

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| Pool ID | Depth (cm) | | Area of Inundation ($m^2$) | | Water temp (°C) | pH | EC (µmhos) | Fairy shrimp presence (species / maturity) | Other fauna | Photo # | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Est. max | Max today | Est. max | Max today | | | | | | | |
| **WPP-10b** | | Dry | | - | - | - | - | - | - | | |
| **WPP-11** | | Dry | | - | - | - | - | - | - | - | |
| **P-12** | | Dry | | - | - | - | - | - | - | - | |
| **P-13** | | 6.0 | - | 0.5- | 30.4 | 10.00 | 524 | None | None | 988-990 | |
| **P-14** | | Dry | | - | - | - | - | - | - | | |
| **SP-15** | | Dry | | - | - | - | - | - | - | | |
| **WPP-16a** | | Dry | | - | - | - | - | - | - | | |
| **WPP-16b** | | Dry | | - | - | - | - | - | - | | |
| **WPP-17** | | Dry | | - | - | - | - | - | - | | |
| **WPP-18** | | Dry | | - | - | - | - | - | - | | |
| **WPP-19a** | | Dry | | - | - | - | - | - | - | | |
| **WPP-19b** | | Dry | | - | - | - | - | - | - | | |
| **WPP-19c** | | Dry | | - | - | - | - | - | - | | |
| **WPP-19d** | | Dry | | - | - | - | - | - | - | | |
| **WPP-19e** | | Dry | | - | - | - | - | - | - | | |
| **WPP-20** | | Dry | | - | - | - | - | - | - | | |
| **WPP-21** | | Dry | | - | - | - | - | - | - | | |
| **P-22** | | Dry | | - | - | - | - | - | - | | |
| **WPP-23a** | | Dry | | - | - | - | - | - | - | | |
| **WPP-23b** | | Dry | | - | - | - | - | - | - | | |

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

# VERNAL POOL SAMPLING DATA SHEET
# AERA EAST CAT CANYON - WET SEASON SURVEY

| Pool ID | Depth (cm) | | Area of Inundation ($m^2$) | | Water temp (°C) | pH | EC (µmhos) | Fairy shrimp presence (species / maturity) | Other fauna | Photo # | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Est. max | Max today | Est. max | Max today | | | | | | | |
| **WPP-23c** | | Dry | | - | - | - | - | - | - | | |
| **SP-24** | | Dry | | - | - | - | - | - | - | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

**OTHER NOTES:** **WEATHER: wind:** **1-3 mph** **cloud cover:** **0** **%** **rain/fog/other:** **sun** **Air Temp (°C):** **25 .**

**Fairy shrimp**: M = mature
IM = immature
BL = *Branchinecta lynchi*
LO = *Linderiella occidentalis*

**Other fauna**:
A = Anisoptera
CLAD = Cladocerans
CONC = Conchostracans
COP = Copepods
OST = Ostracods
N = Notonectidae
Z = Zygoptera
H = Hydrophilidae
D = Dystiscidae
C = Corixidae
B = Belostomatidae
G = Gerridae
M = Mosquito (Diptera: Culicidae)
P = Phantom midge (Diptera: Chaoboridae)
CHIR = Nonbiting midge (Diptera: Chironomidae)
PTF = Pacific Tree Frog
AMPH = Amphipod
E = Ephemerata
Other: amphibians, birds, etc.

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

**Observations:**

Last sampling event. All features dry except P-13, which has reached 120-day inundation date.

# APPENDIX B
# SITE PHOTOGRAPHS

Photograph 1. WPP-1 on abandoned well pad, aspect southeast. Date: 2/27/2014

Photograph 2. WPP-3 (lined reservoir) at maximum inundation level, aspect northeast. Date: 4/8/2014

Photograph 3. WPP-5 (stockpond), aspect northwest. Date: 4/8/2014

Photograph 4. P-12 (stockpond), aspect north. Date 4/8/2014

Photograph 5. P-13 on abandoned well pad, aspect south. Date: 4/8/2014

Photograph 6. WPP-4 (outside lined reservoir berm), aspect southeast. Date: 3/13/2014.

Photograph 7. WPP-18 on abandoned well pad, aspect northeast. This photos shows highly disturbed, super compacted, unvegetated abandoned well pad features. Date: 2/27/2014

Photograph 8. WPP-7 on abandoned well pad at maximum inundation level, aspect northwest. This photo shows a less disturbed, vegetated abandoned well pad feature. Date: 3/13/2014

# APPENDIX E

## VERNAL POOL FIARY SHRIMP DRY-SEASON REPORT (LSA, 2014)

LSA ASSOCIATES, INC.
157 PARK PLACE
PT. RICHMOND, CALIFORNIA 94801
510.236.6810 TEL
510.236.3480 FAX
BERKELEY
CARLSBAD
FRESNO
IRVINE
PALM SPRINGS
RIVERSIDE
ROCKLIN
SAN LUIS OBISPO

October 1, 2014

Chris Kofron
Recovery Permit Coordinator
U. S. Fish and Wildlife Service
2493 Portola Road, Suite B
Ventura, CA 93003

Subject: Results of 2014 Dry Season Fairy Shrimp Surveys for the Aera Energy LLC's East Cat Canyon Oil Field Site, Santa Barbara County

Dear Mr. Kofron:

This letter provides the results of a 2014 dry season presence/absence survey for listed vernal pool crustaceans conducted by LSA Associates, Inc. (LSA) for Padre Associates, Inc. (Padre). This protocol level dry season survey serves as a portion of full protocol level surveys to document the presence or absence of listed vernal pool crustaceans on the Aera Energy East Cat Canyon Oil Field site (Study Site), southeast of the City of Santa Maria, and south of the town of Sisquoc in Santa Barbara County, California.

The Study Site is located in northwestern Santa Barbara County, south of the Sisquoc River and east of California State Highway 101. The property is bisected by Long Canyon Road with Foxen Canyon Road located to the east and Cat Canyon Road to the west. The property can be found within portions of Sections 17, 19, 20, 29, 30, 31 and 32, Township 9 North, Range 32 West on the Sisquoc, California 7.5-minute USGS quadrangle and is roughly centered at UTM 385770N/749110E. The Study Site is surrounded by open lands used mostly for agriculture, grazing livestock and/or oil - production. The Study Site location is provided on the attached maps (Figures 1 and 2).

The approximately 2,200 acre Study Site is in the foothills located within the Sisquoc River drainage system on the south side of the river. The project site supports a mosaic of vegetation communities comprised of annual grasslands, chaparral, and oak woodlands. Oaks grow mainly on north facing slopes and in the bottoms of canyons. Grasslands dominate lower slopes and chaparral is mainly on the steeper canyon slopes. Previously disturbed areas include a network of flat oil well pads and interconnecting roadways to support oil production.

Most of the oil wells have been removed from the site leaving the majority of the graded pads currently abandoned, although a few wells remain in various locations. Shallow depressions have formed within several of the oil well pads and along the roadways. These low areas have been observed pooling water during and after rains. A few small, constructed stock ponds and shallow grassland depressions are also present on the site. These ephemeral pooling areas could support invertebrate species including listed species of fairy shrimp. The locations and numbers of these features are provided on Figures 3 through 20.

Wet season surveys of the Study Site were conducted by Padre biologist Sarah Powell (Permit TE-063427-1) during the 2013-2014 rainy season. No species of fairy shrimp were found during the wet

season surveys. The 90-day report presenting the results from these surveys was submitted to the U.S. Fish and Wildlife Service (USFWS) Ventura Field Office separately on August 29, 2014.

## METHODS

The 2014 dry season surveys of the Study Site were conducted by LSA Senior Biologist David Muth (under LSA Federal 10(a)(1)(A) Permit TE-797345) with assistance from Padre biologist Michaela Hoffman in accordance with the United States Fish and Wildlife Service *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for Listed Vernal Pool Branchiopods*, dated April 19, 1996. The Interim Survey Guidelines require approval from the USFWS prior to conducting protocol surveys; however, because authorization had already been provided for the wet season surveys, Mr. Muth overlooked the need to request approval for the dry season survey. Immediately upon realizing that dry season approval had not been obtained, he contacted Chris Kofron, Recovery Permit Coordinator, of the USFWS Ventura Office on July 30, 2014 to alert him that the survey had been conducted without approval. Mr. Kofron requested documentation of this in the report.

During dry season surveys, Mr. Muth and Ms. Hoffman collected a series of four to ten (depending on feature size) 0.1 liter samples of soil material from each of the potential habitat areas in the Study Site on July 8, 2014. The soil was dry at the time of collection and stored in plastic zip-lock bags marked to indicate the site of collection and sample number.

The soil was processed by Mr. Muth on July 21, 23, 25, 28 and 29, 2014. The soil samples were processed individually by placing each in a five-gallon bucket containing 1 to 2 gallons of water to saturate the soil. After saturating the soil sample for approximately 10 to 15 minutes, the bucket was stirred and poured through a series of three sieves with mesh sizes of 710, 355, and 212 microns (as recommended by Richard Hill of CalTrans). The sieves were stacked with the largest mesh size at the top to the smallest mesh size on the bottom. Samples were poured and washed through the set with water. Material trapped in the 212 micron sieve in each set was saved for analysis by washing the material into coffee filters. Material in the coffee filters was poured into a brine solution to separate mineral substrate from biological detritus. The floating biological portions were poured back into the coffee filters and left to dry.

The sieved material was examined by Mr. Muth on July 22, 24, 29 and 30, 2014 using a 10 to 40 power Olympus stereo-optic scope. A reference cyst collection was available and could be used when necessary for comparison of any cysts found in the samples.

## RESULTS

Feature characteristics are provided in Table A. All 39 of the features are artificial in nature and the majority are shallow and highly disturbed. All features are fed by direct rainfall or adjacent runoff. No cysts from any listed genera of fairy shrimp were observed in any of the processed soil samples collected from the Study Site. Fourteen of the 39 features (WPP-2, WPP-3. WPP-4, WPP-5, WPP-7, WPP-7a, WPP-7b, WPP-7c, WPP-9a, WPP-9b, WPP-10a, WPP-11, SP-15 and WPP-16a) contained microscopic material, such as copepod eggs, cladoceran ephippium, and/or ostracod shells, typically associated with seasonally ponding features that support invertebrate fauna. No evidence of aquatic invertebrates was observed in any of the samples from remaining 25 features.

**Table A – Feature Characteristics and Results of Dry Season Surveys, Aera Cat Canyon Oil Field, Santa Barbara County**

| Feature | Estimated Maximum Depth (cm) | Estimated Maximum Length (m) × Width (m) | Origin | Fairy or Tadpole Shrimp Eggs Found in Samples |
|---|---|---|---|---|
| WPP-1 | 10 | 9 x 2 | Roadway depression (unvegetated) | None |
| WPP-2 | 15 | 4 × 4 | Pad depression (shallow) | None; evidence of aquatic invertebrates present |
| WPP-3 | 30 | 20 × 25 | Lined reservoir (bare soil) | None; evidence of aquatic invertebrates present |
| WPP-4 | 10 | 16 × 1.5 | depression below lined reservoir (vegetated) | None; evidence of aquatic invertebrates present |
| WPP-5 | 25 | 20 × 20 | Ponded pad (vegetated) | None; evidence of aquatic invertebrates present |
| WPP-6 | 15 | 3 × 1 | Pad rut (bare soil) | None |
| WPP-7 | 15 | 20 × 15 | Pad depression (vegetated) | None; evidence of aquatic invertebrates present |
| WPP-7a | 15 | 1 × 3 | Old trench in pad (vegetated) | None; evidence of aquatic invertebrates present |
| WPP-7b | 15 | 1 × 3 | Old trench in pad (vegetated) | None; evidence of aquatic invertebrates present |
| WPP-7c | 10 | 2.5 × 10 | Pad depression (vegetated) | None; evidence of aquatic invertebrates present |
| WPP-7d | 8 | 4 × 3 | Shallow pad depression (vegetated) | None |
| WPP-8a | 8 | 5 × 5 | Pad depression (bare soil) | None |
| WPP-8b | 8 | 4 × 5 | Pad depression (bare soil) | None |
| WPP-8c | 8 | 1 × 4 | Pad depression (bare soil) | None |
| WPP-9a | 10 | 4 × 5 | Pad depression (vegetated) | None; evidence of aquatic invertebrates present |
| WPP-9b | 8 | 2 × 3 | Pad depression (vegetated) | None; evidence of aquatic invertebrates present |
| WPP-10a | 18 | 5 × 7 | Pad depression (vegetated) | None; evidence of aquatic invertebrates present |
| WPP-10b | 8 | 1.5 × 3 | Old trench in pad (vegetated) | None |
| WPP-11 | 10 | 1.5 × 4 | Pad depression (vegetated) | None; evidence of aquatic invertebrates present |
| P-12 | 20 | 6 × 4 | Topographic depression - stockpond (vegetated) | None |
| P-13 | 8 | 15 × 1 | Shallow drainage channel across road (bare soil) | None |
| P-14 | 25 | 3 × 3 | Small topographic depression (vegetated) | None |

| Feature | Estimated Maximum Depth (cm) | Estimated Maximum Length (m) × Width (m) | Origin | Fairy or Tadpole Shrimp Eggs Found in Samples |
|---|---|---|---|---|
| SP-15 | 30 | 30 × 25 | Shallow stock pond (vegetated) | None; evidence of aquatic invertebrates present |
| WPP-16a | 20 | 20 × 25 | Pad depression (vegetated) | None; evidence of aquatic invertebrates present |
| WPP-16b | 18 | 20 × 15 | Pad depression (vegetated) | None |
| WPP-17 | 8 | 3 × 2 | Roadway depression (bare soil) | None |
| WPP-18 | 8 | 6 × 4 | Roadway depression (bare soil) | None |
| WPP-19a | 8 | 3 × 4 | Active well pad Graded depression (bare soil) | None |
| WPP-19b | 8 | 3 × 5 | Active well pad Graded depression (bare soil) | None |
| WPP-19c | 10 | 2 × 5 | Active well pad Graded depression (bare soil) | None |
| WPP-19d | 8 | 3 × 4 | Active well pad Graded depression (bare soil) | None |
| WPP-19e | 8 | 1 × 3 | Roadway depression (bare soil) | None |
| WPP-20 | 10 | 12 × 6 | Active well pad depression (possibly graded) | None |
| WPP-21 | 10 | 8 × 2 | Roadway depression (vegetated) | None |
| WPP-22 | 8 | 1.5 × 8 | Roadway depression (bare soil) | None |
| WPP-23a | 8 | 3 × 4 | Pad depression (vegetated) | None |
| WPP-23b | 8 | 3 × 4 | Pad depression (vegetated) | None |
| WPP-23c | 10 | 4 × 4 | Pad depression (vegetated) | None |
| SP-24 | 18 | 6 × 7 | Ponded portion of wash (vegetated) | None |

## CONCLUSIONS

No eggs of any species of listed vernal pool shrimp were located within any of the samples processed during this 2014 protocol level dry season survey. The negative results of this dry season survey in conjunction with the negative results of a wet season survey will comply with the requirements of the federal protocol to document absence of listed vernal pool crustaceans on the Aera Energy East Cat Canyon Oil Field site in Santa Barbara County.

Please contact me if you require any additional information.

Sincerely,

**LSA ASSOCIATES, INC.**

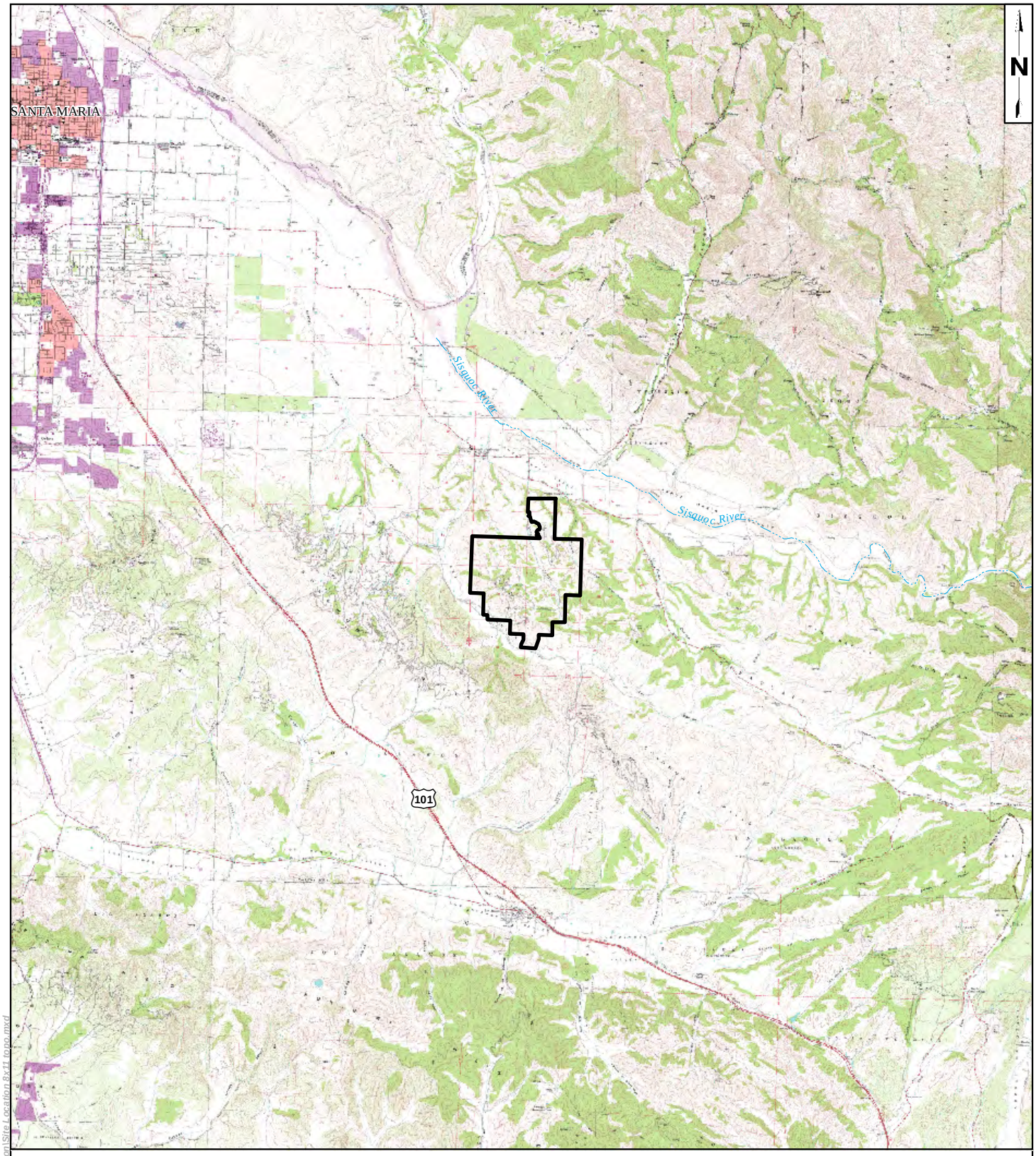
David Muth
Senior Herpetologist

Attachments: Certification
Figure 1: Regional and Project Location
Figure 2: Overview of Features Included in Dry Season Survey
Figures 3-20: Detailed View of Potential Habitat Features Surveyed
Figures 21a-21d: Photo Pages
Data Sheets

cc:
Julie Vanderwier, USFWS
Jeff Phillips, USFWS
Susan Perrrell, Aera
Sarah Powell, Padre Associates
Eric Snelling, Padre Associates
Sarah Spann, Padre Associates

**I CERTIFY THAT THE INFORMATION IN THIS SURVEY REPORT AND ATTACHED EXHIBITS FULLY AND ACCURATELY REPRESENTS MY WORK:**

| SURVEYOR: | PERMIT NUMBER | DATE: |
|---|---|---|
| | TE-797234 | October 1, 2014 |
| David Muth | | |




LEGEND:

Project Site

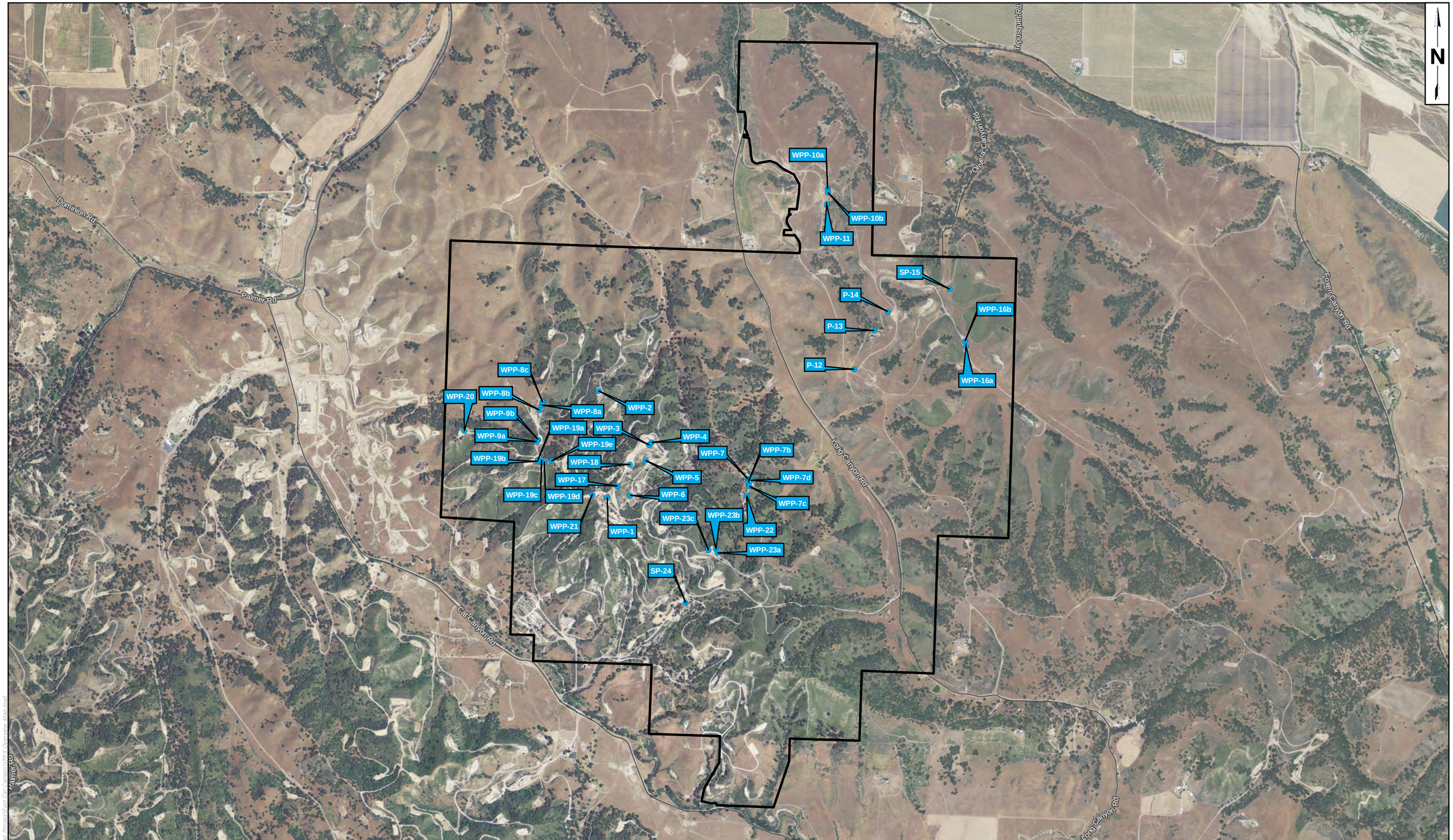
0 1.25 2.5
MILES

*Source: USGS Topo Quad, Santa Barbara County, TIGER*
*Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet*
*Notes: This map was created for informational and display purposed only*

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: | | | FIGURE |
|---|---|---|---|
| EAST CAT CANYON<br>SANTA BARBARA COUNTY, CA | | PROJECT LOCATION | 1 |
| PROJECT NUMBER: 1002-0455 | DATE: June 2013 | | |

Z:\Kristin\GIS\Maps\Map Projects\East Cat Canyon\Site Location 8x11 topo.mxd




0 850 1,700
FEET

Source: NAIP 2012 Image
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposes only.

VPFS Potential Habitat Location

Project Site

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: EAST CAT CANYON SANTA BARBARA COUNTY, CA

PROJECT NUMBER: 1002-0455

DATE: September 2014

FIGURES INCLUDED IN DRY SEASON SURVEY

FIGURE 2

LEGEND:

Dry Season Sampling Location | VPFS Potential Site | Aera Energy LLC Property

0 25 50
FEET

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| | | | |
|---|---|---|---|
| PROJECT NAME: EAST CAT CANYON SANTA BARBARA COUNTY, CA | | DETAILED VIEW OF POTENTIAL HABITAT FEATURES | FIGURE 3 |
| PROJECT NUMBER: 1002-0455 | DATE: September 2014 | | |

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\VPFS Dry Season Sample Locations2.mxd

LEGEND:

Dry Season Sampling Location | VPFS Potential Site | Aera Energy LLC Property

0 25 50
FEET

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| | | | |
|---|---|---|---|
| PROJECT NAME: EAST CAT CANYON SANTA BARBARA COUNTY, CA | | DETAILED VIEW OF POTENTIAL HABITAT FEATURES | FIGURE 4 |
| PROJECT NUMBER: 1002-0455 | DATE: September 2014 | | |

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\VPFS Dry Season Sample Locations2.mxd

LEGEND:

Dry Season Sampling Location | VPFS Potential Site | Aera Energy LLC Property

0 25 50
FEET

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| | | | |
|---|---|---|---|
| PROJECT NAME: EAST CAT CANYON SANTA BARBARA COUNTY, CA | | DETAILED VIEW OF POTENTIAL HABITAT FEATURES | FIGURE 5 |
| PROJECT NUMBER: 1002-0455 | DATE: September 2014 | | |

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\VPFS Dry Season Sample Locations2.mxd

LEGEND:

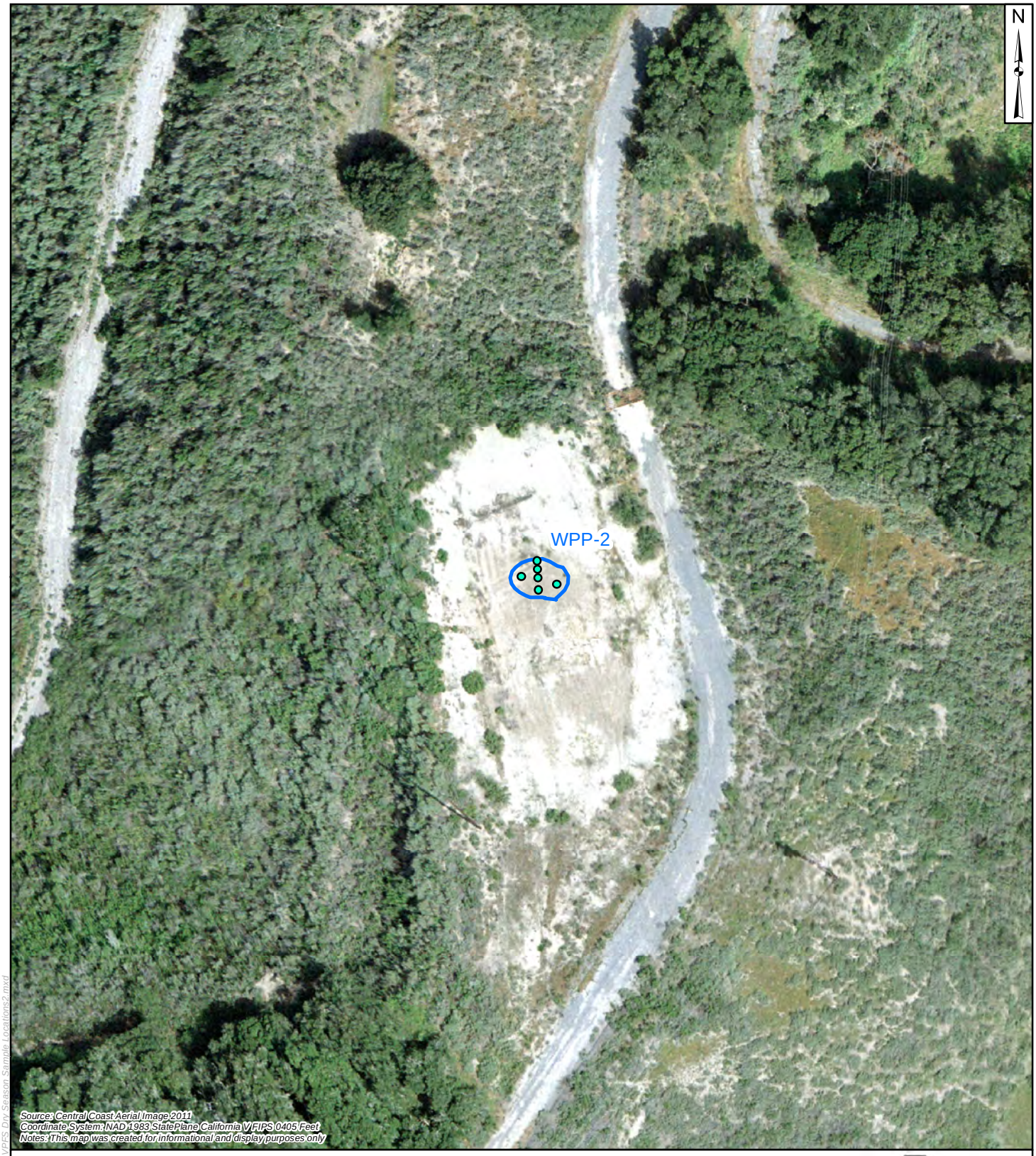
Dry Season Sampling Location | VPFS Potential Site | Aera Energy LLC Property

0 25 50
FEET

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| | | | |
|---|---|---|---|
| PROJECT NAME: EAST CAT CANYON SANTA BARBARA COUNTY, CA | | DETAILED VIEW OF POTENTIAL HABITAT FEATURES | FIGURE 6 |
| PROJECT NUMBER: 1002-0455 | DATE: September 2014 | | |

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\VPFS Dry Season Sample Locations2.mxd




LEGEND:

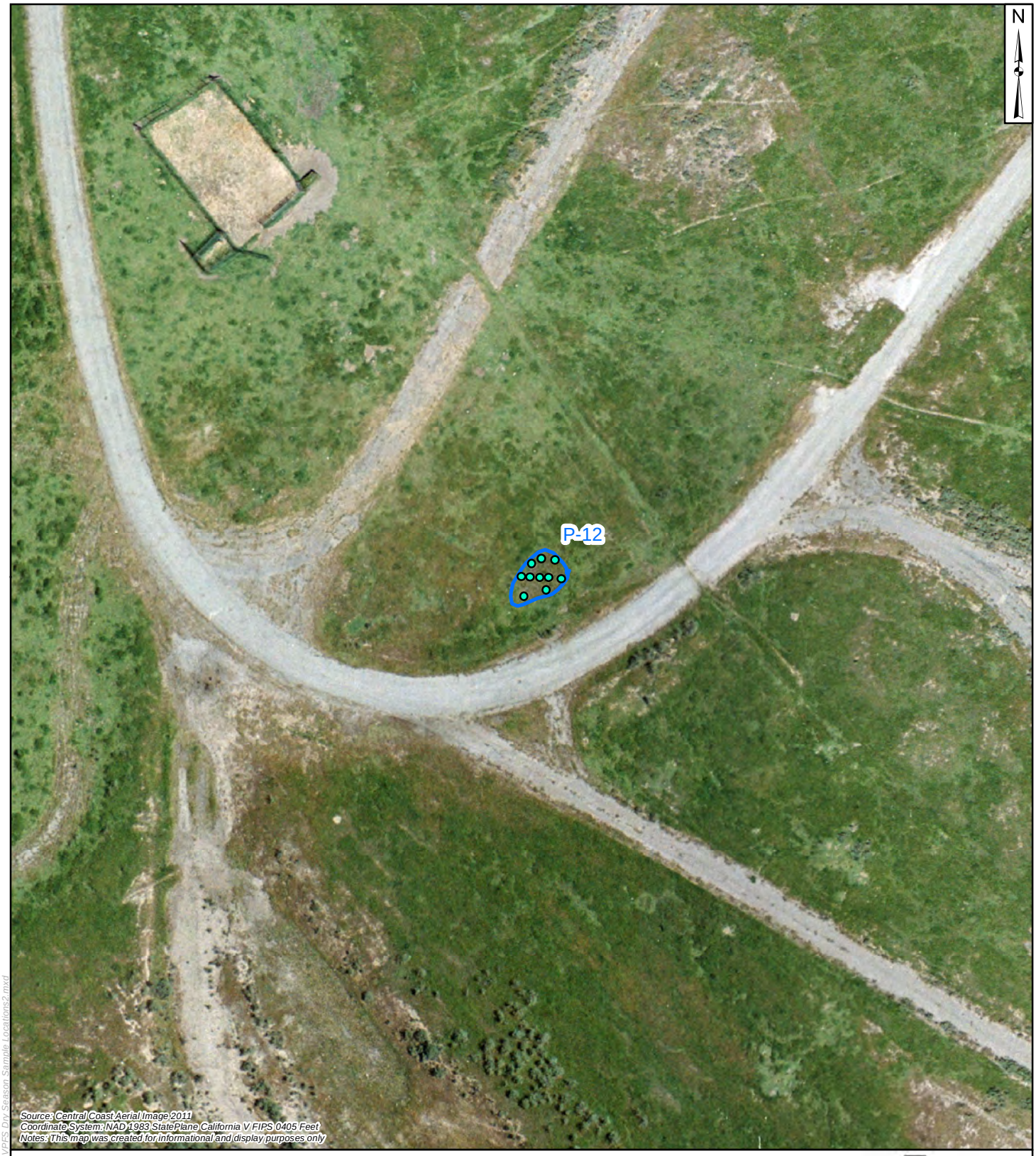
- Dry Season Sampling Location
- VPFS Potential Site
- Aera Energy LLC Property

0 25 50
FEET

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| | | |
|---|---|---|
| PROJECT NAME: EAST CAT CANYON SANTA BARBARA COUNTY, CA | DETAILED VIEW OF POTENTIAL HABITAT FEATURES | FIGURE 7 |
| PROJECT NUMBER: 1002-0455 / DATE: September 2014 | | |

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\VPFS Dry Season Sample Locations2.mxd




LEGEND:

Dry Season Sampling Location | VPFS Potential Site | Aera Energy LLC Property

0 25 50
FEET

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| | | | |
|---|---|---|---|
| PROJECT NAME: EAST CAT CANYON SANTA BARBARA COUNTY, CA | | DETAILED VIEW OF POTENTIAL HABITAT FEATURES | FIGURE 8 |
| PROJECT NUMBER: 1002-0455 | DATE: September 2014 | | |

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\VPFS Dry Season Sample Locations2.mxd

LEGEND:

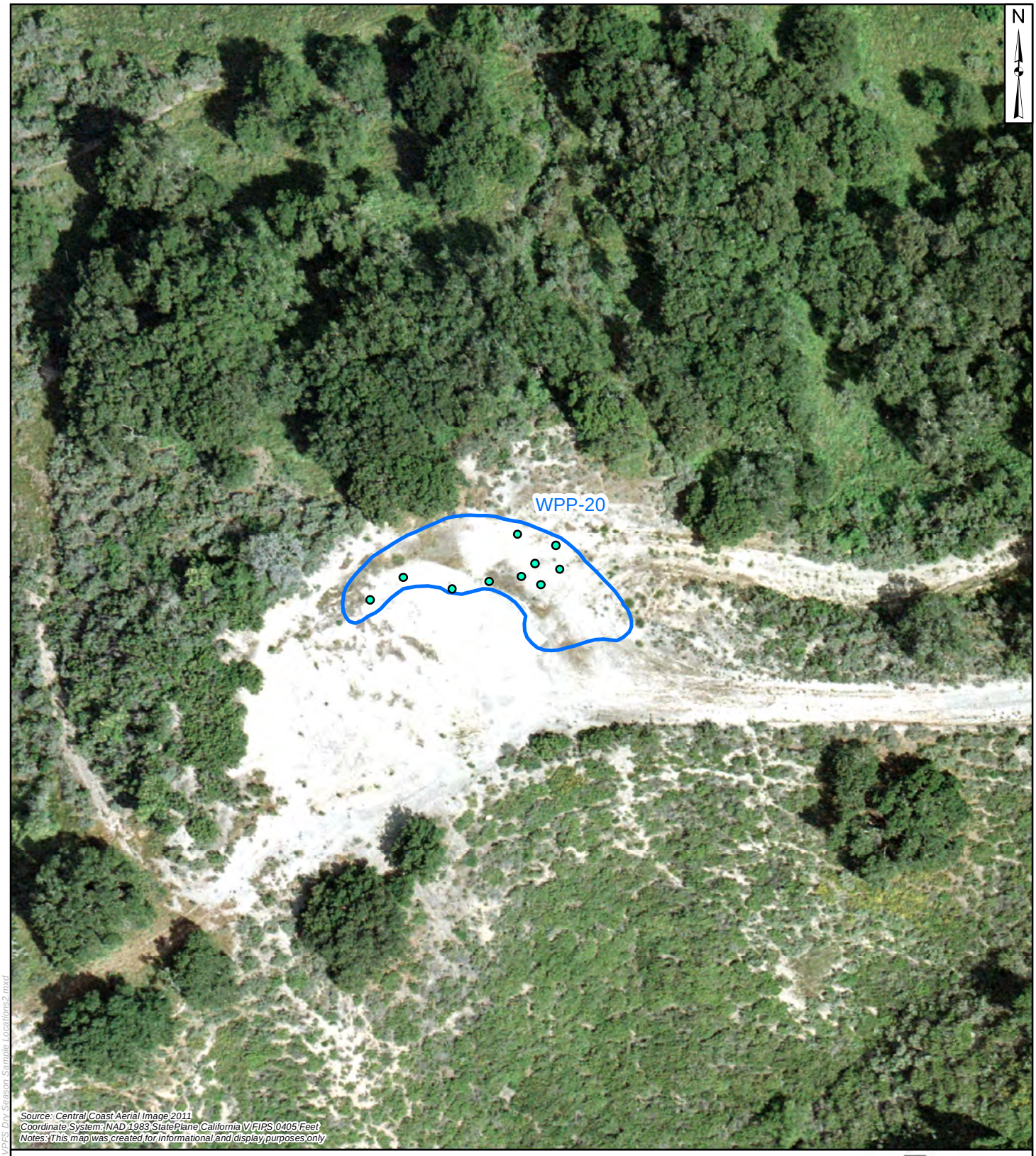
- Dry Season Sampling Location
- VPFS Potential Site
- Aera Energy LLC Property

0 25 50
FEET

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| | | | |
|---|---|---|---|
| PROJECT NAME: EAST CAT CANYON SANTA BARBARA COUNTY, CA | | DETAILED VIEW OF POTENTIAL HABITAT FEATURES | FIGURE 9 |
| PROJECT NUMBER: 1002-0455 | DATE: September 2014 | | |

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\VPFS Dry Season Sample Locations2.mxd




LEGEND:

Dry Season Sampling Location | VPFS Potential Site | Aera Energy LLC Property

0 25 50
FEET

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| | | | |
|---|---|---|---|
| PROJECT NAME: EAST CAT CANYON SANTA BARBARA COUNTY, CA | | DETAILED VIEW OF POTENTIAL HABITAT FEATURES | FIGURE 10 |
| PROJECT NUMBER: 1002-0455 | DATE: September 2014 | | |

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\VPFS Dry Season Sample Locations2.mxd

LEGEND:

Dry Season Sampling Location | VPFS Potential Site | Aera Energy LLC Property

0 25 50
FEET

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| | | | |
|---|---|---|---|
| PROJECT NAME: EAST CAT CANYON SANTA BARBARA COUNTY, CA | | DETAILED VIEW OF POTENTIAL HABITAT FEATURES | FIGURE 11 |
| PROJECT NUMBER: 1002-0455 | DATE: September 2014 | | |

Z:\Kelsh\GIS Maps\Map Project\East Cat Canyon\VPFS Dry Season Sample Locations2.mxd

LEGEND:

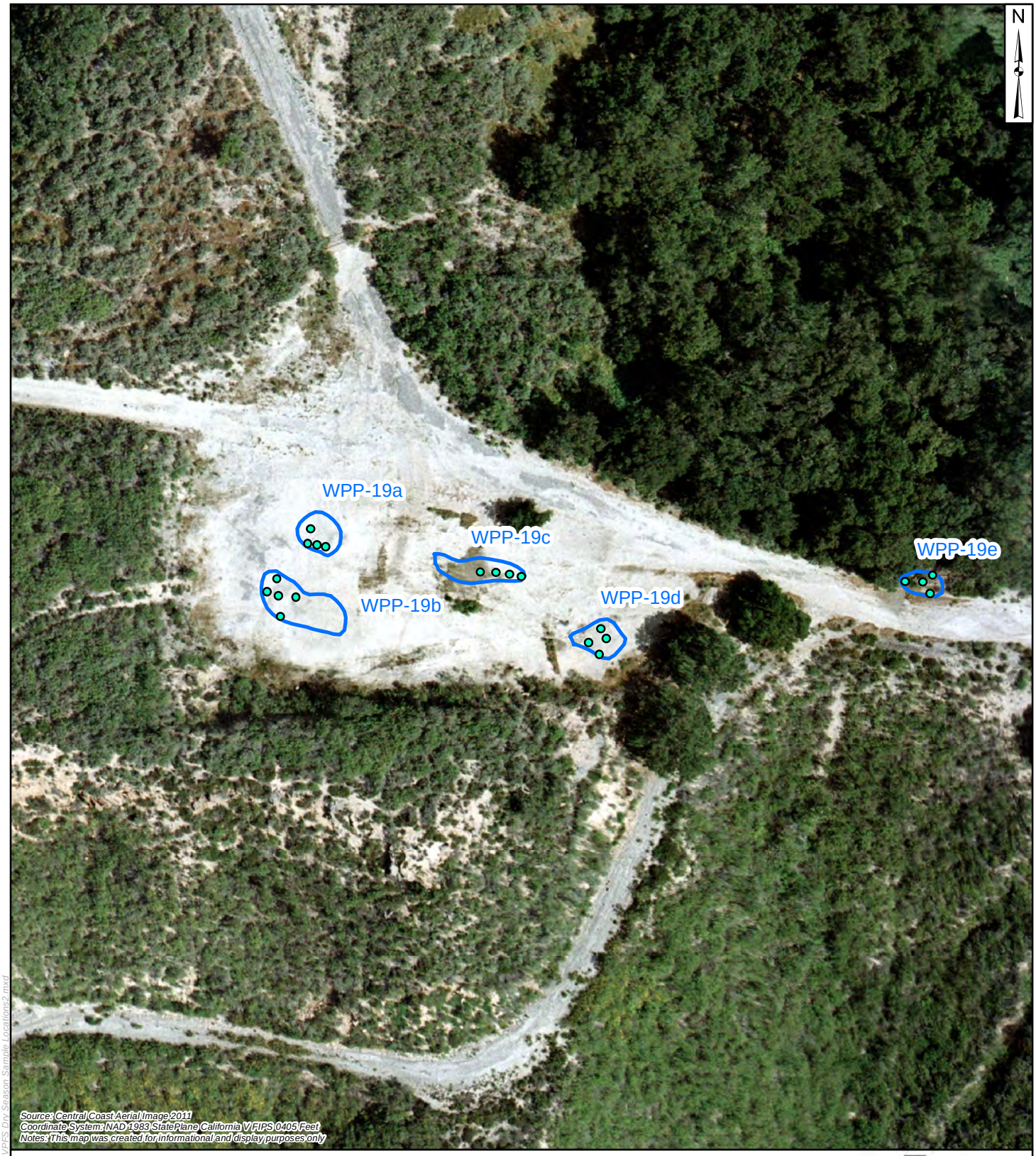
Dry Season Sampling Location | VPFS Potential Site | Aera Energy LLC Property

0 25 50
FEET

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| | | | |
|---|---|---|---|
| PROJECT NAME: EAST CAT CANYON SANTA BARBARA COUNTY, CA | | DETAILED VIEW OF POTENTIAL HABITAT FEATURES | FIGURE 12 |
| PROJECT NUMBER: 1002-0455 | DATE: September 2014 | | |

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\VPFS Dry Season Sample Locations2.mxd




LEGEND:

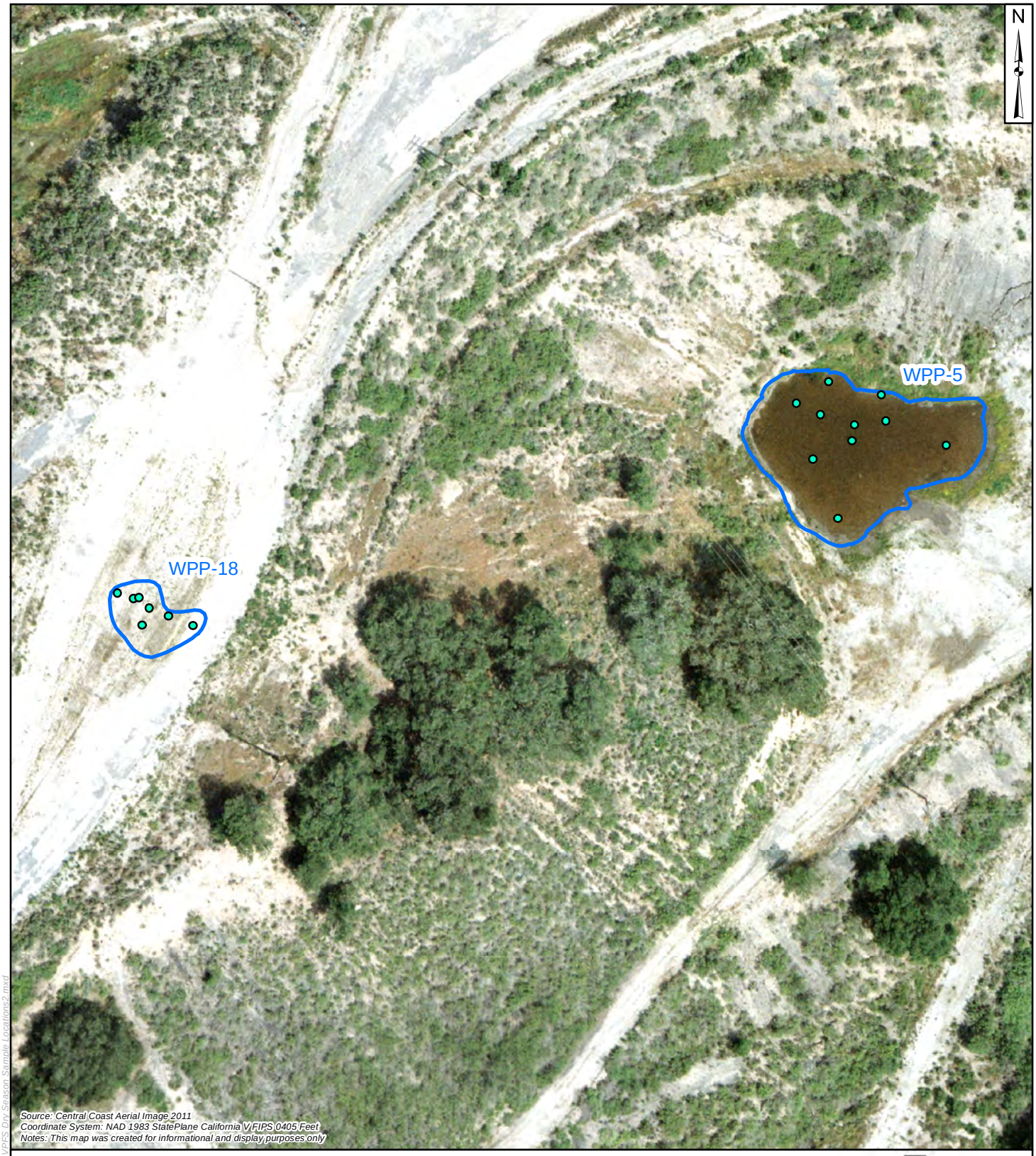
- Dry Season Sampling Location
- VPFS Potential Site
- Aera Energy LLC Property

0 25 50
FEET

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| | | |
|---|---|---|
| PROJECT NAME: EAST CAT CANYON SANTA BARBARA COUNTY, CA | DETAILED VIEW OF POTENTIAL HABITAT FEATURES | FIGURE 13 |
| PROJECT NUMBER: 1002-0455 / DATE: September 2014 | | |

Z:\Kelsh\GIS Maps\Map Project\East Cat Canyon\VPFS Dry Season Sample Locations2.mxd




LEGEND:

Dry Season Sampling Location | VPFS Potential Site | Aera Energy LLC Property

0 25 50
FEET

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

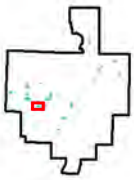
| | | | |
|---|---|---|---|
| PROJECT NAME: EAST CAT CANYON SANTA BARBARA COUNTY, CA | | DETAILED VIEW OF POTENTIAL HABITAT FEATURES | FIGURE 14 |
| PROJECT NUMBER: 1002-0455 | DATE: September 2014 | | |

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\VPFS Dry Season Sample Locations2.mxd

LEGEND:

Dry Season Sampling Location | VPFS Potential Site | Aera Energy LLC Property

0 25 50
FEET



padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| | | | |
|---|---|---|---|
| PROJECT NAME: EAST CAT CANYON SANTA BARBARA COUNTY, CA | | DETAILED VIEW OF POTENTIAL HABITAT FEATURES | FIGURE 15 |
| PROJECT NUMBER: 1002-0455 | DATE: September 2014 | | |

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\VPFS Dry Season Sample Locations2.mxd

LEGEND:

Dry Season Sampling Location | VPFS Potential Site | Aera Energy LLC Property

0 25 50
FEET

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| | | | |
|---|---|---|---|
| PROJECT NAME: EAST CAT CANYON SANTA BARBARA COUNTY, CA | | DETAILED VIEW OF POTENTIAL HABITAT FEATURES | FIGURE 16 |
| PROJECT NUMBER: 1002-0455 | DATE: September 2014 | | |

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\VPFS Dry Season Sample Locations2.mxd

LEGEND:

Dry Season Sampling Location | VPFS Potential Site | Aera Energy LLC Property

0 25 50
FEET

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| | | | |
|---|---|---|---|
| PROJECT NAME: EAST CAT CANYON SANTA BARBARA COUNTY, CA | | DETAILED VIEW OF POTENTIAL HABITAT FEATURES | FIGURE 17 |
| PROJECT NUMBER: 1002-0455 | DATE: September 2014 | | |

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\VPFS Dry Season Sample Locations2.mxd

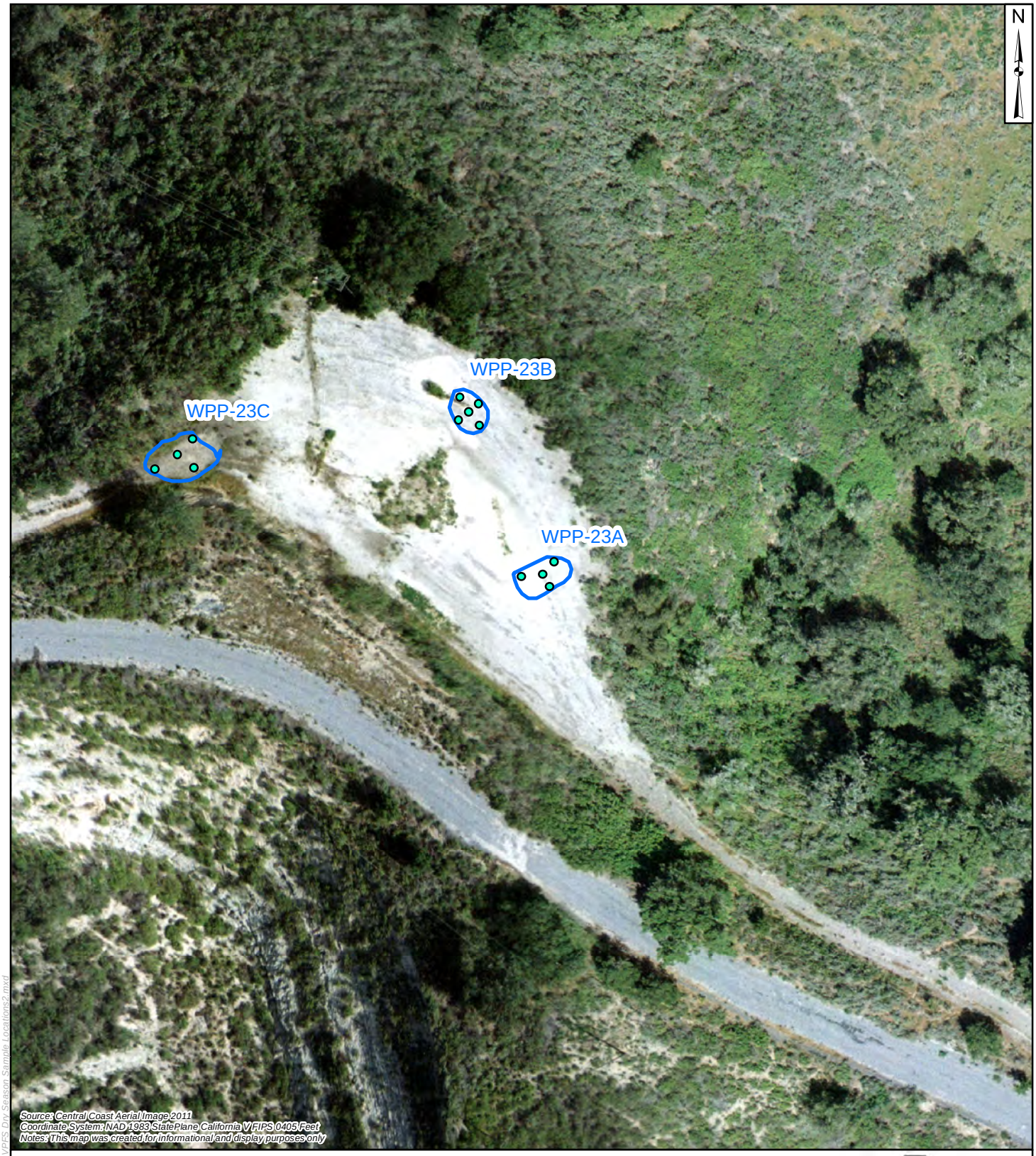
LEGEND:

- Dry Season Sampling Location
- VPFS Potential Site
- Aera Energy LLC Property

0 25 50
FEET

| padre associates, inc. ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS | PROJECT NAME: EAST CAT CANYON SANTA BARBARA COUNTY, CA | | DETAILED VIEW OF POTENTIAL HABITAT FEATURES | FIGURE 18 |
|---|---|---|---|---|
| | PROJECT NUMBER: 1002-0455 | DATE: September 2014 | | |

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\VPFS Dry Season Sample Locations2.mxd




LEGEND:

Dry Season Sampling Location | VPFS Potential Site | Aera Energy LLC Property

0 25 50
FEET

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| | | | |
|---|---|---|---|
| PROJECT NAME: EAST CAT CANYON SANTA BARBARA COUNTY, CA | | DETAILED VIEW OF POTENTIAL HABITAT FEATURES | FIGURE 19 |
| PROJECT NUMBER: 1002-0455 | DATE: September 2014 | | |

Z:\Kelsh\GIS Maps\Map Project\East Cat Canyon\VPFS Dry Season Sample Locations2.mxd

LEGEND:

- Dry Season Sampling Location
- VPFS Potential Site
- Aera Energy LLC Property

0 25 50
FEET

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| | | | |
|---|---|---|---|
| PROJECT NAME: EAST CAT CANYON SANTA BARBARA COUNTY, CA | | DETAILED VIEW OF POTENTIAL HABITAT FEATURES | FIGURE 20 |
| PROJECT NUMBER: 1002-0455 | DATE: September 2014 | | |

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\VPFS Dry Season Sample Locations2.mxd

Photo 1 - Looking east across P-12 to show habitat

Photo 2 - Looking south across WPP-4 to show habitat

LSA

FIGURE 21a

*AERA Cat Canyon Oil Field*
*2014 Dry Season Listed Vernal Pool Crustacean Surveys*

Site Photographs

Photo 3 - Looking east at WPP-1

Photo 4 - Looking east across WPP-18

LSA

FIGURE 21b

*AERA Cat Canyon Oil Field*
*2014 Dry Season Listed Vernal Pool Crustacean Surveys*

Site Photographs

Photo 5 - Looking north across WPP-2

Photo 6 - Looking south across WPP-21

LSA

FIGURE 21c

*AERA Cat Canyon Oil Field*
*2014 Dry Season Listed Vernal Pool Crustacean Surveys*

Site Photographs

Photo 7 - Looking west at WPP-5

Photo 8 - Looking north across WPP-7

LSA

FIGURE 21d

*AERA Cat Canyon Oil Field*
*2014 Dry Season Listed Vernal Pool Crustacean Surveys*

Site Photographs

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet Dry Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: _____ no __X__ yes

Required color slides and/or photographs for the project site are included: _____ no __X__ yes

Date: _July 8, 2014_ County: Santa Barbara___ Quad: _Sisquoc__

Collector(s): _David Muth/Michaela Hoffmann_ Permit #: ___TE794234 _____

Site/Project Name: **_AERA East Cat Canyon Oil Field Site_____** Pool #: __WPP-1____

Township: _9 N_ Range: 32W___ Section: __30__ UTM: 10S 3857510 N. 748287 E.

Habitat Condition: (circle where appropriate)

-undisturbed disturbed: Graded Pad Roadway Old ditch Bermed Pond

ungrazed grazed: cattle horses sheep other_____

- land use of habitat: light moderate heavy

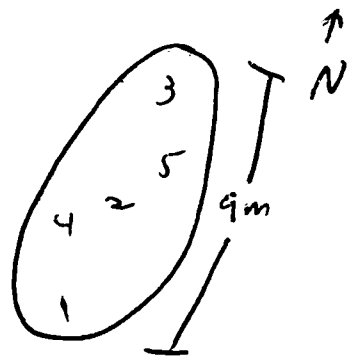
Pool Bottom Surface: (circle where appropriate )

hardpan claypan cobbly/rocky lava flow Other: Compaction

Pool Depth: __10_cm (estimated maximum) Surface Area: __18__m2 (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North
- sampling locations



WPP-1

**U.S Fish and Wildlife Service Vernal Pool Data Sheet**

**Dry Season Survey**

**Soil Analysis**

Note: Please fill out the required information completely for each site visit.

| Sample ID | Sample Volume(ml | Genus (/species) | # Cysts (or None) | Cyst Density (#/100ml |
|---|---|---|---|---|
| 1 | 100 | Ø | Ø | |
| 2 | 100 | Ø | Ø | |
| 3 | 100 | Ø | Ø | |
| 4 | 100 | Ø | Ø | |
| 5 | 100 | Ø | Ø | |
| — | | | | |
| — | | | | |
| — | | | | |
| — | | | | |
| — | | | | |

Voucher Specimens

Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

| Genus (/species) | # Cysts | Catalog/Accession # | Pool # |
|---|---|---|---|

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet Dry Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: _____ no __X__ yes

Required color slides and/or photographs for the project site are included: _____ no __X__ yes

Date: _July 8, 2014_ County: Santa Barbara___ Quad: _Sisquoc __

Collector(s): _David Muth/Michaela Hoffmann_ Permit #: ___TE794234 _____

Site/Project Name: **_AERA East Cat Canyon Oil Field Site_____** Pool #: __WPP-2____

Township: _9 N_ Range: 32W___ Section: __30_ UTM: 10S 3858123 N. 748237 E.

Habitat Condition: (circle where appropriate)

-undisturbed disturbed: Graded Pad Roadway Old ditch Bermed Pond

ungrazed grazed: cattle horses sheep other_____

- land use of habitat: light moderate heavy

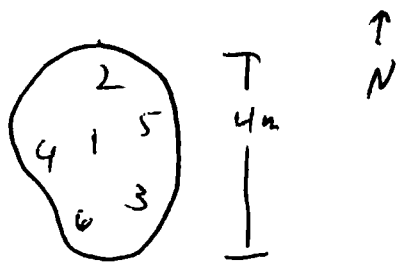
Pool Bottom Surface: (circle where appropriate )

hardpan claypan cobbly/rocky lava flow Other: Compaction

Pool Depth: __15_cm (estimated maximum) Surface Area: __16__m2 (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North
- sampling locations



WPP-2

**U.S Fish and Wildlife Service Vernal Pool Data Sheet**

**Dry Season Survey**

**Soil Analysis**

Note: Please fill out the required information completely for each site visit.

| Sample ID | Sample Volume(ml | Genus (/species) | # Cysts (or None) | Cyst Density (#/100ml |
|---|---|---|---|---|
| 1 | 100 | Ø | Ø | |
| 2 | 100 | Ø | Ø | |
| 3 | 100 | Ø | Ø | |
| 4 | 100 | Ø | Ø | |
| 5 | 100 | Ø | Ø | |
| 6 | 100 | Ø | Ø | |
| – | | | | |
| – | | | | |
| – | | | | |
| – | | | | |

5-1m

Voucher Specimens

Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

| Genus (/species) | # Cysts | Catalog/Accession # | Pool # |
|---|---|---|---|

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet Dry Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: _____ no __X__ yes

Required color slides and/or photographs for the project site are included: _____ no __X__ yes

Date: _July 8, 2014_ County: Santa Barbara___ Quad: _Sisquoc__

Collector(s): _David Muth/Michaela Hoffmann_ Permit #: ___TE794234 _____

Site/Project Name: **_AERA East Cat Canyon Oil Field Site_____** Pool #: __WPP-3_____

Township: _9 N_ Range: 32W___ Section: __30_ UTM: 10S 3857835 N. 748528 E.

Habitat Condition: (circle where appropriate)

-undisturbed disturbed: (Graded Pad) Roadway Old ditch Bermed Pond

(ungrazed) grazed: cattle horses sheep other_____

- land use of habitat: light moderate (heavy)

Pool Bottom Surface: (circle where appropriate )

hardpan claypan cobbly/rocky lava flow Other (Compaction)

Pool Depth: __30_cm (estimated maximum) Surface Area: __500__m2 (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North
- sampling locations

WPP-3

**U.S Fish and Wildlife Service Vernal Pool Data Sheet**

**Dry Season Survey**

**Soil Analysis**

Note: Please fill out the required information completely for each site visit.

| Sample ID | Sample Volume(ml | Genus (/species) | # Cysts (or None) | Cyst Density (#/100ml |
|---|---|---|---|---|
| 2 | 100 | Ø | Ø | |
| 3 | 100 | Ø | Ø | |
| 4 | 100 | Ø | Ø | |
| 5 | 100 | Ø | Ø | |
| 6 | 100 | Ø | Ø | |
| 7 | 100 | Ø | Ø | |
| 8 | 100 | Ø | Ø | |
| 9 | 100 | Ø | Ø | |
| 10 | 100 | Ø | Ø | |

Voucher Specimens

Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

| Genus (/species) | # Cysts | Catalog/Accession # | Pool # |
|---|---|---|---|

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet Dry Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: _____ no __X__ yes

Required color slides and/or photographs for the project site are included: _____ no __X__ yes

Date: _July 8, 2014_ County: Santa Barbara___ Quad: _Sisquoc__

Collector(s): _David Muth/Michaela Hoffmann_ Permit #: ___TE794234 _____

Site/Project Name: __**AERA East Cat Canyon Oil Field Site**_____ Pool #: __WPP-4____

Township: _9 N_ Range: 32W___ Section: __30_ UTM: 10S 3857861 N. 748553 E.

Habitat Condition: (circle where appropriate)

| | | | | | |
|---|---|---|---|---|---|
| -undisturbed | disturbed: | Graded Pad | Roadway | Old ditch | Bermed Pond |
| - ungrazed | grazed: | cattle | horses | sheep | other_____ |
| - land use of habitat: | | | light | moderate | heavy |

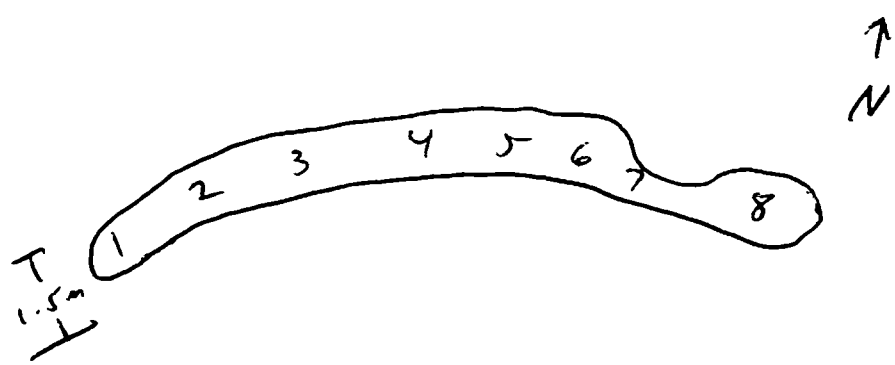
Pool Bottom Surface: (circle where appropriate )

hardpan claypan cobbly/rocky lava flow Other: Compaction

Pool Depth: __12_cm (estimated maximum) Surface Area: __24__m2 (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North
- sampling locations



WPP-4

**U.S Fish and Wildlife Service Vernal Pool Data Sheet**

**Dry Season Survey**

**Soil Analysis**

Note: Please fill out the required information completely for each site visit.

| Sample ID | Sample Volume(ml | Genus (/species) | # Cysts (or None) | Cyst Density (#/100ml |
|---|---|---|---|---|
| 1 | 100 | Ø | Ø | |
| 2 | 100 | Ø | Ø | |
| 3 | 100 | Ø | Ø | |
| 4 | 100 | Ø | Ø | |
| 5 | 100 | Ø | Ø | |
| 6 | 100 | Ø | Ø | |
| 7 | 100 | Ø | Ø | |
| 8 | 100 | Ø | Ø | |
| – | | | | |
| – | | | | |

Voucher Specimens

Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

| Genus (/species) | # Cysts | Catalog/Accession # | Pool # |
|---|---|---|---|

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet Dry Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: _____ no __X__ yes

Required color slides and/or photographs for the project site are included: _____ no __X__ yes

Date: _July 8, 2014_ County: Santa Barbara___ Quad: _Sisquoc__

Collector(s): _David Muth/Michaela Hoffmann_ Permit #: ___TE794234 _____

Site/Project Name: **_AERA East Cat Canyon Oil Field Site_____** Pool #: __WPP-5____

Township: _9 N_ Range: 32W___ Section: __30_ UTM: 10S 385747 N. 748521 E.

Habitat Condition: (circle where appropriate)

-undisturbed disturbed: Graded Pad Roadway Old ditch Bermed Pond

ungrazed grazed: cattle horses sheep other_____

- land use of habitat: light moderate heavy

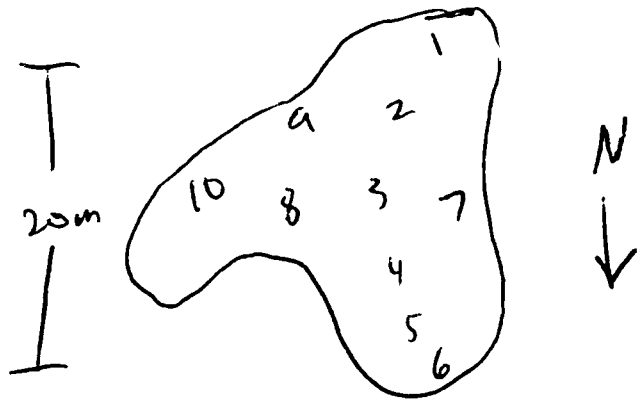
Pool Bottom Surface: (circle where appropriate )

hardpan claypan cobbly/rocky lava flow Other: Compaction

Pool Depth: __25_cm (estimated maximum) Surface Area: __400__m2 (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North
- sampling locations



WPP-5

**U.S Fish and Wildlife Service Vernal Pool Data Sheet**

**Dry Season Survey**

**Soil Analysis**

Note: Please fill out the required information completely for each site visit.

| Sample ID | Sample Volume(ml | Genus (/species) | # Cysts (or None) | Cyst Density (#/100ml |
|---|---|---|---|---|
| 1 | 10 | Ø | Ø | |
| 2 | 10 | Ø | Ø | |
| 3 | 10 | Ø | Ø | |
| 4 | 10 | Ø | Ø | |
| 5 | 10 | Ø | Ø | |
| 6 | 10 | Ø | Ø | |
| 7 | 10 | Ø | Ø | |
| 8 | 10 | Ø | Ø | |
| 9 | 10 | Ø | Ø | |
| 10 | 10 | Ø | Ø | |

clad/ost

Voucher Specimens

Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

| Genus (/species) | # Cysts | Catalog/Accession # | Pool # |
|---|---|---|---|

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet Dry Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: _____ no __X__ yes

Required color slides and/or photographs for the project site are included: _____ no __X__ yes

Date: _July 8, 2014_ County: Santa Barbara___ Quad: _Sisquoc __

Collector(s): _David Muth/Michaela Hoffmann_ Permit #: ___TE794234 _____

Site/Project Name: **_AERA East Cat Canyon Oil Field Site_____** Pool #: __WPP-6____

Township: _9 N_ Range: 32W___ Section: __30_ UTM: 10S 3857537 N. 748444 E.

Habitat Condition: (circle where appropriate)

| | | | | | |
|---|---|---|---|---|---|
| -undisturbed | disturbed: | Graded Pad | Roadway | Old ditch | Bermed Pond |
| - ungrazed | grazed: | cattle | horses | sheep | other_____ |
| - land use of habitat: | | | light | moderate | heavy |

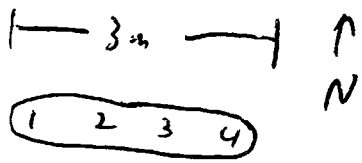
Pool Bottom Surface: (circle where appropriate )

hardpan claypan cobbly/rocky lava flow Other: Compaction

Pool Depth: __15_cm (estimated maximum) Surface Area: __3__m2 (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North
- sampling locations



WPP-6

**U.S Fish and Wildlife Service Vernal Pool Data Sheet**

**Dry Season Survey**

**Soil Analysis**

Note: Please fill out the required information completely for each site visit.

| Sample ID | Sample Volume(ml | Genus (/species) | # Cysts (or None) | Cyst Density (#/100ml |
|---|---|---|---|---|
| 1 | 100 | Ø | Ø | |
| 2 | 100 | Ø | Ø | |
| 3 | 100 | Ø | Ø | |
| 4 | 100 | Ø | Ø | |
| — | | | | |
| — | | | | |
| — | | | | |
| — | | | | |
| — | | | | |
| — | | | | |

Voucher Specimens

Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

| Genus (/species) | # Cysts | Catalog/Accession # | Pool # |
|---|---|---|---|

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet Dry Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: _____ no __X__ yes

Required color slides and/or photographs for the project site are included: _____ no __X__ yes

Date: _July 8, 2014_ County: Santa Barbara___ Quad: _Sisquoc__

Collector(s): _David Muth/Michaela Hoffmann_ Permit #: ___TE794234 _____

Site/Project Name: **_AERA East Cat Canyon Oil Field Site_____** Pool #: __WPP-7____

Township: _9 N_ Range: 32W___ Section: __29__ UTM: 10S 3857668 N. 749114 E.

Habitat Condition: (circle where appropriate)

-undisturbed disturbed: Graded Pad Roadway Old ditch Bermed Pond

- ungrazed grazed: cattle horses sheep other_____

- land use of habitat: light moderate heavy

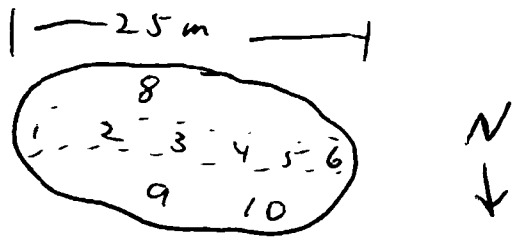
Pool Bottom Surface: (circle where appropriate )

hardpan claypan cobbly/rocky lava flow Other: Compaction

Pool Depth: __15_cm (estimated maximum) Surface Area: __300__m2 (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North
- sampling locations



WPP-7

**U.S Fish and Wildlife Service Vernal Pool Data Sheet**

**Dry Season Survey**

**Soil Analysis**

Note: Please fill out the required information completely for each site visit.

| Sample ID | Sample Volume(ml | Genus (/species) | # Cysts (or None) | Cyst Density (#/100ml |
|---|---|---|---|---|
| 1 | 100 | Ø | Ø | |
| 2 | 100 | Ø | Ø | |
| 3 | 100 | Ø | Ø | |
| 4 | 100 | Ø | Ø | |
| 5 | 100 | Ø | Ø | |
| 6 | 100 | Ø | Ø | |
| 7 | 100 | Ø | Ø | |
| 8 | 100 | Ø | Ø | |
| 9 | 100 | Ø | Ø | |
| 10 | 100 | Ø | Ø | |
| | | | Clad/s. | |

Voucher Specimens

Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

| Genus (/species) | # Cysts | Catalog/Accession # | Pool # |
|---|---|---|---|

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet Dry Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: _____ no __X__ yes

Required color slides and/or photographs for the project site are included: _____ no __X___ yes

Date: _July 8, 2014_ County: Santa Barbara___ Quad: _Sisquoc__

Collector(s): _David Muth/Michaela Hoffmann_ Permit #: ___TE794234 _____

Site/Project Name: **_AERA East Cat Canyon Oil Field Site_____** Pool #: __WPP-7a___

Township: _9 N_ Range: 32W___ Section: __29_ UTM: 10S 3857660 N. 749121 E.

Habitat Condition: (circle where appropriate)

-undisturbed disturbed: Graded Pad Roadway Old ditch Bermed Pond

- ungrazed grazed: cattle horses sheep other_____

- land use of habitat: light moderate heavy

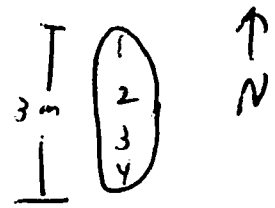
Pool Bottom Surface: (circle where appropriate )

hardpan claypan cobbly/rocky lava flow Other: Compaction

Pool Depth: __15_cm (estimated maximum) Surface Area: __3__m2 (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North
- sampling locations



WPP-7a

**U.S Fish and Wildlife Service Vernal Pool Data Sheet**

**Dry Season Survey**

**Soil Analysis**

Note: Please fill out the required information completely for each site visit.

| Sample ID | Sample Volume(ml | Genus (/species) | # Cysts (or None) | Cyst Density (#/100ml |
|---|---|---|---|---|
| 1 | 100 | Ø | Ø | |
| 2 | 100 | Ø | Ø | |
| 3 | 100 | Ø | Ø | |
| 4 | 100 | Ø | Ø | |
| – | | | | |
| – | | | | |
| – | | | | |
| – | | | | |
| – | | | | |
| – | | | | |

Chd

Voucher Specimens

Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

| Genus (/species) | # Cysts | Catalog/Accession # | Pool # |
|---|---|---|---|

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet Dry Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: _____ no __X__ yes

Required color slides and/or photographs for the project site are included: _____ no __X__ yes

Date: _July 8, 2014_ County: Santa Barbara___ Quad: _Sisquoc__

Collector(s): _David Muth/Michaela Hoffmann_ Permit #: ___TE794234 _____

Site/Project Name: **_AERA East Cat Canyon Oil Field Site_____** Pool #: __WPP-7c___

Township: _9 N_ Range: 32W___ Section: __29_ UTM: 10S 3857630 N. 749123 E.

Habitat Condition: (circle where appropriate)

-undisturbed disturbed: Graded Pad Roadway Old ditch Bermed Pond

- ungrazed grazed: cattle horses sheep other_____

- land use of habitat: light moderate heavy

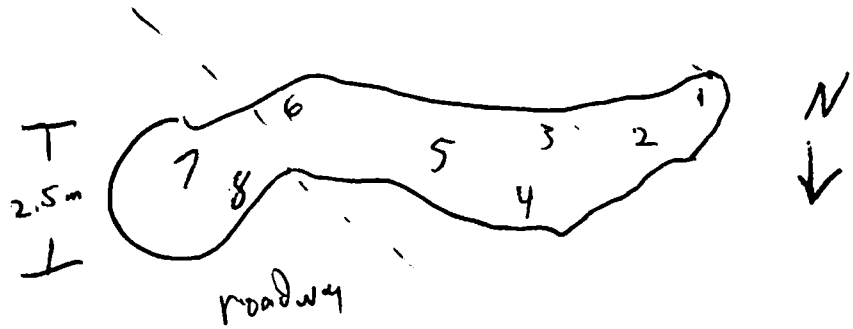
Pool Bottom Surface: (circle where appropriate )

hardpan claypan cobbly/rocky lava flow Other Compaction

Pool Depth: __10_cm (estimated maximum) Surface Area: __250__m2 (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North
- sampling locations



**U.S. Fish and Wildlife Service Vernal Pool Data Sheet Dry Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: _____ no __X__ yes

Required color slides and/or photographs for the project site are included: _____ no __X__ yes

Date: _July 8. 2014_ County: Santa Barbara___ Quad: _Sisquoc__

Collector(s): _David Muth/Michaela Hoffmann_ Permit #: ___TE794234 _____

Site/Project Name: **_AERA East Cat Canyon Oil Field Site_____** Pool #: __WPP-7b___

Township: _9 N_ Range: 32W___ Section: __29_ UTM: 10S 3857650 N. 749118 E.

Habitat Condition: (circle where appropriate)

-undisturbed disturbed: Graded Pad Roadway Old ditch Bermed Pond

ungrazed grazed: cattle horses sheep other_____

- land use of habitat: light moderate heavy

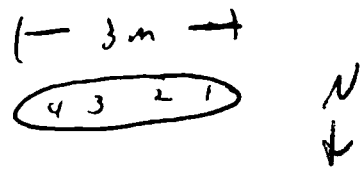
Pool Bottom Surface: (circle where appropriate )

hardpan claypan cobbly/rocky lava flow Other Compaction

Pool Depth: __15_cm (estimated maximum) Surface Area: __3__m2 (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North
- sampling locations



WPP - 76

**U.S Fish and Wildlife Service Vernal Pool Data Sheet**

**Dry Season Survey**

**Soil Analysis**

Note: Please fill out the required information completely for each site visit.

| Sample ID | Sample Volume(ml | Genus (/species) | # Cysts (or None) | Cyst Density (#/100ml |
|---|---|---|---|---|
| 1 | 100 | Ø | Ø | |
| 2 | 100 | Ø | Ø | |
| 3 | 100 | Ø | Ø | |
| 4 | 100 | Ø | Ø | |
| — | | | | |
| — | | | | |
| — | | | | |
| — | | | | |
| — | | | | |
| — | | | | |

Voucher Specimens

Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

| Genus (/species) | # Cysts | Catalog/Accession # | Pool # |
|---|---|---|---|

WPP-7c

**U.S Fish and Wildlife Service Vernal Pool Data Sheet**

**Dry Season Survey**

**Soil Analysis**

Note: Please fill out the required information completely for each site visit.

| Sample ID | Sample Volume(ml | Genus (/species) | # Cysts (or None) | Cyst Density (#/100ml |
|---|---|---|---|---|
| 1 | 100 | Ø | Ø | |
| 2 | 100 | Ø | Ø | |
| 3 | 100 | Ø | Ø | |
| 4 | 100 | Ø | Ø | |
| 5 | 100 | Ø | Ø | |
| 6 | 100 | Ø | Ø | |
| 7 | 100 | Ø | | |
| 8 | 100 | Ø | | |
| — | | | | |
| — | | | | |

expected cist

Voucher Specimens

Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

| Genus (/species) | # Cysts | Catalog/Accession # | Pool # |
|---|---|---|---|

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet Dry Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: _____ no __X__ yes

Required color slides and/or photographs for the project site are included: _____ no __X__ yes

Date: _July 8, 2014_ County: Santa Barbara___ Quad: _Sisquoc__

Collector(s): _David Muth/Michaela Hoffmann_ Permit #: ___TE794234 _____

Site/Project Name: **_AERA East Cat Canyon Oil Field Site_____** Pool #: __WPP-7d___

Township: _9 N_ Range: 32W___ Section: __29_ UTM: 10S 3857649 N. 749133 E.

Habitat Condition: (circle where appropriate)

-undisturbed disturbed: (Graded Pad) Roadway Old ditch Bermed Pond

(- ungrazed) grazed: cattle horses sheep other_____

- land use of habitat: light (moderate) heavy

Pool Bottom Surface: (circle where appropriate )

hardpan claypan cobbly/rocky lava flow Other: (Compaction)

Pool Depth: __8_cm (estimated maximum) Surface Area: __12__m2 (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North
- sampling locations

WPP-7d

**U.S Fish and Wildlife Service Vernal Pool Data Sheet**

**Dry Season Survey**

**Soil Analysis**

Note: Please fill out the required information completely for each site visit.

| Sample ID | Sample Volume(ml | Genus (/species) | # Cysts (or None) | Cyst Density (#/100ml |
|---|---|---|---|---|
| 1 | 100 | Ø | Ø | |
| 2 | 100 | Ø | Ø | |
| 3 | 100 | Ø | Ø | |
| 4 | 100 | Ø | Ø | |
| — | | | | |
| — | | | | |
| — | | | | |
| — | | | | |
| — | | | | |
| — | | | | |

Voucher Specimens

Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

| Genus (/species) | # Cysts | Catalog/Accession # | Pool # |
|---|---|---|---|

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet Dry Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: _____ no __X__ yes

Required color slides and/or photographs for the project site are included: _____ no __X__ yes

Date: _July 8, 2014_ County: Santa Barbara___ Quad: _Sisquoc__

Collector(s): _David Muth/Michaela Hoffmann_ Permit #: ___TE794234 _____

Site/Project Name: **_AERA East Cat Canyon Oil Field Site_____** Pool #: __WPP-8a___

Township: _9 N_ Range: 32W___ Section: __30_ UTM: 10S 3858003 N. 747912 E.

Habitat Condition: (circle where appropriate)

| | | | | | |
|---|---|---|---|---|---|
| -undisturbed | disturbed: | Graded Pad | Roadway | Old ditch | Bermed Pond |
| - ungrazed | grazed: | cattle | horses | sheep | other_____ |
| - land use of habitat: | | | light | moderate | heavy |

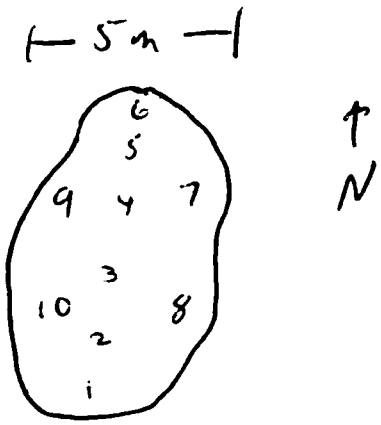
Pool Bottom Surface: (circle where appropriate )

hardpan claypan cobbly/rocky lava flow Other Compaction

Pool Depth: __8_cm (estimated maximum) Surface Area: __25__m2 (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North
- sampling locations



WP 8a

**U.S Fish and Wildlife Service Vernal Pool Data Sheet**

**Dry Season Survey**

**Soil Analysis**

Note: Please fill out the required information completely for each site visit.

| Sample ID | Sample Volume(ml | Genus (/species) | # Cysts (or None) | Cyst Density (#/100ml |
|---|---|---|---|---|
| 1 | 100 | Ø | Ø | |
| 2 | 100 | Ø | Ø | |
| 3 | 100 | Ø | Ø | |
| 4 | 100 | Ø | Ø | |
| 5 | 100 | Ø | Ø | |
| 6 | 100 | Ø | Ø | |
| 7 | 100 | Ø | Ø | |
| 8 | 100 | Ø | Ø | |
| 9 | 100 | Ø | Ø | |
| 10 | 100 | Ø | Ø | |

Voucher Specimens

Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

| Genus (/species) | # Cysts | Catalog/Accession # | Pool # |
|---|---|---|---|

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet Dry Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: _____ no __X__ yes

Required color slides and/or photographs for the project site are included: _____ no __X__ yes

Date: _July 8. 2014_ County: Santa Barbara___ Quad: _Sisquoc__

Collector(s): _David Muth/Michaela Hoffmann_ Permit #: ___TE794234 _____

Site/Project Name: **_AERA East Cat Canyon Oil Field Site_____** Pool #: __WPP-8b___

Township: _9 N_ Range: 32W___ Section: __30_ UTM: 10S 3858003 N. 747912 E.

Habitat Condition: (circle where appropriate)

-undisturbed disturbed: Graded Pad Roadway Old ditch Bermed Pond

- ungrazed grazed: cattle horses sheep other_____

- land use of habitat: light moderate heavy

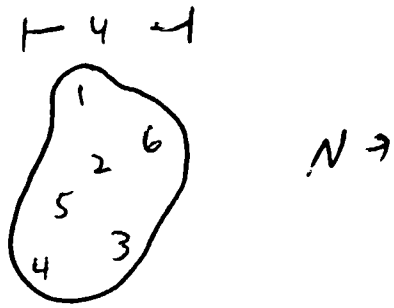
Pool Bottom Surface: (circle where appropriate )

hardpan claypan cobbly/rocky lava flow Other: Compaction

Pool Depth: __8_cm (estimated maximum) Surface Area: __20__m2 (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North
- sampling locations



WPP-8b

**U.S Fish and Wildlife Service Vernal Pool Data Sheet**

**Dry Season Survey**

**Soil Analysis**

Note: Please fill out the required information completely for each site visit.

| Sample ID | Sample Volume(ml | Genus (/species) | # Cysts (or None) | Cyst Density (#/100ml |
|---|---|---|---|---|
| 1 | 100 | Ø | Ø | |
| 2 | 100 | Ø | Ø | |
| 3 | 100 | Ø | Ø | |
| 4 | 100 | Ø | Ø | |
| 5 | 100 | Ø | Ø | |
| 6 | 100 | Ø | Ø | |
| – | | | | |
| – | | | | |
| – | | | | |
| – | | | | |

Voucher Specimens

Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

| Genus (/species) | # Cysts | Catalog/Accession # | Pool # |
|---|---|---|---|

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet Dry Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: _____ no __X__ yes

Required color slides and/or photographs for the project site are included: _____ no __X__ yes

Date: _July 8, 2014_ County: Santa Barbara___ Quad: _Sisquoc__

Collector(s): _David Muth/Michaela Hoffmann_ Permit #: ___TE794234 _____

Site/Project Name: **_AERA East Cat Canyon Oil Field Site_____** Pool #: __WPP-8c___

Township: _9 N_ Range: 32W___ Section: __30_ UTM: 10S 3858049 N. 747911 E.

Habitat Condition: (circle where appropriate)

| | | | | | |
|---|---|---|---|---|---|
| -undisturbed | disturbed: | Graded Pad | Roadway | Old ditch | Bermed Pond |
| - ungrazed | grazed: | cattle | horses | sheep | other_____ |
| - land use of habitat: | | | light | moderate | heavy |

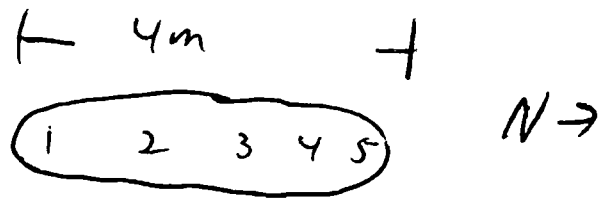
Pool Bottom Surface: (circle where appropriate )

hardpan claypan cobbly/rocky lava flow Other: Compaction

Pool Depth: __8_cm (estimated maximum) Surface Area: __4__m2 (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North
- sampling locations



WWP 8c

**U.S Fish and Wildlife Service Vernal Pool Data Sheet**

**Dry Season Survey**

**Soil Analysis**

Note: Please fill out the required information completely for each site visit.

| Sample ID | Sample Volume(ml | Genus (/species) | # Cysts (or None) | Cyst Density (#/100ml |
|---|---|---|---|---|
| 1 | 100 | Ø | Ø | |
| 2 | 100 | Ø | Ø | |
| 3 | 100 | Ø | Ø | |
| 4 | 100 | Ø | Ø | |
| 5 | 100 | Ø | Ø | |
| / | | | | |
| / | | | | |
| / | | | | |
| / | | | | |
| / | | | | |

Voucher Specimens

Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

| Genus (/species) | # Cysts | Catalog/Accession # | Pool # |
|---|---|---|---|

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet Dry Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: _____ no __X__ yes

Required color slides and/or photographs for the project site are included: _____ no __X__ yes

Date: _July 8, 2014_ County: Santa Barbara___ Quad: _Sisquoc__

Collector(s): _David Muth/Michaela Hoffmann_ Permit #: ___TE794234 _____

Site/Project Name: **_AERA East Cat Canyon Oil Field Site_____** Pool #: __WPP-9a___

Township: _9 N_ Range: 32W___ Section: __30_ UTM: 10S 3857834 N. 747899 E.

Habitat Condition: (circle where appropriate)

-undisturbed disturbed: Graded Pad Roadway Old ditch Bermed Pond

- ungrazed grazed: cattle horses sheep other_____

- land use of habitat: light moderate heavy

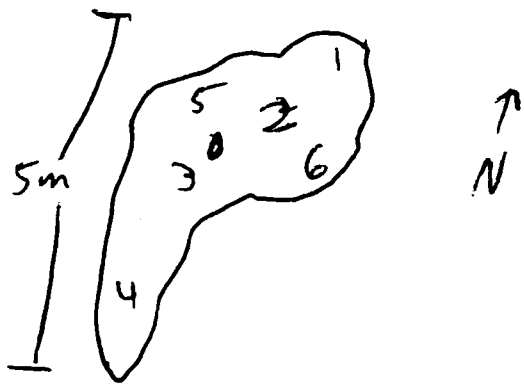
Pool Bottom Surface: (circle where appropriate )

hardpan claypan cobbly/rocky lava flow Other: Compaction

Pool Depth: __10_cm (estimated maximum) Surface Area: __17__m2 (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North
- sampling locations



WWP-9a
~~WWP-9a~~

**U.S Fish and Wildlife Service Vernal Pool Data Sheet**

**Dry Season Survey**

**Soil Analysis**

Note: Please fill out the required information completely for each site visit.

| Sample ID | Sample Volume(ml | Genus (/species) | # Cysts (or None) | Cyst Density (#/100ml |
|---|---|---|---|---|
| 1 | 100 | Ø | Ø | |
| 2 | 100 | Ø | Ø | |
| 3 | 100 | Ø | Ø | |
| 4 | 100 | Ø | Ø | |
| 5 | 100 | Ø | Ø | |
| 6 | 100 | Ø | Ø | |
| ~~7~~ | ~~100~~ | | | |
| ~~8~~ | ~~100~~ | | | |
| ~~9~~ | ~~100~~ | | | |
| ~~10~~ | ~~100~~ | | | |
| | | | osh | |

Voucher Specimens

Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

| Genus (/species) | # Cysts | Catalog/Accession # | Pool # |
|---|---|---|---|

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet Dry Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: _____ no __X__ yes

Required color slides and/or photographs for the project site are included: _____ no __X__ yes

Date: _July 8, 2014_ County: Santa Barbara___ Quad: _Sisquoc__

Collector(s): _David Muth/Michaela Hoffmann_ Permit #: ___TE794234 _____

Site/Project Name: **_AERA East Cat Canyon Oil Field Site_____** Pool #: __WPP-9b___

Township: _9 N_ Range: 32W___ Section: __30_ UTM: 10S 3857822 N. 747901 E.

Habitat Condition: (circle where appropriate)

-undisturbed disturbed: Graded Pad Roadway Old ditch Bermed Pond

-ungrazed grazed: cattle horses sheep other_____

- land use of habitat: light moderate heavy

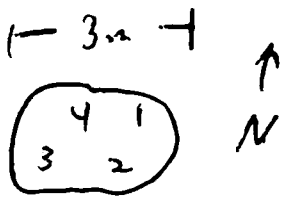
Pool Bottom Surface: (circle where appropriate )

hardpan claypan cobbly/rocky lava flow Other: Compaction

Pool Depth: __8_cm (estimated maximum) Surface Area: __6__m2 (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North
- sampling locations



WPP-96
~~WWPF~~

**U.S Fish and Wildlife Service Vernal Pool Data Sheet**

**Dry Season Survey**

**Soil Analysis**

Note: Please fill out the required information completely for each site visit.

| Sample ID | Sample Volume(ml | Genus (/species) | # Cysts (or None) | Cyst Density (#/100ml |
|---|---|---|---|---|
| 1 | 100 | Ø | Ø | |
| 2 | 100 | Ø | Ø | |
| 3 | 100 | Ø | Ø | |
| 4 | 100 | Ø | Ø | |
| — | | | | |
| — | | | | |
| — | | | | |
| / | | | | |
| / | | | | |
| / | | | | |

OJ +

Voucher Specimens

Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

| Genus (/species) | # Cysts | Catalog/Accession # | Pool # |
|---|---|---|---|

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet Dry Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: _____ no __X__ yes

Required color slides and/or photographs for the project site are included: _____ no __X__ yes

Date: _July 8, 2014_ County: Santa Barbara___ Quad: _Sisquoc __

Collector(s): _David Muth/Michaela Hoffmann_ Permit #: ___TE794234 _____

Site/Project Name: **_AERA East Cat Canyon Oil Field Site_____** Pool #: __WPP-10a __

Township: _9 N_ Range: 32W___ Section: __20_ UTM: 10S 3859355 N. 749491 E.

Habitat Condition: (circle where appropriate)

| | | | | | |
|---|---|---|---|---|---|
| -undisturbed | disturbed: | Graded Pad | Roadway | Old ditch | Bermed Pond |
| - ungrazed | grazed: | cattle | horses | sheep | other_____ |
| - land use of habitat: | | | light | moderate | heavy |

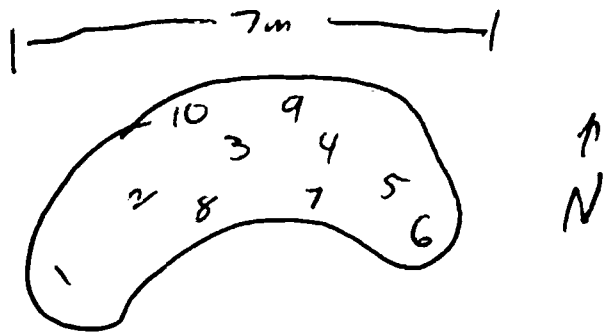
Pool Bottom Surface: (circle where appropriate )

hardpan claypan cobbly/rocky lava flow Other: Compaction

Pool Depth: __18_cm (estimated maximum) Surface Area: __35__m2 (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North
- sampling locations



WPP10a

**U.S Fish and Wildlife Service Vernal Pool Data Sheet**

**Dry Season Survey**

**Soil Analysis**

Note: Please fill out the required information completely for each site visit.

| Sample ID | Sample Volume(ml | Genus (/species) | # Cysts (or None) | Cyst Density (#/100ml |
|---|---|---|---|---|
| 1 | 100 | Ø | Ø | |
| 2 | 100 | Ø | Ø | |
| 3 | 100 | Ø | Ø | |
| 4 | 100 | Ø | Ø | |
| 5 | 100 | Ø | Ø | |
| 6 | 100 | Ø | Ø | |
| 7 | 100 | Ø | Ø | |
| 8 | 100 | Ø | Ø | |
| 9 | 100 | Ø | Ø | |
| 10 | 100 | Ø | Ø | |

Voucher Specimens

Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

| Genus (/species) | # Cysts | Catalog/Accession # | Pool # |
|---|---|---|---|

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet Dry Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: _____ no __X__ yes

Required color slides and/or photographs for the project site are included: _____ no __X__ yes

Date: _July 8, 2014_ County: Santa Barbara___ Quad: _Sisquoc __

Collector(s): _David Muth/Michaela Hoffmann_ Permit #: ___TE794234 _____

Site/Project Name: **_AERA East Cat Canyon Oil Field Site_____** Pool #: __WPP-10b__

Township: _9 N_ Range: 32W__ Section: __20_ UTM: 10S 3859355 N. 749494 E.

Habitat Condition: (circle where appropriate)

-undisturbed disturbed: Graded Pad Roadway Old ditch Bermed Pond

- ungrazed grazed: cattle horses sheep other_____

- land use of habitat: light moderate heavy

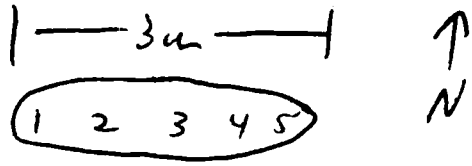
Pool Bottom Surface: (circle where appropriate )

hardpan claypan cobbly/rocky lava flow Other: Compaction

Pool Depth: __8_cm (estimated maximum) Surface Area: __4.5__m2 (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North
- sampling locations



WPP 106

**U.S Fish and Wildlife Service Vernal Pool Data Sheet**

**Dry Season Survey**

**Soil Analysis**

Note: Please fill out the required information completely for each site visit.

| Sample ID | Sample Volume(ml | Genus (/species) | # Cysts (or None) | Cyst Density (#/100ml |
|---|---|---|---|---|
| 1 | 100 | Ø | Ø | |
| 2 | 100 | Ø | Ø | |
| 3 | 100 | Ø | Ø | |
| 4 | 100 | Ø | Ø | |
| 5 | 100 | Ø | Ø | |
| / | | | | |
| / | | | | |
| / | | | | |
| / | | | | |
| / | | | | |

Voucher Specimens

Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

| Genus (/species) | # Cysts | Catalog/Accession # | Pool # |
|---|---|---|---|

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet Dry Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: _____ no __X__ yes

Required color slides and/or photographs for the project site are included: _____ no __X__ yes

Date: _July 8, 2014_ County: Santa Barbara___ Quad: _Sisquoc __

Collector(s): _David Muth/Michaela Hoffmann_ Permit #: ___TE794234 _____

Site/Project Name: **_AERA East Cat Canyon Oil Field Site_____** Pool #: __WPP-11___

Township: _9 N_ Range: 32W___ Section: __20_ UTM: 10S 3859280 N. 749471 E.

Habitat Condition: (circle where appropriate)

-undisturbed disturbed: Graded Pad Roadway Old ditch Bermed Pond

- ungrazed grazed: cattle horses sheep other_____

- land use of habitat: light moderate heavy

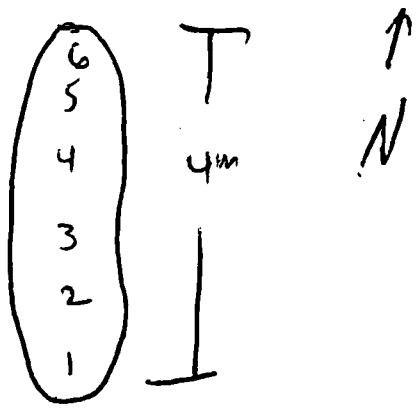
Pool Bottom Surface: (circle where appropriate )

hardpan claypan cobbly/rocky lava flow Other: Compaction

Pool Depth: __10_cm (estimated maximum) Surface Area: __6__m2 (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North
- sampling locations



WPP-11

**U.S Fish and Wildlife Service Vernal Pool Data Sheet**

**Dry Season Survey**

**Soil Analysis**

Note: Please fill out the required information completely for each site visit.

| Sample ID | Sample Volume(ml | Genus (/species) | # Cysts (or None) | Cyst Density (#/100ml |
|---|---|---|---|---|
| 1 | 100 | Ø | Ø | |
| 2 | 100 | Ø | Ø | |
| 3 | 100 | Ø | Ø | |
| 4 | 100 | Ø | Ø | |
| 5 | 100 | Ø | Ø | |
| 6 | 100 | Ø | Ø | |
| – | | | | |
| – | | | | |
| – | | | | |
| – | | | | |

copepod

Voucher Specimens

Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

| Genus (/species) | # Cysts | Catalog/Accession # | Pool # |
|---|---|---|---|

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet Dry Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: _____ no __X__ yes

Required color slides and/or photographs for the project site are included: _____ no __X__ yes

Date: _July 8, 2014_ County: Santa Barbara___ Quad: _Sisquoc__

Collector(s): _David Muth/Michaela Hoffmann_ Permit #: ___TE794234 _____

Site/Project Name: **_AERA East Cat Canyon Oil Field Site_____** Pool #: __P-12_____

Township: _9 N_ Range: 32W___ Section: __20_ UTM: 10S 3858327 N. 749694 E.

Habitat Condition: (circle where appropriate)

| | | | | | |
|---|---|---|---|---|---|
| -undisturbed | disturbed: | Graded Pad | Roadway | Old ditch | Bermed Pond |
| - ungrazed | grazed: | cattle | horses | sheep | other_____ |
| - land use of habitat: | | | light | moderate | heavy |

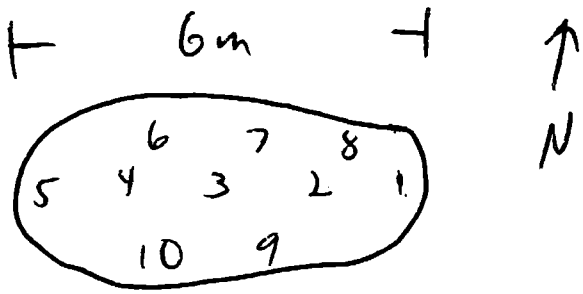
Pool Bottom Surface: (circle where appropriate )

hardpan claypan cobbly/rocky lava flow Other: Compaction

Pool Depth: __20_cm (estimated maximum) Surface Area: __24__m2 (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North
- sampling locations



P12

**U.S Fish and Wildlife Service Vernal Pool Data Sheet**

**Dry Season Survey**

**Soil Analysis**

Note: Please fill out the required information completely for each site visit.

| Sample ID | Sample Volume(ml | Genus (/species) | # Cysts (or None) | Cyst Density (#/100ml |
|---|---|---|---|---|
| 1 | 100 | Ø | Ø | |
| 2 | 100 | Ø | Ø | |
| 3 | 100 | Ø | Ø | |
| 4 | 100 | Ø | Ø | |
| 5 | 100 | Ø | Ø | |
| 6 | 100 | Ø | Ø | |
| 7 | 100 | Ø | Ø | |
| 8 | 100 | Ø | Ø | |
| 9 | 100 | Ø | Ø | |
| 10 | 100 | Ø | Ø | |

Voucher Specimens

Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

| Genus (/species) | # Cysts | Catalog/Accession # | Pool # |
|---|---|---|---|

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet Dry Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: _____ no __X__ yes

Required color slides and/or photographs for the project site are included: _____ no __X__ yes

Date: _July 8, 2014_ County: Santa Barbara___ Quad: _Sisquoc __

Collector(s): _David Muth/Michaela Hoffmann_ Permit #: ___TE794234 _____

Site/Project Name: **_AERA East Cat Canyon Oil Field Site_____** Pool #: __P-13_____

Township: _9 N_ Range: 32W___ Section: __20_ UTM: 10S 3858554 N. 749787 E.

Habitat Condition: (circle where appropriate)

| | | | | | |
|---|---|---|---|---|---|
| -undisturbed | disturbed: | Graded Pad | Roadway | Old ditch | Bermed Pond |
| - ungrazed | grazed: | cattle | horses | sheep | other_____ |
| - land use of habitat: | | | light | moderate | heavy |

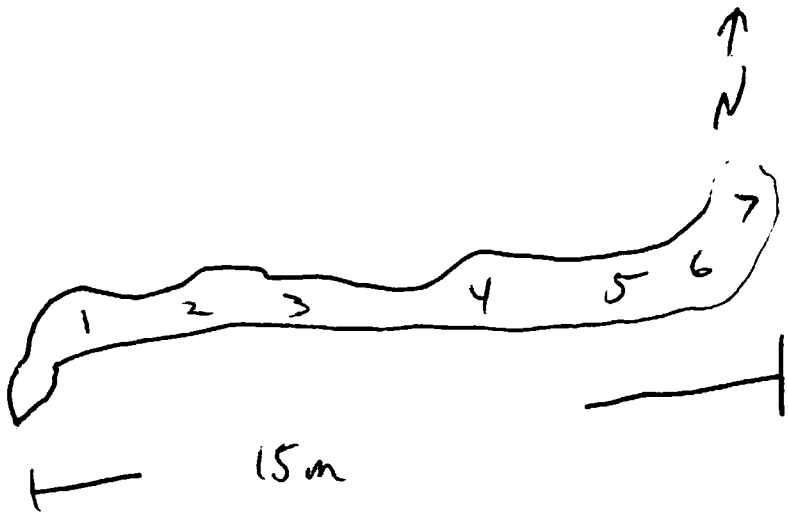
Pool Bottom Surface: (circle where appropriate )

hardpan claypan cobbly/rocky lava flow Other: Compaction

Pool Depth: __8_cm (estimated maximum) Surface Area: __15__m2 (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North
- sampling locations



P-13

**U.S Fish and Wildlife Service Vernal Pool Data Sheet**

**Dry Season Survey**

**Soil Analysis**

Note: Please fill out the required information completely for each site visit.

| Sample ID | Sample Volume(ml | Genus (/species) | # Cysts (or None) | Cyst Density (#/100ml |
|---|---|---|---|---|
| 1 | 100 | Ø | Ø | |
| 2 | 100 | Ø | Ø | |
| 3 | 100 | Ø | Ø | |
| 4 | 100 | Ø | Ø | |
| 5 | 100 | Ø | Ø | |
| 6 | 100 | Ø | Ø | |
| 7 | 100 | Ø | Ø | |
| — | [redacted] | | | |
| — | | | | |
| — | | | | |

agar No inverts

Voucher Specimens

Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

| Genus (/species) | # Cysts | Catalog/Accession # | Pool # |
|---|---|---|---|

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet Dry Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: _____ no __X__ yes

Required color slides and/or photographs for the project site are included: _____ no __X__ yes

Date: _July 8, 2014_ County: Santa Barbara___ Quad: _Sisquoc__

Collector(s): _David Muth/Michaela Hoffmann_ Permit #: ___TE794234 _____

Site/Project Name: **_AERA East Cat Canyon Oil Field Site_____** Pool #: __P-14_____

Township: _9 N_ Range: 32W___ Section: __20_ UTM: 10S 3858668 N. 749870 E.

Habitat Condition: (circle where appropriate)

| | | | | | |
|---|---|---|---|---|---|
| -undisturbed | disturbed: | Graded Pad | Roadway | Old ditch | Bermed Pond |
| - ungrazed | grazed: | cattle | horses | sheep | other_____ |
| - land use of habitat: | | | light | moderate | heavy |

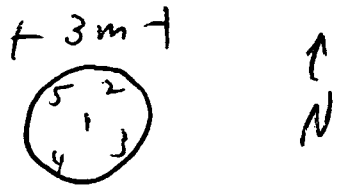
Pool Bottom Surface: (circle where appropriate )

hardpan  claypan  cobbly/rocky  lava flow  Other: Compaction

Pool Depth: __20_cm (estimated maximum) Surface Area: __9__m2 (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North
- sampling locations



P14

**U.S Fish and Wildlife Service Vernal Pool Data Sheet**

**Dry Season Survey**

**Soil Analysis**

Note: Please fill out the required information completely for each site visit.

| Sample ID | Sample Volume(ml | Genus (/species) | # Cysts (or None) | Cyst Density (#/100ml |
|---|---|---|---|---|
| 1 | 100 | Ø | Ø | |
| 2 | 100 | Ø | Ø | |
| 3 | 100 | Ø | Ø | |
| 4 | 100 | Ø | Ø | |
| 5 | 100 | Ø | Ø | |
| / | | | | |
| / | | | | |
| / | | | | |
| / | | | | |
| / | | | | |

Voucher Specimens

Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

| Genus (/species) | # Cysts | Catalog/Accession # | Pool # |
|---|---|---|---|

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet Dry Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: _____ no __X__ yes

Required color slides and/or photographs for the project site are included: _____ no __X__ yes

Date: _July 8, 2014_ County: Santa Barbara___ Quad: _Sisquoc__

Collector(s): _David Muth/Michaela Hoffmann_ Permit #: ___TE794234 _____

Site/Project Name: **_AERA East Cat Canyon Oil Field Site_____** Pool #: __SP-15_____

Township: _9 N_ Range: 32W___ Section: __20__ UTM: 10S 3858816 N. 750221 E.

Habitat Condition: (circle where appropriate)

-undisturbed disturbed: Graded Pad Roadway Old ditch Bermed Pond

- ungrazed grazed: cattle horses sheep other_____

- land use of habitat: light moderate heavy

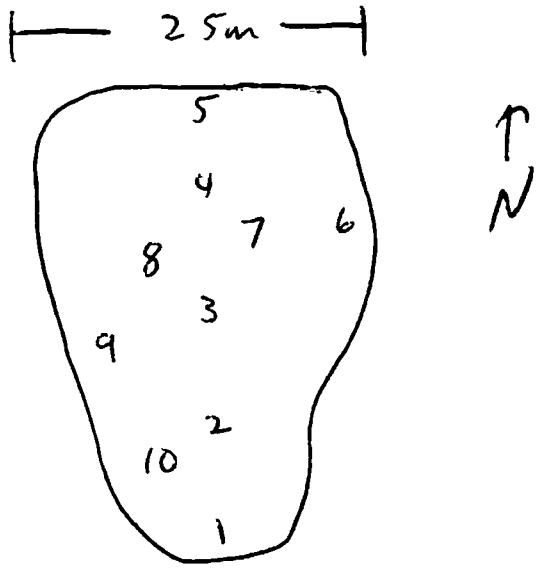
Pool Bottom Surface: (circle where appropriate )

hardpan claypan cobbly/rocky lava flow Other: Compaction

Pool Depth: __30_cm (estimated maximum) Surface Area: __750__m2 (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North
- sampling locations



SP 15

**U.S Fish and Wildlife Service Vernal Pool Data Sheet**

**Dry Season Survey**

**Soil Analysis**

Note: Please fill out the required information completely for each site visit.

| Sample ID | Sample Volume(ml | Genus (/species) | # Cysts (or None) | Cyst Density (#/100ml |
|---|---|---|---|---|
| 1 | 100 | Ø | Ø | |
| 2 | 100 | Ø | Ø | |
| 3 | 100 | Ø | Ø | |
| 4 | 100 | Ø | Ø | |
| 5 | 100 | Ø | Ø | |
| 6 | 100 | Ø | Ø | |
| 7 | 100 | Ø | Ø | |
| 8 | 100 | Ø | Ø | |
| 9 | 100 | Ø | Ø | |
| 10 | 100 | Ø | Ø | |

c/ul/cst

Voucher Specimens

Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

| Genus (/species) | # Cysts | Catalog/Accession # | Pool # |
|---|---|---|---|

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet Dry Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: _____ no __X__ yes

Required color slides and/or photographs for the project site are included: _____ no __X__ yes

Date: _July 8, 2014_ County: Santa Barbara___ Quad: _Sisquoc__

Collector(s): _David Muth/Michaela Hoffmann_ Permit #: ___TE794234 _____

Site/Project Name: **_AERA East Cat Canyon Oil Field Site_____** Pool #: __WPP-16a__

Township: _9 N_ Range: 32W___ Section: __20_ UTM: 10S 3858492 N. 750327 E.

Habitat Condition: (circle where appropriate)

-undisturbed disturbed: Graded Pad Roadway Old ditch Bermed Pond

- ungrazed grazed: cattle horses sheep other_____

- land use of habitat: light moderate heavy

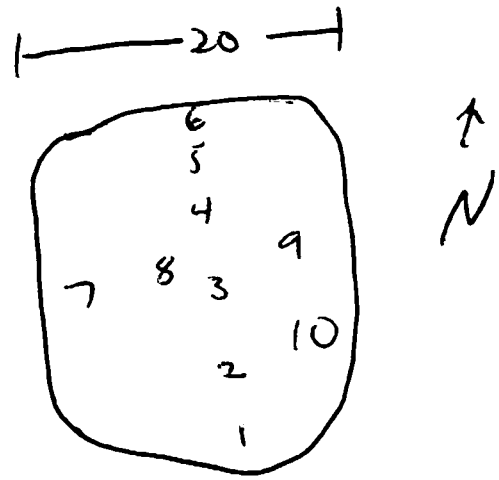
Pool Bottom Surface: (circle where appropriate )

hardpan claypan cobbly/rocky lava flow Other: Compaction

Pool Depth: __20_cm (estimated maximum) Surface Area: __500__m2 (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North
- sampling locations



WPP-16[redacted]a

**U.S Fish and Wildlife Service Vernal Pool Data Sheet**

**Dry Season Survey**

**Soil Analysis**

Note: Please fill out the required information completely for each site visit.

| Sample ID | Sample Volume(ml | Genus (/species) | # Cysts (or None) | Cyst Density (#/100ml |
|---|---|---|---|---|
| 1 | 100 | Ø | Ø | |
| 2 | 100 | Ø | Ø | |
| 3 | 100 | Ø | | |
| 4 | 100 | Ø | | |
| 5 | 100 | Ø | Ø | |
| 6 | 100 | Ø Ø | | |
| 7 | 100 | Ø | | |
| 8 | 100 | Ø | | |
| 9 | 100 | Ø | | |
| 10 | 100 | Ø | | |
| | | | Clad | |

Voucher Specimens

Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

| Genus (/species) | # Cysts | Catalog/Accession # | Pool # |
|---|---|---|---|

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet Dry Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: _____ no __X__ yes

Required color slides and/or photographs for the project site are included: _____ no __X___ yes

Date: _July 8, 2014_ County: Santa Barbara___ Quad: _Sisquoc __

Collector(s): _David Muth/Michaela Hoffmann_ Permit #: ___TE794234 _____

Site/Project Name: **_AERA East Cat Canyon Oil Field Site_____** Pool #: __WPP-16b __

Township: _9 N_ Range: 32W___ Section: __20_ UTM: 10S 3858523 N. 750319 E.

Habitat Condition: (circle where appropriate)

-undisturbed disturbed: Graded Pad Roadway Old ditch Bermed Pond

- ungrazed grazed: cattle horses sheep other_____

- land use of habitat: light moderate heavy

Pool Bottom Surface: (circle where appropriate )

hardpan claypan cobbly/rocky lava flow Other: Compaction

Pool Depth: __18_cm (estimated maximum) Surface Area: __300__m2 (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North
- sampling locations

WPP-16b

**U.S Fish and Wildlife Service Vernal Pool Data Sheet**

**Dry Season Survey**

**Soil Analysis**

Note: Please fill out the required information completely for each site visit.

| Sample ID | Sample Volume(ml | Genus (/species) | # Cysts (or None) | Cyst Density (#/100ml |
|---|---|---|---|---|
| 1 | 100 | Ø | Ø | |
| 2 | 100 | Ø | Ø | |
| 3 | 100 | Ø | Ø | |
| 4 | 100 | Ø | Ø | |
| 5 | 100 | Ø | Ø | |
| 6 | 100 | Ø | Ø | |
| 7 | 100 | Ø | Ø | |
| 8 | 100 | Ø | Ø | |
| 9 | 100 | Ø | Ø | |
| 10 | 100 | Ø | Ø | |

Voucher Specimens

Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

| Genus (/species) | # Cysts | Catalog/Accession # | Pool # |
|---|---|---|---|

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet Dry Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: _____ no __X__ yes

Required color slides and/or photographs for the project site are included: _____ no __X__ yes

Date: _July 8, 2014_ County: Santa Barbara___ Quad: _Sisquoc __

Collector(s): _David Muth/Michaela Hoffmann_ Permit #: ___TE794234 _____

Site/Project Name: **_AERA East Cat Canyon Oil Field Site_____** Pool #: __WPP-17___

Township: _9 N_ Range: 32W___ Section: __30_ UTM: 10S 3857587 N. 748364 E.

Habitat Condition: (circle where appropriate)

| | | | | | |
|---|---|---|---|---|---|
| -undisturbed | disturbed: | Graded Pad | Roadway | Old ditch | Bermed Pond |
| - ungrazed | grazed: | cattle | horses | sheep | other_____ |
| - land use of habitat: | | | light | moderate | heavy |

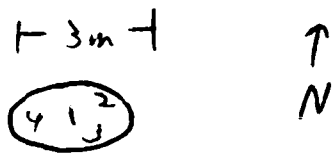
Pool Bottom Surface: (circle where appropriate )

hardpan claypan cobbly/rocky lava flow Other: Compaction

Pool Depth: __8_cm (estimated maximum) Surface Area: __6__m2 (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North
- sampling locations



WPP-17

**U.S Fish and Wildlife Service Vernal Pool Data Sheet**

**Dry Season Survey**

**Soil Analysis**

Note: Please fill out the required information completely for each site visit.

| Sample ID | Sample Volume(ml | Genus (/species) | # Cysts (or None) | Cyst Density (#/100ml |
|---|---|---|---|---|
| 1 | 100 | Ø | Ø | |
| 2 | 100 | Ø | Ø | |
| 3 | 100 | Ø | Ø | |
| 4 | 100 | Ø | Ø | |
| – | | | | |
| – | | | | |
| – | | | | |
| – | | | | |
| – | | | | |
| – | | | | |

Voucher Specimens

Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

| Genus (/species) | # Cysts | Catalog/Accession # | Pool # |
|---|---|---|---|

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet Dry Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: _____ no __X__ yes

Required color slides and/or photographs for the project site are included: _____ no __X__ yes

Date: _July 8, 2014_ County: Santa Barbara___ Quad: _Sisquoc__

Collector(s): _David Muth/Michaela Hoffmann_ Permit #: ___TE794234 _____

Site/Project Name: **_AERA East Cat Canyon Oil Field Site_____** Pool #: __WPP-18___

Township: _9 N_ Range: 32W___ Section: __30_ UTM: 10S 3857715 N. 748429 E.

Habitat Condition: (circle where appropriate)

-undisturbed disturbed: Graded Pad Roadway Old ditch Bermed Pond

- ungrazed grazed: cattle horses sheep other_____

- land use of habitat: light moderate heavy

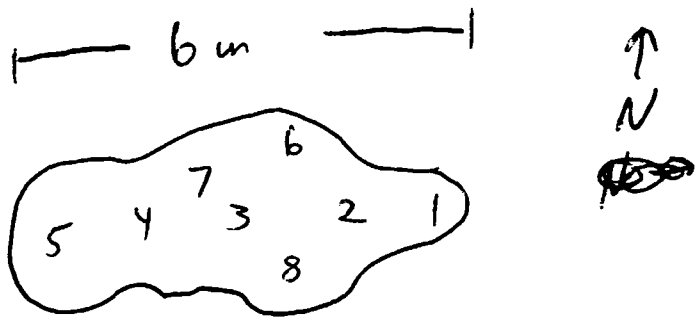
Pool Bottom Surface: (circle where appropriate )

hardpan claypan cobbly/rocky lava flow Other: Compaction

Pool Depth: __8_cm (estimated maximum) Surface Area: __24__m2 (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North
- sampling locations



WPP-18

**U.S Fish and Wildlife Service Vernal Pool Data Sheet**

**Dry Season Survey**

**Soil Analysis**

Note: Please fill out the required information completely for each site visit.

| Sample ID | Sample Volume(ml | Genus (/species) | # Cysts (or None) | Cyst Density (#/100ml |
|---|---|---|---|---|
| 1 | 100 | Ø | Ø | |
| 2 | 100 | Ø | Ø | |
| 3 | 100 | Ø | Ø | |
| 4 | 100 | Ø | Ø | |
| 5 | 100 | Ø | Ø | |
| 6 | 100 | Ø | Ø | |
| 7 | 100 | Ø | Ø | |
| 8 | 100 | Ø | Ø | |
| | | | | |
| | | | | |

Voucher Specimens

Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

| Genus (/species) | # Cysts | Catalog/Accession # | Pool # |
|---|---|---|---|

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet Dry Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: _____ no __X__ yes

Required color slides and/or photographs for the project site are included: _____ no __X__ yes

Date: _July 8, 2014_ County: Santa Barbara___ Quad: _Sisquoc__

Collector(s): _David Muth/Michaela Hoffmann_ Permit #: ___TE794234 _____

Site/Project Name: **AERA East Cat Canyon Oil Field Site** Pool #: __WPP-19a__

Township: _9 N_ Range: 32W___ Section: __30_ UTM: 10S 3857709 N. 747895 E.

Habitat Condition: (circle where appropriate)

-undisturbed disturbed: Graded Pad Roadway Old ditch Bermed Pond

- ungrazed grazed: cattle horses sheep other_____

- land use of habitat: light moderate heavy recent disturbance

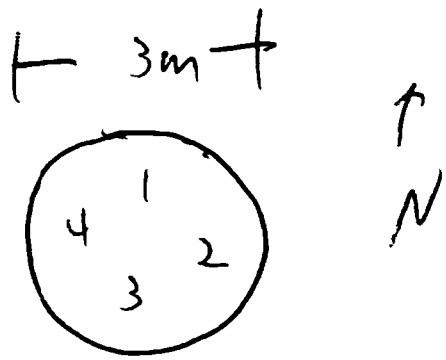
Pool Bottom Surface: (circle where appropriate )

hardpan claypan cobbly/rocky lava flow Other: Compaction

Pool Depth: __8_cm (estimated maximum) Surface Area: __12__m2 (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North
- sampling locations



WP 19a

**U.S Fish and Wildlife Service Vernal Pool Data Sheet**

**Dry Season Survey**

**Soil Analysis**

Note: Please fill out the required information completely for each site visit.

| Sample ID | Sample Volume(ml | Genus (/species) | # Cysts (or None) | Cyst Density (#/100ml |
|---|---|---|---|---|
| 1 | 100 | Ø | Ø | |
| 2 | 100 | Ø | Ø | |
| 3 | 100 | Ø | Ø | |
| 4 | 100 | Ø | Ø | |
| — | | | | |
| — | | | | |
| — | | | | |
| — | | | | |
| — | | | | |
| — | | | | |

Voucher Specimens

Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

| Genus (/species) | # Cysts | Catalog/Accession # | Pool # |
|---|---|---|---|

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet Dry Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: _____ no __X__ yes

Required color slides and/or photographs for the project site are included: _____ no __X__ yes

Date: _July 8, 2014_ County: Santa Barbara___ Quad: _Sisquoc__

Collector(s): _David Muth/Michaela Hoffmann_ Permit #: ___TE794234 _____

Site/Project Name: **_AERA East Cat Canyon Oil Field Site_____** Pool #: __WPP-19b__

Township: _9 N_ Range: 32W___ Section: __30_ UTM: 10S 3857702 N. 747911 E.

Habitat Condition: (circle where appropriate)

-undisturbed disturbed: Graded Pad Roadway Old ditch Bermed Pond

ungrazed grazed: cattle horses sheep other_____

- land use of habitat: light moderate heavy recent disturbance

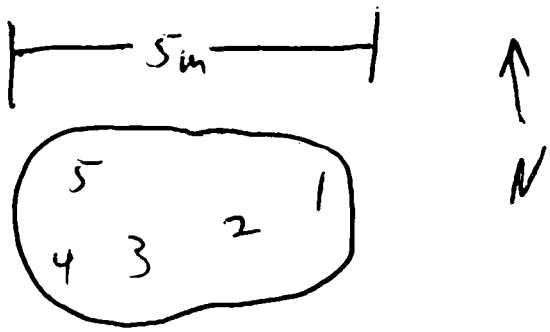
Pool Bottom Surface: (circle where appropriate )

hardpan claypan cobbly/rocky lava flow Other: Compaction

Pool Depth: __8_cm (estimated maximum) Surface Area: __15__m2 (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North
- sampling locations



WPP-19b

**U.S Fish and Wildlife Service Vernal Pool Data Sheet**

**Dry Season Survey**

**Soil Analysis**

Note: Please fill out the required information completely for each site visit.

| Sample ID | Sample Volume(ml | Genus (/species) | # Cysts (or None) | Cyst Density (#/100ml |
|---|---|---|---|---|
| 19b1 | 100 | Ø | Ø | |
| 2 | 100 | Ø | Ø | |
| 3 | 100 | Ø | Ø | |
| 4 | 100 | Ø | Ø | |
| 5 | 100 | Ø | Ø | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Voucher Specimens

Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

| Genus (/species) | # Cysts | Catalog/Accession # | Pool # |
|---|---|---|---|

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet Dry Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: _____ no __X__ yes

Required color slides and/or photographs for the project site are included: _____ no __X__ yes

Date: _July 8, 2014_ County: Santa Barbara___ Quad: _Sisquoc __

Collector(s): _David Muth/Michaela Hoffmann_ Permit #: ___TE794234 _____

Site/Project Name: **_AERA East Cat Canyon Oil Field Site_____** Pool #: __WPP-19c__

Township: _9 N_ Range: 32W___ Section: __30_ UTM: 10S 3857713 N. 747929 E.

Habitat Condition: (circle where appropriate)

-undisturbed disturbed: Graded Pad Roadway Old ditch Bermed Pond

- ungrazed grazed: cattle horses sheep other_____

- land use of habitat: light moderate heavy recent disturbance

Pool Bottom Surface: (circle where appropriate )

hardpan claypan cobbly/rocky lava flow Other: Compaction

Pool Depth: __8_cm (estimated maximum) Surface Area: __10__m2 (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North
- sampling locations

WPP-19c

**U.S Fish and Wildlife Service Vernal Pool Data Sheet**

**Dry Season Survey**

**Soil Analysis**

Note: Please fill out the required information completely for each site visit.

| Sample ID | Sample Volume(ml | Genus (/species) | # Cysts (or None) | Cyst Density (#/100ml |
|---|---|---|---|---|
| 1 | 100 | Ø | Ø | |
| 2 | 100 | Ø | Ø | |
| 3 | 100 | Ø | Ø | |
| 4 | 100 | Ø | Ø | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Voucher Specimens

Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

| Genus (/species) | # Cysts | Catalog/Accession # | Pool # |
|---|---|---|---|

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet Dry Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: _____ no __X__ yes

Required color slides and/or photographs for the project site are included: _____ no __X__ yes

Date: _July 8, 2014_ County: Santa Barbara___ Quad: _Sisquoc__

Collector(s): _David Muth/Michaela Hoffmann_ Permit #: ___TE794234 _____

Site/Project Name: **_AERA East Cat Canyon Oil Field Site_____** Pool #: __WPP-19d _

Township: _9 N_ Range: 32W__ Section: __30_ UTM: 10S 3857701 N. 747940 E.

Habitat Condition: (circle where appropriate)

-undisturbed disturbed: Graded Pad Roadway Old ditch Bermed Pond

- ungrazed grazed: cattle horses sheep other_____

- land use of habitat: light moderate heavy recent disturbance

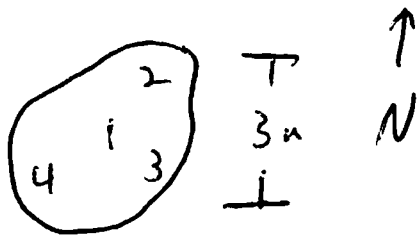
Pool Bottom Surface: (circle where appropriate )

hardpan claypan cobbly/rocky lava flow Other: Compaction

Pool Depth: __8_cm (estimated maximum) Surface Area: __12__m2 (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North
- sampling locations



WPP-19d

**U.S Fish and Wildlife Service Vernal Pool Data Sheet**

**Dry Season Survey**

**Soil Analysis**

Note: Please fill out the required information completely for each site visit.

| Sample ID | Sample Volume(ml | Genus (/species) | # Cysts (or None) | Cyst Density (#/100ml |
|---|---|---|---|---|
| 1 | 100 | Ø | Ø | |
| 2 | 100 | Ø | Ø | |
| 3 | 100 | Ø | Ø | |
| 4 | 100 | Ø | Ø | |
| — | | | | |
| — | | | | |
| — | | | | |
| — | | | | |
| — | | | | |
| — | | | | |

Voucher Specimens

Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

| Genus (/species) | # Cysts | Catalog/Accession # | Pool # |
|---|---|---|---|

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet Dry Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: _____ no __X__ yes

Required color slides and/or photographs for the project site are included: _____ no __X__ yes

Date: _July 8, 2014_ County: Santa Barbara___ Quad: _Sisquoc__

Collector(s): _David Muth/Michaela Hoffmann_ Permit #: ___TE794234 _____

Site/Project Name: **_AERA East Cat Canyon Oil Field Site_____** Pool #: __WPP-19e__

Township: _9 N_ Range: 32W___ Section: __30__ UTM: 10S 3857714 N. 747979 E.

Habitat Condition: (circle where appropriate)

| | | | | | |
|---|---|---|---|---|---|
| -undisturbed | disturbed: | Graded Pad | Roadway | Old ditch | Bermed Pond |
| - ungrazed | grazed: | cattle | horses | sheep | other_____ |
| - land use of habitat: | | | light | moderate | heavy |

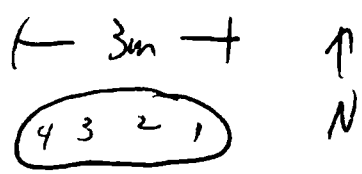
Pool Bottom Surface: (circle where appropriate )

hardpan claypan cobbly/rocky lava flow Other: Compaction

Pool Depth: __8_cm (estimated maximum) Surface Area: __3__m2 (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North
- sampling locations



WPP 19e

**U.S Fish and Wildlife Service Vernal Pool Data Sheet**

**Dry Season Survey**

**Soil Analysis**

Note: Please fill out the required information completely for each site visit.

| Sample ID | Sample Volume(ml | Genus (/species) | # Cysts (or None) | Cyst Density (#/100ml |
|---|---|---|---|---|
| 1 | 100 | Ø | Ø | |
| 2 | 100 | Ø | Ø | |
| 3 | 100 | Ø | Ø | |
| 4 | 100 | Ø | Ø | |
| — | | | | |
| — | | | | |
| — | | | | |
| — | | | | |
| — | | | | |
| — | | | | |

Voucher Specimens

Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

| Genus (/species) | # Cysts | Catalog/Accession # | Pool # |
|---|---|---|---|

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet Dry Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: _____ no __X__ yes

Required color slides and/or photographs for the project site are included: _____ no __X__ yes

Date: _July 8. 2014_ County: Santa Barbara___ Quad: _Sisquoc __

Collector(s): _David Muth/Michaela Hoffmann_ Permit #: ___TE794234 _____

Site/Project Name: **_AERA East Cat Canyon Oil Field Site_____** Pool #: __WPP-20___

Township: _9 N_ Range: 32W___ Section: __30_ UTM: 10S 3857861 N. 747469 E.

Habitat Condition: (circle where appropriate)

| | | | | | |
|---|---|---|---|---|---|
| -undisturbed | disturbed: | Graded Pad | Roadway | Old ditch | Bermed Pond |
| - ungrazed | grazed: | cattle | horses | sheep | other_____ |
| - land use of habitat: | | | light | moderate | heavy recent disturbance? |

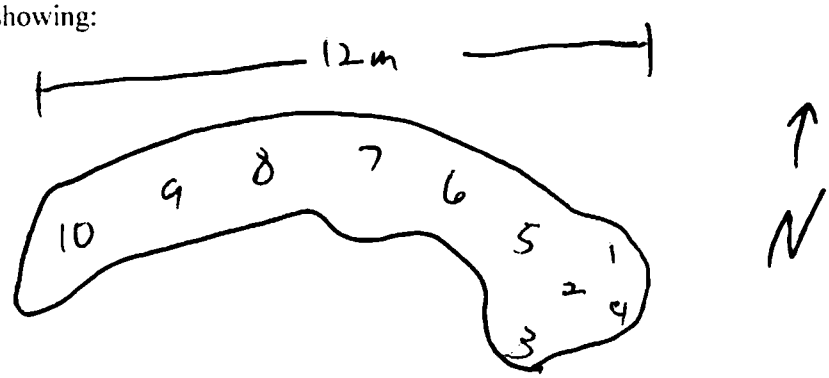
Pool Bottom Surface: (circle where appropriate )

hardpan claypan cobbly/rocky lava flow Other: Compaction

Pool Depth: __10_cm (estimated maximum) Surface Area: __72__m2 (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North
- sampling locations



WPP-20

**U.S Fish and Wildlife Service Vernal Pool Data Sheet**

**Dry Season Survey**

**Soil Analysis**

Note: Please fill out the required information completely for each site visit.

| Sample ID | Sample Volume(ml | Genus (/species) | # Cysts (or None) | Cyst Density (#/100ml |
|---|---|---|---|---|
| 1 | 100 | Ø | Ø | |
| 2 | 100 | Ø | Ø | |
| 3 | 100 | Ø | Ø | |
| 4 | 100 | Ø | Ø | |
| 5 | 100 | Ø | Ø | |
| 6 | 100 | Ø | Ø | |
| 7 | 100 | Ø | Ø | |
| 8 | 100 | Ø | Ø | |
| 9 | 100 | Ø | Ø | |
| 10 | 100 | Ø | Ø | |
| | | | 0 | |

Voucher Specimens

Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

| Genus (/species) | # Cysts | Catalog/Accession # | Pool # |
|---|---|---|---|

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet Dry Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: _____ no __X__ yes

Required color slides and/or photographs for the project site are included: _____ no __X__ yes

Date: _July 8, 2014_ County: Santa Barbara___ Quad: _Sisquoc__

Collector(s): _David Muth/Michaela Hoffmann_ Permit #: __TE794234 _____

Site/Project Name: **_AERA East Cat Canyon Oil Field Site_____** Pool #: __WPP-21___

Township: _9 N_ Range: 32W___ Section: _30_ UTM: 10S 3857532 N. 748232 E.

Habitat Condition: (circle where appropriate)

-undisturbed disturbed: Graded Pad Roadway Old ditch Bermed Pond

- ungrazed grazed: cattle horses sheep other_____

- land use of habitat: light moderate heavy

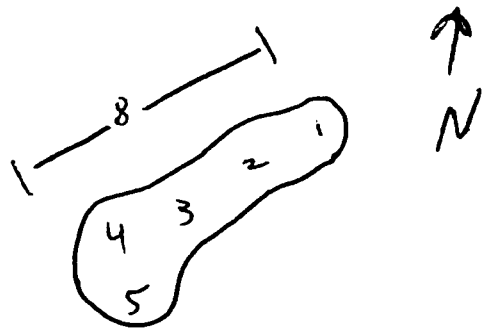
Pool Bottom Surface: (circle where appropriate )

hardpan claypan cobbly/rocky lava flow Other: Compaction

Pool Depth: __10_cm (estimated maximum) Surface Area: __16__m2 (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North
- sampling locations



WPP-21

**U.S Fish and Wildlife Service Vernal Pool Data Sheet**

**Dry Season Survey**

**Soil Analysis**

Note: Please fill out the required information completely for each site visit.

| Sample ID | Sample Volume(ml | Genus (/species) | # Cysts (or None) | Cyst Density (#/100ml |
|---|---|---|---|---|
| 1 | 100 | Ø | Ø | |
| 2 | 100 | Ø | Ø | |
| 3 | 100 | Ø | Ø | |
| 4 | 100 | Ø | Ø | |
| 5 | 100 | Ø | Ø | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Voucher Specimens

Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

| Genus (/species) | # Cysts | Catalog/Accession # | Pool # |
|---|---|---|---|

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet Dry Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: _____ no __X__ yes

Required color slides and/or photographs for the project site are included: _____ no __X__ yes

Date: _July 8, 2014_ County: Santa Barbara___ Quad: _Sisquoc__

Collector(s): _David Muth/Michaela Hoffmann_ Permit #: ___TE794234 _____

Site/Project Name: **_AERA East Cat Canyon Oil Field Site_____** Pool #: __WPP-22___

Township: _9 N_ Range: 32W___ Section: __29_ UTM: 10S 3857569 N. 749110 E.

Habitat Condition: (circle where appropriate)

| | | | | | |
|---|---|---|---|---|---|
| -undisturbed | disturbed: | Graded Pad | Roadway | Old ditch | Bermed Pond |
| - ungrazed | grazed: | cattle | horses | sheep | other_____ |
| - land use of habitat: | | | light | moderate | heavy |

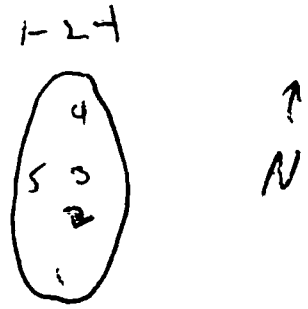
Pool Bottom Surface: (circle where appropriate )

hardpan claypan cobbly/rocky lava flow Other: Compaction

Pool Depth: __8_cm (estimated maximum) Surface Area: __12__m2 (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North
- sampling locations



WPP-22

**U.S Fish and Wildlife Service Vernal Pool Data Sheet**

**Dry Season Survey**

**Soil Analysis**

Note: Please fill out the required information completely for each site visit.

| Sample ID | Sample Volume(ml | Genus (/species) | # Cysts (or None) | Cyst Density (#/100ml |
|---|---|---|---|---|
| 1 | 100 | Ø | Ø | |
| 2 | 100 | Ø | Ø | |
| 3 | 100 | Ø | Ø | |
| 4 | 100 | Ø | Ø | |
| 5 | 100 | Ø | Ø | |
| 6 | | | | |
| — | | | | |
| — | | | | |
| — | | | | |
| — | | | | |

Voucher Specimens

Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

| Genus (/species) | # Cysts | Catalog/Accession # | Pool # |
|---|---|---|---|

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet Dry Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: _____ no __X__ yes

Required color slides and/or photographs for the project site are included: _____ no __X__ yes

Date: _July 8, 2014_ County: Santa Barbara___ Quad: _Sisquoc __

Collector(s): _David Muth/Michaela Hoffmann_ Permit #: ___TE794234 _____

Site/Project Name: **_AERA East Cat Canyon Oil Field Site_____** Pool #: __WPP-23a___

Township: _9 N_ Range: 32W___ Section: __30__ UTM: 10S 3857227 N. 748956 E.

Habitat Condition: (circle where appropriate)

-undisturbed disturbed: Graded Pad Roadway Old ditch Bermed Pond

- ungrazed grazed: cattle horses sheep other_____

- land use of habitat: light moderate heavy

Pool Bottom Surface: (circle where appropriate )

hardpan claypan cobbly/rocky lava flow Other Compaction

Pool Depth: __8_cm (estimated maximum) Surface Area: __12__m2 (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North
- sampling locations

WPP 23a

**U.S Fish and Wildlife Service Vernal Pool Data Sheet**

**Dry Season Survey**

**Soil Analysis**

Note: Please fill out the required information completely for each site visit.

| Sample ID | Sample Volume(ml | Genus (/species) | # Cysts (or None) | Cyst Density (#/100ml |
|---|---|---|---|---|
| 1 | 100 | Ø | Ø | |
| 2 | 100 | Ø | | |
| 3 | 100 | Ø | | |
| 4 | 100 | Ø | | |
| – | | | | |
| – | | | | |
| – | | | | |
| – | | | | |
| – | | | | |
| – | | | | |

Voucher Specimens

Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

| Genus (/species) | # Cysts | Catalog/Accession # | Pool # |
|---|---|---|---|

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet Dry Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: _____ no __X__ yes

Required color slides and/or photographs for the project site are included: _____ no __X__ yes

Date: _July 8, 2014_ County: Santa Barbara___ Quad: _Sisquoc__

Collector(s): _David Muth/Michaela Hoffmann_ Permit #: ___TE794234 _____

Site/Project Name: **_AERA East Cat Canyon Oil Field Site_____** Pool #: __WPP-23b__

Township: _9 N_ Range: 32W___ Section: __30__ UTM: 10S 3857247 N. 748949 E.

Habitat Condition: (circle where appropriate)

| | | | | | |
|---|---|---|---|---|---|
| -undisturbed | disturbed: | Graded Pad | Roadway | Old ditch | Bermed Pond |
| - ungrazed | grazed: | cattle | horses | sheep | other_____ |
| - land use of habitat: | | | light | moderate | heavy |

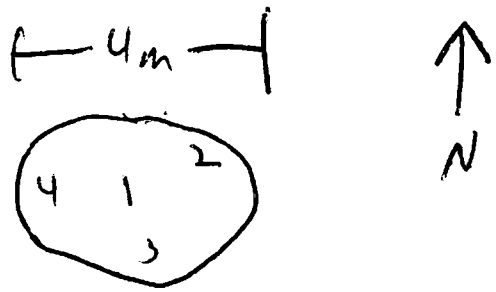
Pool Bottom Surface: (circle where appropriate )

hardpan claypan cobbly/rocky lava flow Other: Compaction

Pool Depth: __8_cm (estimated maximum) Surface Area: __12__m2 (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North
- sampling locations



WPP 236

**U.S Fish and Wildlife Service Vernal Pool Data Sheet**

**Dry Season Survey**

**Soil Analysis**

Note: Please fill out the required information completely for each site visit.

| Sample ID | Sample Volume(ml | Genus (/species) | # Cysts (or None) | Cyst Density (#/100ml |
|---|---|---|---|---|
| 1 | 100 | Ø | Ø | |
| 2 | 100 | Ø | Ø | |
| 3 | 100 | Ø | Ø | |
| 4 | 100 | Ø | Ø | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Voucher Specimens

Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

| Genus (/species) | # Cysts | Catalog/Accession # | Pool # |
|---|---|---|---|

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet Dry Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: _____ no __X__ yes

Required color slides and/or photographs for the project site are included: _____ no __X___ yes

Date: _July 8, 2014_ County: Santa Barbara___ Quad: _Sisquoc__

Collector(s): _David Muth/Michaela Hoffmann_ Permit #: ___TE794234 _____

Site/Project Name: **_AERA East Cat Canyon Oil Field Site_____** Pool #: __WPP-23c___

Township: _9 N_ Range: 32W___ Section: __30_ UTM: 10S 3857248 N. 748908 E.

Habitat Condition: (circle where appropriate)

| | | | | | |
|---|---|---|---|---|---|
| -undisturbed | disturbed: | Graded Pad | Roadway | Old ditch | Bermed Pond |
| - ungrazed | grazed: | cattle | horses | sheep | other_____ |
| - land use of habitat: | | | light | moderate | heavy |

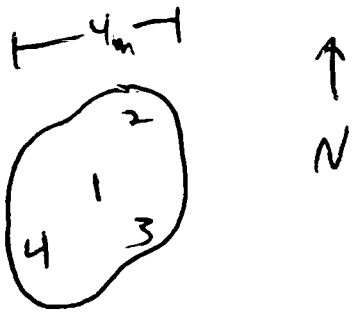
Pool Bottom Surface: (circle where appropriate )

hardpan claypan cobbly/rocky lava flow Other: Compaction

Pool Depth: __8_cm (estimated maximum) Surface Area: __16__m2 (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North
- sampling locations



WPP 23c

**U.S Fish and Wildlife Service Vernal Pool Data Sheet**

**Dry Season Survey**

**Soil Analysis**

Note: Please fill out the required information completely for each site visit.

| Sample ID | Sample Volume(ml | Genus (/species) | # Cysts (or None) | Cyst Density (#/100ml |
|---|---|---|---|---|
| 1 | 100 | Ø | Ø | |
| 2 | 100 | Ø | Ø | |
| 3 | 100 | Ø | Ø | |
| 4 | 100 | Ø | Ø | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Voucher Specimens

Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

| Genus (/species) | # Cysts | Catalog/Accession # | Pool # |
|---|---|---|---|

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet Dry Season Survey**

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: _____ no __X__ yes

Required color slides and/or photographs for the project site are included: _____ no __X__ yes

Date: _July 8, 2014_ County: Santa Barbara___ Quad: _Sisquoc __

Collector(s): _David Muth/Michaela Hoffmann_ Permit #: ___TE794234 _____

Site/Project Name: **_AERA East Cat Canyon Oil Field Site_____** Pool #: __SP-24 _____

Township: _9 N_ Range: 32W___ Section: __30_ UTM: 10S 3856938 N. 748788 E.

Habitat Condition: (circle where appropriate)

-undisturbed disturbed: Graded Pad Roadway Old ditch Bermed Pond

ungrazed grazed: cattle horses sheep other_____

- land use of habitat: light moderate heavy

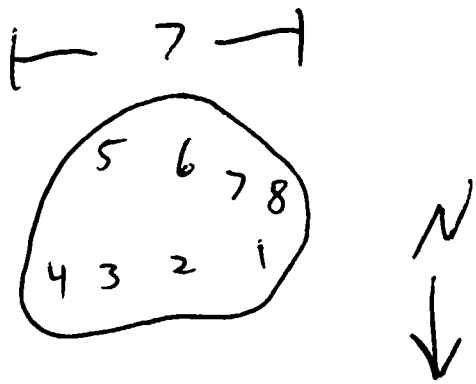
Pool Bottom Surface: (circle where appropriate )

hardpan claypan cobbly/rocky lava flow Other: Compaction

Pool Depth: __18_cm (estimated maximum) Surface Area: __42__m2 (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North
- sampling locations



SP-24

**U.S Fish and Wildlife Service Vernal Pool Data Sheet**

**Dry Season Survey**

**Soil Analysis**

Note: Please fill out the required information completely for each site visit.

| Sample ID | Sample Volume(ml | Genus (/species) | # Cysts (or None) | Cyst Density (#/100ml |
|---|---|---|---|---|
| 1 | 100 | Ø | Ø | |
| 2 | 100 | Ø | Ø | |
| 3 | 100 | Ø | Ø | |
| 4 | 100 | Ø | Ø | |
| 5 | 100 | Ø | Ø | |
| 6 | 100 | Ø | Ø | |
| 7 | 100 | Ø | Ø | |
| 8 | 100 | Ø | Ø | |
| — | | | | |
| — | | | | |

Voucher Specimens

Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

| Genus (/species) | # Cysts | Catalog/Accession # | Pool # |
|---|---|---|---|

# APPENDIX F

## HABITAT ASSESSMENT FOR CALIFONRIA TIGER SALAMANDER (STORRER ENVIRONMENTAL, 2013)

STORRER
ENVIRONMENTAL
SERVICES

2565 Puesta Del Sol Road #3
Santa Barbara, CA 93105
(805) 682-2065
storrer.john@verizon.net

# Habitat Assessment for California Tiger Salamander (*Ambystoma californiense*)
# Aera East Cat Canyon Production Plan
# Santa Barbara County, California

Prepared for: Padre Associates, Inc.
369 Pacific Street
San Luis Obispo, CA 93401
Contact: Eric Snelling (805) 786-2650

Prepared by: Storrer Environmental Services
2565 Puesta Del Sol Road #3
Santa Barbara, CA 93105
Contact: John Storrer (805) 682-2065

Submitted: 19 September 2013

# TABLE OF CONTENTS

Introduction ..... 1
Proposed Project ..... 1
Existing Conditions ..... 1
Methods ..... 2
Results ..... 3
Assessment of Potential for Ponds to Support CTS Breeding ..... 5
SISQ-19 (Long Canyon Pond) ..... 5
SISQ-20 (Olivera Canyon Pond) ..... 5
Wetlands 205 ..... 6
Pond 208 ..... 6
Wetland 301 ..... 6
Ponds 705-A, 705-B, and 705-C ..... 6
ERG Ponds A, B, C, D, and E ..... 7
Discussion ..... 7
Conclusions ..... 8
References ..... 8

Figures

Figure 1: Vicinity Map ..... end of document
Figure 2: Known or Potential CTS Breeding Ponds within 3.0 and 5.0 Kilometers of Aera Production Area ..... end of document

Tables

Table 1: Known or Potential CTS Breeding Ponds within 5 Kilometers of the Site Perimeter ..... 4

Appendices

Appendix A: Representative Photographs of Project Site ..... end of document

## Introduction

This report is an assessment of habitat value and potential for occurrence of California Tiger Salamander (*Ambystoma californiense*) (CTS) for a 2155-acre oil field property in East Cat Canyon, Santa Barbara County, California. The report was prepared in accordance with guidelines recommended by the U.S. Fish and Wildlife Service (USFWS) for determining likelihood of occurrence of CTS (USFWS 2003).

The investigation was completed by John Storrer of Storrer Environmental Services, under contract to Padre Associates, Inc., San Luis Obispo, California.

## Proposed Project

Aera Energy LLC. (Aera) is proposing to develop remaining oil reserves from the East Cat Canyon (ECC) Oil Field, located in northern Santa Barbara County, California (Figure 1). Recovery of the remaining reserves would be accomplished using an enhanced oil recovery thermal injection process. This process would inject steam into the reservoir to decrease product viscosity in order to pump it to the surface for processing and distribution. The proposed Project is located entirely within the existing ECC Oil Field boundary and would utilize existing infrastructure to the extent feasible in order to minimize new areas of disturbance and reduce potential for environmental impacts. However, new gas and electric utility services will be needed for the Project, and a possible oil export pipeline will be constructed. Those "offsite" areas will be addressed separately.

The Project will be implemented in phases. Performance of the first phase will dictate the pace of the subsequent build-out to get to full scale. Steam will be generated through onsite steam generators powered by natural gas. The proposed development will also require private roadway improvements within the ECC site. Other appurtenant support facilities such as production processing equipment and control buildings would also be constructed.

Based on anticipated permitting scenarios, the proposed Project implementation is targeted for initiation in 2016. Primary permit applications including (but not limited to) Oil and Gas Drilling/Production Plan as well as Development Plan Permit applications required through the County of Santa Barbara are planned to be submitted on behalf of the proposed Project in the first half of 2014.

Aera controls approximately 2155 acres in-fee or through lease within the ECC Oil Field. The field development is not expected to include significant acreage east of Long Canyon. At this time, it is anticipated that the oil and gas separation and treatment facilities will be within the southwestern portion of the lease, within or adjacent to the existing office area and the previous process area.. An additional 5-kilometer (km) radius was considered with respect to potential CTS habitat, as illustrated in Figure 2.

## Existing Conditions

The ECC Oil Field is located in the Solomon Hills, approximately 9 miles southeast of the City of Santa Maria, California (Figure 1). The Site boundary reaches the Eastern

Santa Maria Valley to the north. The Solomon Hills are bisected by several canyons, the largest of which are Cat Canyon, Long Canyon, Olivera Canyon, and Foxen Canyon.

The prevailing terrain is steep and irregular. The valleys lie at elevations as low as 400 feet above sea level, while the ridgelines reach elevations of over 1,100 feet.

The Site's vegetation has been characterized as California sagebrush scrub, annual brome grassland, and coast live oak woodland (Padre 2011b).

Land use within the 3.3-square mile Site consists primarily of agriculture and oil production. The valley lowlands support both dry farming and to a lesser extent, irrigated row crops. The hills are used for cattle grazing. Remnants of former petroleum production include numerous well pads, facility pads and a system of interconnecting dirt roads within Aera's ECC holdings. Surface utilities in support of former production (e.g. pumps, tanks, piping) have been removed.

## Methods

The study consisted mainly of background research and review of aerial photography, because of the large area under consideration. Field reconnaissance was conducted in July and August of 2011 in relation to two prior CTS habitat assessments for the East Cat Canyon area (SES 2011a, 2011b). Site visits were also made in July and August of 2012. These surveys enabled a general assessment of habitat character and suitability.

Background research included a query of the California Natural Diversity Data Base (CNDDB 2013), review of CTS range maps produced by the USFWS (2010) and the USGS 7.5' map encompassing the Site (Sisquoc, California quadrangle); examination of museum records (SBMNH unpublished) and consultation with professional biologists familiar with species' regional range and distribution (Olson, Collins personal communications). The CNDDB search included the Foxen Canyon, Lompoc, Los Alamos, Orcutt, Santa Maria, Sisquoc, Tepusquet Canyon, Twitchell Dam and Zaca Creek quadrangles.

Aerial photography was used to search for any potential CTS breeding habitat within 5 km of the Site that may not have been previously identified. The photographs were taken in spring of 2011 and were ideal for detecting seasonal wetland features such as ponds or impoundments.

A series of historical aerial photographs of the project area archived at the Santa Barbara County Planning and Development Department were reviewed to ascertain whether there were any previously undetected potential CTS breeding ponds in the vicinity. The photos were also useful in confirming the origin of Potential CTS Breeding Ponds SISQ-19 and SISQ-20 (Figure 2). Aerial photographs from 1938, 1972, 1977, and 1989 were examined.

Previous reports describing biological resources for the project vicinity were also reviewed. These included results of biological surveys (Padre 2011a, 2011b) and CTS habitat assessments for two unrelated projects in the East Cat Canyon Oil Field (Collins 2008, Semonsen 2007, 2010a, and 2010b). Previous CTS habitat assessments for other components of Aera's geotechnical investigations in the East Cat Canyon Oil Field were used as a basis for the subject report (Storrer 2011a, 2011b). Results of aquatic and

upland surveys for CTS in the West Cat Canyon Oil Field are also relevant (Collins, et. al 2012; Collins and Gaede 2013).

Field reconnaissance was conducted on 20 and 21 July and 10 August 2011 and 20 July and 1 August 2012. Wetland features within the boundaries of, or adjacent to Aera's lease holdings were examined. These include "Potential CTS Breeding Ponds" SISQ-19, SISQ-20, and "Wetlands 205, 301, and 208". Observations were recorded in the form of field notes and photographs (Appendix A).

Aquatic surveys of "Potential CTS Breeding Pond" SISQ-20 for larval CTS were planned for spring of 2012 and 2013. The pond did not sustain sufficient surface water in either year to enable sampling.

## Results

The Site lies 2.99 miles south of "CTS Critical Habitat Area Unit 2" and 3.3 miles northeast of "CTS Critical Habitat Area Unit 3" as designated by the USFWS (2010). CTS range maps (USFWS 2010) show three "Known CTS Breeding Ponds" and eight "Potential CTS Breeding Ponds" within 3.1 miles (5 km) of the Site (Table 1, Figure 2). Two "Potential CTS Breeding Ponds" (SISQ-19 and SISQ-20) are within 1.24 miles (2 km) of the Site (USFWS 2010). Review of survey reports for the Cat Canyon area (e.g. Collins and Gaede 2013) and examination of aerial photographs indicate that there are an additional 12 ponds within a 5 km radius from the Site that are not identified on the USFWS (2010) range maps with potential to support CTS breeding (Table 1).

**Table 1: Known or Potential CTS Breeding Ponds within 5 Kilometers of the Site Boundaries (reference Figure 2)**

| Designation | Distance from Pond to Site Boundary (feet) | Direction from Project Site | Pond Status |
|---|---|---|---|
| SISQ-19 | 240 | South | Potential |
| SISQ-20 | Within Site Boundary | | Potential |
| SISQ-2 | 16,619 | Southwest | Known |
| SISQ-3E | 15,319 | Southwest | Known |
| SISQ-3W | 15,507 | Southwest | Potential |
| SISQ-16 | 15,756 | Northwest | Potential |
| TWDA-12 | 13,518 | North | Potential |
| TWDA-13 | 15,894 | North | Potential |
| TWDA-11 | 13,692 | Northwest | Known |
| FOCA-4 | 14,650 | South | Potential |
| FOCA-5 | 17,755 | South | Potential |
| 205 | Within Site Boundary | | None |
| 208 | 1,300 | North | Potential |
| 301 | Within Site Boundary | | Potential |
| 701 | 9,353 | West | Potential |
| 705-A | 6,232 | East | Potential |
| 705-B | 6,967 | East | Potential |
| 705-C | 3,331 | East | Potential |
| ERG-A | 7,706 | North | Potential |
| ERG-B | 1,625 | North | Potential |
| ERG-C | 4,631 | Northwest | Potential |
| ERG-D | 1,149 | North | Potential |
| ERG-E | 8,785 | Southeast | Potential |

Examination of aerial photographs taken in January 1938 indicates that there were no natural ephemeral ponds or man-made agricultural impoundments in the general area of the East Cat Canyon Oil Field at that time. This photograph pre-dates much of the oil exploration and development in the East Cat Canyon area. A July 1972 aerial photograph shows a number of bermed “sump ponds” in relation to oil and gas production. These likely correspond to the many small “wetlands” depicted on the Sisquoc USGS topographic map for the Sisquoc Quadrangle. This map was first published in 1959 and was photo-revised in 1974. Review of more recent aerial photographs indicates that many of these features were filled or otherwise eliminated during decommissioning of portions of the East Cat Canyon Oil Field in the 1980’s.

A previous CTS habitat assessment completed by Collins (2008) within the East Cat Canyon Oil Field centered on a project site that is 0.5 km southwest of the Site. His examination of the same aerial photographs resulted in similar interpretation.

**Assessment of Potential for Ponds to Support CTS Breeding**

The Long Canyon (SISQ-19) and Olivera Canyon (SISQ-20) Ponds were first identified as "potential CTS breeding ponds" by Semonsen (2007). This determination was made on the basis of context (i.e. both features are within the known range of dispersal for CTS) and physical characteristics (e.g. extended period of inundation to allow metamorphosis and adjoining high quality upland habitat). Collins (2008) described the Long Canyon Pond (designated "A-1" for purposes of his report) as a "recently constructed agricultural impoundment." The potential for CTS breeding was subsequently recognized by the USFWS (2010) and Long Canyon and Olivera Canyon Ponds were designated "Potential CTS Breeding Ponds" SISQ-19 and SISQ-20, respectively. Neither of the two ponds has been surveyed in accordance with guidelines endorsed by the USFWS (2003) for determining presence or absence of CTS.

**SISQ-19 (Long Canyon Pond)**

SISQ-19 is a man-made impoundment 240 feet south of the Site boundary created by damming the intermittent drainage that flows through Long Canyon (Table 1; Photo 8, Appendix A). It is approximately one acre in size. The berm at the downstream end of the pond is approximately six feet in height. Historic aerial photographs confirm that the pond was not present in 1938. The pond is evident in a photo taken in July of 1972.

SISQ-19 held water at the time of the field reconnaissance on 20 July 2011. Maximum depth of the pond is not known, but it contained sufficient water to suggest that it holds water for an extended period of time.

The pond supports only sparse patches of emergent aquatic vegetation, consisting primarily of spikerush (*Eleocharis* sp.). There were mats of algae around the pond margin, and the water was turbid. It is frequented by cattle.

Several thousand western toad metamorphs were observed on the margin of the pond during the July 20, 2011 survey. Semonsen (2007) also observed metamorphs of both western toad and Pacific treefrog in June of 2006.

The surrounding vegetation consists primarily of live oak woodland, with an understory of sage scrub. Small mammal burrows were found in abundance in the vicinity of the pond, including those of Botta's pocket gopher (*Thomomys bottae*), kangaroo rat (*Dipodomys* sp.), and California ground squirrel (*Otospermophilus beechey*).

**SISQ-20 (Olivera Canyon Pond)**

SISQ-20 is also a man-made impoundment. It was created by damming the intermittent drainage that flows through Olivera Canyon (Photo 9, Appendix A). SISQ-20 is approximately 0.17 acre in size. The berm at the downstream end of the pond is approximately 10 feet in height. Historic aerial photographs confirm that the pond was not present in 1938. A photo taken in July of 1972 was inconclusive, but the pond was clearly evident in a photo taken in March of 1977.

SISQ-20 was dry at the time of the July 2011 field reconnaissance. The pond was monitored from fall 2012 through spring 2013. It did not sustain surface water for more than one week in either year.

The pond supports no emergent aquatic vegetation. Plant species within the area formerly inundated included cocklebur (*Xanthium* sp.) and dove weed (*Eremocarpus setigerus*). There was evidence of use by cattle.

This section of Olivera Canyon is narrow and the adjoining hillsides are steep and brushy. The vegetation is sage scrub, comprised of coyote brush, California sagebrush (*Artemisia californica*), and black sage (*Salvia mellifera*).

Small mammal burrows were moderately abundant in proximity to the pond. These consisted primarily of Botta's pocket gopher burrows.

**Wetlands 205**

Artificial wetland features at this location are described in Storrer (2011a) as follows:

"There is a small impoundment to the east of the well pad that appears to have formed as a result of a grade cut into the slope. The feature appears to have some wetland characteristics (e.g. hydrology, hydrophytic plants). A second, smaller feature that is clearly an artificially-constructed impoundment (perhaps a former sump) is to the west of the pad. It too, exhibits some wetland characteristics. Both of these features are approximately 40 feet lower in elevation relative to the well pad.

The two wetland features afford very low potential for CTS breeding. This is due to their size, limited hydro-period and context." This wetland has not been sampled for CTS.

**Pond 208**

"Pond 208" is an artificially-constructed agricultural pond with uniform dimensions (150 x 110 feet, approximately 5 feet deep). The pond is situated on a hilltop on private property and does not appear to capture much, if any surface runoff. It has no associated wetland vegetation. Water would have to be pumped into the pond. It was completely dry on 1 August 2012. The irregular and artificially-induced hydro-period suggests that CTS breeding is unlikely. This wetland has not been sampled for CTS.

**Wetland 301**

"Wetland 301" is situated on the margin of a former well pad within the boundaries of the Aera lease. It is an artifact of former oil production. Surface water appears to be retained by an earthen berm on the perimeter of the well pad. The feature measures 60 x 20 feet and is very shallow (estimated depth less than 12 inches). Evidence suggests that it has a very short hydro-period and would not support breeding by CTS. This wetland has not been sampled for CTS.

**Ponds 705-A, 705-B, and 705-C**

Ponds 705-A, 705-B, and 705-C lie east and beyond the physical boundary of the Site (Figure 2). Pond 705-A has been described as a "natural, ephemeral pond" with approximate dimensions of 129 feet x 210 feet (Tierney Consulting 2001). Depth was estimated at 1.5 to 2.5 feet. The pond was not sampled for aquatic vertebrates in the

course of the referenced investigation. Based on its physical characteristics and context, the pond was concluded to have a "low probability" to support CTS (Tierney Consulting 2001).

Ponds 705-B and 705-C have not been surveyed.

**ERG Ponds A, B, C, D, and E**

"ERG Ponds A, B, C, D, and E" are located in West Cat Canyon, on the adjacent oil and gas lease owned and operated by ERG Operating Company LLC (ERG). These ponds have been subject to recent investigation for potential to support CTS breeding (Collins and Gaede 2013). Three consecutive seasons of aquatic surveys were conducted at these ponds in 2011, 2012, and 2013. Upland drift fence surveys were also completed in relation to this investigation in 2011-2012 and 2012-2013. Results of surveys for CTS have so far proved negative, although the minimum rainfall criterion identified in the "Guidelines" (USFWS 2003) was not met in 2011-2012 or 2012-2013.

## Discussion

The Site is within the potential distributional range based on mapping of CTS breeding ponds by the USFWS (2010). It is south of "CTS Critical Habitat Area Unit 2" and northeast of "CTS Critical Habitat Area Unit 3" as designated by the USFWS (2010). It is within 5 km of three "Known CTS Breeding Ponds" (Table 1, Figure 2). The nearest known CTS breeding ponds are in the northern Los Alamos and eastern Santa Maria Valleys (USFWS 2010). Known CTS breeding ponds in the northern Los Alamos Valley and eastern Santa Maria Valley are SSW and NNW of the Site, respectively.

The Site is characterized by natural and altered terrain that acts as an impediment (to various degrees) to potential CTS movement between onsite upland habitats and offsite breeding ponds. These include surfaced (public) and un-surfaced (private) roadways, low density residential development, and agricultural fields that are intensively cultivated on a regular basis. More importantly, the steep and thickly vegetated slopes and abruptly rising ridgelines that typify the Solomon Hills are not conducive to CTS migration or dispersal.

One Potential CTS Breeding Pond (SISQ-20) identified by the USFWS (2010) is located within the Site boundaries. Characterization and monitoring of the pond through three consecutive seasons suggests that it has a very short hydro-period and has low potential to support CTS breeding (SES 2011a, 2011b). The Site is within the range of dispersal from Potential CTS Breeding Ponds SISQ-19 and SISQ-20 (Table 1). Potential for these two man-made impoundments to support breeding populations of CTS is low. Historic aerial photographs indicate that there were no ephemeral or man-made impoundments within 5 km of the Site in 1938. Population of SISQ-19 and SISQ-20 would have depended on immigration from known CTS breeding ponds in the northern Los Alamos Valley and/or eastern Santa Maria Valley within the last 30-40 years when these ponds were most likely constructed. In view of the distance and intervening topography, such an event would be unlikely. The distance to the Site from the three "Known CTS Breeding Ponds" within 5 km is 2.6, 2.9, and 3.0 miles.

Friable soils in the valley lowlands and adjoining hills are ideally suited to fossorial mammals. These burrows provide suitable refugia for CTS.

## Conclusions

The Site has low potential to support CTS. This conclusion is consistent with those of two other investigators who have completed CTS habitat assessments for similar, but unrelated projects in the East Cat Canyon Oil Field (Collins 2008, Semonsen 2007, 2010a). Results of surveys conducted on the adjacent oil and gas lease in West Cat Canyon from 2011 – 2013 add further support to this conclusion.

"Potential CTS Breeding Ponds" SISQ-19 and SISQ-20 are man-made impoundments that were constructed after 1938. Review of historic aerial photographs indicates that there were no natural ephemeral ponds or man-made impoundments on the surrounding landscape at that time that could support breeding populations of CTS. Population of SISQ-19 and SISQ-20 by CTS would require immigration from breeding locales in the Los Alamos and Eastern Santa Maria Valleys. The distance from known "source" ponds is between 2.6 and 3.0 miles. Because of the distance and substantial impediments to CTS dispersal, this possibility is considered unlikely. Surveys and monitoring of SISQ-20 in 2011, 2012, and 2013 suggest that it does not have a hydro-period sufficient to support breeding by CTS.

Lowlands associated with the Long Canyon, Olivera Canyon, Cat Canyon, and Foxen Canyon do support potential upland habitat. Small mammal burrows are widely distributed locally abundant in these areas.

In consideration of all these factors, the potential for CTS to occur on the Site is low.

## References

California Department of Fish and Game. 2013. California Natural Diversity Data Base. Report printed on April 26, 2013. Foxen Canyon, Lompoc, Los Alamos, Orcutt, Santa Maria, Sisquoc, Tepusquet Canyon, Twitchell Dam, and Zaca Creek Quadrats. Commercial Version dated August 6, 2013.

Collins, P. 2008. California Tiger Salamander (*Ambystoma californiense*) Site and Habitat Assessment for the Williams Holding Well Number 4 Site (APN 101-070-006) in the East Cat Canyon Oil Field, Cat Canyon, Santa Barbara County, California. Prepared for Greka Oil and Gas, Inc. November 10.

Collins, P. W., P. Gaede, and V. Semonsen. 2012. Results of Drift Fence and Aquatic Surveys for California Tiger Salamanders (*Ambystoma californiense*) and other Special-Status Amphibians at Five Wetlands on the ERG West Cat Canyon Lease in Northern Santa Barbara County, California. Prepared for ERG Operating Company LLC, Santa Maria, CA. 66 pp. [June 14, 2012]

Collins, P and P. Gaede. 2013. Results of Drift Fence and Aquatic Surveys for California Tiger Salamanders (Ambystoma californiense) and other Special Status Amphibians on the ERG West Cat Canyon Lease in Northern Santa Barbara County, California. Prepared for ERG Operating Company LLC. June 3.

Padre Associates, Inc. 2011a. Cat Canyon Oil and Gas Field, East Area - Two-dimensional Seismic Test Plan Project Description. Prepared for Aera Energy, LLC. May 2011.

Padre Associates, Inc. 2011b. Biological Resources Report for the Aera Energy LLC. Two-dimensional Seismic Survey Project within the Cat Canyon Oil Field, Santa Barbara County, California. Prepared for Aera Energy, LLC. May 2011.

Santa Barbara Museum of Natural History, Department of Vertebrate Zoology. Unpublished sight and specimen records.

Semonsen, V. 2007. Initial Field Assessment for California Tiger Salamanders (*Ambystoma californiense*) – Aera East Cat Canyon Oil and Gas Fields. Letter report to B. Buelow, URS Corporation. January 22, 2007.

Semonsen, V. 2010a. Initial Field Assessment for California Tiger Salamanders (*Ambystoma californiense*) - ERG Cat Canyon Redevelopment Project. Letter report to J. Fox, Tracer Environmental. February 15, 2010.

Semonsen, V. 2010b. Addendum Letter for California Tiger Salamanders (*Ambystoma californiense*) - ERG Cat Canyon (Fleisher/Bonetti) Redevelopment Project. December 17, 2010.

Storrer, J. 2011a. Site Assessment for California Tiger Salamander (*Ambystoma californiense*) – Aera East Cat Canyon Exploration Plan, Santa Barbara County, California. Prepared for Padre Associates, San Luis Obispo, California. August 21.

Storrer, J. 2011b. Site Assessment for California Tiger Salamander (*Ambystoma californiense*) – Aera East Cat Canyon Two-dimensional Seismic Test Plan, Santa Barbara County, California. Prepared for Padre Associates, San Luis Obispo, California. September 8.

U.S. Fish and Wildlife Service. 2003. Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander. October.

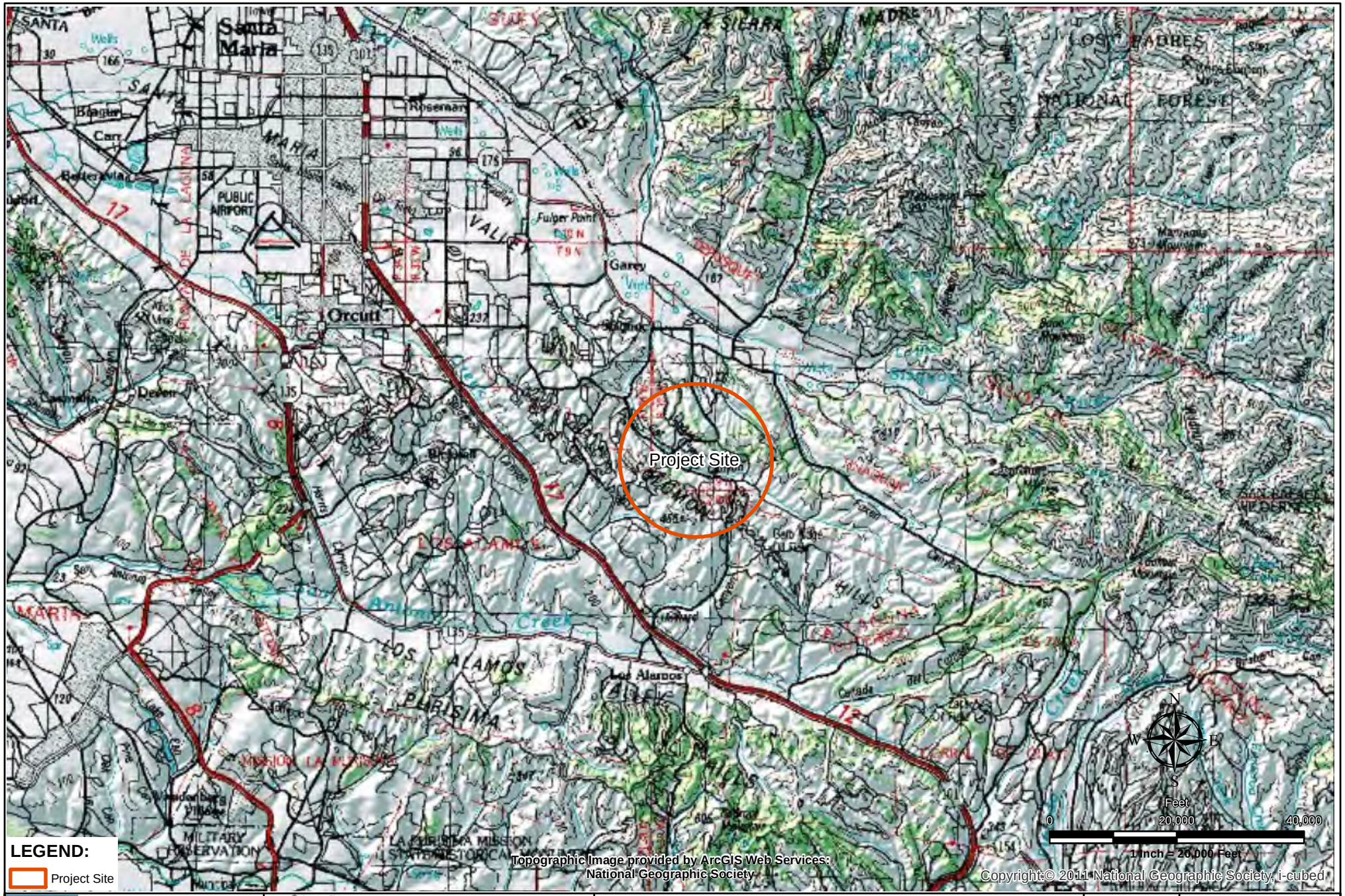
U.S. Fish and Wildlife Service. 2010. Ventura Fish and Wildlife Office GIS. California Tiger Salamander Pond Habitats – Northern Area. July.

Personal Communications

Collins, P. Curator of Vertebrate Zoology, Santa Barbara Museum of Natural History, Santa Barbara, California. Conversation with J. Storrer on August 9, 2011.

Olson, T. Professional Biologist, Lompoc, California. Conversation with J. Storrer on August 3, 2011.

R:\Projects\Storrer\Aera-Cat Canyon\Figures\a-aera-cat-canyon-figure1.mxd





Terra Solutions
1241 Johnson Avenue, #307
San Luis Obispo, CA. 93401
(805) 782-0969

STORRER ENVIRONMENTAL SERVICES
2565 Puesta del Sol #3
Santa Barbara, CA. 93105
(805) 682-2065
storrer.john@verizon.net

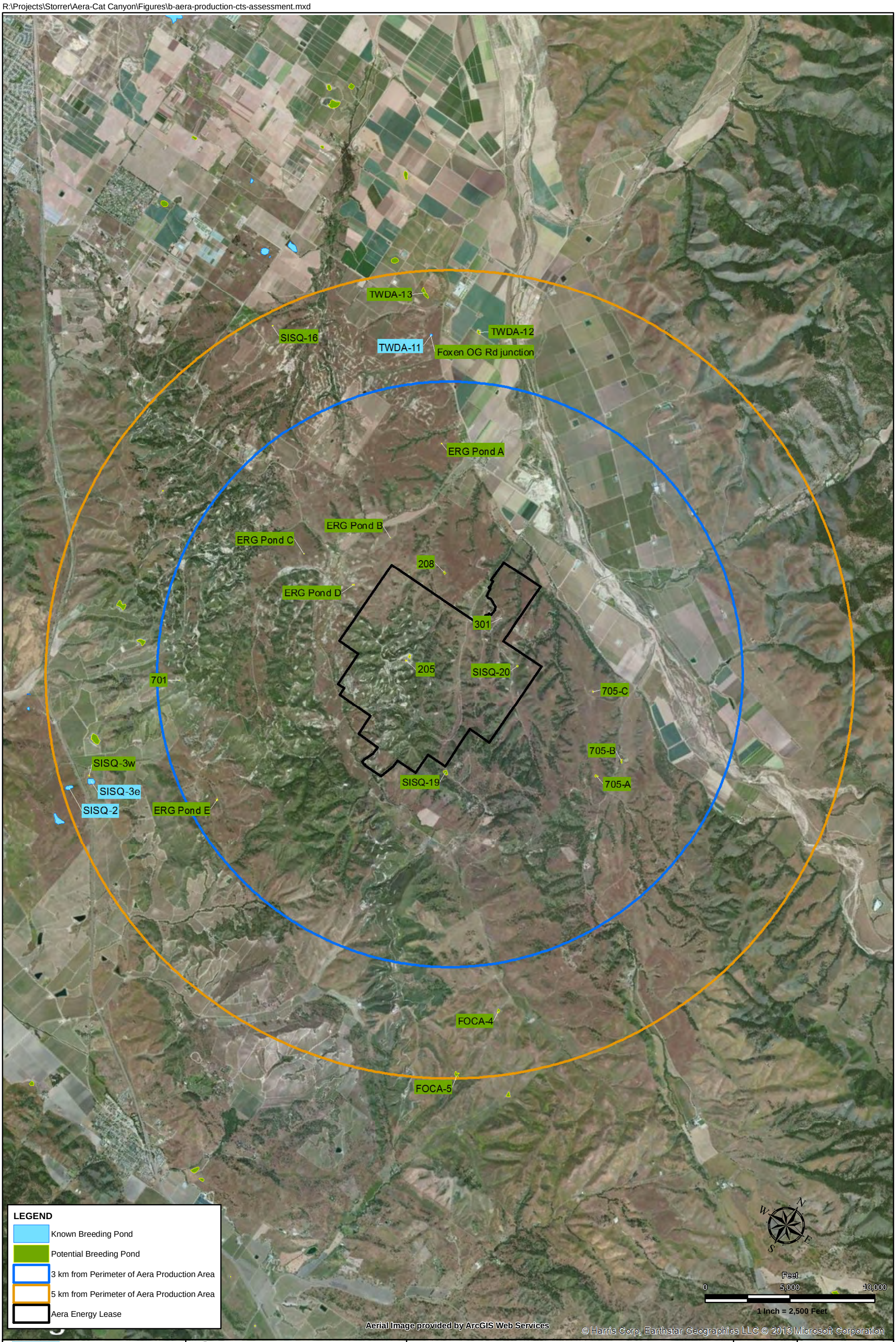

**Project Site and Vicinity**

**AERA East Cat Canyon Production Plan**

**Figure 1**

September 16, 2013

R:\Projects\Storrer\Aera-Cat Canyon\Figures\b-aera-production-cts-assessment.mxd





Terra Solutions
1241 Johnson Avenue, #307
San Luis Obispo, CA. 93401
(805) 782-0969

Storrer Environmental Services
2565 Puesta del Sol #3
Santa Barbara, CA. 93105
(805) 682-2065
storrer.john@verizon.net


**Known and Potential CTS Breeding Ponds within 3 and 5 km of Aera Production Area**

**Aera East Cat Canyon Production Plan**

**Figure 2**

September 9, 2013

# APPENDIX A

## REPRESENTATIVE PHOTOGRAPHS OF THE PROJECT SITE

**Photo 1: Typical Terrain and Habitat – East Cat Canyon Oil Field [21 July 2011]**

**Photo 2: From Aera Lease Looking Northeast toward Long Canyon [20 July 2011]**

**Photo 7: Valley Bottom Habitat - Long Canyon [20 July 2011]**

**Photo 8: Potential CTS Breeding Pond SISQ-19 ("Long Canyon Pond") [20 July 2011]**

**Photo 9: Potential CTS Breeding Pond SISQ-20 ("Olivera Canyon Pond") [27 March 2012]**

# APPENDIX G

## LEAST BELL'S VIREO SURVEY REPORT (PADRE, 2014b)

# LEAST BELL'S VIREO (*VIREO BELLII PUSILLUS*) SURVEY REPORT FOR THE EAST CAT CANYON OIL FIELD, SANTA BARBARA COUNTY, CALIFORNIA

**Prepared for:**

Aera Energy LLC
10000 Ming Avenue
Bakersfield, California 93311

**Prepared By:**

Padre Associates, Inc.
369 Pacific Street
San Luis Obispo, CA 93401

**September 2014**

**Project No. 1002-0455**

# Authenticity and Signature Page

**Padre Associates, Inc.**
**369 Pacific Street**
**San Luis Obispo, California 93401**

Padre Associates, Inc. (Padre) hereby certifies that all statements furnished in the following Least Bell's Vireo Survey Report and all supporting information are true and correct to the best of our knowledge and belief. Further, we certify that all field surveys associated with this report were performed by Padre using standards accepted by Santa Barbara County, United States Fish and Wildlife Service, and California Department of Fish and Wildlife and accurately represent all information retained from protocol-level surveys within East Cat Canyon Oil Field, Santa Barbara County, California.

**Thea Benson**
Senior Biologist

PAGE INTENTIONALLY BLANK

# TABLE OF CONTENTS

**1.0 INTRODUCTION ..... 1**
**2.0 LEAST BELL'S VIREO LIFE HISTORY ..... 2**
**3.0 METHODS ..... 6**
3.1 DESKTOP REVIEW ..... 7
3.2 FIELD VISITS ..... 7
**4.0 RESULTS ..... 11**
**5.0 REFERENCES ..... 13**

## ILLUSTRATIONS

A Least Bell's Vireo Range

## FIGURES

1 Project Location
2 Least Bell's Vireo Survey Area

## APPENDICES

A Surveyor Resume
B Site Photographs
B CNDDB Query Results (Occurrence No. 66)
D Observed Bird List

PAGE INTENTIONALLY BLANK

# 1.0 INTRODUCTION

This report provides the results of a literature/database review and focused least Bell's vireo (*Vireo bellii pusillus*) surveys conducted on behalf of Aera Energy LLC (Aera) for the East Cat Canyon Oil Field, located in Santa Barbara County, California (Figure 1). Least Bell's vireo is federally listed and state listed as an Endangered species that receives protection under the Federal Endangered Species Act (FESA), California Endangered Species Act (CESA), and the federal Migratory Bird Treaty Act (MBTA). Surveys were completed following the United States Fish and Wildlife Service (USFWS) *Least Bell's Vireo Survey Guidelines* (USFWS, 2001) to determine presence or absence within the Aera property limits of the East Cat Canyon Oil Field (property). All survey locations were selected based on the results of a preliminary habitat assessment completed throughout the property to determine potentially suitable habitat locations. Information on the habitat assessment, survey methods, and results are detailed in this report.

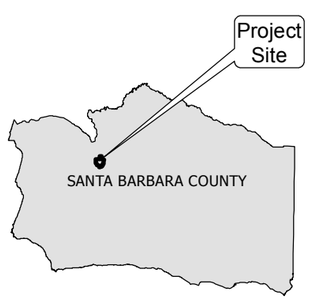
PAGE INTENTIONALLY BLANK

LEGEND:

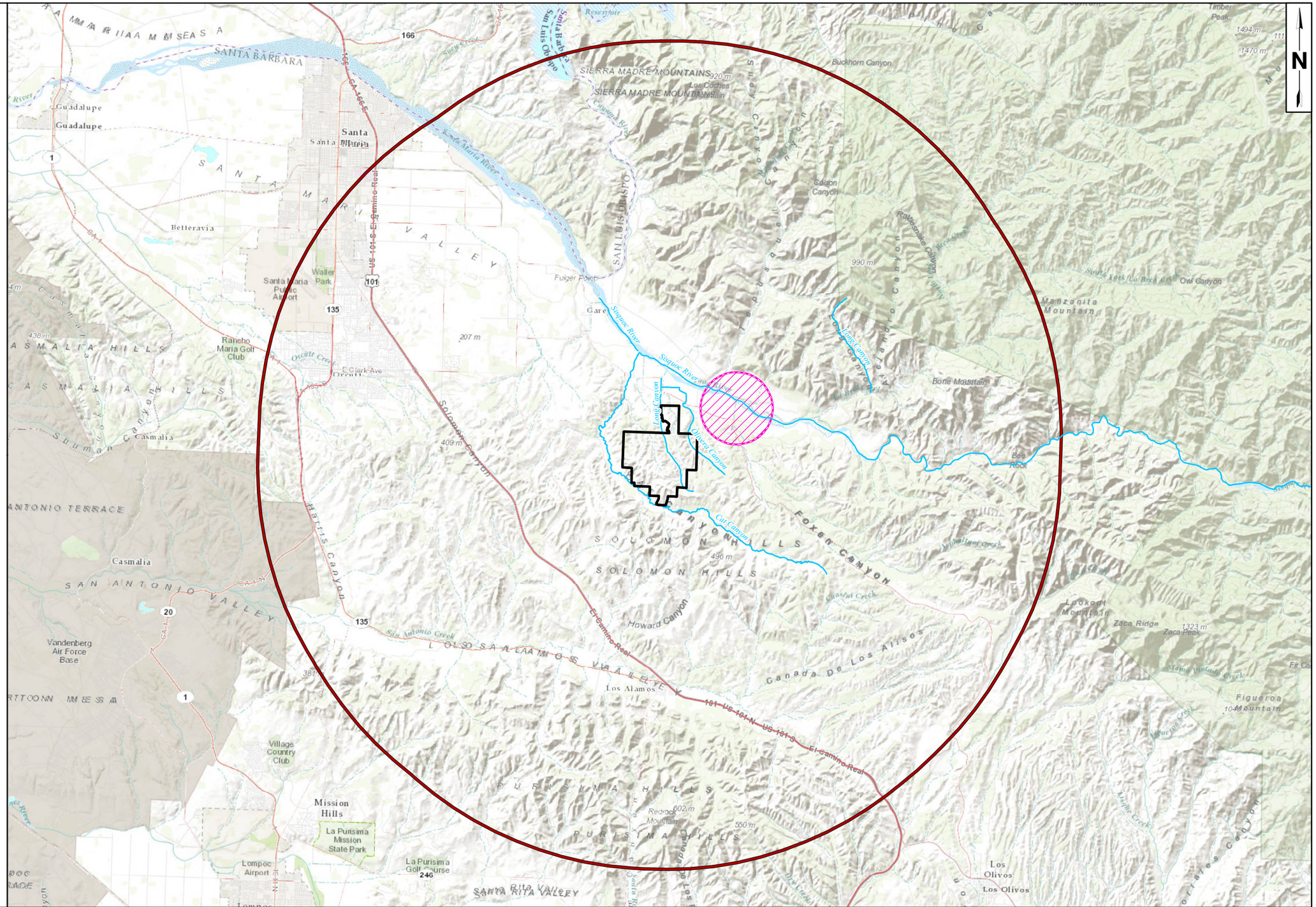
- Area Energy LLC Property
- Existing Blue Line Channel
- 10-mile Buffer of Property

**CNDDB Sensitive Resources (07-2014)**

- Least Bell's Vireo Occurrence




0 7,000 14,000
Feet




Source: CNDDB 7/2014, ESRI Online Topo Basemap
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: CNDDB = California Natural Diversity Database;This map was created for informational and display purposed only

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Project Location with 10 mile Buffer.mxd

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| | |
|---|---|
| PROJECT NAME: | EAST CAT CANYON SANTA BARBARA COUNTY, CA |
| PROJECT NUMBER: | 1002-0455 |
| DATE: | September 2014 |

PROJECT LOCATION

FIGURE 1

PAGE INTENTIONALLY BLANK

## 2.0 LEAST BELL'S VIREO LIFE HISTORY

Least Bell's vireo is a migratory songbird dependent upon riparian habitat for breeding. Historically, this species was widespread throughout riparian woodlands in the Central Valley and low elevation riverine valleys of California and northern Baja California (Illustration A). Least Bell's vireo was characterized as one of the most abundant birds in the state; however, in the last several decades, the species has declined due to the loss and degradation of riparian habitat throughout its range, as well as the expansion in range of the brown-headed cowbird (*Molothrus ater*) (Garrett and Dunn, 1981). In response to the decline in numbers and range, the California Department of Fish and Wildlife (CDFW) listed the species as Endangered on June 27, 1980 under the CESA. The USFWS also listed the species as Endangered on May 3, 1986 under the FESA. Critical Habitat for least Bell's vireo was designated on February 2, 1994 (USFWS, 1994). Critical Habitat Areas are designated along the Santa Ynez River south along the coastal counties of California. Current breeding distribution is concentrated in Ventura and San Diego counties; however, least Bell's vireo is known to occur in the Sisquoc and Santa Ynez rivers and in scattered locations along the southern coastal counties.

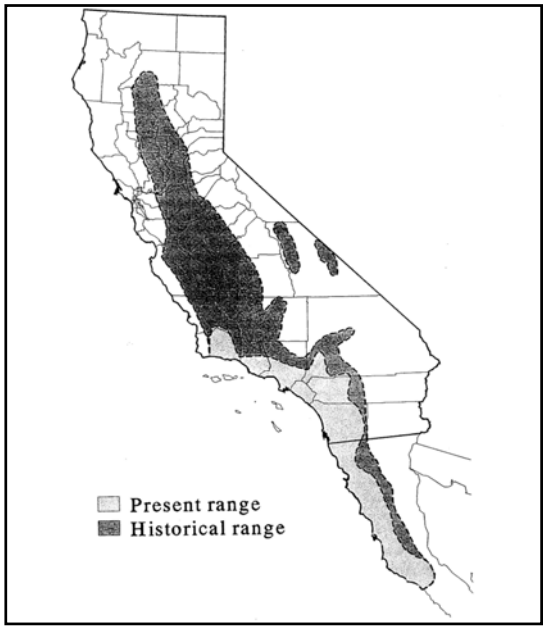



Illustration A. Least Bell's Vireo Range (USFWS, 1998)

Least Bell's vireo are obligate riparian breeders that nest in riparian forests during the spring months in California and winters south into southern Baja California and along the coast of Mexico. Least Bell's vireo begin to return to California breeding sites in mid to late March and are generally present on the breeding grounds until late August before migrating to wintering grounds in southern Baja California. Least Bell's vireo prefer dense, low, shrubby vegetation in riparian areas. Southern willow scrub, mule fat scrub, sycamore alluvial woodland, coast live oak riparian forest, arroyo willow riparian forest, and cottonwood bottomland forest are habitats that are commonly used by least Bell's vireo in California (Holland 1986, Faber et al., 1989). Along the Santa Ynez River, least Bell's vireo has occurred mainly in mugwort, mulefat, and willow shrubs (Olson and Gray, 1989). This species generally prefers early successional habitat or young second-growth forests; tall canopies in other habitats tend to shade out the shrub layer, making these sites less suitable for least Bell's vireo nesting (USFWS, 1998).

PAGE INTENTIONALLY BLANK

# 3.0 METHODS

The USFWS developed the *Least Bell's Vireo Survey Guidelines* (USFWS, 2001) to: 1) facilitate accurate assessments of the presence/absence of the species; 2) to provide the USFWS with sufficient information to adequately respond to requests for applicable federal permits and licenses; and 3) to fulfill a mandate to conserve and recover the species (USFWS, 2001). All surveys are required to comply with these guidelines, including submission of a final report to the USFWS and the CDFW office within 45 calendar days following the completion of the surveys.

In accordance with the guidelines, this assessment included an in-depth desktop review, habitat assessment, and focused surveys for least Bell's vireo discussed below.

## 3.1 DESKTOP REVIEW

The desktop review included a query of the CDFW California Natural Diversity Database (CNDDB) (CDFW, 2014) to identify reported occurrences of least Bell's vireo within the property and surrounding region, including the following nine United States Geological Survey (USGS) quadrangles: Twitchell Dam, Tepusquet Canyon, Sisquoc, Orcutt, Lompoc, Los Alamos, Zaca Creek, Foxen Canyon, and Santa Maria. The CNDDB is a statewide database of status and documented locations of all rare, threatened, endangered, and special-status species and natural communities in California. In addition, the USFWS Critical Habitat Portal (USFWS, 2014) was reviewed for least Bell's vireo Critical Habitat that may potentially occur within the vicinity of the property.

## 3.2 FIELD VISITS

Prior to the focused surveys, a preliminary least Bell's vireo habitat assessment was completed within the property to evaluate the existing habitat conditions and determine the areas with potential to support least Bell's vireo. This initial assessment was completed by Padre Biologist Thea Benson during biological surveys throughout the property between April 8 and April 18, 2013. Ms. Benson's resume is provided as Appendix A. The results of this habitat assessment determined the scope of subsequent focused least Bell's vireo survey locations. Survey points were established within the Aera property boundaries and/or along the road rights-of-way located immediately adjacent to the riparian habitat areas.

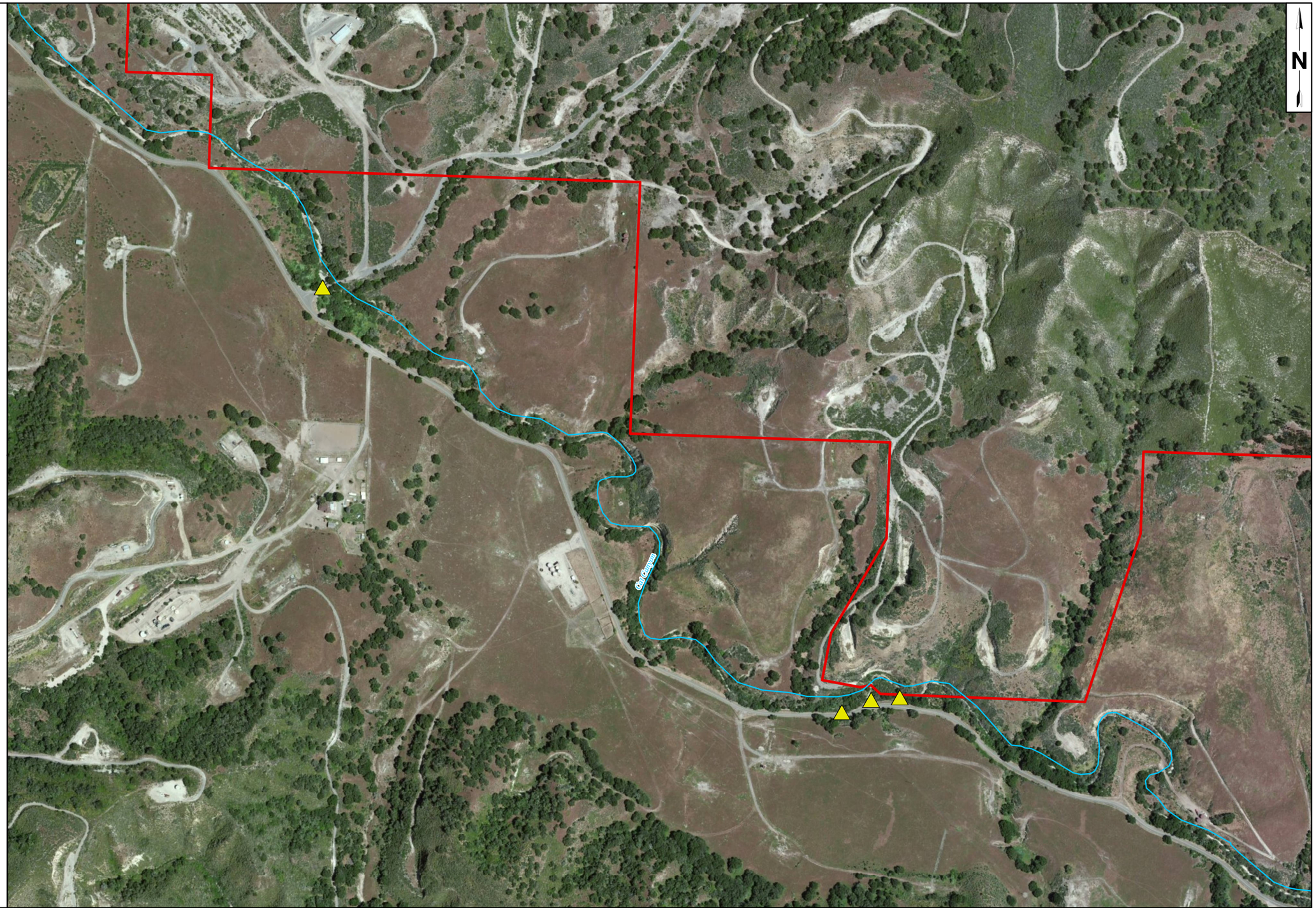
A total of eight surveys were conducted by Ms. Benson at the survey points between the USFWS-designated survey period (April 10 and July 31). These surveys were conducted on April 11, May 2, May 16, June 6, June 19, July 1, July 15, and July 25, 2014 between the hours of 7:00 am and 10:00 pm.

Surveys included passive listening to bird calls and observing bird behavior indicative of vireos. Survey points are depicted in Figure 2. All birds identified by call, song, and/or visual identification were documented. No vocalization play-back calls were used as part of the surveys.

PAGE INTENTIONALLY BLANK

LEGEND:

- Least Bell's Vireo Survey Points
- Existing Blue Line Channel
- Area Energy LLC Property




0 250 500
Feet

Source: CNDDB 7/2014, ESRI Online Aerial Basemap
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: CNDDB = California Natural Diversity Database;This map was created for informational and display purposed only

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| | |
|---|---|
| PROJECT NAME: | EAST CAT CANYON SANTA BARBARA COUNTY, CA |
| PROJECT NUMBER: | 1002-0455 |
| DATE: | September 2014 |

LEAST BELL'S VIREO SURVEY AREA

FIGURE 2

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Least Bell's Vireo Survey Area.mxd

PAGE INTENTIONALLY BLANK

## 4.0 RESULTS

The topography of the property is comprised of steeply to moderately incised canyons and drainages, moderate to steep hills, valleys, and small flat areas utilized for agricultural purposes. Drainages found throughout the property consist of dry, loose sand and rock with moderate to dense scrub and scattered oak woodland habitat. These channels drain into adjacent agricultural canals and/or into tributaries to the Sisquoc River located northeast of the property. The majority of the drainages are dry, and due to sandy soil conditions, do not hold water for very long after rainfall and do not support riparian vegetation. The property supports primarily oak woodland, non-native annual grassland, and scrub communities. Potential suitable habitat areas for least Bell's vireo were limited to small patches of arroyo willow (*Salix laevigata*) thickets along portions of Cat Canyon Creek. A total of four survey points were established along this willow thicket as depicted in Figure 2. The thickets were interspersed with coast live oak (*Quercus agrifolia*) and a dense understory of poison oak (*Toxicodendron diversilobum*), coyote brush (*Baccharis pilularis*), ripgut grass (*Bromus diandrus*), common wild oat (*Avena fatua*), and California sagebrush (*Artemisia californica*). Refer to Appendix B for Site Photographs. The willow thickets provide marginal least Bell's vireo habitat due to the small patches of available willow habitat. The majority of the Cat Canyon drainage is oak woodland savannah with little to no riparian habitat components.

Based on information retained from the desktop review, there is no documented least Bell's vireo Critical Habitat present within the property or surrounding region. The nearest documented least Bell's vireo Critical Habitat occurs approximately 40 miles south of the property. Nearest occurrence for least Bell's vireo was documented within the Sisquoc River, approximately three miles northeast from the property boundary (Occurrence Number 66) (CNDDB, 2014). This documentation is provided as Appendix C and depicted in Figure 1.

As required in the USFWS 2001 survey guidelines, in the event a least Bell's vireo was identified during any course of the surveys, all surveys would cease at the respective site and further survey efforts would not be required (USFWS, 2001). When least Bell's vireo are not detected, a total of eight surveys must be conducted to determine least Bell's vireo absence (USFWS, 2001). No least Bell's vireo were identified during the survey efforts; therefore, a total of eight surveys were conducted to confirm least Bell's vireo absence. A list of all birds identified during the survey effort is provided in Appendix D. No listed species or brown-headed cowbirds were identified during the survey effort.

PAGE INTENTIONALLY BLANK

## 5.0 REFERENCES

California Department of Fish and Wildlife (CDFW). 2014. California Natural Diversity Database (CNDDB) Rare Find. Twitchell Dam, Tepusquet Canyon, Sisquoc, Orcutt, Lompoc, Los Alamos, Zaca Creek, Foxen Canyon, and Santa Maria Quadrangles.

Faber, P. A., E. Keller, A. Sands, and B.M. Massey. 1989. The ecology of riparian habitats of the southern California coastal region: a community profile. USFWS Biological Report 85(7.27). 152 pp.

Holland, R.F. 1989. Preliminary descriptions of the terrestrial natural communities of California. California Department of Fish and Game.

Olson, T. E. and M. V. Gray. 1989. Characteristics of least Bell's vireo nest sites along the Santa Ynez River. In: Proceedings of the California Riparian Systems Conference: protection, management, and restoration for the 1990's; September 22-24; Davis, CA. Dana L. Abell, ed., Gen. Tech. Rep. PSW-110, Berkeley, CA., pp. 278-284.

Padre Associates, Inc. 2011a. Biological Resources Report for the Aera Energy LLC Two-dimensional Seismic Survey Project.

Padre Associates, Inc. 2011b. Biological Resources Survey Report for the Aera Energy LLC Exploratory Drilling Project, East Cat Canyon Oil Field.

U.S. Fish and Wildlife Service. 1985. Endangered and threatened wildlife and plants; proposed endangered status and critical habitat for the least Bell's vireo. Federal Register 50:18968-18975.

U.S. Fish and Wildlife Service. 1998. Draft recovery plan for the least Bell's vireo. U.S. Fish and Wildlife Service, Portland, Oregon. 139 pp.

U.S. Fish and Wildlife Service. 2001. Least Bell's Vireo Survey Guidelines. U.S. Fish and Wildlife Service, Carlsbad, California.

PAGE INTENTIONALLY BLANK

# APPENDIX A

## Surveyor Resume

# Thea Benson

*Senior Biologist*
Padre Associates, Inc.

***B.S. Wildlife Management and Conservation. Humboldt State University. 2004.***

The purpose of this summary is to provide an expanded overview of Ms. Thea Benson's experience and training with regard to work associated with the monitoring and surveying of least Bell's vireo (*Vireo bellii pusillus*) and other avian species of similar habitats.

**Experience Summary:**

Ms. Benson is Senior Biologist responsible for conducting and organizing biological surveys, permit compliance monitoring, biological resource studies, permit applications, sensitive species surveys, mitigation project monitoring and wildlife rescue and relocation for a large range of projects, specifically within San Luis Obispo and Santa Barbara Counties. She has also been involved with several bridge construction, culvert improvement and stream restoration projects within Ventura County conducting sensitive species surveys and construction monitoring and reporting.

Ms. Benson has a Bachelor of Science in Wildlife Management and Conservation from Humboldt State University and has over ten years of field experience working with sensitive species such as: willow flycatcher, burrowing owl, spotted owl, Pacific fisher, American martin, yellow-billed cuckoo, California red-legged frog, California tiger salamander, and least Bell's vireo. Her experience with wildlife includes: presence/absence surveys, habitat restoration projects, trapping and banding/tagging wildlife, radio telemetry, vegetation surveys, track plate and camera station monitoring, blood sampling, ear tagging of riparian brush rabbit, gray fox, black bear, and other mammals, field anesthesia, necropsies, tooth pulling, culvert trap set up, and setting of barbed wire fur traps for bear, as well as insect collection and identification along the Kern River. Ms. Benson has also participated in many volunteer restoration projects throughout California and is an avid recreational bird watcher. She has worked with the U.S. Forest Service, Endangered Species Recovery Program, CSU Sacramento, South Sierra Research Station, California Conservation Corps and the San Luis Obispo Land Conservancy.

**Avian Permits:**

- USFWS Endangered Species Act 10(a)(1)(A) Recovery Permit (No. TE-137006) authorizing *take* of federally protected willow flycatcher (*Empidonax trialli extimus*) in the form of utilizing vocalization tapes to survey for presence/absence of the species.
- CDFG Letter of Agreement allowing the *take* of the State protected willow flycatcher (*Empidonax trialli*) in the form of utilizing vocalization tapes while surveying for presence and absence of the species.
- CDFG Scientific Collecting Permit (No. SC-9261) authorizing *take* of the State protected willow flycatcher in the form of utilizing vocalization tapes to survey for presence/absence of the species. This permit also authorizes the use of diatomaceous earth to monitor for American badger (*Taxidea taxus*), a State protected species.

**Avian Workshops and Certifications:**

- Willow Flycatcher Workshop. *May 2007, May 2005, and May 2006.* Presented by: Mary Whitfield (Southern Sierra Research Group) and Jamie Uyehara (US Forest Service). Weldon.
- Western Snowy Plover Life History and Field Identification Training. *January 2009.* Presented by: Regina Orr of the California State Parks. Morro Bay Bird Festival, Morro Bay.
- California Burrowing Owl Survey Workshop. *1999 and 2000.* Presented by: Dan Rosenberg with Carrizo Plains National Monument. California Valley.
- Red-shouldered Hawk Survey Workshop. 1998. Presented by: Floyd Bero at the Kern River Preserve, Weldon.

**Applicable Avian Experience:**

- Least Bell's vireo (*Vireo bellii pusillus*) (LBV). *State and Federal Endangered*. While employed with Padre Associates, Ms. Benson has assisted in protocol-level least Bell's vireo surveys in the Santa Clara River and Ventura Rivers in Ventura County in 2009 and 2010. Over 40 hours of experience conducting surveys, resulting in presence of least Bell's vireo. Client: Ventura County Watershed Protection District.
- Southwestern willow flycatcher (*Empidonax trialli extimus*). *State and Federal Endangered Species*. Ms. Benson was employed as a Biological Technician with the South Sierra Research Station (Weldon), CSU Sacramento (Truckee), and US Forest Service (Sequoia National Forest) where she conducted protocol-level surveys, nest searching and monitoring, banding of adult and young birds, drawing blood, and mist netting for willow flycatcher. She also assisted in insect collection and identification, brown-head cowbird trapping, and vegetation measurements for research involved with willow flycatchers. Ms Benson also carries all her permits that authorize her to conduct protocol-level presence/absence surveys and has conducted such surveys in the Ventura and Santa Clara Rivers in Ventura County, Death Valley, Amargosa Valley, Kern River, San Luis Obispo County, and elsewhere. She has attended several willow flycatcher workshops and lead the field section of two workshops held in the Kern River.
- Willow flycatcher (*Empidonax triallii adastus/brewsterii*). *State Endangered Species*. Ms. Benson was employed with CSU Sacramento and the US Forest Service in 1997, 1998, 1999, 2000, 2002, and 2005 conducting research on willow flycatchers in the Sierra Nevada (Eldorado, Tahoe, and Sequoia National Forests) under direction of Helen Bombay, protocol publisher. During these seasonal months Ms. Benson conducted protocol surveys, nest searching, blood sampling, banding of young and adult birds, vegetation surveys and data entry. Ms. Benson also conducted predator research including corvid bird surveys, snake searches, motion release camera stations on nests, and track plate set up and track identification. Ms. Benson also assisted the US Forest Service in the making of an instructional video on willow flycatcher protocol surveys and habitat assessments.
- Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*). *State Endangered and Federal Candidate.* While employed with the South Sierra Research Station, Ms. Benson was able to assist in protocol-level surveys and banding of young yellow-billed cuckoos.

- California burrowing owl (*Athene cunicularia*). *State Species of Special Concern*. Ms. Benson assisted in protocol-level surveys voluntarily at the Carrizo Plains National Monument in determining locations for burrowing owls. Ms. Benson has completed protocol level surveys within Chevron San Luis Obispo Tank Farm Site. She has also completed a burrowing owl workshop conducted at Carrizo Plains.
- Western snowy plover (*Charadrius alexandrinus nivosus*). *Federally Endangered*. Assisted Recovery Permit holders in snowy plover nest monitoring and nest searching at the Guadalupe Restoration Project Site in Guadalupe, California. She has also completed a field identification and life history workshop presented by the California State Parks in Morro Bay/Cayucos. She also assisted in a monitoring project of snowy plover along Clam Beach in northern California during her studies at Humboldt State University.
- Yellow warbler (*Dendroica petechia*). *State Species of Special Concern*. Ms. Benson was employed as a Biological Technician with CSU Sacramento (Truckee) assisted Master's students nest searching and monitoring, and setting up camera stations on nests for predatory analysis research.
- Northern goshawk (*Accipiter gentilis*). *State Species of Special Concern*, and *U.S. Forest Service Sensitive Species*. Completed broadcast acoustical surveys in the Sequoia National Forest, while employed with the US Forest Service.
- California spotted owl (*Strix occidentalis occidentalis*). *U.S. Forest Service Sensitive Species*. Completed protocol-level surveys in the Sequoia National Forest, while employed with the US Forest Service. Surveys also included nest searching, 'mouse-baiting", and night "hooting".

**Confirmed Least Bell's Vireo Observations**

- Patagonia Lake and Nogales, Arizona 2013
- Ventura River, Ventura County 2009 and 2010
- Santa Clara River, Ventura County 2009 and 2010
- Armargosa Valley, Inyo County 2000

# Kenneth Lee Gilliland

***Padre Associates, Inc.***
***Biologist and Project Manager***

**Professional Experience Summary:** Kenneth L. Gilliland has over 12 years of experience as a wildlife biologist with an emphasis on the assessment and monitoring of special-status plant and wildlife species. During this period, Mr. Gilliland has conducted habitat assessments; special-status plant and wildlife species surveys; ensured client compliance with the Endangered Species Act (ESA), Clean Water Act, National Pollution Discharge Elimination System, and the California Department of Fish and Game Code; habitat revegetation/restoration; invasive plant removal; wetland mitigation; special-status plant and wildlife biological monitoring; and National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) document preparation for a variety of projects. Project experience has included close coordination with all federal and state agencies involved. In addition, Mr. Gilliland has accumulated approximately 1,000 hours of professional experience with the state and federally endangered Least Bell's Vireo including site-specific U.S. Fish and Wildlife Service (USFWS) protocol-level surveys, performing specialized investigations into their biology, and has acquired the ability to identify the species visually and with auditory cues (songs, calls, scolds, and fledgling begging calls) as they occur in their natural habitat. Furthermore, Mr. Gilliland currently has a Section 10a1a USFWS Endangered Species Act Permit (TE-29522A-O) and a California Department of Fish and Game (CDFG) letter-permits attached to his scientific collecting permit (No. 009081) for activities associated with the recovery of the least Bell's vireo, and has been approved by the USFWS to perform activities with the species pursuant to individual USFWS Biological Opinions.

**Education:** B.S. Zoology, Humboldt State University, Arcata, Ca. 2002.
M.Sc. in Biological Sciences, California Polytechnic State University, San Luis Obispo, Ca. 2010.

**Federal and State Authorizations:**
Federal Endangered Species Act Section 10 permit (TE-29522A-O) and a CDFG Scientific Collecting Permit (No. 009081) and associated letter-permit for the least Bell's vireo

**USFWS Protocol-level Least Bell's Vireo Surveys with Positive Results**

The following represents a chronological list of USFWS protocol-level surveys that had positive results for the Least Bell's Vireo pursuant to specific projects.

- Ventura County Watershed Protection District (VCWPD) Vegetation Management Area in the Ventura River, Ventura, Ca. (2009). Surveys were conducted along the eastern and western banks of the Ventura River from the Ventura River estuary to 500 feet north of the S.R. 33 Stanley Avenue exit. Surveys were not stopped once the presence of Least Bell's Vireo was established since additional information on their distribution and biology was being collected. A total of eight USFWS protocol-level surveys with positive results were conducted.

- VCWPD Vegetation Management Area in the Santa Clara River, Ventura and Oxnard, Ca. (2009). Surveys were conducted along the southern bank of the Santa Clara River from downstream of the Victoria Avenue Bridge to immediately below the Freeman Diversion (approximately 7.3 miles). Due to the entire survey length, different portions of the entire survey reach were surveyed on different days. Surveys were not stopped once the presence of Least Bell's Vireo was established since additional information on their distribution and biology was being collected. A total of eight USFWS protocol-level surveys with positive results were conducted on along the entire 7.3 mile survey area.
- Caltrans Highway 101 Bridge Replacement Project, Ventura and Oxnard, Ca. (2005 and 2006). Surveys were conducted in all suitable Least Bell's Vireo habitats in the Santa Clara River 500 feet upstream and downstream of the U.S. 101 Bridge. Surveys were not stopped once the presence of Least Bell's Vireo was established since additional information on their distribution and biology was being collected. A total of eight USFWS protocol-level surveys were conducted each year.
- VCWPD Santa Clara River Groins Repair (2005). Surveys were conducted in all suitable Least Bell's Vireo habitats of the Santa Clara River 500 feet upstream and downstream VCWPD Santa Clara River Groins on the east bank of the Santa Clara River. Surveys were not stopped once the presence of Least Bell's Vireo was established since information on their distribution proximate to the project was being collected. A total of eight USFWS protocol-level surveys with positive results were conducted.
- VCWPD Santa Clara River Weirs Field Project (2010-2011). Surveys were conducted in all suitable Least Bell's Vireo habitats of the Santa Clara River 500 feet upstream and downstream VCWPD Santa Clara River Weirs Field Project on the east bank of the Santa Clara River. Surveys were not stopped once the presence of Least Bell's Vireo was established since information on their distribution proximate to the project was being collected.
- VCWPD Santa Clara River Balcom Canyon Restoration Area Project (2012-2013). Surveys were conducted in all suitable Least Bell's Vireo habitats of the Santa Clara River 500 feet upstream and downstream VCWPD Santa Clara River Balcom Canyon Restoration Area on the northeastern bank of the Santa Clara River. Surveys were not stopped once the presence of Least Bell's Vireo was established since information on their distribution within, and proximate to the restoration area was being collected.

**USFWS Protocol-level Least Bell's Vireo Surveys with Negative Results**

The following represents a chronological list of USFWS protocol-level surveys that had negative results for the Least Bell's Vireo pursuant to specific projects.

- VCWPD Piru Creek Bank Stabilization Project in the Town of Piru, Ventura, County, Ca. (2009). Surveys were conducted in all potential Least Bell's Vireo habitats within 500 feet upstream and downstream of the subject project located in Piru Creek. A total of eight USFWS protocol-level surveys were conducted.

- VCPWD 21-inch Trunk Sewer Line Replacement Project in Moorpark, Ca. (2008). Surveys were conducted in all potential Least Bell's Vireo habitats within 500 feet upstream and downstream of the subject project located in Arroyo Simi. A total of eight USFWS protocol-level surveys were conducted.
- Naval Base Ventura County (NBVC), Point Mugu, Oxnard, Ca (2004). Surveys were conducted throughout the base in all potential Least Bell's Vireo habitats.
- Naval Base Ventura County, Port Hueneme, Port Hueneme, Ca. (2004). Surveys were conducted throughout the base in all potential Least Bell's Vireo habitats. A total of eight USFWS protocol-level surveys were conducted.

**Specialized Least Bell's Vireo Experience**

The following chronological list represents specialized experience with Least Bell's Vireo in regards to the requirements of specific projects. These specialized experiences were intended to look at site-specific conditions in regards to current or proposed project activities within occupied Least Bell's Vireo habitats. When applicable, activities involving the Least Bell's Vireo were conducted under the supervision of Wildlife Biologists with current Section 10a1a Endangered Species Act permit for the species.

- VCWPD Vegetation Management Area in the Ventura River, Ventura, Ca. (2009). Least Bell's Vireo minimum territorial boundary and territory area estimation were performed within Least Bell's Vireos territories identified during USFWS protocol-level surveys. The methodology used was designed to describe the locations of the territorial boundaries and territorial areas of vireos as indicated by auditory and visual observations of vireos. Throughout the 2009 survey period, two Least Bell's Vireo territories were assessed. Mr. Gilliland also participated in USFWS protocol-level Southwestern Willow Flycatcher surveys within the surveyed areas.
- VCWPD Vegetation Management Area in the Santa Clara River, Ventura and Oxnard, Ca. (2009). Least Bell's Vireo minimum territorial boundary and territory area estimation were performed within Least Bell's Vireos territories identified during USFWS protocol-level surveys. The methodology used was designed to describe the locations of the territorial boundaries and territorial areas of vireos as indicated by auditory and visual observations of vireos. Throughout the 2009 survey period, seven Least Bell's Vireo territories were assessed. Mr. Gilliland also participated in USFWS protocol-level Southwestern Willow Flycatcher surveys within the surveyed areas.
- Caltrans Highway 101 Bridge Replacement Project (2005 and 2006). Nest monitoring of identified breeding Least Bell's Vireos was conducted within 500 feet upstream and downstream of the U.S. 101 bridge to determine the nesting status of the species; number of eggs, chicks or fledglings; re-nesting events within the identified territories; and final status of the nests. A total of 10 Least Bell's Vireo territories were monitored for nesting activities. To investigate noise impacts, video monitoring of active Least Bell's Vireo nests was also conducted within the survey reach on two nests multiple times during different construction related noise regimes.
- VCWPD Santa Rosa Park Development Project, Camarillo, Ca. (2007 and 2008). During the development of Santa Rosa Park, Mr. Gilliland confirmed the presence of Least Bell's Vireo in a reach of Arroyo Conejo adjacent to project activities.

Throughout the next two years, the two identified active territories were assessed to ensure that project-related impacts to the territories were minimized.

**Confirmed Least Bell's Vireo Observations**

The following chronological list details confirmed observations of Least Bell's Vireo not pursuant to specific project related activities.

- Coyote Creek, near Lake Casitas, Oak View, Ca. (2002).
- Mono Creek, Indian Creek and Upper Santa Ynez Creek, Santa Barbara County, Ca. (2003).

**Applicable Ornithological Experience**

Besides experience with the Least Bell's Vireo, Mr. Gilliland has applicable experience with an extensive array of avifauna including state and federal threatened and endangered avian species.

- Pursuant to the Migratory Bird Treaty Act and the California Department of Fish and Game Code, Mr. Gilliland has conducted over 350 breeding bird surveys pursuant to numerous project related activities throughout Southern California and has the ability to identify the majority of the regions avifauna including special-status species.
- NBVC Point Mugu, Oxnard, Ca (2003 and 2004). Mr. Gilliland assisted with the mitigation of naval operations in accordance to the State and Federal Endangered Species Acts including monitoring of the federally-endangered California Least Tern, the federally-endangered California Brown Pelican, the federally-endangered Light-footed Clapper Rail, the federally-threatened Western Snowy Plover, the state-endangered Belding's Savannah Sparrow, and the state endangered Peregrine Falcon. Monitoring activities predominately involved colony monitoring, individual nest checks, and predator management.
- Mr. Gilliland is an avid recreational birdwatcher.

# APPENDIX B

## Site Photographs

Photo 1. Survey Point. Cat Canyon Creek willow thicket (aspect: north – upstream).

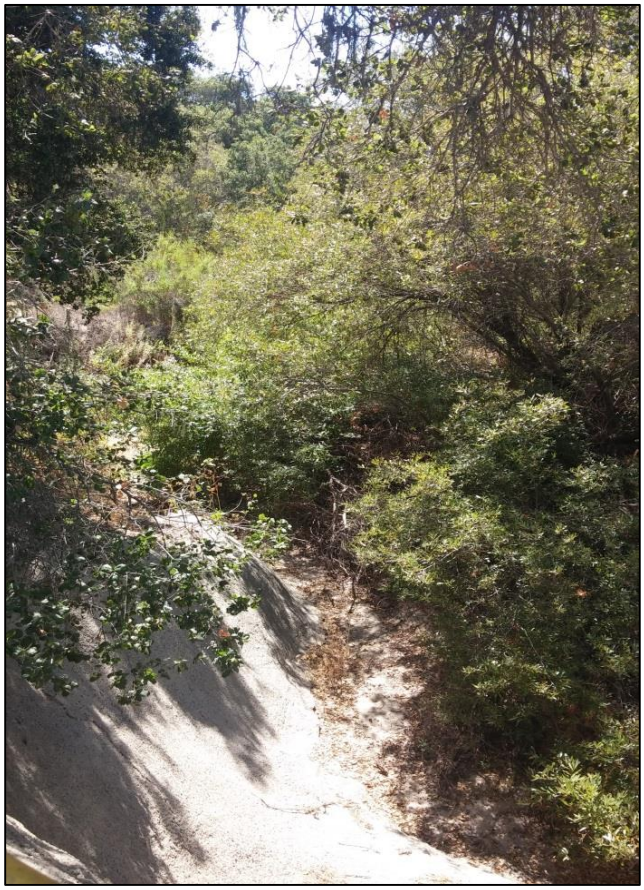


Photo 2. Survey Point. Cat Canyon Creek arroyo willow thicket (aspect: south – downstream).

Photo 3. Survey Point. Cat Canyon Creek willow thicket (aspect: east).

Photo 4. Survey Point. Cat Canyon Creek willow thicket (aspect: northeast).

Photo 5. Survey Point. Cat Canyon Creek willow thicket (aspect: southeast – downstream).

Photo 6. Survey Point. Cat Canyon Creek willow thicket (aspect: east).

Photo 7. Survey Point. Cat Canyon Creek willow thicket (aspect: east).

Photo 8. Survey Point. Cat Canyon Creek willow thicket (aspect: north).

# APPENDIX C

## CNDDB Query Results

# Occurrence Report

## California Department of Fish and Wildlife

## California Natural Diversity Database

| | | | |
|---|---|---|---|
| **Map Index Number:** | 13783 | **EO Index:** | 24990 |
| **Key Quad:** | Foxen Canyon (3412072) | **Element Code:** | ABPBW01114 |
| **Occurrence Number:** | 66 | **Occurrence Last Updated:** | 1989-08-10 |

**Scientific Name:** *Vireo bellii pusillus*

**Common Name:** least Bell's vireo

**Listing Status:** **Federal:** Endangered
**State:** Endangered

**CNDDB Element Ranks:** **Global:** G5T2
**State:** S2

**Rare Plant Rank:**

**Other Lists:** ABC_WLBCC-Watch List of Birds of Conservation Concern
IUCN_NT-Near Threatened

**General Habitat:**

SUMMER RESIDENT OF SOUTHERN CALIFORNIA IN LOW RIPARIAN IN VICINITY OF WATER OR IN DRY RIVER BOTTOMS; BELOW 2000 FT.

**Micro Habitat:**

NESTS PLACED ALONG MARGINS OF BUSHES OR ON TWIGS PROJECTING INTO PATHWAYS, USUALLY WILLOW, BACCHARIS, MESQUITE.

| | | | |
|---|---|---|---|
| **Last Date Observed:** | 1979-XX-XX | **Occurrence Type:** | Natural/Native occurrence |
| **Last Survey Date:** | 1979-XX-XX | **Occurrence Rank:** | Unknown |
| **Owner/Manager:** | UNKNOWN | **Trend:** | Unknown |
| **Presence:** | Presumed Extant | | |

**Location:**

SISQUOC RIVER IN FOXEN CANYON.

**Detailed Location:**

**Ecological:**

HABITAT IS LOCATED IN AN AREA SEVERELY DAMAGED BY RECENT FLOODS, WITH LITTLE SUITABLE HABITAT LEFT.

**Threats:**

**General:**

ONE VIREO REPORTED IN SUITABLE RIPARIAN HABITAT IN THE AREA; ORIGINAL OBSERVATION BY M. T. HANSEN, FROM A MEMO TO LOS PADRES NAT'L FOREST.

| | | | | | |
|---|---|---|---|---|---|
| **PLSS:** | T09N, R32W, Sec. 15 (S) | **Accuracy:** | 1 mile | **Area (acres):** | 0 |
| **UTM:** | Zone-10 N3860218 E752273 | **Latitude/Longitude:** | 34.85303 / -120.24071 | **Elevation (feet):** | 480 |

| **County Summary:** | **Quad Summary:** |
|---|---|
| Santa Barbara | Foxen Canyon (3412072), Sisquoc (3412073) |

**Sources:**

WIL81U0006 WILBUR, S. - EXCERPT FROM: DRAFT RECOVERY PLAN FOR LEAST BELL'S VIREO 1981-XX-XX

# APPENDIX D

## Observed Bird List

## Observed Bird List

| **Common Name** | ***Scientific Name*** |
|---|---|
| Acorn woodpecker | *Melanerpes formicivorous* |
| American crow | *Corvus brachyrhynchos* |
| American kestrel | *Falco sparverius* |
| American robin | *Turdus migratorius* |
| Anna's hummingbird | *Calypte anna* |
| Ash-throated flycatcher | *Myiarchus cinerascens* |
| Bewick's wren | *Thryomanes bewickii* |
| Black phoebe | *Sayornis nigricans* |
| Black-headed grosbeak | *Pheucticus melanocephalus* |
| Blue-gray gnatcatcher | *Polioptila caerulea* |
| Bushtit | *Psaltriparus minimus* |
| California quail | *Cillipepla californica* |
| California thrasher | *Toxostoma redivivum* |
| California towhee | *Pipilo crissalis* |
| Cassin's kingbird | *Tyrannus vociferans* |
| Chestnut-backed chickadee | *Parus rufescens* |
| Cliff swallow | *Hirundo pyrrhonota* |
| Common raven | *Corvus corax* |
| Dark-eyed junco | *Junco hyemalis* |
| Downy woodpecker | *Picoides pubescens* |
| European starling | *Sturnus vulgaris* |
| Hairy woodpecker | *Picoides villosus* |
| Hooded oriole | *Icterus cucullatus* |
| House finch | *Carpodacus mexicanus* |
| Lark sparrow | *Chondestes grammacus* |
| Lesser goldfinch | *Carduelis psaltria* |
| Mourning dove | *Zenaida macroura* |
| Northern flicker | *Colaptes auratus* |
| Nuttall's woodpecker | *Picoides nuttallii* |
| Oak titmouse | *Baeolophus inornatus* |
| Ruby-crowned kinglet | *Regulus calendula* |
| Song sparrow | *Melospiza melodia* |
| Spotted towhee | *Pipilo maculatus* |
| Swainsons thrush | *Catharus ustulatus* |
| Turkey vulture | *Cathartes aura* |
| Western bluebird | *Sialia mexicana* |
| Western kingbird | *Tyrannus verticalis* |
| Western scrub-jay | *Aphelocoma c. californica* |
| White-crowned sparrow | *Zonotrichia leucophrys* |
| Wrentit | *Chamaea fasciata* |
| Yellow-rumped warbler | *Dendroica coronata* |

# APPENDIX H

## VEGETATION RAPID ASSESSMENT AND RELEVE SAMPLING (VRAP) RESULTS

# CNPS and CL . Combined Vegetation Rapid Assessmen ıd Relevé Field Form

**Relevé or Rapid Assessment** (circle one) (Revised May 13, 2011)

| For Office Use: | Final database #: | Final vegetation type name: | Alliance<br>Association |
|---|---|---|---|

## I. LOCATIONAL/ENVIRONMENTAL DESCRIPTION

| Polygon/Stand #: | Air photo: | Date: | Name(s) of surveyors (circle recorder): |
|---|---|---|---|
| ECC 0001 | 3 | 1.15.13 | Kenny Wimer Chris Santala |

**GPS wypt #:** 1 **GPS name:** Trimble XT **Datum:** _____ **or NAD83. Bearing, left axis at SW pt** _____ **(degrees) of Long / Short side**

**UTME** -120.282832 **UTMN** 34.830992 **Zone:** 10 / 11 (circle one) **Error:** ± N/a **ft / m / pdop**

**GPS within stand?** Yes / No **If No, cite from waypoint to stand, distance** _____ **(meters) & bearing** _____ **(degrees)**

**Elevation:** 943 ft / m **Camera Name/Photograph #'s:** Canon Powershot SX150IS # 1-4

**Stand Size (acres):** <1, 1-5, >5 | **Plot Size (m²):** 10 / 100 / 400 / 1000 | **Plot Shape** ___ x ___ **ft / m or Circle Radius** ___ **ft / m**

**Exposure, Actual °:** _____ NE NW SE SW Flat Variable All | **Steepness, Actual °:** _____ 0° 1-5° 5-25° > 25

**Topography: Macro:** top upper mid lower bottom | **Micro:** convex flat concave undulating

**Geology code:** SETU **Soil Texture code:** MELS | Upland *or* **Wetland/Riparian** (circle one)

**% Surface cover:** (Incl. outcrops) (>60cm diam) (25-60cm) (7.5-25cm) (2mm-7.5cm) (Incl sand, mud)

**H20:** Ø **BA Stems:** 3 **Litter:** 95 **Bedrock:** ___ **Boulder:** ___ **Stone:** ___ **Cobble:** ___ **Gravel:** 2 **Fines:** ___ **=100%**

**% Current year bioturbation** _____ **Past bioturbation present?** Yes / No | **% Hoof punch** _____

**Fire evidence:** Yes / No (circle one) If yes, describe in Site history section, including date of fire, if known.

**Site history, stand age, comments:** Road cuts transecting stand
Historic oil field - however stands on steep slopes are relatively undisturbed

**Disturbance code / Intensity (L,M,H):** ___ / 15 L / ___ / ___ / ___ / ___ / ___ **"Other"** _____ / ___

## II. HABITAT AND VEGETATION DESCRIPTION

**Tree DBH :** T1 (<1" dbh), T2 (1-6" dbh), T3 (6-11" dbh), T4 (11-24" dbh), T5 (>24" dbh), T6 multi-layered (T3 or T4 layer under T5, >60% cover)

**Shrub:** S1 seedling (<3 yr. old), S2 young (<1% dead), S3 mature (1-25% dead), S4 decadent (>25% dead)

**Herbaceous:** H1 (<12" plant ht.), H2 (>12" ht.) **Desert Riparian Tree/Shrub:** 1 (<2ft. stem ht.), 2 (2-10ft. ht.), 3 (10-20ft. ht.), 4 (>20ft. ht.)

**Desert Palm/Joshua Tree:** 1 (<1.5" base diameter), 2 (1.5-6" diam.), 3 (>6" diam.) **% NonVasc cover:** Ø **% Vasc Veg cover:** 98

**% Cover -** **Conifer tree / Hardwood tree:** ___ / ___ **Regenerating Tree:** ___ **Shrub:** 96 **Herbaceous:** <1

**Height Class - Conifer tree / Hardwood tree:** ___ / ___ **Regenerating Tree:** ___ **Shrub:** 03 **Herbaceous:** 01

*Height classes:* 01=<1/2m 02=1/2-1m 03=1-2m 04=2-5m 05=5-10m 06=10-15m 07=15-20m 08=20-35m 09=35-50m 10=>50m

**Species, Stratum, and % cover. Stratum categories:** T=Tree, S = Shrub, H= Herb, E = SEedling, A = SApling, N= Non-vascular.
*% cover intervals for reference*: <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, 75%.

| Strata | Species | % cover | C | Strata | Species | % cover | C |
|---|---|---|---|---|---|---|---|
| S | Salvia mellifera | 60 | | | | | |
| S | Artemisia californica | 16 | | | | | |
| S | Baccharis pilularis | 20 | | | | | |
| H | Cortaderia jubata | <1 | | | | | |
| H | Stipa lepida | <1 | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

**Unusual species:** Malacothamnus fasciculatum

## III. INTERPRETATION OF STAND

**Field-assessed vegetation alliance name:** Salvia mellifera Shrubland Alliance

**Field-assessed association name** (optional): _____

**Adjacent alliances/direction:** Quercus agr. Woodland / N, S, E, W / _____

**Confidence in alliance identification:** L M H **Explain:** Salvia dominant, remnant blooms visible

**Phenology (E,P,L): Herb** ___ **Shrub** L **Tree** ___ **Other identification or mapping information:**

**Is poly >1 type: Yes / No If yes, explain:**

**CNPS and CDFG Combined Vegetation Rapid Assessment and Relevé Field Form**

RELEVE SPECIES SHEET (Revised 5/13/2011)

Page 2 of Polygon/Stand #: ECC0001

**Stratum categories:** T = Tree, S = Shrub, H = Herb, E = SEedling, A = SApling, and N=Non-vascular

**% Cover Intervals for reference:** r = trace, + = <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, >75%

| Strata | Vascular plant name or lichen/bryophyte | % Cover | Collection | Final species determination (or DBH) |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

## Polygon/Stand No. ECC0001 - Black Sage Scrub Alliance

NORTH

EAST

SOUTH

WEST

# CNPS and CDFW Combined Vegetation Rapid Assessment and Relevé Field Form

**Relevé or Rapid Assessment** (circle one) (Revised May 13, 2011)

| For Office Use: | Final database #: | Final vegetation type name: | Alliance / Association |
|---|---|---|---|
| | | | |

## I. LOCATIONAL/ENVIRONMENTAL DESCRIPTION

| Polygon/Stand #: | Air photo: | Date: | Name(s) of surveyors (circle recorder): |
|---|---|---|---|
| ECC0002 | 3 | 1/15/13 | K. Wimer (C. Santala) |

**GPS wypt #:** 2 **GPS name:** Trimble XT **Datum:** _____ **or NAD83. Bearing, left axis at SW pt** _____ **(degrees) of Long / Short side**

**UTME** -120.279348 **UTMN** 34.831885 **Zone:** (10) / 11 (circle one) **Error:** ± n/a **ft / m / pdop**

**GPS within stand?** (Yes) / No **If No, cite from waypoint to stand, distance** _____ **(meters) & bearing** _____ **(degrees)**

**Elevation:** 802 (ft) m **Camera Name/Photograph #'s:** Canon Powershot SX150 IS # 5-8

**Stand Size (acres):** <1, (1-5), >5 | **Plot Size ($m^2$):** 10 / 100 / 400 / 1000 | **Plot Shape** ___ x ___ **ft / m or Circle Radius** ___ **ft / m**

**Exposure, Actual °:** _____ NE (NW) SE SW Flat Variable All | **Steepness, Actual °:** _____ 0° (1-5°) 5-25° > 25

**Topography: Macro:** top upper mid lower (bottom) | **Micro:** (convex) flat concave undulating

**Geology code:** SETU **Soil Texture code:** MESA | **Upland** *or* (**Wetland/Riparian**) (circle one)

**% Surface cover:** (Incl. outcrops) (>60cm diam) (25-60cm) (7.5-25cm) (2mm-7.5cm) (Incl sand, mud)

**H20:** ___ **BA Stems:** 2 **Litter:** 95 **Bedrock:** ___ **Boulder:** ___ **Stone:** ___ **Cobble:** ___ **Gravel:** 1 **Fines:** 2 **=100%**

**% Current year bioturbation** Ø **Past bioturbation present? Yes /** (No) | **% Hoof punch** <1

**Fire evidence: Yes /** (No) (circle one) If yes, describe in Site history section, including date of fire, if known.

**Site history, stand age, comments:** Ranching property, historic oil field

**Disturbance code / Intensity (L,M,H):** / 04 L / ___ / ___ / ___ / ___ / ___ **"Other"** _____ / ___

## II. HABITAT AND VEGETATION DESCRIPTION

**Tree DBH : T1** (<1" dbh), **T2** (1-6" dbh), **T3** (6-11" dbh), (**T4**) (11-24" dbh), **T5** (>24" dbh), **T6** multi-layered (T3 or T4 layer under T5, >60% cover)

**Shrub: S1** seedling (<3 yr. old), **S2** young (<1% dead), (**S3**) mature (1-25% dead), **S4** decadent (>25% dead)

**Herbaceous** (**H1**) (<12" plant ht.), **H2** (>12" ht.) **Desert Riparian Tree/Shrub: 1** (<2ft. stem ht.), **2** (2-10ft. ht.), **3** (10-20ft. ht.), **4** (>20ft. ht.)

**Desert Palm/Joshua Tree: 1** (<1.5" base diameter), **2** (1.5-6" diam.), **3** (>6" diam.) **% NonVasc cover:** Ø **% Vasc Veg cover:** 80

**% Cover - Conifer tree / Hardwood tree:** / 75 **Regenerating Tree:** ___ **Shrub:** 1 **Herbaceous:** 80

**Height Class - Conifer tree / Hardwood tree:** / 07 **Regenerating Tree:** ___ **Shrub:** 02 **Herbaceous:** 01

*Height classes:* 01=<1/2m 02=1/2-1m 03=1-2m 04=2-5m 05=5-10m 06=10-15m 07=15-20m 08=20-35m 09=35-50m 10=>50m

**Species, Stratum, and % cover. Stratum categories:** T=Tree, S = Shrub, H= Herb, E = SEedling, A = SApling, N= Non-vascular.
*% cover intervals for reference*: <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, 75%.

| Strata | Species | % cover | C | Strata | Species | % cover | C |
|---|---|---|---|---|---|---|---|
| H | Geranium molle | 40 | | T | Quercus agrifolia | <1 | |
| H | Claytonia perfoliata | 5 | | H | Chenopodium californicum | <1 | |
| H | Bromus diandrus | 30 | | | | | |
| H | Carduus pycnocephalus | 2 | | | | | |
| T | Eucalyptus globulus | 74 | | | | | |
| S | Artemisia californica | 1 | | | | | |
| H | Bedstraw | <1 | | | | | |
| H | Rumex crispus | <1 | | | | | |

**Unusual species:** _____

## III. INTERPRETATION OF STAND

**Field-assessed vegetation alliance name:** Eucalyptus globulus semi-natural woodland

**Field-assessed association name** (optional): _____

**Adjacent alliances/direction:** Coast Live Oak woodland / S, W , California sage scrub / W

**Confidence in alliance identification: L M** (**H**) **Explain:** Eucalyptus glob. dominant

**Phenology (E,P,L): Herb** E **Shrub** L **Tree** P **Other identification or mapping information:**

**Is poly >1 type: Yes / No If yes, explain:**

## CNPS and CDFG Combined Vegetation Rapid Assessment and Relevé Field Form

RELEVE SPECIES SHEET (Revised 5/13/2011)

Page _______ of Polygon/Stand #: ____________

**Stratum categories:** T = Tree, S = Shrub, H = Herb, E = SEedling, A = SApling, and N=Non-vascular
**% Cover Intervals for reference:** r = trace, + = <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, >75%

| Strata | Vascular plant name or lichen/bryophyte | % Cover | Collection | Final species determination (or DBH) |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

## Polygon/Stand No. ECC0002 - Eucalyptus Groves

NORTH

EAST

SOUTH

WEST

# CNPS and CDFW Combined Vegetation Rapid Assessment and Relevé Field Form

**Relevé or Rapid Assessment** (circle one) (Revised May 13, 2011)

| For Office Use: | Final database #: | Final vegetation type name: | Alliance<br>Association |
|---|---|---|---|

## I. LOCATIONAL/ENVIRONMENTAL DESCRIPTION

| Polygon/Stand #: | Air photo: | Date: | Name(s) of surveyors (circle recorder): |
|---|---|---|---|
| ECC0003 | 3 | 1/15/13 | (C. Santala) K. Wimer |

GPS wypt #: _____ GPS name: trimble XT Datum: _____ or NAD83. Bearing, left axis at SW pt_____ (degrees) of Long / Short side

UTME -120.289877 UTMN 34.83474 Zone: (10) / 11 (circle one) Error: ± n/a ft / m / pdop

GPS within stand? (Yes) No If No, cite from waypoint to stand, distance _____(meters) & bearing _____(degrees)

Elevation: 862 ft / m Camera Name/Photograph #'s: Canon Powershot SX150IS # 10-13

Stand Size (acres): <1, 1-5, (>5) Plot Size ($m^2$): 10 / 100 / 400 / 1000 | Plot Shape ___ x___ ft / m or Circle Radius___ft / m

Exposure, Actual °: _____ NE (NW) SE SW Flat Variable All | Steepness, Actual °: _____ 0° 1-5° (5-25°) > 25

Topography: Macro: (top) upper mid lower bottom | Micro: convex flat concave (undulating)

Geology code: SETU Soil Texture code: MESA | (Upland) or Wetland/Riparian (circle one)

% Surface cover: (Incl. outcrops) (>60cm diam) (25-60cm) (7.5-25cm) (2mm-7.5cm) (Incl sand, mud)

H20:___ BA Stems: 5 Litter: ___ Bedrock:___ Boulder:___ Stone:___ Cobble:___ Gravel: 5 Fines: 90 =100%

% Current year bioturbation 1 Past bioturbation present? (Yes) / No | % Hoof punch Ø

Fire evidence: Yes / (No) (circle one) If yes, describe in Site history section, including date of fire, if known.

Site history, stand age, comments: Historic oilfield, ranching

Disturbance code / Intensity (L,M,H): 104 L / ___ / ___ / ___ / ___ / ___ "Other" _____ / ___

## II. HABITAT AND VEGETATION DESCRIPTION

Tree DBH : T1 (<1" dbh), T2 (1-6" dbh), T3 (6-11" dbh), T4 (11-24" dbh), T5 (>24" dbh), T6 multi-layered (T3 or T4 layer under T5, >60% cover)

Shrub: S1 seedling (<3 yr. old), S2 young (<1% dead), (S3) mature (1-25% dead), S4 decadent (>25% dead)

Herbaceous: (H1) (<12" plant ht.), H2 (>12" ht.) Desert Riparian Tree/Shrub: 1 (<2ft. stem ht.), 2 (2-10ft. ht.), 3 (10-20ft. ht.), 4 (>20ft. ht.)

Desert Palm/Joshua Tree: 1 (<1.5" base diameter), 2 (1.5-6" diam.), 3 (>6" diam.) % NonVasc cover: Ø % Vasc Veg cover: 95

% Cover - Conifer tree / Hardwood tree: ___/___ Regenerating Tree: ___ Shrub: 3 Herbaceous: 95

Height Class - Conifer tree / Hardwood tree: ___/___ Regenerating Tree: ___ Shrub: 03 Herbaceous: 01

*Height classes:* 01=<1/2m 02=1/2-1m 03=1-2m 04=2-5m 05=5-10m 06=10-15m 07=15-20m 08=20-35m 09=35-50m 10=>50m

Species, Stratum, and % cover. Stratum categories: T=Tree, S = Shrub, H= Herb, E = SEedling, A = SApling, N= Non-vascular.
*% cover intervals for reference*: <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, 75%.

| Strata | Species | % cover | C | Strata | Species | % cover | C |
|---|---|---|---|---|---|---|---|
| H | Erodium cicutarium | 25 | | | | | |
| H | Festuca perennis | 15 | | | | | |
| H | Bromus diandrus | 50 | | | | | |
| H | Medicago polymorpha | 2 | | | | | |
| H | Stellaria media | 2 | | | | | |
| S | Brassica nigra | 2 | | | | | |
| S | Artemisia californica | 1 | | | | | |
| H | Croton setigerus | <1 | | | | | |

Unusual species: _____

## III. INTERPRETATION OF STAND

Field-assessed vegetation alliance name: Bromus (diandrus, hord.) semi-natural herbaceous stand

Field-assessed association name (optional): _____

Adjacent alliances/direction: Coast Live Oak woodland / e, n Coastal Scrub / w, s

Confidence in alliance identification: L M (H) Explain: Previously surveyed during spring

Phenology (E,P,L): Herb E Shrub E Tree ___ Other identification or mapping information:

Is poly >1 type: Yes / No If yes, explain:

## CNPS and CDFG Combined Vegetation Rapid Assessment and Relevé Field Form

RELEVE SPECIES SHEET (Revised 5/13/2011)

Page _______ of Polygon/Stand #: ____________

**Stratum categories:** T = Tree, S = Shrub, H = Herb, E = SEedling, A = SApling, and N=Non-vascular
**% Cover Intervals for reference:** r = trace, + = <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, >75%

| Strata | Vascular plant name or lichen/bryophyte | % Cover | Collection | Final species determination (or DBH) |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

## Polygon/Stand No. ECC0003 - Annual Brome Grasslands

NORTH

EAST

SOUTH

WEST

# CNPS and CDFG Combined Vegetation Rapid Assessment and Relevé Field Form

Relevé or Rapid Assessment (circle one) (Revised May 13, 2011)

| For Office Use: | Final database #: | Final vegetation type name: | Alliance / Association |
|---|---|---|---|
| | | | |

## I. LOCATIONAL/ENVIRONMENTAL DESCRIPTION

| Polygon/Stand #: | Air photo: | Date: | Name(s) of surveyors (circle recorder): |
|---|---|---|---|
| ECC0001 | 4 | 1/16/13 | C. Santala, K. Wimer |

GPS wypt #: 4 GPS name: tnmkKT Datum: ____ or NAD83. Bearing, left axis at SW pt ____ (degrees) of Long / Short side

UTME 120.275492 UTMN 34.836533 Zone: 10 / 11 (circle one) Error: ± n/a ft / m / pdop

GPS within stand? Yes / No If No, cite from waypoint to stand, distance ____(meters) & bearing ____(degrees)

Elevation: 728 ft / m Camera Name/Photograph #'s: Canon Powershot SX150IS # 14-17

Stand Size (acres): <1, 1-5, >5 Plot Size ($m^2$): 10 / 100 / 400 / 1000 | Plot Shape ___ x ___ ft / m or Circle Radius ___ ft / m

Exposure, Actual °: ____ NE NW SE SW Flat Variable All | Steepness, Actual °: ____ 0° 1-5° 5-25° > 25

Topography: Macro: top upper mid lower bottom | Micro: convex flat concave undulating

Geology code: SETU Soil Texture code: MELS | Upland or Wetland/Riparian (circle one)

% Surface cover: (Incl. outcrops) (>60cm diam) (25-60cm) (7.5-25cm) (2mm-7.5cm) (Incl sand, mud)

H20: ____ BA Stems: 5 Litter: 95 Bedrock: ____ Boulder: ____ Stone: ____ Cobble: ____ Gravel: ____ Fines: ____ =100%

% Current year bioturbation Ø Past bioturbation present? Yes / No | % Hoof punch Ø

Fire evidence: Yes / No (circle one) If yes, describe in Site history section, including date of fire, if known.

Site history, stand age, comments: Historic oil field property, relatively undisturbed area, adjacent road cuts & abandoned well pads

Disturbance code / Intensity (L,M,H): 104 L / ___ / ___ / ___ / ___ / ___ "Other" ____ / ___

## II. HABITAT AND VEGETATION DESCRIPTION

Tree DBH : T1 (<1" dbh), T2 (1-6" dbh), T3 (6-11" dbh), T4 (11-24" dbh), T5 (>24" dbh), T6 multi-layered (T3 or T4 layer under T5, >60% cover)

Shrub: S1 seedling (<3 yr. old), S2 young (<1% dead), S3 mature (1-25% dead), S4 decadent (>25% dead)

Herbaceous: H1 (<12" plant ht.), H2 (>12" ht.) Desert Riparian Tree/Shrub: 1 (<2ft. stem ht.), 2 (2-10ft. ht.), 3 (10-20ft. ht.), 4 (>20ft. ht.)

Desert Palm/Joshua Tree: 1 (<1.5" base diameter), 2 (1.5-6" diam.), 3 (>6" diam.) % NonVasc cover: Ø % Vasc Veg cover: 100

% Cover - Conifer tree / Hardwood tree: 180 Regenerating Tree: ____ Shrub: 3 Herbaceous: 90

Height Class - Conifer tree / Hardwood tree: 105 Regenerating Tree: ____ Shrub: 03 Herbaceous: 02

*Height classes:* 01=<1/2m 02=1/2-1m 03=1-2m 04=2-5m 05=5-10m 06=10-15m 07=15-20m 08=20-35m 09=35-50m 10=>50m

Species, Stratum, and % cover. Stratum categories: T=Tree, S = Shrub, H= Herb, E = SEedling, A = SApling, N= Non-vascular.
*% cover intervals for reference*: <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, 75%.

| Strata | Species | % cover | C | Strata | Species | % cover | C |
|---|---|---|---|---|---|---|---|
| H | Geranium molle | 45 | | H | Carduus pycnocephalus | 3 | |
| T | Quercus agrifolia | 80 | | | | | |
| | | | | | | | |
| H | Bromus diandrus | 30 | | | | | |
| H | Festuca perennis | 5 | | | | | |
| H | Avena barbata | 5 | | | | | |
| S | Brassica nigra | 3 | | | | | |
| H | Claytonia perfoliata | 2 | | | | | |

Unusual species: ____

## III. INTERPRETATION OF STAND

Field-assessed vegetation alliance name: Quercus agrifolia woodland Alliance

Field-assessed association name (optional): ____

Adjacent alliances/direction: Annual Brome grassland 1 E, S, Coastal scrub 1 N

Confidence in alliance identification: L M H Explain: Quercus agrifolia dominant

Phenology (E,P,L): Herb E Shrub L Tree P Other identification or mapping information:

Is poly >1 type: Yes / No If yes, explain:

## CNPS and CDFG Combined Vegetation Rapid Assessment and Relevé Field Form

RELEVE SPECIES SHEET (Revised 5/13/2011)

Page _______ of Polygon/Stand #: ____________

**Stratum categories:** T = Tree, S = Shrub, H = Herb, E = SEedling, A = SApling, and N=Non-vascular
**% Cover Intervals for reference:** r = trace, + = <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, >75%

| Strata | Vascular plant name or lichen/bryophyte | % Cover | Collection | Final species determination (or DBH) |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

## Polygon/Stand No. ECC0004 - Coast Live Oak Woodland

NORTH

EAST

SOUTH

WEST

# CNPS and CDFG Combined Vegetation Rapid Assessment and Relevé Field Form

**Relevé or Rapid Assessment** (circle one) (Revised May 13, 2011)

| For Office Use: | Final database #: | Final vegetation type name: | Alliance / Association |
|---|---|---|---|
| | | | |

## I. LOCATIONAL/ENVIRONMENTAL DESCRIPTION

| Polygon/Stand #: | Air photo: | Date: | Name(s) of surveyors (circle recorder): |
|---|---|---|---|
| ECC0005 | 4 | 1/16/13 | C. Santala, K. Wimer |

**GPS wypt #:** 5 **GPS name:** thmbKYT **Datum:** ____ **or NAD83. Bearing, left axis at SW pt** ____ **(degrees) of Long / Short side**

**UTME** -120.275474 **UTMN** 34.836845 **Zone** 10 / 11 (circle one) **Error:** ± n/a **ft / m / pdop**

**GPS within stand?** Yes / No **If No, cite from waypoint to stand, distance** ____ **(meters) & bearing** ____ **(degrees)**

**Elevation:** 750 ft / m **Camera Name/Photograph #'s:** Canon Powershot SX150 IS # 18-21

**Stand Size (acres):** <1, 1-5, >5 **Plot Size ($m^2$):** 10 / 100 / 400 / 1000 | **Plot Shape** ___ x ___ **ft / m or Circle Radius** ___ **ft / m**

**Exposure, Actual °:** ____ NE NW SE SW Flat Variable All | **Steepness, Actual °:** ____ 0° 1-5° 5-25° >25

**Topography: Macro:** top upper mid lower bottom | **Micro:** convex flat concave undulating

**Geology code:** SETU **Soil Texture code:** MELS | Upland *or* **Wetland/Riparian** (circle one)

**% Surface cover:** (Incl. outcrops) (>60cm diam) (25-60cm) (7.5-25cm) (2mm-7.5cm) (Incl sand, mud)

**H20:** ____ **BA Stems:** 5 **Litter:** 5 **Bedrock:** ____ **Boulder:** ____ **Stone:** ____ **Cobble:** 15 **Gravel:** ____ **Fines:** 75 **=100%**

**% Current year bioturbation** <1 **Past bioturbation present?** Yes / No | **% Hoof punch** Ø

**Fire evidence:** Yes / No (circle one) If yes, describe in Site history section, including date of fire, if known.

**Site history, stand age, comments:** Historic oil field relatively undisturbed stand (steep slope), road cut & abandoned well pads adjacent

**Disturbance code / Intensity (L,M,H):** ____/____ ____/____ ____/____ ____/____ ____/____ **"Other"** minimal small mammal burrows

## II. HABITAT AND VEGETATION DESCRIPTION

**Tree DBH :** T1 (<1" dbh), T2 (1-6" dbh), T3 (6-11" dbh), T4 (11-24" dbh), T5 (>24" dbh), T6 multi-layered (T3 or T4 layer under T5, >60% cover)

**Shrub:** S1 seedling (<3 yr. old), S2 young (<1% dead), S3 mature (1-25% dead), S4 decadent (>25% dead)

**Herbaceous:** H1 (<12" plant ht.), H2 (>12" ht.) **Desert Riparian Tree/Shrub:** 1 (<2ft. stem ht.), 2 (2-10ft. ht.), 3 (10-20ft. ht.), 4 (>20ft. ht.)

**Desert Palm/Joshua Tree:** 1 (<1.5" base diameter), 2 (1.5-6" diam.), 3 (>6" diam.) **% NonVasc cover:** Ø **% Vasc Veg cover:** 80

**% Cover** - **Conifer tree / Hardwood tree:** ____/ 1 **Regenerating Tree:** ____ **Shrub:** 75 **Herbaceous:** 5

**Height Class** - **Conifer tree / Hardwood tree:** ____/ 04 **Regenerating Tree:** ____ **Shrub:** 03 **Herbaceous:** 01

*Height classes:* 01=<1/2m 02=1/2-1m 03=1-2m 04=2-5m 05=5-10m 06=10-15m 07=15-20m 08=20-35m 09=35-50m 10=>50m

**Species, Stratum, and % cover. Stratum categories:** T=Tree, S = Shrub, H= Herb, E = SEedling, A = SApling, N= Non-vascular.
*% cover intervals for reference*: <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, 75%.

| Strata | Species | % cover | C | Strata | Species | % cover | C |
|---|---|---|---|---|---|---|---|
| S | Artemisia californica | 72 | | H | Erodium cicutarium | <1 | |
| S | Acmispon glaber | 3 | | T | Quercus agrifolia | 1 | |
| H | Stipa sp. | <1 | | | | | |
| H | Centaurea solsticialis | <1 | | | | | |
| H | Lonicera sp. | <1 | | | | | |
| H | Convolvulus arvensis | <1 | | | | | |
| H | Carduus pycnocephalus | <1 | | | | | |
| H | Avena barbata | <1 | | | | | |

**Unusual species:** ____

## III. INTERPRETATION OF STAND

**Field-assessed vegetation alliance name:** Artemisia californica shrubland Alliance

**Field-assessed association name** (optional): ____

**Adjacent alliances/direction:** Coast live oak woodland, e, s, w. Annual Grassland, nw

**Confidence in alliance identification:** L M H **Explain:** Artemisia californica dominant

**Phenology (E,P,L): Herb** E **Shrub** L **Tree** T **Other identification or mapping information:**

**Is poly >1 type: Yes / No If yes, explain:**

## CNPS and CDFG Combined Vegetation Rapid Assessment and Relevé Field Form

RELEVE SPECIES SHEET (Revised 5/13/2011)

Page _______ of Polygon/Stand #: ____________

**Stratum categories:** T = Tree, S = Shrub, H = Herb, E = SEedling, A = SApling, and N=Non-vascular
**% Cover Intervals for reference:** r = trace, + = <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, >75%

| Strata | Vascular plant name or lichen/bryophyte | % Cover | Collection | Final species determination (or DBH) |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

## Polygon/Stand No. ECC0005 - California Sagebrush Scrub

NORTH

EAST

SOUTH

WEST

# CNPS and CDFG Combined Vegetation Rapid Assessment and Relevé Field Form

**Relevé or Rapid Assessment** (circle one) (Revised May 13, 2011)

| For Office Use: | Final database #: | Final vegetation type name: | Alliance / Association |
|---|---|---|---|
| | | | |

## I. LOCATIONAL/ENVIRONMENTAL DESCRIPTION

| Polygon/Stand #: | Air photo: | Date: | Name(s) of surveyors (circle recorder): |
|---|---|---|---|
| ECC0006 | 4 | 1/16/13 | C. Santa, K. Wimer |

GPS wypt #: 6 GPS name: tnm16XT Datum: ____ or NAD83. Bearing, left axis at SW pt ____ (degrees) of Long / Short side

UTME -120.268308 UTMN 34.838867 Zone: 10 / 11 (circle one) Error: ± n/a ft / m / pdop

GPS within stand? Yes / No If No, cite from waypoint to stand, distance ____(meters) & bearing ____(degrees)

Elevation: 806 ft / m Camera Name/Photograph #'s: 24-27 (28,29 botanical) Canon Powershot SX50 HS

Stand Size (acres): <1 1-5 >5 | Plot Size ($m^2$): 10 / 100 / 400 / 1000 | Plot Shape ___ x ___ ft / m or Circle Radius ___ ft / m

Exposure, Actual °: ____ NE NW SE SW Flat Variable All | Steepness, Actual °: ____ 0° 1-5° 5-25° > 25

Topography: Macro: top upper mid lower bottom | Micro: convex flat concave undulating

Geology code: SETU Soil Texture code: MESN | Upland or Wetland/Riparian (circle one)

% Surface cover: (Incl. outcrops) (>60cm diam) (25-60cm) (7.5-25cm) (2mm-7.5cm) (Incl sand, mud)

H20: ____ BA Stems: ____ Litter: 3 Bedrock: 90 Boulder: ____ Stone: ____ Cobble: 3 Gravel: ____ Fines: 4 =100%

% Current year bioturbation Ø Past bioturbation present? Yes / No | % Hoof punch Ø

Fire evidence: Yes / No (circle one) If yes, describe in Site history section, including date of fire, if known.

Site history, stand age, comments:

oil held property, stand relatively undisturbed

Disturbance code / Intensity (L,M,H): 20 / L ___ / ___ ___ / ___ ___ / ___ ___ / ___ "Other" ____ / ___

## II. HABITAT AND VEGETATION DESCRIPTION

Tree DBH : T1 (<1" dbh), T2 (1-6" dbh), T3 (6-11" dbh), T4 (11-24" dbh), T5 (>24" dbh), T6 multi-layered (T3 or T4 layer under T5, >60% cover)

Shrub: S1 seedling (<3 yr. old), S2 young (<1% dead), S3 mature (1-25% dead), S4 decadent (>25% dead)

Herbaceous: H1 (<12" plant ht.), H2 (>12" ht.) Desert Riparian Tree/Shrub: 1 (<2ft. stem ht.), 2 (2-10ft. ht.), 3 (10-20ft. ht.), 4 (>20ft. ht.)

Desert Palm/Joshua Tree: 1 (<1.5" base diameter), 2 (1.5-6" diam.), 3 (>6" diam.) % NonVasc cover: 2 % Vasc Veg cover: 80

% Cover - Conifer tree / Hardwood tree: ___ / 1 Regenerating Tree: ____ Shrub: 80 Herbaceous: 3

Height Class - Conifer tree / Hardwood tree: ___ / 04 Regenerating Tree: ____ Shrub: ____ Herbaceous: ____

*Height classes:* 01=<1/2m 02=1/2-1m 03=1-2m 04=2-5m 05=5-10m 06=10-15m 07=15-20m 08=20-35m 09=35-50m 10=>50m

Species, Stratum, and % cover. Stratum categories: T=Tree, S = Shrub, H= Herb, E = SEedling, A = SApling, N= Non-vascular.
*% cover intervals for reference*: <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, 75%.

| Strata | Species | % cover | C | Strata | Species | % cover | C |
|---|---|---|---|---|---|---|---|
| S | Baccharis pilularis | 65 | | | | | |
| T | Quercus agrifolia | 1 | | | | | |
| S | Artemisia californica | 15 | | | | | |
| H | Bromus diandrus | <1 | | | | | |
| H | moss sp. | <1 | | | | | |
| H | Chlorogalum pomeridianum | <1 | | | | | |
| | | | | | | | |
| | | | | | | | |

Unusual species: ____

## III. INTERPRETATION OF STAND

Field-assessed vegetation alliance name: Baccharis pilularis shrubland alliance

Field-assessed association name (optional): ____

Adjacent alliances/direction: Coast live oak woodland / ____ / California sagebrush scrub

Confidence in alliance identification: L M H Explain: ____

Phenology (E,P,L): Herb E Shrub L Tree L Other identification or mapping information: location marked on map

Is poly >1 type: Yes / No If yes, explain:

## CNPS and CDFG Combined Vegetation Rapid Assessment and Relevé Field Form

RELEVE SPECIES SHEET (Revised 5/13/2011)

Page _______ of Polygon/Stand #: ____________

**Stratum categories:** T = Tree, S = Shrub, H = Herb, E = SEedling, A = SApling, and N=Non-vascular
**% Cover Intervals for reference:** r = trace, + = <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, >75%

| Strata | Vascular plant name or lichen/bryophyte | % Cover | Collection | Final species determination (or DBH) |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

## Polygon/Stand No. ECC0006 - Coyote Brush Scrub

NORTH

EAST

SOUTH

WEST

# CNPS and CDFG Combined Vegetation Rapid Assessment and Relevé Field Form

**Relevé or Rapid Assessment** (circle one) (Revised May 13, 2011)

| For Office Use: | Final database #: | Final vegetation type name: | Alliance / Association |
|---|---|---|---|
| | | | |

## I. LOCATIONAL/ENVIRONMENTAL DESCRIPTION

| Polygon/Stand #: | Air photo: | Date: | Name(s) of surveyors (circle recorder): |
|---|---|---|---|
| ECC0007 | Aerial 4 | 1/16/13 | C. Santala, K. Wimer |

**GPS wypt #:** 7 **GPS name:** Trimble **Datum:** ____ **or NAD83. Bearing, left axis at SW pt** ____ **(degrees) of Long / Short side**

**UTME** -120.264781 **UTMN** 34.839887 **Zone:** 10 / 11 (circle one) **Error:** ± N/a **ft / m / pdop**

**GPS within stand?** Yes / No **If No, cite from waypoint to stand, distance** ____ **(meters) & bearing** ____ **(degrees)**

**Elevation:** 748 ft / m **Camera Name/Photograph #'s:** Canon Powershot SX150 IS # 30-33

**Stand Size (acres):** <1, 1-5, >5 | **Plot Size ($m^2$):** 10 / 100 / 400 / 1000 | **Plot Shape** ___ x ___ **ft / m or Circle Radius** ___ **ft / m**

**Exposure, Actual °:** ____ NE NW SE SW Flat Variable All | **Steepness, Actual °:** ____ 0° 1-5° 5-25° > 25

**Topography: Macro:** top upper mid lower bottom | **Micro:** convex flat concave undulating

**Geology code:** SETU **Soil Texture code:** F ISN | Upland or Wetland/Riparian (circle one)

**% Surface cover:** (Incl. outcrops) (>60cm diam) (25-60cm) (7.5-25cm) (2mm-7.5cm) (Incl sand, mud)

**H20:** Ø **BA Stems:** 5 **Litter:** ____ **Bedrock:** ____ **Boulder:** ____ **Stone:** ____ **Cobble:** ____ **Gravel:** 15 **Fines:** 80 **=100%**

**% Current year bioturbation** Ø **Past bioturbation present?** Yes / No | **% Hoof punch** Ø

**Fire evidence:** Yes / No (circle one) If yes, describe in Site history section, including date of fire, if known.

**Site history, stand age, comments:** Historical oil field activities, abandoned well pad

**Disturbance code / Intensity (L,M,H):** 15 / m ___/___ ___/___ ___/___ ___/___ **"Other"** ____ / ___

## II. HABITAT AND VEGETATION DESCRIPTION

**Tree DBH :** T1 (<1" dbh), T2 (1-6" dbh), T3 (6-11" dbh), T4 (11-24" dbh), T5 (>24" dbh), T6 multi-layered (T3 or T4 layer under T5, >60% cover)

**Shrub:** S1 seedling (<3 yr. old), S2 young (<1% dead), S3 mature (1-25% dead), S4 decadent (>25% dead)

**Herbaceous:** H1 (<12" plant ht.), H2 (>12" ht.) **Desert Riparian Tree/Shrub:** 1 (<2ft. stem ht.), 2 (2-10ft. ht.), 3 (10-20ft. ht.), 4 (>20ft. ht.)

**Desert Palm/Joshua Tree:** 1 (<1.5" base diameter), 2 (1.5-6" diam.), 3 (>6" diam.) **% NonVasc cover:** Ø **% Vasc Veg cover:** 85

**% Cover -** **Conifer tree / Hardwood tree:** ____/____ **Regenerating Tree:** ____ **Shrub:** 65 **Herbaceous:** 75 (understory & openings in shrubs)

**Height Class - Conifer tree / Hardwood tree:** ____/____ **Regenerating Tree:** ____ **Shrub:** ____ **Herbaceous:** ____

*Height classes:* 01=<1/2m 02=1/2-1m 03=1-2m 04=2-5m 05=5-10m 06=10-15m 07=15-20m 08=20-35m 09=35-50m 10=>50m

**Species, Stratum, and % cover. Stratum categories:** T=Tree, S = Shrub, H= Herb, E = SEedling, A = SApling, N= Non-vascular.
*% cover intervals for reference*: <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, 75%.

| Strata | Species | % cover | C | Strata | Species | % cover | C |
|---|---|---|---|---|---|---|---|
| S | Encamena Ericoides | 50 | | S | Salvia mellifera | 2 | |
| H | Croton Californica | 1 | | | | | |
| H | Erodium cicutarium | 30 | | | | | |
| S | Artemisia californica | 13 | | | | | |
| H | Medicago polymorpha | 10 | | | | | |
| H | Centaurea melitensis | 2 | | | | | |
| H | Carduus pycnocephalus | 2 | | | | | |
| H | Bromus diandrus | 30 | | | | | |

**Unusual species:** ____

## III. INTERPRETATION OF STAND

**Field-assessed vegetation alliance name:** Encamena ericoides shrubland

**Field-assessed association name** (optional): ____

**Adjacent alliances/direction:** Coastal sage / Disturbed / ____

**Confidence in alliance identification:** L M H **Explain:** ____

**Phenology (E,P,L): Herb** E **Shrub** L **Tree** Ø **Other identification or mapping information:**

**Is poly >1 type: Yes / No If yes, explain:**

**CNPS and CDFG Combined Vegetation Rapid Assessment and Relevé Field Form**

RELEVE SPECIES SHEET (Revised 5/13/2011)

Page _______ of Polygon/Stand #: ____________

**Stratum categories:** T = Tree, S = Shrub, H = Herb, E = SEedling, A = SApling, and N=Non-vascular

**% Cover Intervals for reference:** r = trace, + = <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, >75%

| Strata | Vascular plant name or lichen/bryophyte | % Cover | Collection | Final species determination (or DBH) |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

## Polygon/Stand No. ECC0007 - Mock Heather Stand

NORTH

EAST

SOUTH

WEST

# CNPS and CDFG Combined Vegetation Rapid Assessment and Relevé Field Form

**Relevé or Rapid Assessment** (circle one) (Revised May 13, 2011)

| For Office Use: | Final database #: | Final vegetation type name: | Alliance / Association |
|---|---|---|---|
| | | | |

## I. LOCATIONAL/ENVIRONMENTAL DESCRIPTION

| Polygon/Stand #: | Air photo: | Date: | Name(s) of surveyors (circle recorder): |
|---|---|---|---|
| ECC0008 | Aerial 7 | 4/15/13 | Chris Santaliz, Jessica Adinolfi, Kenny Lima |

**GPS wypt #:** 8 **GPS name:** Camera **Datum:** ____ **or NAD83. Bearing, left axis at SW pt** ____ **(degrees) of Long / Short side**

**UTME** 120° 16' 59.489 **UTMN** 34° 49' 55.266 **Zone: 10 / 11** (circle one) **Error: ±** n/a **ft / m / pdop**

**GPS within stand?** (Yes) No **If No, cite from waypoint to stand, distance** ____ **(meters) & bearing** ____ **(degrees)**

**Elevation:** 924 (ft) m **Camera Name/Photograph #'s:** Nikon coolpix AW100 1,2,3,4

**Stand Size (acres):** (<1), 1-5, >5 | **Plot Size (m²):** 10 / 100 / 400 / 1000 | **Plot Shape** ___ x ___ **ft / m or Circle Radius** ___ **ft / m**

**Exposure, Actual °:** ____ NE NW SE SW (Flat) Variable All | **Steepness, Actual °:** ____ 0° (1-5°) 5-25° > 25

**Topography: Macro:** top upper mid lower (bottom) | **Micro:** convex flat (concave) undulating

**Geology code:** SETV **Soil Texture code:** MESA | **Upland** *or* **Wetland/Riparian** (circle one)

**% Surface cover:** (Incl. outcrops) (>60cm diam) (25-60cm) (7.5-25cm) (2mm-7.5cm) (Incl sand, mud)

**H20:** 70 **BA Stems:** 20 **Litter:** Ø **Bedrock:** Ø **Boulder:** Ø **Stone:** Ø **Cobble:** Ø **Gravel:** Ø **Fines:** 10 **=100%**

**% Current year bioturbation** Ø **Past bioturbation present? Yes /** (No) | **% Hoof punch** 20

**Fire evidence: Yes /** (No) (circle one) If yes, describe in Site history section, including date of fire, if known.

**Site history, stand age, comments:** Former abandoned well pad, depressional w/ inundation ($H_2O$) used by wildlife as water source. Historically used oil field and access roads

**Disturbance code / Intensity (L,M,H):** 01 / M 20 / M ___ / ___ ___ / ___ ___ / ___ **"Other"** ____ / ___

## II. HABITAT AND VEGETATION DESCRIPTION

**Tree DBH : T1** (<1" dbh), **T2** (1-6" dbh), **T3** (6-11" dbh), **T4** (11-24" dbh), **T5** (>24" dbh), **T6** multi-layered (T3 or T4 layer under T5, >60% cover)

**Shrub: S1** seedling (<3 yr. old), **S2** young (<1% dead), **S3** mature (1-25% dead), **S4** decadent (>25% dead)

**Herbaceous (H1** (<12" plant ht.), **H2** (>12" ht.) **Desert Riparian Tree/Shrub: 1** (<2ft. stem ht.), **2** (2-10ft. ht.), **3** (10-20ft. ht.), **4** (>20ft. ht.)

**Desert Palm/Joshua Tree: 1** (<1.5" base diameter), **2** (1.5-6" diam.), **3** (>6" diam.) **% NonVasc cover:** Ø **% Vasc Veg cover:** 20

**% Cover** - **Conifer tree / Hardwood tree:** Ø / Ø **Regenerating Tree:** Ø **Shrub:** 1% **Herbaceous:** 20

**Height Class** - **Conifer tree / Hardwood tree:** Ø / Ø **Regenerating Tree:** Ø **Shrub:** 03 **Herbaceous:** 01

*Height classes* (01=<1/2m) 02=1/2-1m (03=1-2m) 04=2-5m 05=5-10m 06=10-15m 07=15-20m 08=20-35m 09=35-50m 10=>50m

**Species, Stratum, and % cover. Stratum categories:** T=Tree, S = Shrub, H= Herb, E = SEedling, A = SApling, N= Non-vascular.
*% cover intervals for reference*: <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, 75%.

| Strata | Species | % cover | C | Strata | Species | % cover | C |
|---|---|---|---|---|---|---|---|
| H | Eleocharis parishii | 4 | | S | Baccharis salicifolia | 1 | |
| H | Cotula coronopifolia | 5 | | H | Crassula tillaea | <1 | |
| H | Juncus bufonius | 1 | | H | Lotus strigosus | <1 | |
| H | Melilotus indicus | 2 | | | | | |
| H | Festuca myuros | 2 | | | | | |
| H | Polypogon monspeliensis | 3 | | | | | |
| H | Erodium cicutarium | <1 | | | | | |
| H | Bromus diandrus | <1 | | | | | |

70%

**Unusual species:** ____

## III. INTERPRETATION OF STAND

**Field-assessed vegetation alliance name:** Cotula coronopifolia (Pond perimeter)

**Field-assessed association name** (optional): ____

**Adjacent alliances/direction:** Oak woodland west / Coastal scrub south / north /

**Confidence in alliance identification:** L M (H) **Explain:** ____

**Phenology (E,P,L): Herb** E **Shrub** E **Tree** Ø **Other identification or mapping information:**

**Is poly >1 type: Yes / No If yes, explain:**

## CNPS and CDFG Combined Vegetation Rapid Assessment and Relevé Field Form

RELEVE SPECIES SHEET (Revised 5/13/2011)

Page _______ of Polygon/Stand #: ____________

**Stratum categories:** T = Tree, S = Shrub, H = Herb, E = SEedling, A = SApling, and N=Non-vascular
**% Cover Intervals for reference:** r = trace, + = <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, >75%

| Strata | Vascular plant name or lichen/bryophyte | % Cover | Collection | Final species determination (or DBH) |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

## Polygon/Stand No. ECC0008 – Fields of Brass Buttons

NORTH

EAST

SOUTH

WEST

# CNPS and CDFG Combined Vegetation Rapid Assessment and Relevé Field Form

**Relevé or Rapid Assessment** (circle one) (Revised May 13, 2011)

| For Office Use: | Final database #: | Final vegetation type name: | Alliance / Association |
|---|---|---|---|
| | | | |

## I. LOCATIONAL/ENVIRONMENTAL DESCRIPTION

| Polygon/Stand #: | Air photo: | Date: | Name(s) of surveyors (circle recorder): |
|---|---|---|---|
| ECC0009 | Aerial 3 | 4/15/13 | C. Santala, J. Adinolfi, K. Wilmer |

GPS wypt #: 9 GPS name: Camera Datum: ____ or NAD83. Bearing, left axis at SW pt____ (degrees) of Long / Short side

UTME 120° 16' 57.642" UTMN 34° 50' 25.320" Zone 10 / 11 (circle one) Error: ± n/a ft / m / pdop

GPS within stand? Yes / No If No, cite from waypoint to stand, distance ____(meters) & bearing ____(degrees)

Elevation: 830 ft / m Camera Name/Photograph #'s: Nikon Coolpix AW100 5 (looking south) through 8

Stand Size (acres): <1, 1-5, >5 | Plot Size ($m^2$): 10 / 100 / 400 / 1000 | Plot Shape ___ x___ ft / m or Circle Radius____ft / m

Exposure, Actual °: ____ NE NW SE SW Flat Variable All | Steepness, Actual °: ____ 0° 1-5° 5-25° > 25

Topography: Macro: top upper mid lower bottom | Micro: convex flat concave undulating

Geology code: SETU Soil Texture code: MELO | Upland or Wetland/Riparian (circle one)

% Surface cover: (Incl. outcrops) (>60cm diam) (25-60cm) (7.5-25cm) (2mm-7.5cm) (Incl sand, mud)

H20: Ø BA Stems: 98 Litter: 2 Bedrock: Ø Boulder: Ø Stone: Ø Cobble: Ø Gravel: Ø Fines: Ø =100%

% Current year bioturbation 1 % Past bioturbation present? Yes / No | % Hoof punch 2 %

Fire evidence: Yes / No (circle one) If yes, describe in Site history section, including date of fire, if known.

Site history, stand age, comments: Grazing in abandoned / little used oil field, access roads adjacent

Disturbance code / Intensity (L,M,H): 201 L ___/___ ___/___ ___/___ ___/___ "Other" ___/___

## II. HABITAT AND VEGETATION DESCRIPTION

Tree DBH : T1 (<1" dbh), T2 (1-6" dbh), T3 (6-11" dbh), T4 (11-24" dbh), T5 (>24" dbh), T6 multi-layered (T3 or T4 layer under T5, >60% cover)

Shrub: S1 seedling (<3 yr. old), S2 young (<1% dead), S3 mature (1-25% dead), S4 decadent (>25% dead)

Herbaceous: H1 (<12" plant ht.), H2 (>12" ht.) Desert Riparian Tree/Shrub: 1 (<2ft. stem ht.), 2 (2-10ft. ht.), 3 (10-20ft. ht.), 4 (>20ft. ht.)

Desert Palm/Joshua Tree: 1 (<1.5" base diameter), 2 (1.5-6" diam.), 3 (>6" diam.) % NonVasc cover: Ø % Vasc Veg cover: 100 %

% Cover - Conifer tree / Hardwood tree: H / 50 % Regenerating Tree: <1 % Shrub: 1 % Herbaceous: 90 %

Height Class - Conifer tree / Hardwood tree: Ø / 05 Regenerating Tree: 03 Shrub: 02 Herbaceous: 01

*Height classes:* 01=<1/2m 02=1/2-1m 03=1-2m 04=2-5m 05=5-10m 06=10-15m 07=15-20m 08=20-35m 09=35-50m 10=>50m

Species, Stratum, and % cover. Stratum categories: T=Tree, S = Shrub, H= Herb, E = SEedling, A = SApling, N= Non-vascular.
*% cover intervals for reference*: <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, 75%.

| Strata | Species | % cover | C | Strata | Species | % cover | C |
|---|---|---|---|---|---|---|---|
| T | Quercus agrifolia | 50 | | S | toxicodendron diversilobum | 4 | |
| S | Solanum douglasii | 1 | | | | | |
| H | Salvia spathaceae | 3 | | | | | |
| H | Carduus pycnocephalus | 50 | | | | | |
| H | Stachys bullata | 10 | | | | | |
| H | Bromus diandrus | 70 | | | | | |
| H | Claytonia perfoliata | 1 | | | | | |
| H | Galium | 1 | | | | | |

Unusual species: ____

## III. INTERPRETATION OF STAND

Field-assessed vegetation alliance name: Coast live oak woodland

Field-assessed association name (optional): ____

Adjacent alliances/direction: Coastal scrub / W S / Annual Grass /

Confidence in alliance identification: L M H Explain: ____

Phenology (E,P,L): Herb E Shrub E Tree P Other identification or mapping information: ____

Is poly >1 type: Yes / No If yes, explain:

**CNPS and CDFG Combined Vegetation Rapid Assessment and Relevé Field Form**
RELEVE SPECIES SHEET (Revised 5/13/2011)

Page _______ of Polygon/Stand #: ____________

**Stratum categories:** T = Tree, S = Shrub, H = Herb, E = SEedling, A = SApling, and N=Non-vascular
**% Cover Intervals for reference:** r = trace, + = <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, >75%

| Strata | Vascular plant name or lichen/bryophyte | % Cover | Collection | Final species determination (or DBH) |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

## Polygon/Stand No. ECC0009 – Coast Live Oak Woodland

NORTH

EAST

SOUTH

WEST

# CNPS and CDFG Combined Vegetation Rapid Assessment and Relevé Field Form

**Relevé or Rapid Assessment** (circle one) (Revised May 13, 2011)

| For Office Use: | Final database #: | Final vegetation type name: | Alliance / Association |
|---|---|---|---|
| | | | |

## I. LOCATIONAL/ENVIRONMENTAL DESCRIPTION

| Polygon/Stand #: | Air photo: | Date: | Name(s) of surveyors (circle recorder): |
|---|---|---|---|
| ECC0010 | Aerial 7 | 4/15/13 | (C. Santala) J. Adundi, K. Wimer |

GPS wypt #: 10 GPS name: camera Datum: ____ or NAD83. Bearing, left axis at SW pt____ (degrees) of Long / Short side

UTME 120° 16' 47.642" UTMN 34° 50' 25.320" Zone: (10) 11 (circle one) Error: ± n/a ft / m / pdop

GPS within stand? (Yes) No If No, cite from waypoint to stand, distance ____(meters) & bearing ____(degrees)

Elevation: 716 (ft) / m Camera Name/Photograph #'s: Nikon coolpix AW100, photos 9-12

Stand Size (acres): (<1) 1-5, >5 | Plot Size ($m^2$): 10 / 100 / 400 / 1000 | Plot Shape ___ x___ ft / m or Circle Radius___ft / m

Exposure, Actual °: W NE NW SE SW Flat Variable All | Steepness, Actual °: ____ 0° (1-5°) 5-25° > 25

Topography: Macro: top upper (mid) lower bottom | Micro: (convex) flat concave undulating

Geology code: SETU Soil Texture code: FISN | (Upland) or Wetland/Riparian (circle one)

% Surface cover: (Incl. outcrops) (>60cm diam) (25-60cm) (7.5-25cm) (2mm-7.5cm) (Incl sand, mud)

H20: Ø BA Stems: 85 Litter: 5 Bedrock: Ø Boulder: Ø Stone: Ø Cobble: Ø Gravel: Ø Fines: 10 =100%

% Current year bioturbation 5 Past bioturbation present? (Yes) / No | % Hoof punch 10%

Fire evidence: Yes / (No) (circle one) If yes, describe in Site history section, including date of fire, if known.

Site history, stand age, comments: Grazing evident, adjacent to oak woodland relatively undisturbed, w/in abandoned/inactive alfalfa field

Disturbance code / Intensity (L,M,H): DH / L ___/___ ___/___ ___/___ ___/___ "Other" ____ / ___

## II. HABITAT AND VEGETATION DESCRIPTION

**Tree DBH :** T1 (<1" dbh), T2 (1-6" dbh), T3 (6-11" dbh), T4 (11-24" dbh), T5 (>24" dbh), T6 multi-layered (T3 or T4 layer under T5, >60% cover)

**Shrub:** S1 seedling (<3 yr. old), S2 young (<1% dead), S3 mature (1-25% dead), S4 decadent (>25% dead)

**Herbaceous:** (H1) (<12" plant ht.), H2 (>12" ht.) **Desert Riparian Tree/Shrub:** 1 (<2ft. stem ht.), 2 (2-10ft. ht.), 3 (10-20ft. ht.), 4 (>20ft. ht.)

**Desert Palm/Joshua Tree:** 1 (<1.5" base diameter), 2 (1.5-6" diam.), 3 (>6" diam.) **% NonVasc cover:** Ø **% Vasc Veg cover:** 85 %

**% Cover** - Conifer tree / Hardwood tree: — / — Regenerating Tree: — Shrub: 5 Herbaceous: 80

**Height Class** - Conifer tree / Hardwood tree: — / — Regenerating Tree: — Shrub: 62 Herbaceous: 01

*Height classes:* 01=<1/2m 02=1/2-1m 03=1-2m 04=2-5m 05=5-10m 06=10-15m 07=15-20m 08=20-35m 09=35-50m 10=>50m

**Species, Stratum, and % cover. Stratum categories:** T=Tree, S = Shrub, H= Herb, E = SEedling, A = SApling, N= Non-vascular.
*% cover intervals for reference*: <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, 75%.

| Strata | Species | % cover | C | Strata | Species | % cover | C |
|---|---|---|---|---|---|---|---|
| H | Lupinus bicolor | 15 | | H | Castilleja exerta | 1 | |
| H | Croton californica | 5 | | S | C. Artemisia californica | 1 | |
| H | Avena barbata | 20 | | S | Acmispon glaber | 1 | |
| H | Erodium botrys | 12 | | H | Bromus diandrus | 20 | |
| H | Heterotheca grandiflora | 1 | | H | Lotus strigosus | 1 | |
| H | Hirkelia sp. | 3 | | H | Bromus hordeaceus | 3 | |
| S | Salvia mellifera | 1 | | | | | |
| S | Ericameria ericoides | 1 | | | | | |

**Unusual species:** Dichelostemma spicata

## III. INTERPRETATION OF STAND

**Field-assessed vegetation alliance name:** Bromus/Avena Grassland

**Field-assessed association name** (optional): ____

**Adjacent alliances/direction:** Oak woodland (N), coastal sage (coyote brush) South, East

**Confidence in alliance identification:** L M (H) **Explain:** ____

**Phenology (E,P,L): Herb** D **Shrub** L/E **Tree** Ø **Other identification or mapping information:**

Shrub - only 2 black sage were decadent (others all very young)

**Is poly >1 type: Yes / No If yes, explain:**

## CNPS and CDFG Combined Vegetation Rapid Assessment and Relevé Field Form

RELEVE SPECIES SHEET (Revised 5/13/2011)

Page _______ of Polygon/Stand #: ____________

**Stratum categories:** T = Tree, S = Shrub, H = Herb, E = SEedling, A = SApling, and N=Non-vascular
**% Cover Intervals for reference:** r = trace, + = <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, >75%

| Strata | Vascular plant name or lichen/bryophyte | % Cover | Collection | Final species determination (or DBH) |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

## Polygon/Stand No. ECC0010 - Annual Brome Grasslands

NORTH

EAST

SOUTH

WEST

# CNPS and CDFG Combined Vegetation Rapid Assessment and Relevé Field Form

**Relevé or Rapid Assessment** (circle one) (Revised May 13, 2011)

| For Office Use: | Final database #: | Final vegetation type name: | Alliance<br>Association |
|---|---|---|---|

## I. LOCATIONAL/ENVIRONMENTAL DESCRIPTION

| Polygon/Stand #: | Air photo: | Date: | Name(s) of surveyors (circle recorder): |
|---|---|---|---|
| ECC0011 | Aerial 7 | 4/15/13 | (C. Santala) J. Adinolfi, K. Wimer |

**GPS wypt #:** 11 **GPS name:** online **Datum:** ____ **or NAD83. Bearing, left axis at SW pt** ____ **(degrees) of Long / Short side**

**UTME** 120° 16' 38.86" **UTMN** 34° 48' 50.11" **Zone:** (10) / 11 (circle one) **Error:** ± n/a **ft / m / pdop**

**GPS within stand?** (Yes) / No **If No, cite from waypoint to stand, distance** ____ **(meters) & bearing** ____ **(degrees)**

**Elevation:** 664 (ft) / m **Camera Name/Photograph #'s:** Nikon Coolpix AW100 photos 13-16

**Stand Size (acres):** <1, (1-5), >5 | **Plot Size (m²):** 10 / 100 / 400 / 1000 | **Plot Shape** ___ x ___ **ft / m or Circle Radius** ___ **ft / m**

**Exposure, Actual °:** ____ NE NW SE SW (Flat) (Variable) All | **Steepness, Actual °:** ____ (0°) 1-5° 5-25° > 25

**Topography: Macro:** top upper mid lower (bottom) | **Micro:** convex (flat) (concave) undulating

**Geology code:** SETV **Soil Texture code:** COSA | **Upland** *or* **Wetland/Riparian** (circle one)

**% Surface cover:** (Incl. outcrops) (>60cm diam) (25-60cm) (7.5-25cm) (2mm-7.5cm) (Incl sand, mud)

**H20:** Ø **BA Stems:** 60 **Litter:** 70 **Bedrock:** ____ **Boulder:** ____ **Stone:** ____ **Cobble:** ____ **Gravel:** 10 **Fines:** 20 **=100%**

**% Current year bioturbation** Ø **Past bioturbation present? Yes / (No) | % Hoof punch** Ø

**Fire evidence: Yes / (No)** (circle one) If yes, describe in Site history section, including date of fire, if known.

**Site history, stand age, comments:** Ephemeral channelized drainage adjacent to Cat Canyon Rd

**Disturbance code / Intensity (L,M,H):** 08 / M ____ / ____ ____ / ____ ____ / ____ ____ / ____ **"Other"** ____ / ____

## II. HABITAT AND VEGETATION DESCRIPTION

**Tree DBH :** **T1** (<1" dbh), **T2** (1-6" dbh), **T3** (6-11" dbh), **T4** (11-24" dbh), **T5** (>24" dbh), **T6** multi-layered (T3 or T4 layer under T5, >60% cover)

**Shrub:** **S1** seedling (<3 yr. old), **S2** young (<1% dead), (**S3**) mature (1-25% dead), **S4** decadent (>25% dead)

**Herbaceous:** (**H1**) (<12" plant ht.), **H2** (>12" ht.) **Desert Riparian Tree/Shrub:** **1** (<2ft. stem ht.), **2** (2-10ft. ht.), **3** (10-20ft. ht.), **4** (>20ft. ht.)

**Desert Palm/Joshua Tree:** **1** (<1.5" base diameter), **2** (1.5-6" diam.), **3** (>6" diam.) **% NonVasc cover:** Ø **% Vasc Veg cover:** 63

**% Cover -** **Conifer tree / Hardwood tree:** — / — **Regenerating Tree:** — **Shrub:** 50 **Herbaceous:** 13

**Height Class - Conifer tree / Hardwood tree:** — / — **Regenerating Tree:** — **Shrub:** 05 **Herbaceous:** 01

*Height classes:* 01=<1/2m 02=1/2-1m 03=1-2m 04=2-5m 05=5-10m 06=10-15m 07=15-20m 08=20-35m 09=35-50m 10=>50m

**Species, Stratum, and % cover. Stratum categories:** T=Tree, S = Shrub, H= Herb, E = SEedling, A = SApling, N= Non-vascular.
*% cover intervals for reference*: <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, 75%.

| Strata | Species | % cover | C | Strata | Species | % cover | C |
|---|---|---|---|---|---|---|---|
| H | Melilotus indicus | 1 | | S | Sambucus | <1 | |
| H | Pseudognaphalium calif. | 2 | | S | Ornum maculat | <1 | |
| S | Salix laevigata | 30 | | | | | |
| S | Artemisia douglasiana | 2 | | | | | |
| S | Artemisia californica | 1 | | | | | |
| S | Baccharis pilularis | 5 | | | | | |
| S | Baccharis salicifolia | R | | | | | |
| H | Brassica nigra | 1 | | | | | |

**Unusual species:** ____

## III. INTERPRETATION OF STAND

**Field-assessed vegetation alliance name:** Salix laevigata shrubland

**Field-assessed association name** (optional): ____

**Adjacent alliances/direction:** Cal sage (East) / ____ / ____ / ____

**Confidence in alliance identification: L M (H) Explain:** ____

**Phenology (E,P,L): Herb** P **Shrub** P **Tree** Ø **Other identification or mapping information:**

**Is poly >1 type: Yes / No If yes, explain:**

* Fine sand + small rock

**CNPS and CDFG Combined Vegetation Rapid Assessment and Relevé Field Form**

RELEVE SPECIES SHEET (Revised 5/13/2011)

Page _______ of Polygon/Stand #: ____________

**Stratum categories:** T = Tree, S = Shrub, H = Herb, E = SEedling, A = SApling, and N=Non-vascular
**% Cover Intervals for reference:** r = trace, + = <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, >75%

| Strata | Vascular plant name or lichen/bryophyte | % Cover | Collection | Final species determination (or DBH) |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

## Polygon/Stand No. ECC0011 – Red Willow thickets

NORTH

EAST

SOUTH

WEST

# CNPS and CDFG Combined Vegetation Rapid Assessment and Relevé Field Form

**Relevé or Rapid Assessment** (circle one) (Revised May 13, 2011)

| For Office Use: | Final database #: | Final vegetation type name: | Alliance<br>Association |
|---|---|---|---|

## I. LOCATIONAL/ENVIRONMENTAL DESCRIPTION

| Polygon/Stand #: | Air photo: | Date: | Name(s) of surveyors (circle recorder): |
|---|---|---|---|
| ECC0012 | Aerial 7 | 4/16/13 | Chris Santala, Kenny Wimer, Jessica Adinolfi |

**GPS wypt #:** 12 **GPS name:** camera **Datum:** ____ **or NAD83. ~~Bearing, left axis at SW pt~~** 270 **(degrees) of Long / Short side**

**UTME** 120° 16' 1.926" **UTMN** 34° 49' 35.178" **Zone: 10 / 11** (circle one) **Error: ±** n/a **ft / m / pdop**

**GPS within stand? Yes / No If No, cite from waypoint to stand, distance ____(meters) & bearing ____(degrees)**

**Elevation:** 800 **ft / m Camera Name/Photograph #'s:** Nikon coolpix AW100 photos 1-4

**Stand Size (acres):** <1, 1-5, >5 | **Plot Size (m²):** 10 / 100 / 400 / 1000 | **Plot Shape** ___ x ___ **ft / m or Circle Radius** ___ **ft / m**

**Exposure, Actual °:** West (slight) NE NW SE SW Flat Variable All | **Steepness, Actual °:** ____ 0° 1-5° 5-25° > 25

**Topography: Macro:** top upper mid lower bottom | **Micro:** convex flat concave undulating

**Geology code:** SETU **Soil Texture code:** FISN | Upland *or* Wetland/Riparian (circle one)

**% Surface cover:** (Incl. outcrops) (>60cm diam) (25-60cm) (7.5-25cm) (2mm-7.5cm) (Incl sand, mud)

**H20:** Ø **BA Stems:** 30 **Litter:** 50 **Bedrock:** ____ **Boulder:** ____ **Stone:** ____ **Cobble:** ____ **Gravel:** ____ **Fines:** 30 **=100%**

**% Current year bioturbation** Ø **Past bioturbation present? Yes / No | % Hoof punch** Ø

**Fire evidence: Yes / No** (circle one) If yes, describe in Site history section, including date of fire, if known.

**Site history, stand age, comments:** stand w/in 50 yds of channelized drainage, area is grazed, adjacent relatively undisturbed scrub, oak woodland

**Disturbance code / Intensity (L,M,H):** 201 L ____/____ ____/____ ____/____ ____/____ **"Other"** ____/____

## II. HABITAT AND VEGETATION DESCRIPTION

**Tree DBH : T1** (<1" dbh), **T2** (1-6" dbh), **T3** (6-11" dbh), **T4** (11-24" dbh), **T5** (>24" dbh), **T6** multi-layered (T3 or T4 layer under T5, >60% cover)

**Shrub: S1** seedling (<3 yr. old), **S2** young (<1% dead), **S3** mature (1-25% dead), **S4** decadent (>25% dead)

**Herbaceous: H1** (<12" plant ht.), **H2** (>12" ht.) **Desert Riparian Tree/Shrub: 1** (<2ft. stem ht.), **2** (2-10ft. ht.), **3** (10-20ft. ht.), **4** (>20ft. ht.)

**Desert Palm/Joshua Tree: 1** (<1.5" base diameter), **2** (1.5-6" diam.), **3** (>6" diam.) **% NonVasc cover:** Ø **% Vasc Veg cover:** 75

**% Cover - Conifer tree / Hardwood tree:** — / — **Regenerating Tree:** — **Shrub:** 50 **Herbaceous:** 25 (3)

**Height Class - Conifer tree / Hardwood tree:** — / — **Regenerating Tree:** — **Shrub:** 04 **Herbaceous:** 01

*Height classes:* 01=<1/2m 02=1/2-1m 03=1-2m 04=2-5m 05=5-10m 06=10-15m 07=15-20m 08=20-35m 09=35-50m 10=>50m

**Species, Stratum, and % cover. Stratum categories:** T=Tree, S = Shrub, H= Herb, E = SEedling, A = SApling, N= Non-vascular.
*% cover intervals for reference*: <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, 75%.

| Strata | Species | % cover | C | Strata | Species | % cover | C |
|---|---|---|---|---|---|---|---|
| S | Frangula californica | 35 | | S | Encamenia encoides | 15 | |
| H | Artemisia douglasiana | 10 | u2 | S | Artemisia californica | 5 | |
| H | Chenopodium californica | 1 | | | | | |
| S | Baccharis pilularis | 5 | | | | | |
| H | Marrubium vulgare | 1 | | | | | |
| T | Quercus agrifolia | 2 | | | | | |
| S | Croton californica | 1 | | | | | |
| | | | | | | | |

**Unusual species:** ____

## III. INTERPRETATION OF STAND

**Field-assessed vegetation alliance name:** Coffeeberry scrub

**Field-assessed association name** (optional): ____

**Adjacent alliances/direction:** Grassland (east), Coastline oak wood (North) Coastal scrub (west)

**Confidence in alliance identification: L M H Explain:** ____

**Phenology (E,P,L): Herb** E **Shrub** P **Tree** P **Other identification or mapping information:**

**Is poly >1 type: Yes / No If yes, explain:**

## CNPS and CDFG Combined Vegetation Rapid Assessment and Relevé Field Form

RELEVE SPECIES SHEET (Revised 5/13/2011)

Page _______ of Polygon/Stand #: ____________

**Stratum categories:** T = Tree, S = Shrub, H = Herb, E = SEedling, A = SApling, and N=Non-vascular
**% Cover Intervals for reference:** r = trace, + = <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, >75%

| Strata | Vascular plant name or lichen/bryophyte | % Cover | Collection | Final species determination (or DBH) |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

## Polygon/Stand No. ECC0012 - California Coffeeberry Scrub

NORTH

EAST

SOUTH

WEST

# CNPS and CDFG Combined Vegetation Rapid Assessment and Relevé Field Form

**Relevé or Rapid Assessment** (circle one) (Revised May 13, 2011)

| For Office Use: | Final database #: | Final vegetation type name: | Alliance<br>Association |
|---|---|---|---|

## I. LOCATIONAL/ENVIRONMENTAL DESCRIPTION

| Polygon/Stand #: | Air photo: | Date: | Name(s) of surveyors (circle recorder): |
|---|---|---|---|
| ECC0013 | Aerial 4 | 4/16/13 | C. Santala, K. Wimer, J. Adinolfi |

GPS wypt #: 13 GPS name: omega Datum: ____ or NAD83. Bearing, left axis at SW pt 310 (degrees) of Long / Short side

UTME 120° 16' 01.96" UTMN 34° 49' 43.12" Zone: 10 / 11 (circle one) Error: ± n/a ft / m / pdop

GPS within stand? Yes / No If No, cite from waypoint to stand, distance ____(meters) & bearing ____(degrees)

Elevation: 767 ft / m Camera Name/Photograph #'s: Nikon Coolpix AW100 5-9

Stand Size (acres): <1, 1-5, >5 | Plot Size ($m^2$): 10 / 100 / 400 / 1000 | Plot Shape 10 x 10 ft / m or Circle Radius ____ ft / m

Exposure, Actual °: 265 NE NW SE SW Flat Variable All | Steepness, Actual °: ____ 0° 1-5° 5-25° > 25

Topography: Macro: top upper mid lower bottom | Micro: convex flat concave undulating

Geology code: SETU Soil Texture code: FISN | Upland or Wetland/Riparian (circle one)

% Surface cover: (Incl. outcrops) (>60cm diam) (25-60cm) (7.5-25cm) (2mm-7.5cm) (Incl sand, mud)

H20: Ø BA Stems: 85 Litter: 10 Bedrock: ____ Boulder: ____ Stone: ____ Cobble: ____ Gravel: ____ Fines: 5 =100%

% Current year bioturbation 5 Past bioturbation present? Yes / No | % Hoof punch Ø

Fire evidence: Yes / No (circle one) If yes, describe in Site history section, including date of fire, if known.

Site history, stand age, comments: Ranch land / grazing

Disturbance code / Intensity (L,M,H): 04 / L ____ / ____ ____ / ____ ____ / ____ ____ / ____ "Other" ____ / ____

## II. HABITAT AND VEGETATION DESCRIPTION

**Tree DBH :** T1 (<1" dbh), T2 (1-6" dbh), T3 (6-11" dbh), T4 (11-24" dbh), T5 (>24" dbh), T6 multi-layered (T3 or T4 layer under T5, >60% cover)

**Shrub:** S1 seedling (<3 yr. old), S2 young (<1% dead), S3 mature (1-25% dead), S4 decadent (>25% dead)

**Herbaceous:** H1 (<12" plant ht.), H2 (>12" ht.) **Desert Riparian Tree/Shrub:** 1 (<2ft. stem ht.), 2 (2-10ft. ht.), 3 (10-20ft. ht.), 4 (>20ft. ht.)

**Desert Palm/Joshua Tree:** 1 (<1.5" base diameter), 2 (1.5-6" diam.), 3 (>6" diam.) **% NonVasc cover:** Ø **% Vasc Veg cover:** 85

**% Cover -** Conifer tree / Hardwood tree: — / — Regenerating Tree: — Shrub: 1 Herbaceous: 84

**Height Class** - Conifer tree / Hardwood tree: — / — Regenerating Tree: — Shrub: 01 Herbaceous: 01

*Height classes:* 01=<1/2m 02=1/2-1m 03=1-2m 04=2-5m 05=5-10m 06=10-15m 07=15-20m 08=20-35m 09=35-50m 10=>50m

**Species, Stratum, and % cover. Stratum categories:** T=Tree, S = Shrub, H= Herb, E = SEedling, A = SApling, N= Non-vascular.
*% cover intervals for reference*: <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, 75%.

| Strata | Species | % cover | C | Strata | Species | % cover | C |
|---|---|---|---|---|---|---|---|
| H | Bromus diandrus | 35 | | | | | |
| H | Erodium botrys | 29 | | | | | |
| H | Lupinus bicolor | 2 | | | | | |
| H | Bromus hordeaceus | 15 | | | | | |
| S | Croton californicus | <1 | | | | | |
| H | Festuca myuros | <1 | | | | | |
| H | Avena barbata | <1 | | | | | |
| S | Baccharis pilularis | 1 | | | | | |

Unusual species: ____

## III. INTERPRETATION OF STAND

Field-assessed vegetation alliance name: Bromus diandrus grassland

Field-assessed association name (optional): ____

Adjacent alliances/direction: Coast live oak (east) / Coastal scrub (west) / ____

Confidence in alliance identification: L M H Explain: ____

Phenology (E,P,L): Herb P Shrub P Tree Ø Other identification or mapping information:

Is poly >1 type: Yes / No If yes, explain:

## CNPS and CDFG Combined Vegetation Rapid Assessment and Relevé Field Form

RELEVE SPECIES SHEET (Revised 5/13/2011)



**Stratum categories:** T = Tree, S = Shrub, H = Herb, E = SEedling, A = SApling, and N=Non-vascular

**% Cover Intervals for reference:** r = trace, + = <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, >75%

| Strata | Vascular plant name or lichen/bryophyte | % Cover | Collection | Final species determination (or DBH) |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

## Polygon/Stand No. ECC0013 - Annual Brome Grasslands

NORTH

EAST

SOUTH

WEST

# CNPS and CDFG Combined Vegetation Rapid Assessment and Relevé Field Form

**Relevé or Rapid Assessment** (circle one) (Revised May 13, 2011)

| For Office Use: | Final database #: | Final vegetation type name: | Alliance / Association |
|---|---|---|---|
| | | | |

## I. LOCATIONAL/ENVIRONMENTAL DESCRIPTION

| Polygon/Stand #: | Air photo: | Date: | Name(s) of surveyors (circle recorder): |
|---|---|---|---|
| ECC0014 | Aerial 7 | 4/16/13 | C. Santala, K. Wimer J. Adinolfi |

GPS wypt #: 14 GPS name: online Datum: ____ or NAD83. Bearing, left axis at SW pt 350 (degrees) of Long / Short (side)

UTME 120° 17' 21.14" UTMN 34° 49' 39.56" Zone 10 / 11 (circle one) Error: ± n/a ft / m / pdop

GPS within stand? (Yes) / No If No, cite from waypoint to stand, distance ____(meters) & bearing ____(degrees)

Elevation: 790 (ft) / m Camera Name/Photograph #'s: Nikon Coolpix AW100 ; photos 9-12

Stand Size (acres): (<1) / 1-5 / >5 | Plot Size ($m^2$): 10 / 100 / 400 / 1000 | Plot Shape 20 x 20 ft / (m) or Circle Radius ____ ft / m

Exposure, Actual °: 179 NE NW (SE) SW Flat Variable All | Steepness, Actual °: — 0° 1-5° (5-25°) > 25

Topography: Macro: top upper (mid) lower bottom | Micro: convex (flat) concave undulating

Geology code: SETV Soil Texture code: medium coarse sand | (Upland) or Wetland/Riparian (circle one)

% Surface cover: (Incl. outcrops) (>60cm diam) (25-60cm) (7.5-25cm) (2mm-7.5cm) (Incl sand, mud)

H20: Ø BA Stems: 40 Litter: 20 Bedrock: ____ Boulder: 1 Stone: ____ Cobble: 10 Gravel: 10 Fines: 20 =100%

% Current year bioturbation 1 Past bioturbation present? Yes / (No) | % Hoof punch Ø

Fire evidence: Yes / (No) (circle one) If yes, describe in Site history section, including date of fire, if known.

Site history, stand age, comments: Historical grading & access road improvement, Historical field activities

Disturbance code / Intensity (L,M,H): DEV / M ____/____ ____/____ ____/____ ____/____ "Other" ____/____

## II. HABITAT AND VEGETATION DESCRIPTION

Tree DBH : T1 (<1" dbh), T2 (1-6" dbh), T3 (6-11" dbh), T4 (11-24" dbh), T5 (>24" dbh), T6 multi-layered (T3 or T4 layer under T5, >60% cover)

Shrub: S1 seedling (<3 yr. old), (S2) young (<1% dead), (S3) mature (1-25% dead), (S4) decadent (>25% dead)

Herbaceous: (H1) (<12" plant ht.), (H2) (>12" ht.) Desert Riparian Tree/Shrub: 1 (<2ft. stem ht.), 2 (2-10ft. ht.), 3 (10-20ft. ht.), 4 (>20ft. ht.)

Desert Palm/Joshua Tree: 1 (<1.5" base diameter), 2 (1.5-6" diam.), 3 (>6" diam.) % NonVasc cover: <1 % Vasc Veg cover: >99

% Cover - Conifer tree / Hardwood tree: — / — Regenerating Tree: — Shrub: 90 Herbaceous: 10

Height Class - Conifer tree / Hardwood tree: — / — Regenerating Tree: — Shrub: 04 Herbaceous: 02

*Height classes:* 01=<1/2m 02=1/2-1m 03=1-2m 04=2-5m 05=5-10m 06=10-15m 07=15-20m 08=20-35m 09=35-50m 10=>50m

Species, Stratum, and % cover. Stratum categories: T=Tree, S = Shrub, H= Herb, E = SEedling, A = SApling, N= Non-vascular.
*% cover intervals for reference*: <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, 75%.

| Strata | Species | % cover | C | Strata | Species | % cover | C |
|---|---|---|---|---|---|---|---|
| S | Toxicodendron diversilobum | 2 | | S | Salvia mellifera (25) | 25 | |
| S | Encelia Californica | 20 | | S | Baccharis pilularis | 8 | |
| H | Acourtia microcephala | 2 | | S | Artemisia californica | 8 | |
| S | Malacothamnus fasciculatus | 15 | | S | Prickly phlox | 1 | |
| H | Perezia californica | 3 | | H | Cuscuta Californica | <1 | |
| H | Phacelia imbricata | 1 | | S | Eriogonum fasciculatum | 2 | |
| H | Hirschfeldia incana | <1 | | H | Bromus madritensis | <1 | |
| H | Cryptantha cleveland | <1 | | H | Anagallis arvensis | <1 | |
| | | | | H | Ambrosia | <1 | |

Unusual species: ____

## III. INTERPRETATION OF STAND

Field-assessed vegetation alliance name: Salvia mellifera shrubland

Field-assessed association name (optional): —

Adjacent alliances/direction: Coastal live oak woodland (South) Coastal scrub north / (Black Sage)

Confidence in alliance identification: L M (H) Explain: ____

Phenology (E,P,L): Herb P Shrub P Tree Ø Other identification or mapping information:

Is poly >1 type: Yes / (No) If yes, explain:

**CNPS and CDFG Combined Vegetation Rapid Assessment and Relevé Field Form**

RELEVE SPECIES SHEET (Revised 5/13/2011)

Page 2 of Polygon/Stand #: EC0014

**Stratum categories:** T = Tree, S = Shrub, H = Herb, E = SEedling, A = SApling, and N=Non-vascular

**% Cover Intervals for reference:** r = trace, + = <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, >75%

| Strata | Vascular plant name or lichen/bryophyte | % Cover | Collection | Final species determination (or DBH) |
|---|---|---|---|---|
| H | Stipa lepida | <1 | | |
| (DH) | unknown | 1 | ✓ | |
| S | Solanum xanti | 2 | ✓ | |
| H | chlorogalum (pomendian) | 1 | | |
| H | Eukrypta chrysanthemefolia | <1 | | |
| H | Chenopodium californica | <1 | | |
| NV | Sellaginella | <1 | | |
| S | Nicotiana glauca | 2 | | |
| S | Encamena encoides | 2 | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

## Polygon/Stand No. ECC0014 – Black Sage Scrub

North
Photo not available

East
Photo not available

SOUTH

WEST

# CNPS and CDFG Combined Vegetation Rapid Assessment and Relevé Field Form

**Relevé or Rapid Assessment** (circle one) (Revised May 13, 2011)

| For Office Use: | Final database #: | Final vegetation type name: | Alliance / Association |
|---|---|---|---|
| | | | |

## I. LOCATIONAL/ENVIRONMENTAL DESCRIPTION

| Polygon/Stand #: | Air photo: | Date: | Name(s) of surveyors (circle recorder): |
|---|---|---|---|
| ELC0015 | Aerial 3 | 4/16/13 | C. Santala, K. Wimer, J. Adenolff |

**GPS wypt #:** 15 **GPS name:** camera **Datum:** ____ **or NAD83. Bearing, left axis at SW pt** 345 **(degrees) of Long / Short side**

**UTME** 120° 17' 3.299" **UTMN** 34° 50' 21.882" **Zone: 10 / 11** (circle one) **Error: ±** n/a **ft / m / pdop**

**GPS within stand? Yes / No If No, cite from waypoint to stand, distance ____(meters) & bearing ____(degrees)**

**Elevation:** 858 **ft / m Camera Name/Photograph #'s:** Nikon Coolpix AW100, photos 13-16

**Stand Size (acres): <1, 1-5, >5 | Plot Size (m²): 10 / 100 / 400 / 1000 | Plot Shape** 10 **x** 10 **ft / m or Circle Radius ____ ft / m**

**Exposure, Actual °:** 242 **NE NW SE SW Flat Variable All | Steepness, Actual °:** ____ **0° 1-5° 5-25° > 25**

**Topography: Macro: top upper mid lower bottom | Micro: convex flat concave undulating**

**Geology code:** SETU **Soil Texture code:** MESA **| Upland or Wetland/Riparian** (circle one)

**% Surface cover:** (Incl. outcrops) (>60cm diam) (25-60cm) (7.5-25cm) (2mm-7.5cm) (Incl sand, mud)

**H20:** 0 **BA Stems:** 30 **Litter:** 30 **Bedrock:** 1 **Boulder:** ____ **Stone:** ____ **Cobble:** ____ **Gravel:** 9 **Fines:** 30 **=100%**

**% Current year bioturbation** Ø **Past bioturbation present? Yes / No | % Hoof punch** Ø

**Fire evidence: Yes / No** (circle one) If yes, describe in Site history section, including date of fire, if known.

**Site history, stand age, comments:** Ranchland, grazing historical & current w/in abandoned / minimally utilized oilfield

**Disturbance code / Intensity (L,M,H):** 04 / M ____/____ ____/____ ____/____ ____/____ **"Other"** ____ / ____

## II. HABITAT AND VEGETATION DESCRIPTION

**Tree DBH : T1** (<1" dbh), **T2** (1-6" dbh), **T3** (6-11" dbh), **T4** (11-24" dbh), **T5** (>24" dbh), **T6** multi-layered (T3 or T4 layer under T5, >60% cover)

**Shrub: S1** seedling (<3 yr. old), **S2** young (<1% dead), **S3** mature (1-25% dead), **S4** decadent (>25% dead)

**Herbaceous: H1** (<12" plant ht.), **H2** (>12" ht.) **Desert Riparian Tree/Shrub: 1** (<2ft. stem ht.), **2** (2-10ft. ht.), **3** (10-20ft. ht.), **4** (>20ft. ht.)

**Desert Palm/Joshua Tree: 1** (<1.5" base diameter), **2** (1.5-6" diam.), **3** (>6" diam.) **% NonVasc cover:** Ø **% Vasc Veg cover:** 80

**% Cover - Conifer tree / Hardwood tree:** — / — **Regenerating Tree:** — **Shrub:** — **Herbaceous:** 80

**Height Class - Conifer tree / Hardwood tree:** — / — **Regenerating Tree:** — **Shrub:** — **Herbaceous:** 01

*Height classes:* 01=<1/2m 02=1/2-1m 03=1-2m 04=2-5m 05=5-10m 06=10-15m 07=15-20m 08=20-35m 09=35-50m 10=>50m

**Species, Stratum, and % cover. Stratum categories:** T=Tree, S = Shrub, H= Herb, E = SEedling, A = SApling, N= Non-vascular.
*% cover intervals for reference*: <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, 75%.

| Strata | Species | % cover | C | Strata | Species | % cover | C |
|---|---|---|---|---|---|---|---|
| H | Avena barbata | 30 | | H | Fleishfeldia incana | 1 | |
| H | Erodium botrys | 5 | | H | Dichelostema capitatum | <1 | |
| H | Bromus diandrus | 27 | | | | | |
| H | Stipa pulchra | 8 | | | | | |
| H | Bromus hordeaceus | 3 | | | | | |
| H | Bromus madritensis | 3 | | | | | |
| H | Centaurea melitensis | 1 | | | | | |
| H | Medicago polymorpha | 1 | | | | | |

**Unusual species:** —

## III. INTERPRETATION OF STAND

**Field-assessed vegetation alliance name:** Avena barbata grassland

**Field-assessed association name** (optional): ____

**Adjacent alliances/direction:** Coastal scrub (south, west) Coast live oak (east) / ____

**Confidence in alliance identification: L M H Explain:** ____

**Phenology (E,P,L): Herb** D/L **Shrub** — **Tree** — **Other identification or mapping information:**

**Is poly >1 type: Yes / No If yes, explain:**

## CNPS and CDFG Combined Vegetation Rapid Assessment and Relevé Field Form

RELEVE SPECIES SHEET (Revised 5/13/2011)

Page _______ of Polygon/Stand #: ____________

**Stratum categories:** T = Tree, S = Shrub, H = Herb, E = SEedling, A = SApling, and N=Non-vascular

**% Cover Intervals for reference:** r = trace, + = <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, >75%

| Strata | Vascular plant name or lichen/bryophyte | % Cover | Collection | Final species determination (or DBH) |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

## Polygon/Stand No. ECC0015 – Wild Oats Grassland

NORTH

EAST

SOUTH

WEST

# CNPS and CDFG Combined Vegetation Rapid Assessment and Relevé Field Form

Relevé or Rapid Assessment (circle one) (Revised May 13, 2011)

| For Office Use: | Final database #: | Final vegetation type name: | Alliance / Association |
|---|---|---|---|
| | | | |

## I. LOCATIONAL/ENVIRONMENTAL DESCRIPTION

| Polygon/Stand #: | Air photo: | Date: | Name(s) of surveyors (circle recorder): |
|---|---|---|---|
| ECC0016 | Aerial 4 | 4/17/13 | Christina Santala, Kenny Wimer, Jessica Adendorff |

GPS wypt #: 16 GPS name: online Datum: ____ or NAD83. Bearing, left axis at SW pt 25 (degrees) of Long / Short side

UTME 120° 15' 40.96" UTMN 34° 40' 16.96" Zone 10 / 11 (circle one) Error: ± n/a ft / m / pdop

GPS within stand? Yes No If No, cite from waypoint to stand, distance ____(meters) & bearing ____(degrees)

Elevation: 708 ft / m Camera Name/Photograph #'s: Canon Coolpix AW100, Photos 1-4

Stand Size (acres): <1, 1-5, >5 | Plot Size ($m^2$): 10 / 100 / 400 / 1000 | Plot Shape 20 x 20 ft / m or Circle Radius ____ ft / m

Exposure, Actual °: 278 NE NW SE SW Flat Variable All | Steepness, Actual °: ____ 0° 1-5° 5-25° > 25

Topography: Macro: top upper mid lower bottom | Micro: convex flat concave undulating

Geology code: SLTV Soil Texture code: MESN | Upland or Wetland/Riparian (circle one)

% Surface cover: (Incl. outcrops) (>60cm diam) (25-60cm) (7.5-25cm) (2mm-7.5cm) (Incl sand, mud)

H20: Ø BA Stems: 45 Litter: 18 Bedrock: ____ Boulder: ____ Stone: ____ Cobble: ____ Gravel: 12 Fines: 25 =100%

% Current year bioturbation 5 Past bioturbation present? Yes / No | % Hoof punch Ø

Fire evidence: Yes / No (circle one) If yes, describe in Site history section, including date of fire, if known.

Site history, stand age, comments: Relatively undisturbed area w/in oil field property due to steepness & large shrubs

Disturbance code / Intensity (L,M,H): 04 / L ___/___ ___/___ ___/___ ___/___ "Other" ____/___

## II. HABITAT AND VEGETATION DESCRIPTION

Tree DBH : T1 (<1" dbh), T2 (1-6" dbh), T3 (6-11" dbh), T4 (11-24" dbh), T5 (>24" dbh), T6 multi-layered (T3 or T4 layer under T5, >60% cover)

Shrub: S1 seedling (<3 yr. old), S2 young (<1% dead), S3 mature (1-25% dead), S4 decadent (>25% dead)

Herbaceous: H1 (<12" plant ht.), H2 (>12" ht.) Desert Riparian Tree/Shrub: 1 (<2ft. stem ht.), 2 (2-10ft. ht.), 3 (10-20ft. ht.), 4 (>20ft. ht.)

Desert Palm/Joshua Tree: 1 (<1.5" base diameter), 2 (1.5-6" diam.), 3 (>6" diam.) % NonVasc cover: Ø % Vasc Veg cover: 75

% Cover - Conifer tree / Hardwood tree: — / — Regenerating Tree: — Shrub: 55 Herbaceous: 20

Height Class - Conifer tree / Hardwood tree: — / — Regenerating Tree: — Shrub: 03 Herbaceous: 02

*Height classes:* 01=<1/2m 02=1/2-1m 03=1-2m 04=2-5m 05=5-10m 06=10-15m 07=15-20m 08=20-35m 09=35-50m 10=>50m

Species, Stratum, and % cover. Stratum categories: T=Tree, S = Shrub, H= Herb, E = SEedling, A = SApling, N= Non-vascular.
*% cover intervals for reference*: <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, 75%.

| Strata | Species | % cover | C | Strata | Species | % cover | C |
|---|---|---|---|---|---|---|---|
| S | Artemisia californica | 20 | | H | Chorizanthe (rectispina) diffusa | 1 | |
| S | Salvia mellifera | 5 | | H | Centaurea melitensis | <1 | |
| S | Sambucus | 1 | | H | Erodium botrys | 1 | |
| H | Marabilis | 1 | | S | Acmispon glaber | 10 | |
| H | Stipa pulchra | 5 | | H | Erodium cicutarium | 2 | |
| H | Avena barbata | 5 | | H | Hypochaeris glabra | <1 | |
| H | Bromus diandrus | 15 | | H | Bromus madritensis | 1 | |
| H | Bromus hordeaceous | 2 | | H | Cryptantha clevelandii | <1 | |

Unusual species: ____

## III. INTERPRETATION OF STAND

Field-assessed vegetation alliance name: Artemisia Californica shrubland

Field-assessed association name (optional): ____

Adjacent alliances/direction: Grassland (west) / Cal sage / Coyote sage (N, south, east)

Confidence in alliance identification: L M H Explain: ____

Phenology (E,P,L): Herb P/L Shrub P Tree ____ Other identification or mapping information:

Is poly >1 type: Yes / No If yes, explain:

**CNPS and CDFG Combined Vegetation Rapid Assessment and Relevé Field Form**

RELEVE SPECIES SHEET (Revised 5/13/2011)

Page 2 of Polygon/Stand #: ECC0016

**Stratum categories:** T = Tree, S = Shrub, H = Herb, E = SEedling, A = SApling, and N=Non-vascular

**% Cover Intervals for reference:** r = trace, + = <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, >75%

| Strata | Vascular plant name or lichen/bryophyte | % Cover | Collection | Final species determination (or DBH) |
|---|---|---|---|---|
| H | Eschscholzia californica | <1 | | |
| H | Dichelostemma capitatum | <1 | | |
| H | Chenopodium californica | <1 | | |
| H | Amsinkia species | <1 | | |
| H | Lessingia filaginifolia (Plantago) | <1 | | |
| H | Verbena lasiostachys | <1 | | |
| H | Acmispon americ | <1 | | |
| H | Chlorogalum pom | <1 | | |
| H | Heterotheca grandiflora | <1 | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

## Polygon/Stand No. ECC0016 - California Sagebrush Scrub

NORTH

EAST

SOUTH

WEST

# CNPS and CDFG Combined Vegetation Rapid Assessment and Relevé Field Form

**Relevé or Rapid Assessment** (circle one) (Revised May 13, 2011)

| For Office Use: | Final database #: | Final vegetation type name: | Alliance<br>Association |
|---|---|---|---|

## I. LOCATIONAL/ENVIRONMENTAL DESCRIPTION

| Polygon/Stand #: | Air photo: | Date: | Name(s) of surveyors (circle recorder): |
|---|---|---|---|
| ECC0017 | Aerial 7 | 4/17/13 | Chris Sawtelle, Kenny Wimer, Jessica Adinolfi |

**GPS wypt #:** 17 **GPS name:** Camera **Datum:** ____ **or NAD83. Bearing, left axis at SW pt** 325 **(degrees) of Long / Short side**

**UTME** 120° 17' 6.00" **UTMN** 34° 49' 18.83" **Zone: 10 / 11** (circle one) **Error: ±** n/a **ft / m / pdop**

**GPS within stand? Yes / No If No, cite from waypoint to stand, distance ____(meters) & bearing ____(degrees)**

**Elevation:** 718 **ft / m Camera Name/Photograph #'s:** Nikon Coolpix AW100 photos 5-8

**Stand Size (acres): <1, 1-5, >5 | Plot Size ($m^2$): 10 / 100 / 400 / 1000 | Plot Shape** 20 x 20 **ft / m or Circle Radius ____ ft / m**

**Exposure, Actual °:** 119 **NE NW SE SW Flat Variable All | Steepness, Actual °: ____ 0° 1-5° 5-25° > 25**

**Topography: Macro: top upper mid lower bottom | Micro: convex flat concave undulating**

**Geology code:** SETU **Soil Texture code:** COSA **| Upland** *or* **Wetland/Riparian** (circle one)

**% Surface cover:** (Incl. outcrops) (>60cm diam) (25-60cm) (7.5-25cm) (2mm-7.5cm) (Incl sand, mud)

**H20:** 0 **BA Stems:** 40 **Litter:** 25 **Bedrock:** ____ **Boulder:** 1 **Stone:** ____ **Cobble:** 5 **Gravel:** 10 **Fines:** 20 **=100%**

**% Current year bioturbation** 0 **Past bioturbation present? Yes / No | % Hoof punch** 0

**Fire evidence: Yes / No** (circle one) If yes, describe in Site history section, including date of fire, if known.

**Site history, stand age, comments:** Historical oil field activities evident in some bare ground areas (ie hardened oil)

**Disturbance code / Intensity (L,M,H):** 01 / M 20 / L ____/____ ____/____ ____/____ **"Other"** ____/____

## II. HABITAT AND VEGETATION DESCRIPTION

**Tree DBH : T1** (<1" dbh), **T2** (1-6" dbh), **T3** (6-11" dbh), **T4** (11-24" dbh), **T5** (>24" dbh), **T6** multi-layered (T3 or T4 layer under T5, >60% cover)

**Shrub: S1** seedling (<3 yr. old), **S2** young (<1% dead), **S3** mature (1-25% dead), **S4** decadent (>25% dead)

**Herbaceous: H1** (<12" plant ht.), **H2** (>12" ht.) **Desert Riparian Tree/Shrub: 1** (<2ft. stem ht.), **2** (2-10ft. ht.), **3** (10-20ft. ht.), **4** (>20ft. ht.)

**Desert Palm/Joshua Tree: 1** (<1.5" base diameter), **2** (1.5-6" diam.), **3** (>6" diam.) **% NonVasc cover:** 1 **% Vasc Veg cover:** 60

**% Cover - Conifer tree / Hardwood tree:** — / — **Regenerating Tree:** — **Shrub:** 45 **Herbaceous:** 15 (60)

**Height Class - Conifer tree / Hardwood tree:** — / — **Regenerating Tree:** — **Shrub:** 04 **Herbaceous:** 02

*Height classes:* 01=<1/2m 02=1/2-1m 03=1-2m 04=2-5m 05=5-10m 06=10-15m 07=15-20m 08=20-35m 09=35-50m 10=>50m

**Species, Stratum, and % cover. Stratum categories:** T=Tree, S = Shrub, H= Herb, E = SEedling, A = SApling, N= Non-vascular.
*% cover intervals for reference*: <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, 75%.

60

| Strata | Species | % cover | C | Strata | Species | % cover | C |
|---|---|---|---|---|---|---|---|
| S | Baccharis pilularis | 35 | | H | Eukrypta | 1 | |
| S | Artemisia californica | 10 | | H | pterostyrax | <1 | |
| H | Chenopodium cal | 2 | | H | Galium porrigens | <1 | |
| S | Solanum xanti | 4 | | H | Anagallis arvensis | <1 | |
| H | Pseudognaphalium cal | <1 | | H | Crassula conata | <1 | |
| H | Bromus diandrus | <1 | | | | | |
| H | Bromus madritensis | <1 | | | | | |
| H | Amsinckia spectabilis | <1 | | | | | |

**Unusual species:** ____

## III. INTERPRETATION OF STAND

**Field-assessed vegetation alliance name:** Coyote Brush scrub

**Field-assessed association name** (optional): ____

**Adjacent alliances/direction:** Coastal live oak wood (south) Coyote Brush scrub (west, north, east)

**Confidence in alliance identification: L M H Explain:** ____

**Phenology (E,P,L): Herb** P/L **Shrub** E/P/L **Tree** ____ **Other identification or mapping information:**

**Is poly >1 type: Yes / No If yes, explain:**

photos:

**CNPS and CDFG Combined Vegetation Rapid Assessment and Relevé Field Form**

RELEVE SPECIES SHEET (Revised 5/13/2011)

Page _______ of Polygon/Stand #: ____________

**Stratum categories:** T = Tree, S = Shrub, H = Herb, E = SEedling, A = SApling, and N=Non-vascular

**% Cover Intervals for reference:** r = trace, + = <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, >75%

| Strata | Vascular plant name or lichen/bryophyte | % Cover | Collection | Final species determination (or DBH) |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

## Polygon/Stand No. ECC0017 – Coyote Brush Scrub

NORTH

EAST

SOUTH

WEST

# CNPS and CDFG Combined Vegetation Rapid Assessment and Relevé Field Form

**Relevé or Rapid Assessment** (circle one) (Revised May 13, 2011)

| For Office Use: | Final database #: | Final vegetation type name: | Alliance<br>Association |
|---|---|---|---|

## I. LOCATIONAL/ENVIRONMENTAL DESCRIPTION

| Polygon/Stand #: | Air photo: | Date: | Name(s) of surveyors (circle recorder): |
|---|---|---|---|
| ECC0018 | Aerial 7 | 4/18/13 | Chris Santalla, Jessica Adinolfi, Kenny Wimer |

GPS wypt #: 18 GPS name: Camera Datum: ____ or NAD83. Bearing, left axis at SW pt 0 (degrees) of Long / Short side (SW corner by GPS camera)

UTME 34° 49' 46.04" UTMN 120° 16' 40.68" Zone: 10 / 11 (circle one) Error: ±____ ft / m / pdop

GPS within stand? Yes / No If No, cite from waypoint to stand, distance ____(meters) & bearing ____(degrees)

Elevation: 245 ft / m Camera Name/Photograph #'s: Nikon Coolpix AW100, Photos 1-4

Stand Size (acres): <1, 1-5, >5 | Plot Size ($m^2$): 10 / 100 / 400 / 1000 | Plot Shape 10 x 10 ft / m or Circle Radius____ft / m

Exposure, Actual °: 324 NE NW SE SW Flat Variable All | Steepness, Actual °: ____ 0° 1-5° 5-25° > 25

Topography: Macro: top upper mid lower bottom | Micro: convex flat concave undulating

Geology code: SETU Soil Texture code: MELS | Upland *or* Wetland/Riparian (circle one)

% Surface cover: (Incl. outcrops) (>60cm diam) (25-60cm) (7.5-25cm) (2mm-7.5cm) (Incl sand, mud)

H20: Ø BA Stems: 80 Litter: 15 Bedrock: – Boulder: – Stone: – Cobble: – Gravel: – Fines: 5 =100%

% Current year bioturbation Ø Past bioturbation present? Yes / No | % Hoof punch 2%

Fire evidence: Yes / No (circle one) If yes, describe in Site history section, including date of fire, if known.

Site history, stand age, comments: Grazing, wildlife foraging, relatively undisturbed area w/in abandoned oilfield property

Disturbance code / Intensity (L,M,H): 04 / L ____/____ ____/____ ____/____ ____/____ "Other" ____/____

## II. HABITAT AND VEGETATION DESCRIPTION

**Tree DBH:** T1 (<1" dbh), T2 (1-6" dbh), T3 (6-11" dbh), T4 (11-24" dbh), T5 (>24" dbh), T6 multi-layered (T3 or T4 layer under T5, >60% cover)

**Shrub:** S1 seedling (<3 yr. old), S2 young (<1% dead), S3 mature (1-25% dead), S4 decadent (>25% dead)

**Herbaceous:** H1 (<12" plant ht.), H2 (>12" ht.) **Desert Riparian Tree/Shrub:** 1 (<2ft. stem ht.), 2 (2-10ft. ht.), 3 (10-20ft. ht.), 4 (>20ft. ht.)

**Desert Palm/Joshua Tree:** 1 (<1.5" base diameter), 2 (1.5-6" diam.), 3 (>6" diam.) **% NonVasc cover:** Ø **% Vasc Veg cover:** 90

**% Cover** - Conifer tree / Hardwood tree: – / <1 Regenerating Tree: 1 Shrub: 7 Herbaceous: 83

**Height Class** - Conifer tree / Hardwood tree: – / 01 Regenerating Tree: 01 Shrub: 04 Herbaceous: 02

*Height classes:* 01=<1/2m 02=1/2-1m 03=1-2m 04=2-5m 05=5-10m 06=10-15m 07=15-20m 08=20-35m 09=35-50m 10=>50m

**Species, Stratum, and % cover. Stratum categories:** T=Tree, S = Shrub, H= Herb, E = SEedling, A = SApling, N= Non-vascular.
*% cover intervals for reference*: <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, 75%.

| Strata | Species | % cover | C | Strata | Species | % cover | C |
|---|---|---|---|---|---|---|---|
| S | Baccharis pilularis | 5 | | H | Lupinus truncatus | 1 | |
| S | Artemisia californica | 2 | | H | Verbena lasiostachy | 2 | |
| T | Quercus agrifolia | 1 | | H | Medicago polymorpha | 3 | |
| H | Juncus patens | 20 | | H | Melilotus indica | <1 | |
| H | Bromus hordaceus | 14 | | H | Geranium dissectum | 4 | |
| H | Bromus diandrus | 14 | | H | Cardaus pycno | 1 | |
| H | Erodium botrys | 2 | | H | Pseudognaphalium canescens | <1 | |
| H | Lupinus bicolor | 5 | | H | Juncus bufonius | 2 | |

Unusual species: ____

## III. INTERPRETATION OF STAND

Field-assessed vegetation alliance name: Juncus patens provisional

Field-assessed association name (optional): ____

Adjacent alliances/direction: Oak woodland (West), Black sage scrub (East, South, North)

Confidence in alliance identification: L M H Explain: ____

Phenology (E,P,L): Herb P Shrub P Tree E Other identification or mapping information:

Is poly >1 type: Yes / No If yes, explain:

**CNPS and CDFG Combined Vegetation Rapid Assessment and Relevé Field Form**
RELEVE SPECIES SHEET (Revised 5/13/2011)

Page 2 of Polygon/Stand #: ECC0018

**Stratum categories:** T = Tree, S = Shrub, H = Herb, E = SEedling, A = SApling, and N=Non-vascular
**% Cover Intervals for reference:** r = trace, + = <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, >75%

| Strata | Vascular plant name or lichen/bryophyte | % Cover | Collection | Final species determination (or DBH) |
|---|---|---|---|---|
| H | Stachys bullata | <1 | | |
| H | Hypochaeris glabra | <1 | | |
| H | Pseudognaphalium luteoalbum | <1 | | |
| H | Festuca myuros | 10 | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

## Polygon/Stand No. ECC0018 - Western Rush Marsh

NORTH

EAST

SOUTH

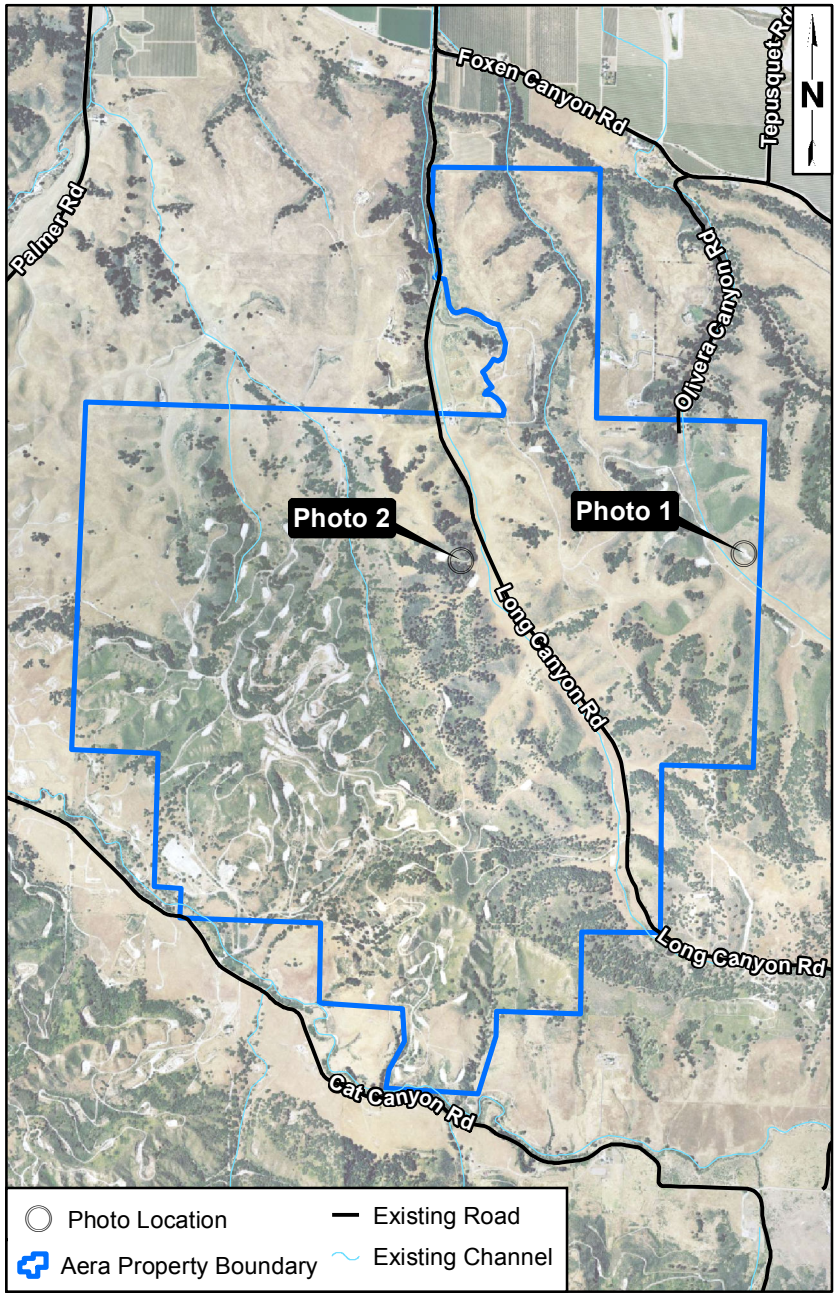
WEST

# APPENDIX I

## SITE PHOTOGRAPHS

**Photo 1**
**Latitude:** 34.837336
**Longitude:** -120.260489
**Date:** 4/15/2013
**Description:** Abandoned Well Pad with Mininal Vegetation

**Photo 2**
**Latitude:** 34.836764
**Longitude:** -120.275247
**Date:** 1/15/2013
**Description:** January Scrub




0 0.5 1 MILES

*Source: County of Santa Barbara, Central Coast Aerial Mapping 2011*
*Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet*
*Notes: This map was created for informational and display purposes only.*

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: AERA - EAST CAT CANYON SANTA BARBARA COUNTY, CA
PROJECT NUMBER: 1002-0455
DATE: August 2013

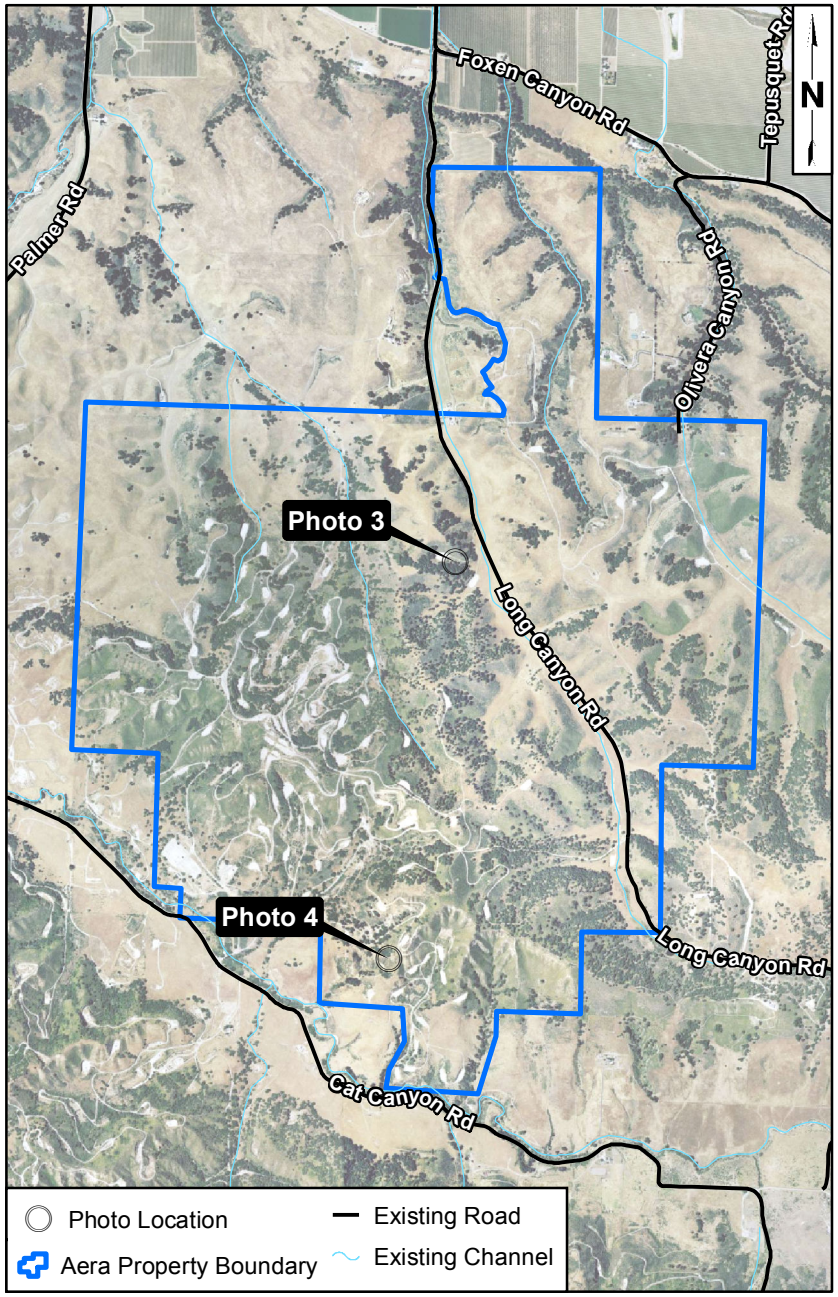
# APPENDIX A: SITE PHOTOGRAPHS

PLATE 1

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Photo Plate 1.mxd

**Photo 3**
**Latitude:** 34.836653
**Longitude:** -120.275519
**Date:** 1/15/2013
**Description:** Oak woodland

**Photo 4**
**Latitude:** 34.819533
**Longitude:** -120.278542
**Date:** 4/15/2013
**Description:** Rocky bluff area




0 0.5 1 MILES

*Source: County of Santa Barbara, Central Coast Aerial Mapping 2011*
*Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet*
*Notes: This map was created for informational and display purposes only.*

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: AERA - EAST CAT CANYON SANTA BARBARA COUNTY, CA
PROJECT NUMBER: 1002-0455
DATE: August 2013

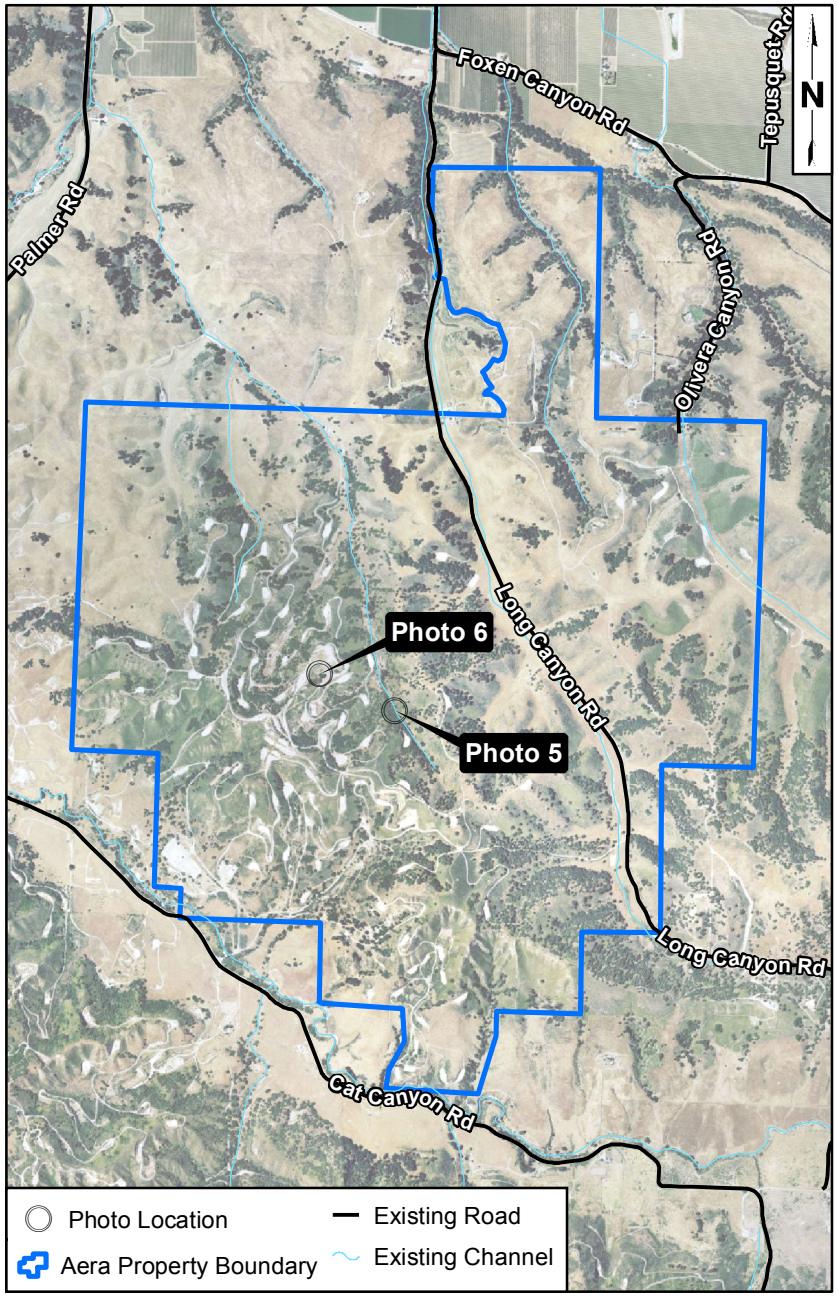
# APPENDIX A: SITE PHOTOGRAPHS

PLATE 2

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Photo Plate 2.mxd

**Photo 5**
**Latitude:** 34.830222
**Longitude:** -120.278542
**Date:** 4/15/2013
**Description:** Meadow

**Photo 6**
**Latitude:** 34.831714
**Longitude:** -120.282467
**Date:** 1/15/2013
**Description:** Ponded water-on well pad




0 0.5 1 MILES

*Source: County of Santa Barbara, Central Coast Aerial Mapping 2011*
*Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet*
*Notes: This map was created for informational and display purposes only.*

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: AERA - EAST CAT CANYON SANTA BARBARA COUNTY, CA
PROJECT NUMBER: 1002-0455
DATE: August 2013

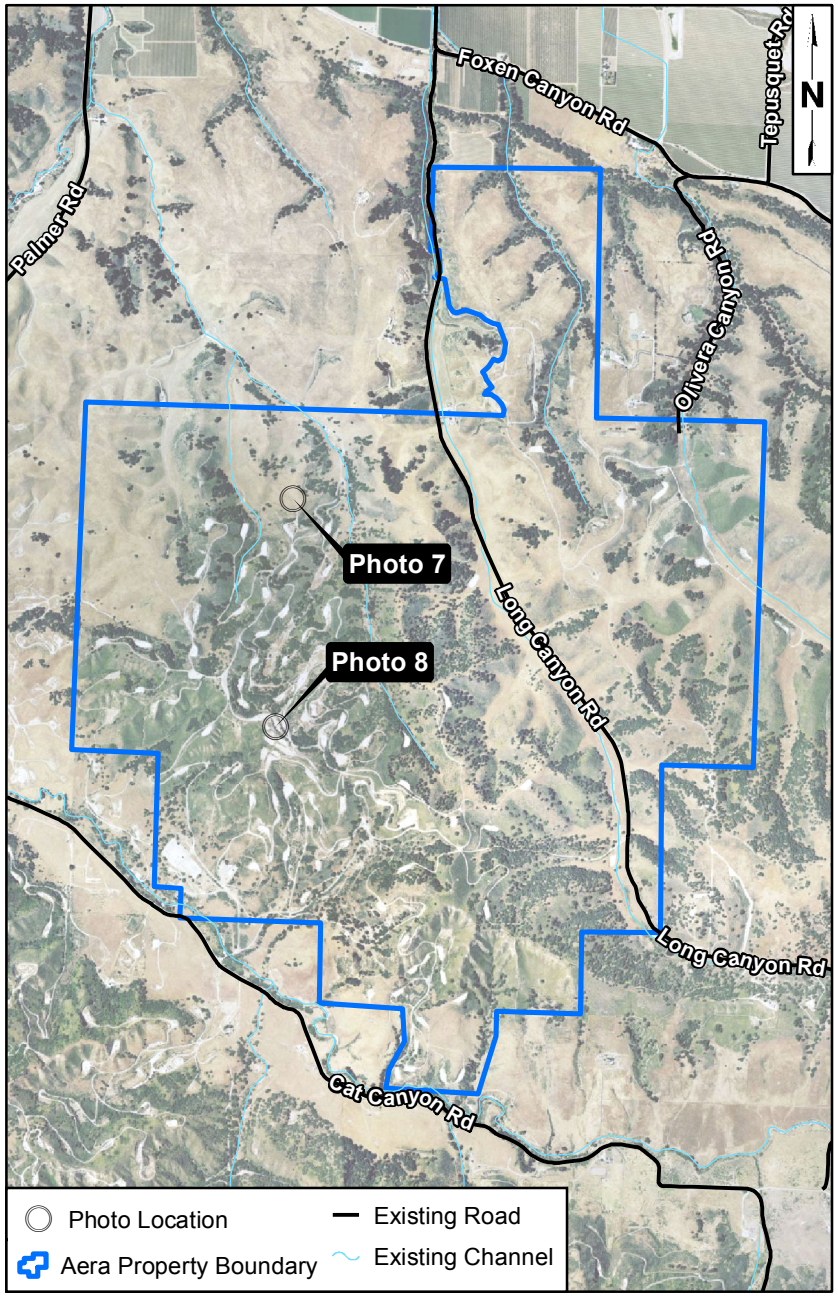
APPENDIX A: SITE PHOTOGRAPHS

PLATE 3

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Photo Plate 3.mxd

**Photo 7**
**Latitude:** 34.839236
**Longitude:** -120.284089
**Date:** 4/15/2013
**Description:** Grassland

**Photo 8**
**Latitude:** 34.829403
**Longitude:** -120.284717
**Date:** 1/15/2013
**Description:** Ponded water-on well pad




0 0.5 1 MILES

*Source: County of Santa Barbara, Central Coast Aerial Mapping 2011*
*Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet*
*Notes: This map was created for informational and display purposes only.*

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: AERA - EAST CAT CANYON SANTA BARBARA COUNTY, CA
PROJECT NUMBER: 1002-0455
DATE: August 2013

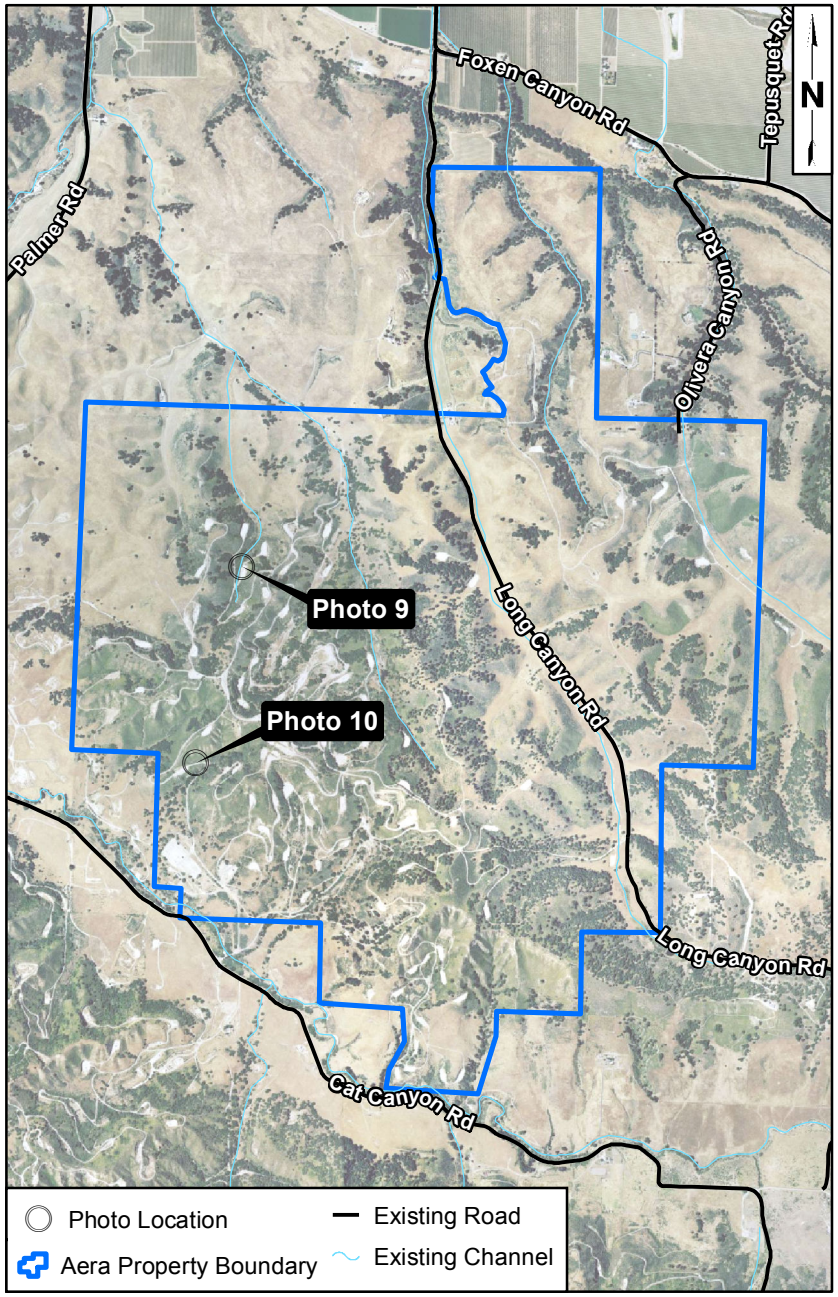
# APPENDIX A: SITE PHOTOGRAPHS

PLATE 4

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Photo Plate 4.mxd

**Photo 9**
**Latitude:** 34.836253
**Longitude:** -120.286678
**Date:** 4/15/2013
**Description:** Grassland/ Scrub/Oak/Pad

**Photo 10**
**Latitude:** 34.827758
**Longitude:** -120.288844
**Date:** 4/15/2013
**Description:** Scrub view with roads




0 0.5 1 MILES

*Source: County of Santa Barbara, Central Coast Aerial Mapping 2011*
*Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet*
*Notes: This map was created for informational and display purposes only.*

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: AERA - EAST CAT CANYON SANTA BARBARA COUNTY, CA
PROJECT NUMBER: 1002-0455
DATE: August 2013

APPENDIX A: SITE PHOTOGRAPHS

PLATE 5

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Photo Plate 5.mxd

# APPENDIX J

## VASCULAR PLANT INVENTORY

## VASCULAR PLANT SPECIES LIST OBSERVED WITHIN THE BSA

| Scientific Name | Common Name | Habit | Wetland Indicator Status | Family |
|---|---|---|---|---|
| *Acmispon americanus* [*Lotus purshianus*] | Spanish lotus | AH | . | Fabaceae |
| *Acmispon glaber* [*Lotus scoparius*] | Deerweed/California broom | PH | . | Fabaceae |
| *Acmispon strigosus* | Strigose lotus | AH | . | Fabaceae |
| *Acourtia microcephala* | Sacapellote | PH | . | Asteraceae |
| *Adenostoma fasciculatum* | Chamise | S/T | . | Rosaceae |
| *Adiantum jordanii* | California maidenhair | F | FAC | Pteridaceae |
| *Agrostis hooveri* | Hoover's bent grass | PG | . | Poaceae |
| *Amsinckia intermedia* | Common fiddleneck | AH | . | Boraginaceae |
| *Amsinckia spectablis* | Fiddleneck | AH | FACU | Boraginaceae |
| *Anagallis arvensis** | Scarlet pimpernel | BH | FAC | Myrsinaceae |
| *Anagallis monelli** | Flaxleaf pimpernel | PH | . | Myrsinaceae |
| *Anthriscus caucalis** | Bur-chervil | AH | . | Apiaceae |
| *Artemisia californica* | California sagebrush | S | . | Asteraceae |
| *Artemisia douglasiana* | California mugwort | PH | FAC | Asteraceae |
| *Artemisia dracunculus* | Wild tarragon | PH | . | Asteraceae |
| *Athysanus pusillus* | Athysanus | AH | . | Brassicaceae |
| *Avena barbata** | Slender wildoat | AG | . | Poaceae |
| *Baccharis pilularis* | Coyote brush | S | . | Asteraceae |
| *Baccharis salicifolia* ssp. *salicifolia* | Mule fat | S | FAC | Asteraceae |
| *Bloomeria crocea* | Common goldenstar | PH | . | Themidaceae |
| *Brassica nigra** | Black mustard | AH | . | Brassicaceae |
| *Brassica rapa** | Field mustard | AH | FACU | Brassicaceae |
| *Bromus carinatus* | California brome | PG | . | Poaceae |
| *Bromus diandrus** | Ripgut grass | AG | . | Poaceae |
| *Bromus hordeaceus** | Soft chess brome | AG | FACU | Poaceae |
| *Bromus madritensis* ssp. *rubens** | Red brome | AG | . | Poaceae |
| *Calystegia macrostegia* | Morning glory | PH,V | . | Convolvulaceae |
| *Calystegia occidentalis* | Western morning glory | PH | . | Convolvulaceae |
| *Camissonia strigulosa* | Contorted primrose | AH | . | Onagraceae |
| *Camissoniopsis micrantha [Camissonia micrantha]* | Miniature suncup | AH | . | Onagraceae |
| *Carduus pycnocephalus** | Italian thistle | AH | . | Asteraceae |
| *Castilleja exserta* | Purple owl's clover | AH | . | Orobanchaceae |
| *Castilleja foliolosa* | Woolly paintbrush | PH | . | Orobanchaceae |
| *Centaurea melitensis** | Tocalote | A/BH | . | Asteraceae |
| *Cerastium glomeratum** | Sticky mouse-ear chickweed | AH | UPL | Caryophyllaceae |
| *Cercocarpus betuloides* | Mountain mahogony | S | . | Rosaceae |
| *Chenopodium californicum* | California goosefoot | PH | . | Chenopodiaceae |
| *Chlorogalum pomeridianum* | Soap plant | PH | . | Liliaceae |
| *Chorizanthe angustifolia* | Narrow leaf spineflower | AH | . | Polygonaceae |
| *Chorizanthe rectispina* | Straight-awned spineflower | AH | . | Polygonaceae |

| Scientific Name | Common Name | Habit | Wetland Indicator Status | Family |
|---|---|---|---|---|
| *Cirsium occidentale* var. *californicum* | California thistle | BH | . | Asteraceae |
| *Cirsium vulgare** | Bull thistle | PH | FACU | Asteraceae |
| *Clarkia purpurea* ssp. *quadrivulnera* | Winecup clarkia | AH | . | Onagraceae |
| *Clarkia speciosa* ssp. *immaculata* | Pismo clarkia | AH | . | Onagraceae |
| *Claytonia perfoliata* | Miner's lettuce | AH | FAC | Montiaceae [Portulacaceae] |
| *Collinsia heterophylla* | Chinese houses | AH | . | Plantaginaceae |
| *Conium maculatum** | Poison hemlock | PH | FACW | Apiaceae |
| *Conyza canadensis* | Horseweed | AH | FACU | Asteraceae |
| *Corethrogyne filaginifolia* [*Lessingia filaginifolia*] | California aster | P/S | . | Asteraceae |
| *Cortaderia jubata** | Pampas grass | PG | FACU | Poaceae |
| *Cotula coronopifolia* | Brass buttons | PH | OBL | Asteraceae |
| *Crassula connata* | Pygmy-weed | AH | FAC | Crassulaceae |
| *Crassula tillaea** | Mediterranean pygmy weed | AH | FACU | Crassulaceae |
| *Croton californicus* | California croton | PH | . | Euphorbiaceae |
| *Croton setigerus* [*Eremocarpus setigerus*] | Turkey mullein | A/PH | . | Euphorbiaceae |
| *Cryptantha clevlandii* | Cleveland's cryptantha | AH | . | Boraginaceae |
| *Cuscuta californica* | Dodder | AV | . | Convolvulaceae [Cuscutaceae] |
| *Cynodon dactylon** | Bermuda grass | PG | FAC | Poaceae |
| *Deinandra paniculata* [*Hemizonia paniculata*] | Tarweed | AH | . | Asteraceae |
| *Dichelostemma capitatum* | Bluedicks | PH | FAC | Themidaceae |
| *Distichlis spicata* | Saltgrass | PG | FACW | Poaceae |
| *Dodecatheon clevelandii* | Shootingstar | PH | . | Primulaceae |
| *Drymocallis glandulosa* | Sticky cinquefoil | PH | FAC | Rosaceae |
| *Dudleya* lanceolata | Dudleya | PH | . | Crassulaceae |
| *Ehrharta calycina** | Veldt grass | PG | . | Poaceae |
| *Eleocharis parishii* | Parish's spikerush | PH | FACW | Cyperaceae |
| *Elymus condensatus* [*Leymus condensatus*] | Giant wild rye | PG | FACU | Poaceae |
| *Elymus triticoides* [*Leymus triticoides*] | Beardless wild rye | PG | FAC | Poaceae |
| *Encelia californica* | California brittlebush | S | . | Asteraceae |
| *Epilobium canum* | California fuchsia | PH | . | Onagraceae |
| *Ericameria ericoides* | Mock heather | S | . | Asteraceae |
| *Eriogonum elongatum* var. *elongatum* | Long-stemmed buckwheat | PH | . | Polygonaceae |
| *Eriogonum fasciculatum* | California buckwheat | S | . | Polygonaceae |
| *Eriophyllum confertiflorum* | Golden yarrow | S | . | Asteraceae |
| *Eriophyllum pringlei* | Pringle's woolly sunflower | AH | . | Asteraceae |
| *Erysimum* capitatum | wallflower | PH | . | Brassicaceae |
| *Erodium botrys** | Storksbill, filaree | AH | . | Geraniaceae |
| *Erodium cicutarium** | Red-stemmed filaree | AH | . | Geraniaceae |
| *Eucalyptus globulus** | Blue gum | T | . | Myrtaceae |
| *Eucrypta chrysanthemifolia* | Eucrypta | AH | . | Boraginaceae [Hydrophyllaceae] |
| *Festuca microstachys* | Small fescue | AG | . | Poaceae |
| *Festuca myuros** | Rattail sixweeks grass | AG | FACU | Poaceae |
| *Festuca octoflora* | Sixweeks grass | AG | UPL | Poaceae |
| *Festuca perennis* [ Lolium perenne ssp. multiflorum]* | Italian ryegrass | A/BG | FAC | Poaceae |
| *Frangula californica* [*Rhamnus californica*] | California coffeeberry | S | . | Rhamnaceae |

| Scientific Name | Common Name | Habit | Wetland Indicator Status | Family |
|---|---|---|---|---|
| *Galium aparine* | Goose grass | AH | FACU | Rubiaceae |
| *Galium californicum* | California bedstraw | PH | . | Rubiaceae |
| *Galium porrigens* | Climbing bedstraw | PH | . | Rubiaceae |
| *Geranium dissectum** | Cutleaf geranium | AH | . | Geraniaceae |
| *Geranium molle** | Geranium | AH | . | Geraniaceae |
| *Gnaphalium* sp. | Everlasting | AH | . | Asteraceae |
| *Grindelia* sp. | Gumplant | PH | . | Asteraceae |
| *Hazardia squarrosa* | Sawtooth goldenbush | S | . | Asteraceae |
| *Helminthotheca echioides** [*Picris echioides*] | Bristly ox-tongue | A/BH | FACU | Asteraceae |
| *Heteromeles arbutifolia* | Toyon | S | . | Rosaceae |
| *Heterotheca grandiflora* | Telegraph weed | AH | . | Asteraceae |
| *Hirschfeldia incana** | Shortpod mustard | A/BH | . | Brassicaceae |
| *Hordeum murinum* ssp. *leporinum** | Foxtail barley | AG | . | Poaceae |
| *Horkelia cuneata* var. *cuneata* | Wedge leaved horkelia | PH | . | Rosaceae |
| *Horkelia* sp. | Horkelia | PH | | Rosaceae |
| *Hypochaeris glabra** | Smooth cat's ear | AH | . | Asteraceae |
| *Isocoma menziesii* | Menzies' goldenbush | S | FAC | Asteraceae |
| *Jaumea carnosa* | Marsh Jaumea | PH | OBL | Asteraceae |
| *Juncus bufonius* | Toad rush | AH | FACW | Juncaceae |
| *Juncus mexicanus* | Mexican rush | PH | FACW | Juncaceae |
| *Juncus patens* | Spreading rush | PH | FACW | Juncaceae |
| *Koelaria phleoides** | Annual junegrass | AG | . | Poaceae |
| *Lamarckia aurea** | Goldentop grass | AG | . | Poaceae |
| *Lastarriaea coriacea* | Leather-spineflower | AH | . | Polygonaceae |
| *Linanthus californicus* [*Leptodactylon californicum*] | Prickly phlox | P/S | . | Polemoniaceae |
| *Logfia filaginoides [Filago californica]* | California cottonrose | AH | . | Asteraceae |
| *Lomatium caruifolium* | Caraway leaved lomatium | PH | FACW | Apiaceae |
| *Lupinus albifrons* | Silver lupine | S | . | Fabaceae |
| *Lupinus benthamii* | Spider lupine | AH | . | Fabaceae |
| *Lupinus bicolor* | Bicolor lupine | AH | . | Fabaceae |
| *Lupinus chamissonis* | Dune lupine | S | . | Fabaceae |
| *Lupinus nanus* | Lupine | AH | . | Fabaceae |
| *Lupinus truncatus* | Truncate leaf lupine | AH | . | Fabaceae |
| *Malacothamnus fasciculatus* | Chaparral mallow | S | . | Malvaceae |
| *Malva parviflora** | Cheeseweed | AH | . | Malvaceae |
| *Marah fabacea* | California manroot | PH,V | . | Cucurbitaceae |
| *Marrubium vulgare** | Horehound | PH | FAC | Lamiaceae |
| *Matricaria discoidea** | Pineapple weed | AH | FACU | Asteraceae |
| *Medicago polymorpha** | Bur clover | AH | . | Fabaceae |
| *Melica californica* | California melic | PG | . | Poaceae |
| *Melica imperfecta* | Little California melica | PG | . | Poaceae |
| *Melilotus indicus** | Yellow sweet clover | AH | FACU | Fabaceae |
| *Mimulus aurantiacus* | Sticky monkeyflower | S | . | Phrymaceae [Scrophulariaceae] |
| *Mirabilis laevis* var. *crassifolia* | Wishbone bush | PH | . | Nyctaginaceae |
| *Nicotiana glauca** | Tobacco tree | S/T | FAC | Solanaceae |
| *Opuntia* sp. | Prickly pear | P/S | . | Cactaceae |

| Scientific Name | Common Name | Habit | Wetland Indicator Status | Family |
|---|---|---|---|---|
| *Paeonia californica* | California peony | PH | . | Paeoniaceae |
| *Pectocarya* sp. | Combseed | AH | . | Boraginaceae |
| *Pellaea andromedifolia* | Coffee fern | F | . | Pteridaceae |
| *Pentagramma triangularis* | Goldback fern | F | . | Pteridaceae |
| *Phacelia imbricata* ssp. *imbricata* | Imbricate phacelia | PH | . | Boraginaceae |
| *Phacelia ramosissima* | Branching phacelia | PH | FACU | Boraginaceae |
| *Phacelia* sp. | Phacelia | PH | | Boraginaceae |
| *Pholistoma auritum* | Fiestaflower | AH | . | Boraginaceae |
| *Phoradendron serotinum* | Mistletoe | S | . | Viscaceae |
| *Pinus coulteri* | Coulter pine | T | . | Pinaceae |
| *Piptatherum miliaceum** | Smilo grass | PG | . | Poaceae |
| *Plagiobothrys canescens* var. *canescens* | Valley popcornflower | AH | . | Boraginaceae |
| *Plagiobothrys nothofulvus* | Rusty popcornflower | AH | FAC | Boraginaceae |
| *Poa annua** | Annual bluegrass | A/BH | FACU | Poaceae |
| *Poa secunda* | Bluegrass | PG | FACU | Poaceae |
| *Polypogon monspeliensis** | Annual rabbitsfoot grass | AG | FACW | Poaceae |
| *Pteridium aquilinum* | Bracken fern | PF | FACU | Dennstaedtiaceae |
| *Pterostegia drymarioides* | Woodland threadstem | AH | . | Polygonaceae |
| *Pseudognaphalium californicum [Gnaphalium californicum]* | California everlasting | A/PH | . | Asteraceae |
| *Pseudognaphalium luteoalbum** | Jersey cudweed | AH | FAC | Asteraceae |
| *Quercus agrifolia* | Coast live oak | T | . | Fagaceae |
| *Ranunculus californicus* | California buttercup | PH | FACU | Ranunculaceae |
| *Salix laevigata* | Red willow | S | FACW | Salicaceae |
| *Salix lasiolepis* | Arroyo willow | S | FACW | Salicaceae |
| *Salvia columbariae* | Chia | AH | . | Lamiaceae |
| *Salvia mellifera* | Black sage | S | . | Lamiaceae |
| *Salvia spathacea* | California hummingbird sage | PH | . | Lamiaceae |
| *Sambucus nigra* ssp. caerulea [*Sambucus mexicana*] | Blue elderberry | S | FAC | Adoxaceae [Caprifoliaceae] |
| *Sanicula arguta* | Sharp toothed sanicle | PH | . | Apiaceae |
| *Sanicula crassicaulis* | Pacific sanicle | PH | . | Apiaceae |
| *Sanicula* sp. | snakeroot | PH | | Apiaceae |
| *Schinus molle** | Pepper tree | T | . | Anacardiaceae |
| *Scrophularia californica* | California bee plant | PH | FAC | Scrophulariaceae |
| *Senecio vulgaris** | Common groundsel | AH | FACU | Asteraceae |
| *Silene gallica** | Windmill pink | | . | Caryophyllaceae |
| *Silybum marianum** | Milk thistle | AH | . | Asteraceae |
| *Solanum douglasii* | Douglas' nightshade | P/S | FAC | Solanaceae |
| *Solanum xanti* | Chaparral nightshade | P S/H | . | Solanaceae |
| *Sonchus oleraceous** | Common sowthistle | AH | . | Asteraceae |
| *Spergularia rubra** | Red sand spurry | A/PH | FAC | Caryophyllaceae |
| *Stachys bullata* | Woodmint | PH | . | Lamiaceae |
| *Stellaria media** | Common chickweed | AH | FACU | Caryophyllaceae |
| *Stipa lepida* | Foothill needlegrass | PG | . | Poaceae |
| *Stipa pulchra* | Purple needle grass | PG | . | Poaceae |
| *Stylocline gnaphaloides* | Everlasting neststraw | AH | . | Asteraceae |
| *Tamarix* sp.* | Tamarisk | S | FAC/FACW | Tamaricaceae |

| Scientific Name | Common Name | Habit | Wetland Indicator Status | Family |
|---|---|---|---|---|
| *Torilis arvensis** | Tall sock-destroyer | AH | . | Apiaceae |
| *Toxicodendron diversilobum* | Western poison oak | S | . | Anacardiaceae |
| *Trifolium ciliolatum* | Foothill clover | AH | . | Fabaceae |
| *Trifolium microcephalum* | Small-head clover | AH | FAC | Fabaceae |
| *Trifolium willdenovii* | Tomcat clover | AH | FACW | Fabaceae |
| *Trifolium* sp. | Clover | AH | . | Fabaceae |
| *Uropappus lindleyi* | Silverpuffs | AH | . | Asteraceae |
| *Venegasia carpesioides* | Canyon sunflower | S | . | Asteraceae |
| *Verbena lasiostachys* | Western vervain | PH | . | Verbenaceae |
| *Vicia benghalensis** | Purple vetch | AH,V | . | Fabaceae |
| *Vicia* sp. | Vetch | AH | . | Fabaceae |
| *Viola pedunculata* | Johny jump up | PH | . | Violaceae |
| *Xanthium spinosum** | Spiny cocklebur | AH | FACU | Asteraceae |
| *Xanthium strumarium* | Cocklebur | AH | FAC | Asteraceae |

Notes: Scientific nomenclature follows Second Edition of the Jepson Manual (Baldwin, et.al., 2012)
"*" indicates non-native species which have become naturalized or persist without cultivation.

Habit definitions:

| | | |
|---|---|---|
| AF = annual fern or fern ally | AV = annual vine | S = shrub |
| AG = annual grass | PG = perennial grass | T = tree |
| AH = annual herb | PH = perennial herb | |
| BH = biennial herb | PF = perennial fern or fern ally | |

Wetland indicator status California - Arid West Region, U.S. Army Corps of Engineers (CRREL 2012):
OBL = obligate wetland species, occurs almost always in wetlands (>99% probability)
FACW = facultative wetland species, usually found in wetlands (67-99% probability).
FAC = facultative species, equally likely to occur in wetlands or non-wetlands (34-66% probability).
FACU = facultative upland species, usually occur in nonwetlands (1-33% probability).
UPL = upland species, almost always occurs in non-wetlands in the region specified (<1% probability).
A period (.) indicates that no wetland indicator status has been given.

# APPENDIX K

## CNDDB COMPLETED FORMS

Mail to:
*California Natural Diversity Database*
*California Dept. of Fish & Wildlife*
*1807 13th Street, Suite 202*
*Sacramento, CA 95811*
*Fax: (916) 324-0475 email: CNDDB@wildlife.ca.gov*

**Date of Field Work (mm/dd/yyyy):** 05/12/2014

*For Office Use Only*

Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

# California Native Species Field Survey Form

Send Form

**Scientific Name:** *Chorizanthe rectispina*

**Common Name:** Straight-awned Spineflower

**Species Found?** ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 30-100 Subsequent Visit? ☑ yes ☐ no

**Is this an existing NDDB occurrence?** _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

**Reporter:** Padre Associates, Inc.
**Address:** 369 Pacific St.
San Luis Obispo
**E-mail Address:** csantala@padreinc.com
**Phone:** (805) 786-2650

***Plant Information***

Phenology: _____% vegetative 100 % flowering _____% fruiting

***Animal Information***

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ wintering ☐ breeding ☐ nesting ☐ rookery ☐ burrow site ☐ other

***Location Description*** ***(please attach map AND/OR fill out your choice of coordinates, below)***

East Cat Canyon Oil Field, occurring throughout the property.

County: Santa Barbara Landowner / Mgr.: Aera Energy LLC
Quad Name: Sisquoc Elevation: 720ft
T 09N R 32W Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☑ Source of Coordinates (GPS, topo. map & type): GPS
T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model Trimble GeoXT
**DATUM:** **NAD27** ☐ **NAD83** ☑ **WGS84** ☐ Horizontal Accuracy _____ meters/feet
**Coordinate System:** UTM Zone 10 ☐ UTM Zone 11 ☐ ***OR*** Geographic (Latitude & Longitude) ☑
**Coordinates:**

***Habitat Description (plants & animals)*** *plant communities, dominants, associates, substrates/soils, aspects/slope:*
***Animal Behavior*** *(Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):*

Coastal scrub habitat on ridge lines, intermittent canopy, rocky soils, rocky outcrops.

Please fill out separate form for other rare taxa seen at this site.

***Site Information*** Overall site/occurrence quality/viability (site + population): ☐ Excellent ☐ Good ☑ Fair ☐ Poor

Immediate AND surrounding land use: Ranching, historical oil field

Visible disturbances: Un-paved access road, graziing

Threats: Future oil field development

Comments:

***Determination:*** *(check one or more, and fill in blanks)*

☑ Keyed (cite reference): TJM2
☐ Compared with specimen housed at: _____
☑ Compared with photo / drawing in: TJM2, Calflora
☑ By another person (name): Amy Golub, Shannon Gonzalez
☐ Other: _____

***Photographs:*** *(check one or more)*

| | Slide | Print | Digital |
|---|---|---|---|
| Plant / animal | ☐ | ☐ | ☑ |
| Habitat | ☐ | ☐ | ☑ |
| Diagnostic feature | ☐ | ☐ | ☐ |

May we obtain duplicates at our expense? yes ☑ no ☐

Mail to:
*California Natural Diversity Database*
*California Dept. of Fish & Wildlife*
*1807 13th Street, Suite 202*
*Sacramento, CA 95811*
*Fax: (916) 324-0475 email: CNDDB@wildlife.ca.gov*

**Date of Field Work (mm/dd/yyyy):** 04/15/2013

*For Office Use Only*

Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

# California Native Species Field Survey Form

Send Form

**Scientific Name:** *Phrynosoma blainvillii*

**Common Name:** Coast horned lizard

**Species Found?** ☑ Yes ☐ No _____ If not, why?

Total No. Individuals multiple Subsequent Visit? ☑ yes ☐ no

**Is this an existing NDDB occurrence?** _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

**Reporter:** Padre Associates, Inc.
**Address:** 369 Pacific Street
San Luis Obispo, California 93401
**E-mail Address:** tbenson@padreinc.com
**Phone:** (805) 786-2650

***Plant Information***

Phenology: _____% vegetative _____% flowering _____% fruiting

***Animal Information***

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ wintering ☐ breeding ☐ nesting ☐ rookery ☑ burrow site ☐ other

***Location Description*** ***(please attach map AND/OR fill out your choice of coordinates, below)***

East Cat Canyon Oil Field. Several individuals occurring throughout property.

County: Santa Barbara Landowner / Mgr.: Aera Energy LLC
Quad Name: Sisquoc Elevation: 950ft
T 9N R 32W Sec 31, NE ¼ of NE ¼, Meridian: H☐ M☐ S☑ Source of Coordinates (GPS, topo. map & type): GPS
T____ R____ Sec ____, ____ ¼ of ____ ¼, Meridian: H☐ M☐ S☐ GPS Make & Model Trimble GeoXT
**DATUM:** **NAD27** ☐ **NAD83** ☐ **WGS84** ☐ Horizontal Accuracy _____ meters/feet
**Coordinate System:** UTM Zone 10 ☐ UTM Zone 11 ☐ ***OR*** Geographic (Latitude & Longitude) ☑
**Coordinates:**

***Habitat Description (plants & animals)*** *plant communities, dominants, associates, substrates/soils, aspects/slope:*
***Animal Behavior*** *(Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):*

Foraging in sandy areas with scrub.

Please fill out separate form for other rare taxa seen at this site.

***Site Information*** Overall site/occurrence quality/viability (site + population): ☐ Excellent ☑ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: oil field activities

Visible disturbances: Oil Field

Threats: Future oil field development

Comments:

***Determination:*** *(check one or more, and fill in blanks)*

☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☑ By another person (name): Thea Besnon
☐ Other: _____

***Photographs:*** *(check one or more)*

| | Slide | Print | Digital |
|---|---|---|---|
| Plant / animal | ☐ | ☐ | ☐ |
| Habitat | ☐ | ☐ | ☑ |
| Diagnostic feature | ☐ | ☐ | ☑ |

May we obtain duplicates at our expense? yes ☑ no ☐

Mail to:
*California Natural Diversity Database*
*California Dept. of Fish & Wildlife*
*1807 13th Street, Suite 202*
*Sacramento, CA 95811*
*Fax: (916) 324-0475 email: CNDDB@wildlife.ca.gov*

**Date of Field Work (mm/dd/yyyy):** 04/15/2013

*For Office Use Only*

Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

# California Native Species Field Survey Form

Send Form

**Scientific Name:** *Taxidea taxus*

**Common Name:** American bader

**Species Found?** ☐ Yes ☑ No — burrows and tracks identified (If not, why?)

Total No. Individuals multiple Subsequent Visit? ☑ yes ☐ no

**Is this an existing NDDB occurrence?** _____ (Yes, Occ. #) ☑ no ☐ unk.

Collection? If yes: _____ (Number) _____ (Museum / Herbarium)

**Reporter:** Padre Associates, Inc.
**Address:** 369 Pacific Street
San Luis Obispo, California 93401
**E-mail Address:** tbenson@padreinc.com
**Phone:** (805) 786-2650

***Plant Information***

Phenology: _____% vegetative _____% flowering _____% fruiting

***Animal Information***

| # adults | # juveniles | # larvae | # egg masses | # unknown |
|---|---|---|---|---|
| 1 | | | | |

☐ wintering ☐ breeding ☐ nesting ☐ rookery ☑ burrow site ☐ other

***Location Description*** ***(please attach map AND/OR fill out your choice of coordinates, below)***

East Cat Canyon Oil Field. Multiple burrows throughout Oil Field, likely from several individuals.

County: Santa Barbara Landowner / Mgr.: Aera Energy LLC
Quad Name: Sisquoc Elevation: 950ft
T 9N R 32W Sec 31, NE ¼ of NE ¼, Meridian: H☐ M☐ S☑ Source of Coordinates (GPS, topo. map & type): GPS
T____ R____ Sec ____, ____ ¼ of ____ ¼, Meridian: H☐ M☐ S☐ GPS Make & Model Trimble GeoXT
**DATUM:** **NAD27** ☐ **NAD83** ☐ **WGS84** ☐ Horizontal Accuracy _____ meters/feet
**Coordinate System:** UTM Zone 10 ☐ UTM Zone 11 ☐ ***OR*** Geographic (Latitude & Longitude) ☑
**Coordinates:**

***Habitat Description (plants & animals)*** *plant communities, dominants, associates, substrates/soils, aspects/slope:*
***Animal Behavior*** *(Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):*

Large burrows with claw marks, indicative of badger activity. Tracks observed around soils.

Please fill out separate form for other rare taxa seen at this site.

***Site Information*** Overall site/occurrence quality/viability (site + population): ☐ Excellent ☑ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: oil field activities, vineyards

Visible disturbances: Oil Field

Threats: Future oil field development

Comments:

***Determination:*** *(check one or more, and fill in blanks)*

☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☑ By another person (name): Thea Besnon
☐ Other: _____

***Photographs:*** *(check one or more)*

| | Slide | Print | Digital |
|---|---|---|---|
| Plant / animal | ☐ | ☐ | ☐ |
| Habitat | ☐ | ☐ | ☑ |
| Diagnostic feature | ☐ | ☐ | ☑ |

May we obtain duplicates at our expense? yes ☑ no ☐

Mail to:
*California Natural Diversity Database*
*California Dept. of Fish & Wildlife*
*1807 13th Street, Suite 202*
*Sacramento, CA 95811*
*Fax: (916) 324-0475 email: CNDDB@wildlife.ca.gov*

**Date of Field Work (mm/dd/yyyy):** 04/15/2013

*For Office Use Only*

Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

# California Native Species Field Survey Form

Send Form

**Scientific Name:** *Aimophila ruficeps canescens*

**Common Name:** Southern California rufous-crowned sparrow

**Species Found?** ☑ Yes ☐ No — identified by song and visual (If not, why?)

Total No. Individuals 2 Subsequent Visit? ☑ yes ☐ no

**Is this an existing NDDB occurrence?** _____ (Yes, Occ. #) ☑ no ☐ unk.

Collection? If yes: _____ (Number) _____ (Museum / Herbarium)

**Reporter:** Padre Associates, Inc.
**Address:** 369 Pacific Street
San Luis Obispo, California 93401
**E-mail Address:** tbenson@padreinc.com
**Phone:** (805) 786-2650

***Plant Information***

Phenology: ____% vegetative ____% flowering ____% fruiting

***Animal Information***

| # adults | # juveniles | # larvae | # egg masses | # unknown |
|---|---|---|---|---|
| 2 | | | | |

☐ wintering ☑ breeding ☐ nesting ☐ rookery ☐ burrow site ☑ other

***Location Description*** ***(please attach map AND/OR fill out your choice of coordinates, below)***

East Cat Canyon Oil Field. At minimum two sightings in dense California sagebrush on steep slopes.

County: Santa Barbara Landowner / Mgr.: Aera Energy LLC
Quad Name: Sisquoc Elevation: 950ft
T 9N R 32W Sec 31, NE ¼ of NE ¼, Meridian: H☐ M☐ S☑ Source of Coordinates (GPS, topo. map & type): GPS
T____ R____ Sec ____, ____ ¼ of ____ ¼, Meridian: H☐ M☐ S☐ GPS Make & Model Trimble GeoXT
**DATUM:** **NAD27** ☐ **NAD83** ☐ **WGS84** ☐ Horizontal Accuracy _____ meters/feet
**Coordinate System:** UTM Zone 10 ☐ UTM Zone 11 ☐ ***OR*** Geographic (Latitude & Longitude) ☑
**Coordinates:**

***Habitat Description (plants & animals)*** *plant communities, dominants, associates, substrates/soils, aspects/slope:*
***Animal Behavior*** *(Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):*

Singing and hoping along in dense sagebrush.

Please fill out separate form for other rare taxa seen at this site.

***Site Information*** Overall site/occurrence quality/viability (site + population): ☐ Excellent ☑ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: oil field activities, vineyards

Visible disturbances: Oil Field

Threats: Future oil field development

Comments:

***Determination:*** *(check one or more, and fill in blanks)*

☑ Keyed (cite reference): Sibley, 2008
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☑ By another person (name): Thea Besnon
☐ Other: _____

***Photographs:*** *(check one or more)*

| | Slide | Print | Digital |
|---|---|---|---|
| Plant / animal | ☐ | ☐ | ☐ |
| Habitat | ☐ | ☐ | ☑ |
| Diagnostic feature | ☐ | ☐ | ☐ |

May we obtain duplicates at our expense? yes ☑ no ☐

# APPENDIX L

## WILDLIFE SPECIES LIST

## WILDLIFE SPECIES OBSERVED OR LIKELY TO OCCUR IN THE VICINITY OF THE BSA

| Common Name | *Scientific Name* | Observed During Field Surveys* | Residence Status | Protected Status | Habitat |
|---|---|---|---|---|---|
| **Amphibians** | | | | | |
| Arboreal salamander | *Aneides lugubris* | | R | - | W |
| Black-bellied slender salamander | *Batrachoseps nigriventris* | | R | - | W |
| California red-legged frog | *Rana draytonii* | | | FT, CSC | |
| Western spadefoot toad | *Spea hammondii* | | | CSC | |
| California toad | *Bufo boreas halophilus* | x | R | -- | M |
| Monterey ensatina | *Ensatina eschscholtzii eschscholtzii* | x | R | -- | R,G,P |
| California tiger salamander | *Ambystoma californiense* | | | FE, CSC | |
| Pacific treefrog | *Pseudacris regilla* | x | R | -- | A,R |
| **Reptiles** | | | | | |
| Silvery legless lizard | *Anniella pulchra pulchra* | | R | CSC | M |
| California nightsnake | *Hypsiglena torquata nuchalata* | | | | |
| California whiptail | *Aspidoscelis tigris munda* | x | R | -- | G,D,P,M |
| Western yellow-bellied racer | *Coluber constrictor mormon* | | R | | M |
| Califonia red-sided gartersnake | *Thamnophis sirtalis infernalis* | | | | |
| Rattlesnake | *Crotalus oreganus* spp. | | R | -- | R,G,P |
| Coast patch-nosed snake | *Salvadora hexalepis virgultea* | | | | |
| Monterey ring-necked snake | *Diadophis punctatus vandenburghi* | | R | -- | R,G,P |
| California alligator lizard | *Elgaria multicarinata multicarinata* | | R | -- | A,R,G |
| California kingsnake | *Lampropeltis getula californiae* | | R | -- | A,R,P,M |
| Red coachwhip | *Masticophis flagellum piceus* | | R | | M |
| California striped racer | *Masticophis lateralis* | | R | -- | M |
| Coast horned lizard | *Anota [Phrynosoma] coronatum frontale* | x | R | CSC | G,P |
| San Diego gopher snake | *Pituphis catenifer annectens* | x | R | -- | R,G,P |
| Coast Range fence lizard | *Sceloporus occidentalis bocourtii* | x | R | -- | G,D,P,M |
| Skilton's skink | *Plestiodon skiltonianus skiltonianus* | | R | - | G,D,P,M |
| Coast garter snake | *Thamnophis elegans terrestris* | | R | -- | R,G,P |
| Western side-blotched lizard | *Uta stanburiana elegans* | | R | -- | G,D,P,M |
| **Birds** | | | | | |
| Acorn woodpecker | *Melanerpes formicivorous* | x | R | M | P |
| Allen's hummingbird | *Selasphorus sasin* | | B | M | R,G,P |
| American crow | *Corvus brachyrhynchos* | x | R | M | M |
| American goldfinch | *Carduelis tristis* | | R | M | R,P |
| American kestrel | *Falco sparverius* | x | R | M | R,G,P |
| American robin | *Turdus migratorius* | | R | M | P,G |
| Anna's hummingbird | *Calypte anna* | x | R | M | R,G,P |
| Ash-throated flycatcher | *Myiarchus cinerascens* | | B | M | R,G,P |
| Band-tailed pigeon | *Columba fasciata* | | R | M | R |
| Barn owl | *Tyto alba* | | R | M | R,G,P |
| Barn swallow | *Hirundo rustica* | | B | M | R,G |

| Common Name | *Scientific Name* | Observed During Field Surveys* | Residence Status | Protected Status | Habitat |
|---|---|---|---|---|---|
| Bewick's wren | *Thryomanes bewickii* | | R | M | R,G |
| Black phoebe | *Sayornis nigricans* | | R | M | R,G,P |
| Black-chinned hummingbird | *Archilochus alexandri* | | B | M | R,G,P |
| Black-headed grosbeak | *Pheucticus melanocephalus* | | B | M | R,P |
| Black-throated gray warbler | *Dendroica nigrescens* | | B | M | G,P |
| Blue grosbeak | *Guiraca caerulea* | | B | M | R,W,G |
| Blue-gray gnatcatcher | *Polioptila caerulea* | x | B | M | R,G |
| Brewer's blackbird | *Euphagus cyanocephalus* | | R | M | R,W,G |
| Brown creeper | *Certhia americana* | | R | M | W,R,P |
| Brown-headed cowbird | *Molothrus ater* | | R | M | R,W,G |
| Bullock's oriole | *Icterus bullockii* | | B | M | R,P |
| Bushtit | *Psaltriparus minimus* | x | R | M | P |
| California quail | *Cillipepla californica* | x | R | -- | R,P |
| California thrasher | *Toxostoma redivivum* | x | R | M | W,G |
| California towhee | *Pipilo crissalis* | x | R | M | W, G |
| Canyon wren | *Catherpes mexicanus* | | R | M | M |
| Cassin's finch | *Carpodacus cassinii* | | R | M | M |
| Cassin's kingbird | *Tyrannus vociferans* | | B | M | G |
| Cassin's vireo | *Vireo cassinii* | | B | M | W,R |
| Cedar waxwing | *Bombycilla cedrorum* | | W | M | G,W |
| Chestnut-backed chickadee | *Parus rufescens* | x | R | M | R,P |
| Cliff swallow | *Hirundo pyrrhonota* | | B | M | R,G |
| Common raven | *Corvus corax* | x | R | M | M |
| Common yellowthroat | *Geothlypis trichas* | | R | M | W,R |
| Cooper's hawk | *Accipiter cooperii* | | R | M, CSC | R,G |
| Costa's hummingbird | *Calypte costae* | | B | M | R,G,P |
| Dark-eyed junco | *Junco hyemalis* | | R | M | R,W,G |
| Downy woodpecker | *Picoides pubescens* | | R | M | R,P |
| European starling | *Sturnus vulgaris* | | R | -- | R,P |
| Fox sparrow | *Passerella iliaca* | | W | M | G,W |
| Golden eagle | *Aquila chrysaetos* | | R | M | R,G,P |
| Golden-crowned sparrow | *Zonotrichia atricapilla* | | W | M | W,R |
| Great horned owl | *Bubo virginianus* | | R | M | R,G,P |
| Great-tailed grackle | *Quiscalus mexicanus* | | R | M | M |
| Greater roadrunner | *Geococcyx californianus* | | | | |
| Hairy woodpecker | *Picoides villosus* | | R | M | W, R |
| Hermit thrush | *Catharus guttatus* | | W | M | R,G |
| Hermit warbler | *Dendroica occidentalis* | | W | M | P |
| Hooded oriole | *Icterus cucullatus* | | B | M | M |
| House finch | *Carpodacus mexicanus* | | R | M | R,G,P |
| House sparrow | *Passer domesticus* | | R | -- | D |
| House wren | *Troglodytes aedon* | | R | M | R,G |
| Hutton's vireo | *Vireo huttoni* | | R | M | W,R |
| Killdeer | *Charadrius vociferus* | | R | M | W,G |
| Lark sparrow | *Chondestes grammacus* | x | B | M | G |
| Lawrence's goldfinch | *Carduelis lawrencei* | | R | M | R,P |
| Lazuli bunting | *Passerina amoena* | | B | M | R,W,G |
| Lesser goldfinch | *Carduelis psaltria* | | B | M | R,P |
| Lewis's woodpecker | *Melanerpes lewis* | | W | M | P |
| Lincoln's sparrow | *Melospiza lincolnii* | | W | M | W,R |
| Long-eared owl | *Asio otus* | | R | M | R,P,W |
| MacGillivray's warbler | *Oporonis tolmiei* | | B | M | W,R |

| Common Name | *Scientific Name* | Observed During Field Surveys* | Residence Status | Protected Status | Habitat |
|---|---|---|---|---|---|
| Merlin | *Falco columbarius* | | W | M | R,G,P |
| Mountain quail | *Oreotyx pictus* | | R | M | P |
| Mourning dove | *Zenaida macroura* | | R | M | R,G |
| Nashville warbler | *Vermivora ruficapilla* | | B | M | R, W |
| Northern flicker | *Colaptes auratus* | | R | M | R,P |
| Northern mockingbird | *Mimus polyglottos* | | R | M | R |
| Northern pygmy-owl | *Glaucidium gnoma* | | R | M | R |
| Northern rough-winged swallow | *Stelgidopteryx serripennis* | | B | M | R,G |
| Northern saw-whet owl | *Aegolius acadicus* | | R | M | R,G,P |
| Nuttall's woodpecker | *Picoides nuttallii* | | R | M | R,P |
| Oak titmouse | *Baeolophus inornatus* | x | R | M | R,P |
| Olive-sided flycatcher | *Contopus cooperi* | | B | M | R,P |
| Orange-crowned warbler | *Vermivora celata* | | R | M | G,P |
| Pacific-slope flycatcher | *Empidonax difficilis* | | B | M | R,G,P |
| Purple finch | *Carpodacus purpureus* | | R | M | R,G,P |
| Red-breasted nuthatch | *Sitta canadensis* | | W | M | P |
| Red-breasted sapsucker | *Sphyrapicus ruber* | | B | M | R,P |
| Red-shouldered hawk | *Buteo lineatus* | | R | M | R,G |
| Red-tailed hawk | *Buteo jamaicensis* | x | R | M | R,G |
| Rock dove | *Columba livia* | | R | -- | D |
| Rock wren | *Salpinctes obsoletus* | | R | M | M |
| Ruby-crowned kinglet | *Regulus calendula* | | W | M | P |
| Rufous-crowned sparrow | *Aimophila ruficeps* | | R | M | G |
| Savannah sparrow | *Passerculus sandwichensis* | | R | M | G |
| Say's phoebe | *Sayornis saya* | | R | M | G |
| Sharp-shinned hawk | *Accipiter striatus* | | W | M | P,R,G |
| Song sparrow | *Melospiza melodia* | | R | M | G,W |
| Spotted towhee | *Pipilo maculatus* | x | R | M | R,P |
| Steller's jay | *Cyanocitta stelleri* | | R | M | R,G |
| Swainson's thrush | *Catharus ustulatus* | | B | M | P |
| Townsend's warbler | *Dendroica townsendi* | | W | M | P |
| Tree swallow | *Tachycineta bicolor* | | R | M | R,G |
| Turkey vulture | *Cathartes aura* | x | R | M | R,G,P |
| Varied thrush | *Ixoreus naevius* | | W | M | P |
| Violet-green swallow | *Tachycineta thalassina* | | R | M | R,G |
| Warbling vireo | *Vireo gilvus* | | R | M | W,R |
| Western bluebird | *Sialia mexicana* | x | R | M | R |
| Western kingbird | *Tyrannus verticalis* | x | B | M | G |
| Western meadowlark | *Sturnella neglecta* | | R | M | G |
| Western screech-owl | *Otus kennicottii* | | R | M | R,G,P |
| Western scrub-jay | *Aphelocoma c. californica* | x | R | M | R,G,P |
| Western wood-pewee | *Contopus sordidulus* | | B | M | R,P |
| White throated swift | *Aeronautes saxatalis* | x | R | M | R,G,P |
| White-breasted nuthatch | *Sitta carolinensis* | | R | M | P |
| White-crowned sparrow | *Zonotrichia leucophrys* | | R | M | R,W,G |
| White-tailed kite | *Elanus leucurus* | | R | M, FP | G,P |
| Wild turkey | *Meleagris gallopavo* | | R | -- | P |
| Wilson's warbler | *Wilsonia pusilla* | | B | M | W,R |
| Wrentit | *Chamaea fasciata* | x | R | -- | R |
| Yellow-bellied sapsucker | *Sphyrapicus varius* | | R | M | R, W |
| Yellow-billed magpie | *Pica nuttalli* | x | R | M | W,G |
| Yellow-rumped warbler | *Dendroica coronata* | | B | M | G,P |

| Common Name | *Scientific Name* | Observed During Field Surveys* | Residence Status | Protected Status | Habitat |
|---|---|---|---|---|---|
| **Mammals** | | | | | |
| Pallid bat | *Antrozous pallidus* | | R | CSC | M |
| Domestic dog | *Canis familiaris* | | R | -- | D |
| Coyote | *Canis latrans* | x | R | -- | M |
| California pocket mouse | *Chaetodipus californicus* | | R | -- | M |
| Townsend's Big-eared Bat | *Corynorhinus townsendii* | | R | CSC | G, M |
| Virginia opossum | *Didelphis virginiana* | | R | -- | R,P |
| Big brown bat | *Episticus fuscus* | | R | -- | M |
| Common Porcupine | *Erethizon dorsatum* | | R | | G, M |
| Domestic cat | *Felis catus* | | R | -- | M |
| Red bat | *Lasiurus borealis* | | R | -- | M |
| Hoary bat | *Lasiurus cinereus* | | R | -- | M |
| Western yellow bat | *Lasiurus xanthinus* | | R | -- | M |
| Black-tailed jackrabbit | *Lepus californicus* | | R | -- | P,G |
| Bobcat | *Lynx rufus* | | R | -- | R |
| Striped skunk | *Mephitis mephitis* | | R | -- | R,G |
| California vole | *Microtus californicus* | | R | -- | R,G,W |
| House mouse | *Mus musculus* | | R | -- | D |
| Long-tailed weasel | *Mustela frenata* | | R | -- | M |
| California myotis | *Myotis californicus* | | R | -- | P |
| Western small-footed myotis | *Myotis ciliolabrum* | | R | -- | M |
| Long-eared myotis bat | *Myotis evotis* | | R | -- | R,P |
| Fringed myotis | *Myotis thysanodes* | | R | -- | P |
| Long-legged myotis | *Myotis volans* | | R | -- | P |
| Yuma myotis | *Myotis yumanensis* | | R | -- | P, G, R |
| San Diego desert woodrat | *Neotoma lepida intermedia* | | R | CSC | R,P |
| Big-eared woodrat | *Neotoma macrotis* | x | R | | M |
| Mule deer | *Odocoileus hemionus* | | R | -- | R,G |
| White-eared pocket mouse | *Perognathus alticolus* | | R | -- | M |
| Little pocket mouse | *Perognathus longimembris* | | R | -- | M |
| Pacific pocket mouse | *Perognathus longimembris pacificus* | | R | -- | M |
| Brush mouse | *Peromyscus boylii* | | R | -- | G |
| California mouse | *Peromyscus californicus* | | R | -- | G |
| Deer mouse | *Peromyscus maniculatus* | | R | -- | M |
| Pinyon Mouse | *Peromyscus truei* | | R | -- | M |
| Western pipistrelle | *Pipestrellus hesperus* | | R | -- | M |
| Townsend's big-eared bat | *Plecotus townsendii* | | R | CSC | M |
| Raccoon | *Procyon lotor* | | R | -- | M |
| Mountain Lion | *Puma concolor* | | R | | P, R, B |
| Norway rat | *Rattus norvegicus* | | R | -- | D |
| Black rat | *Rattus rattus* | | R | -- | M |
| Western harvest mouse | *Reithrodontomys megalotis* | | R | -- | G |
| Broad-footed Mole | *Scapanus latimanus* | | R | | M |
| Western gray squirrel | *Sciurus griseus* | | R | -- | R,P |
| Ornate Shrew | *Sorex ornatus* | | R | | M |
| California ground squirrel | *Spermophilus beecheyi* | x | R | -- | G |
| Western spotted skunk | *Spilogale gracilis* | | R | -- | R |
| Wild pig | *Sus scrofa* | x | R | -- | M |
| Audubon's cottontail | *Sylvilagus audubonii* | x | R | | M |
| Brush rabbit | *Sylvilagus bachmani* | | R | -- | R |
| Brazilian free-tailed bat | *Tadarida brasiliensis* | | R | -- | R,P,G |

| Common Name | *Scientific Name* | Observed During Field Surveys* | Residence Status | Protected Status | Habitat |
|---|---|---|---|---|---|
| American badger | *Taxidea taxus* | x | R | SSC | M |
| Botta's pocket gopher | *Thomomys bottae* | | R | -- | R,G,P |
| Gray fox | *Urocyon cinereoargenteus* | | R | -- | M |
| Black bear | *Ursus americanus* | | R | -- | R,P,G |

*Observed and/or signs (e.g., scat, tracks, vocalization, etc.) detected during field surveys conducted by Padre

**Residence Status**

R = Permanent resident

W- Winter resident

B = Summer resident

**Protected Status**

FE – Federal endangered species

FT -- Federal threatened species

FC – Federal candidate species

M – Migratory Bird Treaty Act

SE – State endangered species

ST – State threatened species

CSC – California Species of Special Concern

FP – California Fully Protected Species

**Typical Habitat**

A – Aquatic

D – Developed areas

G – Grassland

M – Multiple habitats

P – Woodland

R – Riparian

W - Wetland

C - Coastal lagoons, shorelines and oceans

# APPENDIX M

## OAK TREE PROTECTION PLAN (PADRE, 2014c)

# OAK TREE PROTECTION PLAN

## EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT
## SANTA BARBARA COUNTY, CALIFORNIA

**Prepared for:**

Aera Energy LLC
10000 Ming Avenue
Bakersfield, California 93311

**Prepared by:**

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

369 Pacific Street
San Luis Obispo, California 93401

**NOVEMBER 2014**

**PROJECT NO. 1002-0455**

## TABLE OF CONTENTS

1.0 INTRODUCTION ..... 1
2.0 DEFINITIONS ..... 2
3.0 REGULATORY SETTING ..... 5
3.1 STATE OF CALIFORNIA – SB 1334 ..... 5
3.2 SANTA BARBARA COUNTY CODES AND ZONING ORDINANCES ..... 5
3.3 SANTA BARBARA COUNTY COMPREHENSIVE PLAN ..... 6
3.4 SANTA BARBARA COUNTY ENVIRONMENTAL THRESHOLDS AND GUIDELINES MANUAL ..... 6
3.5 CONDITIONS OF APPROVAL AND MITIGATION MEASURES ..... 6
4.0 OAK TREE PROTECTION MEASURES ..... 7
5.0 REFERENCES ..... 9

PAGE INTENTIONALLY BLANK

# 1.0 INTRODUCTION

The following Oak Tree Protection Plan (Plan) has been prepared by Padre Associates, Inc. (Padre) for Aera Energy LLC (Aera) for the proposed East Cat Canyon Oil Field Redevelopment Project (Project). The 2,100 acre Project site is located within the Solomon Hills northeast of the Gato Ridge mountain ranges within Cat Canyon, approximately 10 miles southeast of the City of Santa Maria and the community of Orcutt located in northern Santa Barbara County, California. The main property entrance is located at 6516 Cat Canyon Road, south of the community of Sisquoc, California. The California Division of Oil, Gas, and Geothermal Resources divides the Cat Canyon Oil Field into four distinct areas: East Area, West Area, Central Area, and Sisquoc Area. The entire Project site lies within the Cat Canyon Oil Field (East Area) boundaries.

The Project will re-establish oil production in the existing oil field by drilling and operating oil/gas production wells, steam injection wells, observation wells, water production wells, water injection wells, and fresh water wells. The Project will also construct and operate a steam generator plant, a central processing plant, pipelines, and associated utilities (electrical transmission lines and gas pipeline). The “Project footprint” (i.e., areas of disturbance associated with grading and construction of facilities, well pads, pipeways, and other infrastructure) will be focused predominantly on the southwest portion of the Project site, where a greater density of existing roads, well pads, and previous facility footprints already exist.

The purpose of this Plan is to provide tree protection guidelines for Project activities, including grading, trenching, ground disturbance, and construction activities in an effort to minimize impacts to native coast live oak trees (*Quercus agrifolia*) occurring throughout the Project site. Based on site-wide biological surveys, live oak trees are the only species of oak that occur on the Project site. This Plan is focused on the protection of the live oak trees within the Project footprint *not* proposed to be removed as part of the Project activities. The goal of this Plan is to provide guidance for oak tree protection during Project activities while following all applicable regulatory oak tree protection standards.

PAGE INTENTIONALLY BLANK

## 2.0 DEFINITIONS

To provide a uniform understanding of the terms and concepts used throughout this Oak Tree Replacement Plan, the following terms are defined below.

| | |
|---|---|
| Acorn | The fruit and viable seed of an oak tree |
| Canopy | Where more than one tree's branches touch or overlap, they form one continuous cover or 'canopy' |
| Coast live oak (*Quercus agrifolia*) | A very slow growing non-deciduous oak tree that inhabits coastal valleys and woodlands in Santa Barbara County |
| County | Santa Barbara County |
| DBH | Diameter at Breast Height is the total cross-sectional diameter between the outside bark of an oak tree measured in inches at a height 4.5 feet above the ground on the uphill side of the tree. In the case of trees with multiple stems (trunks), the diameter of all stems at breast height shall be combined to calculate the diameter at breast height of the tree |
| Drip line | A vertical line extending from the outermost edge of the oak tree's natural canopy to the ground |
| Mature live oak tree | Coast live oak trees of eight inch DBH or greater |
| Oak tree removal | Causing an oak tree to die, be uprooted or removed from the ground by any means, including, but not limited to, cutting, uprooting, poisoning, burning (unrelated to controlled burns), or excessively pruning/topping or severing an oak tree's roots so as to lead to the death of the tree. Death by natural causes (e.g. sudden oak death syndrome) or regulatory requirements shall not be considered a removal |
| OPU | Oak Planting Unit – a manageable planting unit pre-determined by an oak tree specialist |
| Protected tree | Mature coast live oak trees |
| Woodland | A community of oak trees with a contiguous canopy |

PAGE INTENTIONALLY BLANK

# 3.0 REGULATORY SETTING

The following section provides an overview of regulations that govern the protection of deciduous and non-deciduous oak trees, woodlands, and savannas within Santa Barbara County, California; however, it is important to note that the oak trees within the Project site are exclusively non-deciduous coast live oaks, based on tree inventory surveys completed by Padre Biologists.

## 3.1 STATE OF CALIFORNIA – SB 1334

State of California laws specific to oak tree protection are included in State Senate Bill (SB) 1334, which was introduced by Senator Sheila James Kuehl and filed in September of 2004. SB 1344 defines the conversion of oak woodlands as "*generally result[ing] in the removal of most or all the trees in the oak woodland*" (SB 1334, 2004). Pursuant to SB 1334, a County shall determine whether a project may result in a conversion of oak woodlands that will have a significant effect on the environment. If a County determines that there may be a significant effect, the County shall require one or more of the following oak woodland mitigation alternatives:

1. *"Conserve in perpetuity, through the use of conservation easements, two oak trees of the same species for each oak tree that is removed;*
2. *Restore former oak woodlands provided that at least twice as many trees will be restored as the project removes;*
3. *Contribute funds to the Oak Woodlands Conservation Fund for the purpose of purchasing oak woodlands conservation easements, as specified by the guidelines and criteria of the Wildlife Conservation Board. The amount of the contribution shall be approximately equivalent to the cost of implementing another mitigation alternative"* (SB 1334, 2004).

SB 1334 provides that a County cannot be prohibited from adopting a plan or ordinance that is more protective of oak trees or oak woodlands.

## 3.2 SANTA BARBARA COUNTY CODES AND ZONING ORDINANCES

The Santa Barbara County Land Use and Development Code and zoning ordinances contain general regulations and permit regulations which further describe the way property may be development and the conditions under which projects may be approved. Specifically, two chapters, Chapter 14 – Grading Code, and Chapter 35 – Zoning, include codes and ordinances specific to oak tree protection.

***Chapter 35 Article III – Inland Zoning Ordinance.*** Article III - Inland Zoning Ordinance serves to implement the adopted Santa Barbara County Comprehensive Plan by classifying and regulating the uses of land, buildings, and structures within the applicable unincorporated area of the County of Santa Barbara. This document specifies items that are to be reviewed prior to issuance of any Land Use Permits, including potential impacts to natural resources, such as oak woodlands, which may require mitigation.

***Chapter 35 Article IX - Deciduous Oak Tree Protection and Regeneration Ordinance (2003).*** The Deciduous Oak Tree Protection and Regeneration Ordinance addresses deciduous oak tree removal in the inland rural areas if such removal is not associated with development that requires a permit under Section 35-1 and Section 35-2 of Chapter 35 of the County Code or Ordinance 661.

***Chapter 14 Appendix A – Grading Ordinance Guidelines for Native Oak Tree Removal (2003).*** The guidelines contained within the Santa Barbara County Grading Ordinance (Chapter 14 of the County Code), govern deciduous and live oak removals, replacing the County of Santa Barbara Environmental Thresholds and Guidelines Manual for agricultural and non-agricultural practices not requiring a discretionary permit.

## 3.3 SANTA BARBARA COUNTY COMPREHENSIVE PLAN

The Santa Barbara County Comprehensive Plan includes a long-term general plan that outlines physical development of the County. The Comprehensive Plan's Conservation Element addresses the conservation, development, and use of natural resources including water, forests, soils, rivers, and mineral deposits. Specifically, this element provides the following:

***Oak Tree Protection in the Inland Rural Areas of Santa Barbara County (2009)***. This document amends the Conservation Element Mapped Areas and Communities Section addressing "Oak Tree Protection in the Inland Rural Areas of Santa Barbara County". This document provides goals, policies, actions, and development standards that address oak trees in the inland rural areas in the County

## 3.4 SANTA BARBARA COUNTY ENVIRONMENTAL THRESHOLDS AND GUIDELINES MANUAL

The guidelines set forth in the Santa Barbara County Environmental Thresholds and Guidelines Manual (County of Santa Barbara Planning and Development Department, 2008), are based on the Comprehensive Plan and serve to assist in understanding the use and application of various environmental impact thresholds, as they relate to proposed projects. Specifically, this manual describes the federal, state, and local regulatory authority governing the protection of biological resources, such as oak woodlands, and provides guidelines for evaluating and determining significant impacts to those resources.

## 3.5 CONDITIONS OF APPROVAL AND MITIGATION MEASURES

***The Planner's Guide to Conditions of Approval and Mitigation Measures (2011)***. This document provides recommended conditions of approval for projects subject to discretionary permits. It is based upon State and local regulations including the Subdivision Map Act, Zoning Regulations, Coastal Act Regulations, Comprehensive Plan policies, and Community Plan development standards. Many of the conditions are used as mitigation measures for commonly occurring impacts. This guide specifies the content required in tree protection, mitigation and replacement plans. That content includes impact avoidance and minimization measures, location maps, mitigation requirements, and replacement methods.

## 4.0 OAK TREE PROTECTION MEASURES

While the Project was specifically designed to minimize oak tree removals, the development of roads, well pads, processing facilities, buildings, pipelines, and utility corridors, will result in the removal of live oak trees. Mitigation for removed trees is addressed in a separate Project Oak Tree Replacement Plan. The following measures are provided for the protection of oak trees that are within proximity of the Project grading and construction areas and are *not* proposed for removal. Implementation of these measures prior to and during Project construction activities will avoid and minimize impacts to live oak trees located on-site.

1. Oak tree protection areas will be depicted on Project plans and field verified by a qualified biologist prior to the initiation of Project grading and construction activities. Equipment storage, construction staging, and construction parking areas will be located outside of the oak tree protection areas and depicted on Project plans. For the purposes of this Plan, oak tree protection areas are defined as areas of the Project site adjacent to the Project footprint where oak trees not proposed for removal may have the potential to be damaged by Project grading or construction activities. Project activities that encroach within designated oak tree protection areas will be documented and any significantly damaged or removed oak trees will be replaced per the recommendations of the Project Oak Tree Replacement Plan.
2. Prior to and during grading and construction activities, oak tree protection areas will be established and maintained as follows:
    - Fencing at least six feet outside the drip line will be installed around oak trees or contiguous groups of oak trees that are located within designated oak tree protection areas. This perimeter fencing will define the oak tree protection areas.
    - Fencing will be three feet high, at minimum, and secured to the ground to prevent collapse. Signs, placed in 15 foot intervals, will be attached to the fencing identifying the protection area.
    - Oak tree protection area fencing and signage will be maintained throughout the grading activity.
3. Grading within proximity of oak tree protection areas will be designed to avoid ponding and ensure proper drainage for nearby oak trees.
4. All oak trees located within 25 feet of buildings will be protected from stucco and/or paint splatter during construction.
5. Irrigation of landscaping plants will not occur within six feet of the drip line of any protected oak tree, in order to avoid overwatering.
6. Trimming of oak tree limbs will be minimized to the greatest extent feasible. Necessary trimming of oak tree limbs for fire management and/or road clearance will be conducted under the direction of a qualified arborist to reduce the potential for over-trimming resulting in tree mortality. Trees that die as a result of unnecessary tree trimming will be considered a removed tree and replaced per the recommendations of the Project Oak Tree Replacement Plan.

7. In the event that any trenching must occur within the drip line (sensitive root zone) of an oak tree located within the oak tree protection areas, roots shall be cleanly cut (i.e., avoid use of “ditch witch” or other equipment that would tear the root) and trimming of branches will be completed by hand (i.e., avoiding the use of heavy equipment) under the direct supervision of a qualified arborist.
8. An Environmental Sensitivity Orientation will be prepared and included into Project orientations and presented to Project personnel prior the start of initial Project activities. The orientation will include information regarding oak tree protection measures, permit obligations, and further information regarding the importance of retaining oak trees and oak woodlands.

## 5.0 REFERENCES

County of Santa Barbara, Planning and Development. June 2003. Deciduous Oak Tree Protection and Regeneration. Article IX of Chapter 35, Santa Barbara County Code. Santa Barbara, CA.

County of Santa Barbara, Planning and Development. September 2006. Inland Zoning Ordinance. Article III of Chapter 35, Santa Barbara County Code. Santa Barbara, CA.

County of Santa Barbara, Planning and Development. April 2003. Appendix A Grading Ordinance Guidelines for Native Oak Tree Removal. Santa Barbara, CA.

County of Santa Barbara, Planning and Development. March 2011. A Planner's Guide to Conditions of Approval and Mitigation Measures. Santa Barbara County, CA.

County of Santa Barbara, Planning and Development. October 2008. Environmental Thresholds and Guidelines Manual. Santa Barbara, CA.

Dagit, Rosi, A. James Downer. 1997. USDA Forest Service Gen. Tech. Rep. PSW-GTR-160.Mahall, Bruce E., Frank W. Davis, Claudia M. Tyler. 2005. Santa Barbara County Oak Restoration Program August 1994 – August 2005 Final Report. University of Santa Barbara. Santa Barbara, CA.

Senate Bill (SB) 1334. Bill Analysis. Date of Hearing: June 14. 2004. Assembly Committee on Natural Resources. Available online at: http://www.leginfo.ca.gov/pub/03-04/bill/sen/sb_1301-1350/sb_1334_cfa_20040610_162331_asm_comm.html

# APPENDIX N

## OAK TREE REPLACEMENT PLAN (PADRE, 2015)

# OAK TREE REPLACEMENT PLAN

## EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT
## SANTA BARBARA COUNTY, CALIFORNIA

**Prepared for:**

Aera Energy LLC
10000 Ming Avenue
Bakersfield, California 93311

**Prepared by:**

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

369 Pacific Street
San Luis Obispo, California 93401

**REVISED AUGUST 2015**

**PROJECT NO. 1002-0455**

## TABLE OF CONTENTS

**1.0 INTRODUCTION ..... 1**

**2.0 SETTING ..... 3**

**3.0 REGULATORY SETTING ..... 11**

3.1 STATE OF CALIFORNIA – SB 1334 ..... 11

3.2 SANTA BARBARA COUNTY CODES AND ZONING ORDINANCES ..... 11

3.3 SANTA BARBARA COUNTY COMPREHENSIVE PLAN ..... 12

3.4 SANTA BARBARA COUNTY ENVIRONMENTAL THRESHOLDS AND GUIDELINES MANUAL ..... 12

**3.5 PLANNER'S GUIDE TO CONDITIONS OF APPROVAL AND MITIGATION MEASURES** ..... 12

**4.0 PROJECT OAK TREE MITIGATION ..... 15**

4.1 OAK TREE REPLACEMENT ..... 15

**5.0 PLANTING AREA ..... 17**

**6.0 OAK TREE PLANTING AND NURTURING SPECIFICATIONS ..... 19**

6.1 SCHEDULE ..... 19

6.2 OAK WOODLAND ACORN COLLECTION AND PROPAGATION ..... 20

6.3 SITE PREPARATION ..... 20

6.4 PLANTING AND SEEDING ..... 20

6.5 IRRIGATION ..... 20

6.6 MULCHING ..... 21

6.7 PROTECTIVE CAGING AND FENCING ..... 21

**7.0 SMALL NURTURE TREES ..... 23**

**8.0 TRANSPLANTING OF OAK TREES ..... 25**

**9.0 MAINTENANCE AND MONITORING ..... 27**

9.1 IRRIGATION ..... 27

9.2 PROTECTIVE CAGES AND FENCES ..... 27

9.3 WEED CONTROL ..... 27

9.4 REPLACEMENT PLANTING ..... 27

9.5 MONITORING ..... 27

**10.0 SUCCESS CRITERIA FOR PLANTED, NURTURED, AND TRANSPLANTED TREES ..... 29**

**11.0 SUMMARY ..... 31**

**12.0 REFERENCES.....33**

## TABLES

6-1 IMPLEMENTATION SCHEDULE.....19

## FIGURES

2-1 PROJECT LOCATION.....5

2-2 PLANTING AREA.....7

2-3 SOIL SURVEY.....9

## DEFINITIONS

To provide a uniform understanding of the terms and concepts used throughout this oak tree replacement plan, the following terms are defined below.

| | |
|---|---|
| Acorn | The fruit and viable seed of an oak tree |
| Canopy | Where more than one tree's branches touch or overlap, they form one continuous cover or canopy |
| Coast live oak (*Quercus agrifolia*) | A very slow growing non-deciduous oak tree that inhabits coastal valleys and woodlands in Santa Barbara County |
| County | Santa Barbara County |
| DBH | Diameter at breast height is the total cross-sectional diameter between the outside bark of an oak tree measured in inches at a height 4.5 feet above the ground on the uphill side of the tree. In the case of trees with multiple stems (trunks), the diameter of all stems at breast height shall be combined to calculate the diameter at breast height of the tree |
| Drip line | A vertical line extending from the outermost edge of the oak tree's natural canopy to the ground |
| Mature live oak tree | Coast live oak trees of six inch DBH or greater |
| Oak tree removal | Causing an oak tree to die, be uprooted or removed from the ground by any means, including, but not limited to, cutting, uprooting, poisoning, burning (unrelated to controlled burns), or excessive pruning/topping or severing an oak tree's roots enough to lead to the death of the tree. Death by natural causes (e.g. sudden oak death syndrome) or regulatory requirements shall not be considered a removal |
| Oak Planting Unit | A manageable planting unit pre-determined by an oak tree specialist |
| Protected tree | Mature coast live oak trees of six inch DBH or greater |
| Woodland | A community of oak trees with a contiguous canopy |

PAGE INTENTIONALLY BLANK

# 1.0 INTRODUCTION

The following Oak Tree Replacement Plan (Plan) has been prepared by Padre Associates, Inc. (Padre) for Aera Energy LLC (Aera) for the East Cat Canyon Oil Field Redevelopment Project (Project) located in northern Santa Barbara County, California. The Project will re-establish oil production in the existing oil field by drilling and operating oil/gas production wells, steam injection wells, observation wells, water production wells, water injection wells, and fresh water wells. The Project will also construct and operate a steam generator plant, a central processing plant, pipelines, and associated utilities (electrical transmission lines and gas pipeline). The Project site consists of 2,107.8 acres of Aera-owned parcels and an additional 3.9 acres of land located on adjacent parcels. The Project has been designed to minimize grading and land disturbance by maximizing the use of existing roads, well pads, cleared areas, and contours wherever possible. Care was taken to avoid oak tree removals by minimizing the number and size of new well pads, by routing new roads around canopies, and by designing the new facility campus as a network of smaller parking lot and building spaces that better fit in the existing spaces between oak tree canopies. Because some mature live oak tree removals will be unavoidable, this Plan lays out an adaptive roadmap for successful mitigation, consistent with Santa Barbara County guidance documents, standards, and ordinances. This Plan establishes an oak tree removal mitigation strategy, potential on-site planting areas, planting guidelines, and maintenance and monitoring practices. The area identified in this Plan for oak tree mitigation will be established as a Conservation Area. A Draft Long Term Management and Conservation Strategy has been developed to provide guidelines for the management, monitoring, and maintenance of the Conservation Area. A separate Project Oak Tree Protection Plan has been prepared to address the protection of oak trees within the Project site that are not proposed for removal.

PAGE INTENTIONALLY BLANK

## 2.0 SETTING

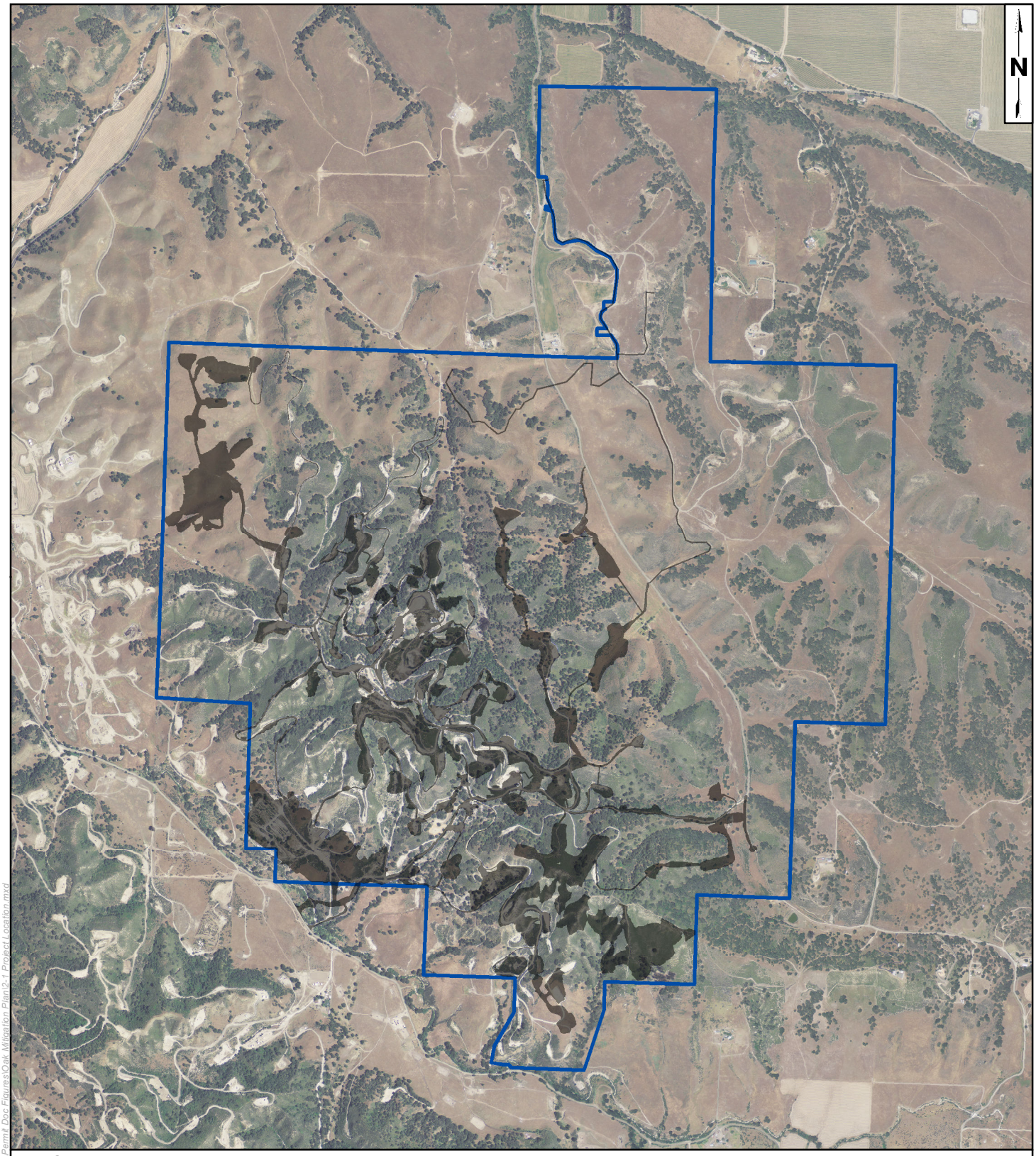
The Project site is located within the Solomon hills northeast of the Gato Ridge mountain range within East Cat Canyon, approximately 10 miles southeast of the communities of Santa Maria and Orcutt located in northern Santa Barbara County (Figure 2-1 – Project Location). The Project development activities that involve oak tree removals are exclusively located on the portions of the Project site located west of Long Canyon Road. Much of the Project area is already extensively disturbed by a long history of oil production operations and cattle grazing. The Project oak tree mitigation planting area (Potential Oak Planting Area) is located east of Long Canyon Road (Figure 2-2 – Planting Area) within the proposed 686.4-acre Conservation Area. This area has been used for grazing and some oil production, but is relatively undisturbed. Existing oak woodlands within the Conservation Area will be preserved (96.9 acres) and the replacement oak trees will be planted and monitored to ensure long-term establishment.

The topography of the Project site is generally comprised of steeply to moderately incised canyons and drainages, and moderate to steep hills and valleys. Elevation ranges between approximately 550 feet to 1,120 feet. Drainages throughout the Project site consist of dry, loose sand and rock with moderate to dense scrub and scattered oak woodland habitat. The Sisquoc River and its associated floodplain is located to the northeast of the Project site. This floodplain consists of large agricultural parcels primarily cultivated with grape vineyards.

A preliminary desktop soil survey resulted in a total of 19 different soil types with different degrees of slope throughout the Project site, including Arnold sand, Chamise sandy loam, Chamise shaly loam, Corralitos sand, Corralitos loamy sand, Elder sandy loam, Positas fine sandy loam, rough broken land, San Andreas-Tierra complex, and sandy alluvial land (Figure 2-3 – Soil Survey). These are consistent with the soil types identified in the Project Storm Water Pollution Prevention Plan (TJ Cross Engineers, 2014) and the Project Preliminary Hydrology Report (TJ Cross Engineers, 2014). Live oak trees occur on all of the soil types identified throughout the Project site.

Based on the species composition, life form, and community membership rules described in *A Manual of California Vegetation, Second Edition* (MCVII) (Sawyer et al., 2009), and extensive field observations from Padre Biologists, the vegetation identified within the Project site has been classified into annual grassland, California coastal scrub, coast live oak woodland, scattered eucalyptus groves, and portions located west of Long Canyon Road with extensive disturbance consisting of bare ground and non-native grasses and forb species tolerant of disturbance.

PAGE INTENTIONALLY BLANK




LEGEND:

Project Footprint

Project Site Area

0 1,000 2,000
FEET

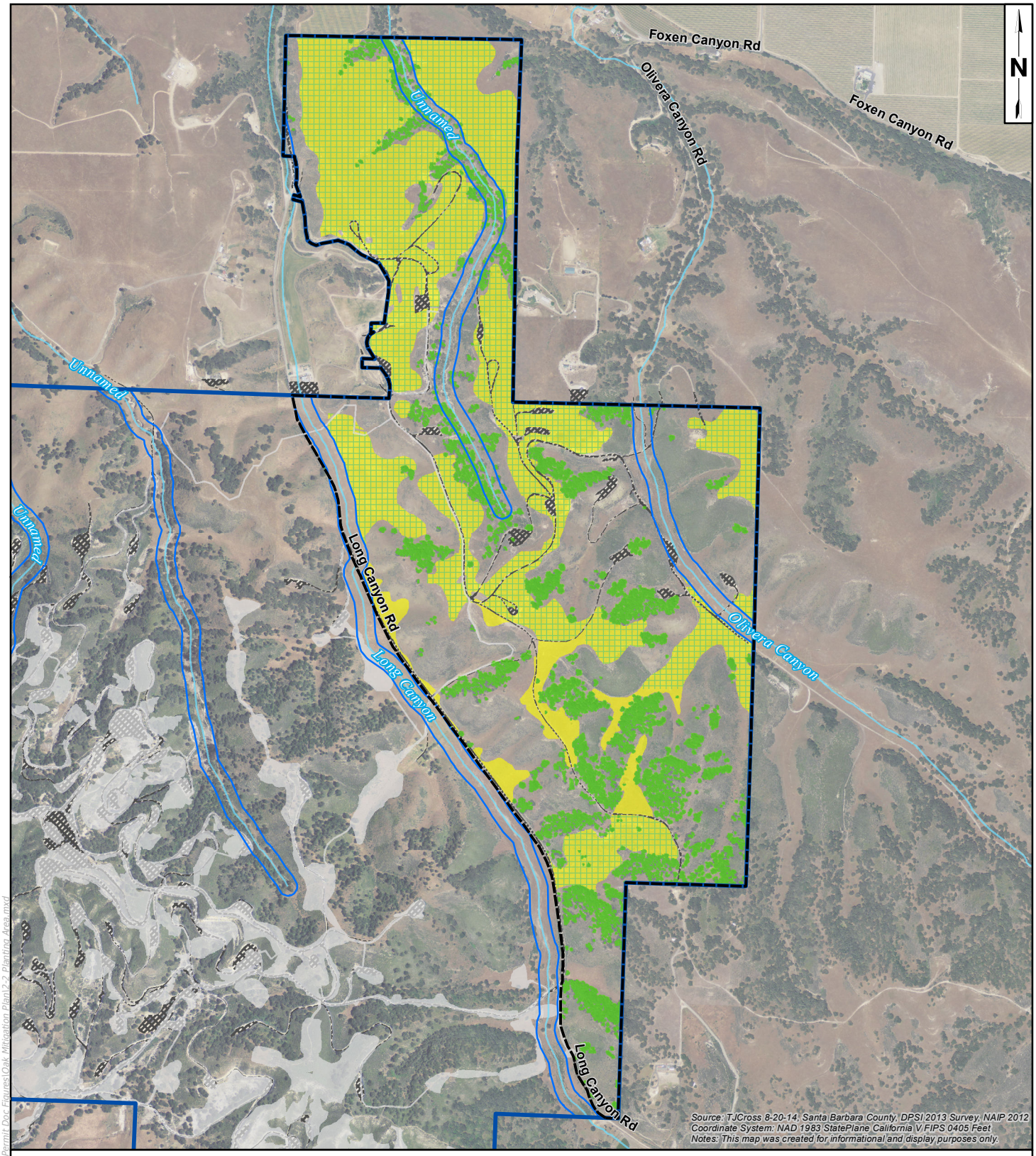
*Source: USGS Topo Quad*
*Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet*
*Notes: This map was created for informational and display purposes only*

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: | | PROJECT LOCATION | FIGURE |
|---|---|---|---|
| EAST CAT CANYON<br>SANTA BARBARA COUNTY, CA | | | 2-1 |
| PROJECT NUMBER: 1002-0455 | DATE: September 2014 | | |

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Permit Doc Figures\Oak Mitigation Plan\2-1 Project Location.mxd

PAGE INTENTIONALLY BLANK




Aera Energy LLC Property Boundary

Long Canyon Conservation Area (686.4ac)

Existing Channel

100ft Buffer of Existing Channels

Existing Disturbed or Developed Area

Project Footprint

Proposed Oak Planting Area (215.4ac; maximum of 15,040 trees)

Potential Oak Planting Area (237.2ac; maximum of 16,545 trees)

Existing Oak Woodland to be Conserved (96.9 ac)

0 750 1,500
Feet

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME:
EAST CAT CANYON
SANTA BARBARA COUNTY, CA

PROJECT NUMBER: 1002-0455

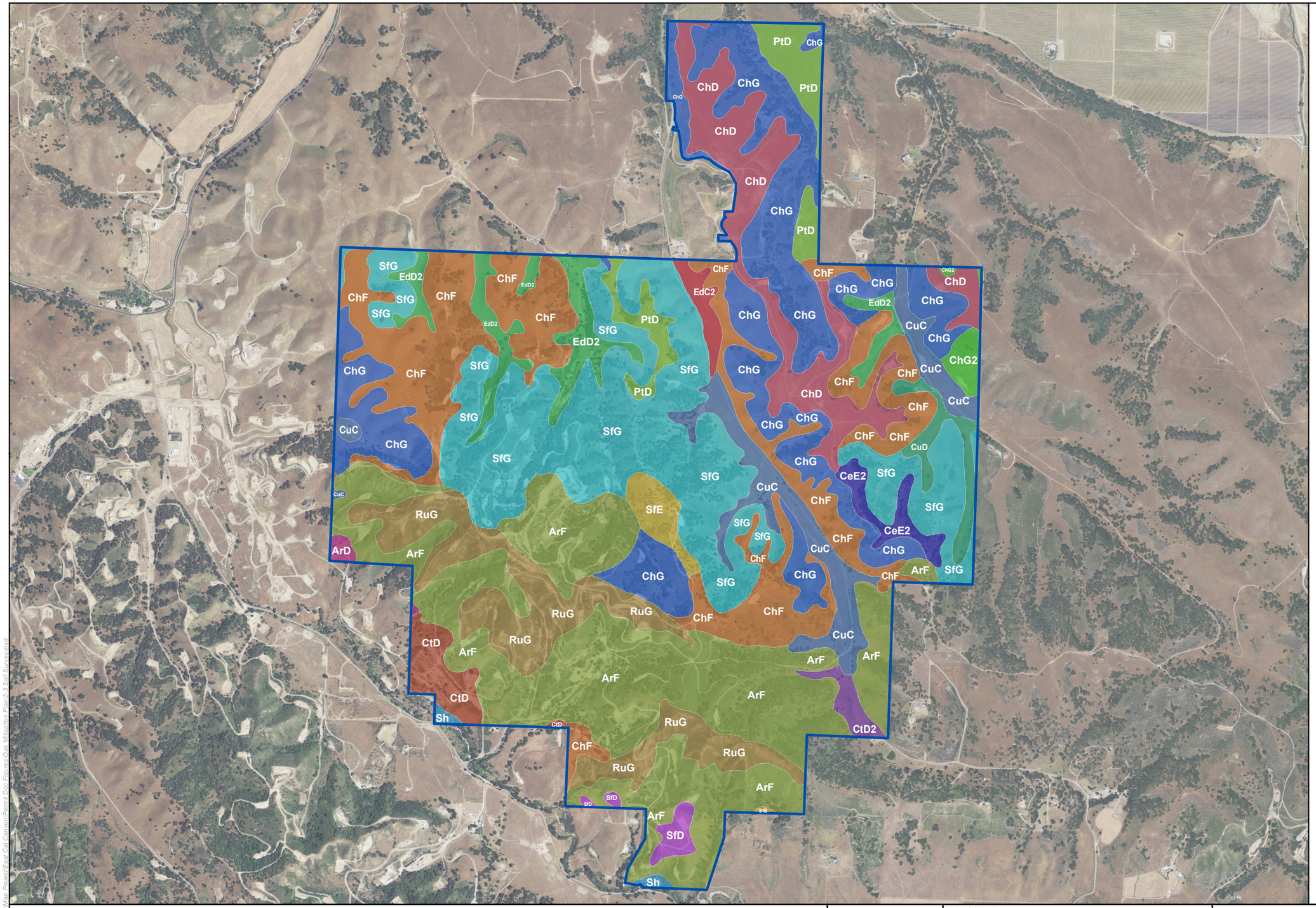
DATE: August 2015

PLANTING AREA

FIGURE
2-2

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Permit Doc Figures\Oak Mitigation Plan\2-2 Planting Area.mxd

PAGE INTENTIONALLY BLANK




## LEGEND:

Project Site Area

**Soil Type**

- ArD - Arnold sand, 5 to 15 percent slopes
- ArF - Arnold sand, 15 to 45 percent slopes
- CeE2 - Chamise sandy loam, 5 to 30 percent slopes, eroded
- ChD - Chamise shaly loam, 9 to 15 percent slopes
- ChF - Chamise shaly loam, 15 to 45 percent slopes
- ChG - Chamise shaly loam, 45 to 75 percent slopes
- ChG2 - Chamise shaly loam, 30 to 75 percent slopes, eroded
- CtD - Corralitos sand, 2 to 15 percent slopes
- CtD2 - Corralitos sand, 2 to 15 percent slopes, eroded
- CuC - Corralitos loamy sand, 2 to 9 percent slopes
- CuD - Corralitos loamy sand, 9 to 15 percent slopes
- EdC2 - Elder sandy loam, 2 to 9 percent slopes, eroded
- EdD2 - Elder sandy loam, 9 to 15 percent slopes, eroded
- PtD - Positas fine sandy loam, 9 to 15 percent slopes
- RuG - Rough broken land
- SfD - San Andreas-Tierra complex, 5 to 15 percent slopes
- SfE - San Andreas-Tierra complex, 15 to 30 percent slopes
- SfG - San Andreas-Tierra complex, 30 to 75 percent slopes
- Sh - Sandy alluvial land

N

0 800 1,600
FEET

Source: SSURGO, NAIP 2012, County of Santa Barbara
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposes only

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: EAST CAT CANYON
SANTA BARBARA COUNTY, CA

PROJECT NUMBER: 1002-0455

DATE: September 2014

SOIL SURVEY

FIGURE 2-3

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Permit Doc Figures\Oak Mitigation Plan\2-3 Soil Survey.mxd

# 3.0 REGULATORY SETTING

The following section provides an overview of regulations that govern the protection of deciduous and non-deciduous oak trees, woodlands, and savannas within Santa Barbara County, California; however, it is important to note that the oak trees within the Project site consist exclusively of non-deciduous coast live oaks, based on tree inventory surveys completed by Padre Biologists**.**

## 3.1 STATE OF CALIFORNIA – SB 1334

State of California laws specific to oak tree protection are included in State Senate Bill (SB) 1334 which was introduced by Senator Sheila James Kuehl and filed in September of 2004. SB 1334 subjects such oak woodland conversions to the California Environmental Quality Act (CEQA) SB 1344 states that the conversion of oak woodlands refers to the cutting or removal of 30 percent or more of the oak tree canopy from an oak woodland and changing the land use so that the converted acreage will not sustain oak species functioning as a biological unit in the future. Pursuant to SB 1334, a County shall determine whether a project may result in a conversion of oak woodlands that will have a significant effect on the environment. If a County determines that there may be a significant effect to oak woodlands, the County shall require one or more of the following oak woodland mitigation alternatives to mitigate the significant effect of the conversion of oak woodlands:

1. Conserve oak woodlands through the use of conservation easements.
2. Plant an appropriate number of trees, including maintaining plantings and replacing dead or diseased trees:
   a. The requirement to maintain trees pursuant to this paragraph terminates seven years after the trees are planted;
   b. Mitigation pursuant to this paragraph shall not fulfill more than one-half of the mitigation requirements for the project; and
   c. The requirements imposed pursuant to this paragraph also may be used to restore former oak woodlands.
3. Contribute funds to the Oak Woodlands Conservation Fund, and;
4. Other mitigation measures developed by the County.

SB 1334 provides that a County cannot be prohibited from adopting a plan or ordinance that is more protective of oak trees or oak woodlands.

## 3.2 SANTA BARBARA COUNTY CODES AND ZONING ORDINANCES

The Santa Barbara County Land Use and Development Code and Zoning Ordinances contain general regulations and permit regulations that further describe the way property may be developed and the conditions under which projects may be approved. Specifically, Santa Barbara County Chapter 14 – Grading Code and Chapter 35 – Zoning includes codes and ordinances specific to oak tree protection:

***Chapter 35 Article III – Inland Zoning Ordinance***. Article III Inland Zoning Ordinance serves to implement the adopted Santa Barbara County Comprehensive Plan by classifying and

regulating the uses of land, buildings, and structures within the applicable unincorporated area of the County of Santa Barbara Article III specifies items that are to be reviewed prior to issuance of any Land Use Permits, including potential impacts to natural resources, such as oak woodlands, which may require mitigation.

***Chapter 35 Article IX - Deciduous Oak Tree Protection and Regeneration Ordinance*** *(2003).* The Deciduous Oak Tree Protection and Regeneration Ordinance addresses deciduous oak tree removal in the inland rural areas if such removal is not associated with a development project that requires a permit under Section 35-1 and Section 35-2 of Chapter 35 of the County Code or Ordinance 661.

***Chapter 14 Appendix A – Grading Ordinance Guidelines for Native Oak Tree Removal*** *(2003).* The guidelines contained within the Santa Barbara County Grading Ordinance (Chapter 14 of the County Code) govern deciduous and live oak removals. It replaced the County of Santa Barbara Environmental Thresholds and Guidelines Manual for agricultural and non-agricultural practices not requiring a discretionary permit.

## 3.3 SANTA BARBARA COUNTY COMPREHENSIVE PLAN

The Santa Barbara County Comprehensive Plan includes a long-term general plan that outlines physical development of the County. The Comprehensive Plan's Conservation Element addresses the conservation, development, and use of natural resources including water, forests, soils, rivers, and mineral deposits. Specifically, this element provides the following:

*Oak Tree Protection in the Inland Rural Areas of Santa Barbara County (2009)*. This document amends the Conservation Element Mapped Areas and Communities Section addressing "Oak Tree Protection in the Inland Rural Areas of Santa Barbara County". This document provides goals, policies, actions, and development standards that address oak trees in the inland rural areas in the County.

## 3.4 SANTA BARBARA COUNTY ENVIRONMENTAL THRESHOLDS AND GUIDELINES MANUAL

The guidelines set forth in this manual, prepared by the County of Santa Barbara Planning and Development Department (2008), are based on the Comprehensive Plan and serve to assist in understanding the use and application of various environmental impact thresholds as they relate to proposed projects. Specifically, this manual describes the federal, state, and local regulatory authority governing the protection of biological resources, such as oak woodlands, and provides guidelines for evaluating and determining significant impacts to those resources.

## 3.5 PLANNER'S GUIDE TO CONDITIONS OF APPROVAL AND MITIGATION MEASURES

The Planner's Guide to Conditions of Approval and Mitigation Measures (2011) is a guide to recommended conditions of approval and mitigation measures for projects subject to discretionary permits. The Guide is based upon State and local regulations including the Subdivision Map Act, Zoning Regulations, Coastal Act Regulations, Comprehensive Plan policies, and Community Plan development standards. Many of the conditions can and have been used as mitigation measures for commonly occurring impacts. This guide provides content required in tree protection plans, mitigation plans, and replacement plans for unavoidable impacts to

protected oak trees. Content includes, but is not limited to, avoidance and minimization measures, figures depicting relevant tree information (i.e., location), mitigation requirements, and replacement methods.

PAGE INTENTIONALLY BLANK

# 4.0 PROJECT OAK TREE MITIGATION

For the purposes of this Plan, a protected tree is a mature live oak tree with a diameter at breast height (DBH) of six inches or more. Oak tree mitigation will include the replacement planting of oak trees within the Potential Oak Planting Area (Figure 2-2 – Planting Area). There are also oak tree mitigation opportunities within other areas of the Project Site, on the west side of Long Canyon Road in closer proximity to the Project facilities and infrastructure. On-site replacement planting and transplanting are preferred and feasible methods for mitigation, however, off-site mitigation alternatives will be considered by Aera and the County of Santa Barbara during the land use permitting process. The measures outlined in this Plan are based on codes, regulations, and guidelines set forth by the County of Santa Barbara, as outlined in the regulatory section above.

## 4.1 OAK TREE REPLACEMENT

Project removals of mature live oak trees will be mitigated as follows:

- For every mature live oak tree removed, ten acorns or ten one gallon saplings or smaller containers that support a longer taproot, will be planted within the Potential Oak Planting Area. Saplings may include those salvaged from the Project disturbance areas (10:1 - acorns or young saplings), and/or
- For every mature live oak tree removed, three 15 gallon saplings will be planted within the Potential Oak Planting Area (3:1 – 15 gallon saplings), and/or
- For every mature live oak tree removed, ten naturally occurring oak tree saplings between six inches and six feet tall will be protected and nurtured within Potential Oak Planting Area or in the Project site (10:1 – sapling/nurture trees), and/or
- Mature oak trees identified within the Project disturbance area and proposed for removal, will be transplanted to the Potential Oak Planting Area in order to salvage the tree (1:1 – transplanted mature oak trees); and/or
- Some amount of off-site planting and nurturing, in other conservation or restoration areas, such as La Purisima, or in burn areas of public lands, as agreed to by the County, may also be considered as a portion of the mitigation for on-site removals.

The primary approach for oak tree mitigation will be the on-site planting of replacement acorns, saplings, or trees within the Potential Oak Planting Area. The Potential Oak Planting Area currently includes established live oak woodland communities mixed with non-native annual grasslands. The oak trees will be planted in the grassland communities.

The objective of the Plan is to ensure the successful establishment of planted trees and overall preservation and stewardship of the Potential Oak Planting Area. The Potential Oak Planting Area will be protected from significant erosion, overgrazing, and intensive agricultural and development activities as part of the Conservation Area. Additionally, the existing and planted trees within the Potential Oak Planting Area are addressed in the Draft Long Term Management and Conservation Strategy.

PAGE INTENTIONALLY BLANK

## 5.0 PLANTING AREA

The 237.2 acre Oak Planting Area (Figure 2-2 – Planting Area) was selected from within the Project site based on a desktop evaluation of planting suitability (i.e., slope, plant community, and soil conditions), property access/ownership constraints, and existing and future land use considerations. The Potential Oak Planting Area is currently grazed by cattle and consists of existing oak woodlands and non-native annual grasslands. The annual grassland communities will be the areas proposed for planting; however, depicted in Figure 2-2 will be covered in a conservation easement, as addressed in the Draft Ling Term Management and Conservation Strategy.

Coast live oak woodland typically occurs on steep, north-facing slopes and shaded ravines or along raised stream banks and terraces, where it forms open to relatively closed canopy stands dominated by coast live oak (Holland, 1986; Sawyer and Keeler-Wolf, 1995). Coast live oaks grow in a variety of soils ranging from silts and clays to weathered granite (Bornyasz, 2002 and Downie, 1997). The Potential Oak Planting Area is comprised of soils classified as sand, sandy loam, shaly loam, and loamy sand (USDA, 2014). These soil types are suitable for coast live oak establishment.

A desktop ArcGIS evaluation of slope aspect was considered when determining potential planting areas. Additionally, Vegetation Rapid Assessment Protocols were completed for the Project site by Padre in 2013 (Padre, 2014b). The results of these surveys suggest that the coast live oaks within the Project Site occur on varying slopes and aspects, specifically in slopes greater than 15 degrees, but no greater than 30 degrees. Steep 30 degree slopes were therefore used as a constraint for planting oaks due to the accessibility limitations, and increase in drainage and run-off potential.

The Potential Oak Planting Area has the potential to support a maximum of 16,545 planted trees (spaced on 20 foot centers), which will be planted in stages and grouped into smaller management areas referred to as Oak Planting Units. The use of 20 foot centers is based on the recommendation of the County (County, 2003). The Oak Planting Unit locations and the appropriate number of trees per Oak Planting Unit will be determined with the guidance of an Oak Tree Specialist. An Oak Tree Specialist is a qualified biologist experienced in oak tree regeneration methods, knowledgeable of the ecological resources within the regional, and approved by the County of Santa Barbara.

PAGE INTENTIONALLY BLANK

## 6.0 OAK TREE PLANTING AND NURTURING SPECIFICATIONS

The following provides specifications on oak tree propagation and installation methods as recommended in *How to Grow California Oaks* published by the University of California (1995), and as recommended in the *Santa Barbara County Oak Restoration Program 1994-2005 Final Report* published by the University of California Santa Barbara (Mahall et al., 2005). These reports documented the results of restoration experiments conducted in Santa Barbara County on oak seedling regeneration.

The planted live oak trees will be nurtured for five years, the last two years without supplemental watering, as outlined in the Santa Barbara County Grading Ordinance Guidelines (2003). Nurturing will include measures to promote tree survival and growth such as watering (for the first three years), weeding, browse protection, and fertilizing. At the end of five years, a success rate of at least 60 percent of planted trees (six trees for every mature tree removed) must be achieved. Success is defined as being in good health and demonstrating vigor and new growth without supplemental watering, as determined by an oak tree specialist.

### 6.1 SCHEDULE

Table 6-1 - Implementation Schedule describes the general implementation schedule for the planting of live oak trees. The planting of Oak Planting Units will likely occur in stages over a multi-year oak planting program.

**Table 6-1. Implementation Schedule**

| ACTION | TIMING |
|---|---|
| Collect acorns from the Project site. | Subsequent to Project approval, completed in the fall. |
| Propagate acorns in a nursery and/or acquire healthy container stock for planting. | Subsequent to Project approval, following acorn collection in the fall. |
| Detailed planting and maintenance plan and schedule including watering/irrigation system, plant protections, monitoring, etc. with guidance from oak tree specialist and/or qualified biologist | Subsequent to Project approval |
| Prepare site for planting. | Subsequent to Project approval. |
| Installation of protection fencing, as necessary. | Prior to planting (depending on need for underground protection) or during planting. |
| Installation of irrigation, as necessary. | Prior to planting, following site preparation activities. Expected to continue through at least the first three years. |
| Installation of container stock and/or planting of acorns (up to 3 acorns per hole). | Following site preparation activities, preferably in early November after the first rains. |
| Maintenance and Monitoring. | During Project activities, through the five year monitoring and nurturing period. |

## 6.2 OAK WOODLAND ACORN COLLECTION AND PROPAGATION

Acorns will be collected from mature trees occurring within the Project site. Acorns will be collected during early fall when they are just starting to mature. Acorns will be collected and stored in a cool place as recommended by an oak tree specialist. No more than 20 percent of the overall Project site population will be collected for propagation; however, a higher percentage of acorns will be collected from trees proposed for removal. Acorns may be stored until planting directly into the ground or within a nursery for initial development.

## 6.3 SITE PREPARATION

Site preparation will involve the removal of invasive noxious weeds prior to planting, as necessary. It is recommended that at least a two to three foot radius circle around the planting area be cleared of all vegetation to increase the availability of water for sapling establishment (University of California, 1995). Planting holes will be dug at least to the depth of container stock, or if possible, one to two feet below the planting spots and backfilling with non-compacted soil to promote deep root development (University of California, 1995). If planting acorns, the holes will be dug to an appropriate depth of one-half to one inch below the soil surface. Self-contained watering systems may also be used and will be installed under/above ground at this time.

## 6.4 PLANTING AND SEEDING

Planting of live oak trees will occur in pre-determined Oak Planting Units. Planting will occur in the late fall/winter months to take advantage of the rainy season and rooting period to ensure optimum survival. Saplings, either grown from acorns collected on-site or provided as container stock from a local nursery (from Santa Barbara and/or San Luis Obispo counties), will be planted with care to avoid transplant shock and root injury. If direct-seeding acorns (in-lieu of and/or in addition to planting saplings), acorns will be planted to an approximate depth of one-half to one inch below the soil surface.

Live oak trees will be planted in clusters on approximately 20 foot centers from each other and from existing oak trees at a density of approximately 70 live oak trees per acre. An average single cluster will be approximately three to four individuals spaced approximately 20 to 40 feet apart. Spacing of planted oak trees within each Oak Planting Unit may be adjusted depending on site conditions.

## 6.5 IRRIGATION

An irrigation plan will be prepared prior to site preparation to outline a strategy of how to provide water to all planted trees. The irrigation plan will include water sources (i.e., above ground tanks or water wells), location of irrigation lines, location of maintenance roads to access water storage sources, and watering method (e.g., truck, drip, self-contained systems, hand water using a vehicle mounted water buffalo, etc.). Irrigation lines will be positioned in a manner that would take the terrain of the site into consideration to ensure all individual plants receive the appropriate amount of water for a specific duration. Existing unpaved roads and existing water wells will be utilized to the greatest extent possible. An oak tree specialist will be consulted to guide and review the plan. The plan may be modified based on the current conditions of the site and to ensure the optimum growing conditions and increased survival. Plantings and nurture trees will be watered, as needed, for a year. When the plants have become established, are showing signs of vigor and

growth, irrigation will be reduced or terminated accordingly. Some tests may be undertaken to determine what irrigation strategy works best.

## 6.6 MULCHING

Mulch is often used to conserve moisture by reducing evapotranspiration from the soil and reducing weeds near seedlings that may compete for the water. The use of mulch (e.g., bark chips, straw, compost, or mulching paper) will be determined with input from the oak tree specialist. Some tests may be undertaken to determine the efficacy of mulching.

## 6.7 PROTECTIVE CAGING AND FENCING

Protective fencing or cages may be installed around oak trees and new acorn growth to reduce browsing by herbivores, as necessary. Cages can be formed using half-inch galvanized hardware cloth, formed into a cylinder 30 inches wide and four feet tall, or a similar method. The cages can be installed at ground level and anchored with rebar posts or similar materials. Additionally, gopher cages may be installed under the soil prior to, or concurrently, with the oak saplings/acorns to prevent damage from burrowing rodents.

Protective fencing may also be installed around the Oak Planting Units to keep out humans, cattle, wild pigs, and other animals that may damage, eat, or uproot young saplings/acorns. The protective fencing would be constructed of durable material, such as barbed wire fencing, that will help to prevent cattle, or other target animals, from impacting the planting area and withstand adverse weather conditions.

PAGE INTENTIONALLY BLANK

## 7.0 SMALL NURTURE TREES

Oak trees between six inches and six feet in height that are already growing in the Potential Oak Planting Area and/or other areas of the Project site can be nurtured and considered replacement trees or mitigation trees. These oak tree saplings, herein referred to as nurture trees, will be chosen based on site characteristics that promote successful long-term establishment, and nurturing feasibility throughout the Potential Oak Planting Area. Nurture trees will be selected in areas of relatively open canopy to provide adequate sunlight and have ample space for the opportunity to grow. Nurture trees will require similar care to planted trees for a duration of five years, including irrigation, weeding, mulching, and installation of protective cages above ground, as necessary. Below ground protective caging will not be implemented due to potential damage to sapling root structure.

PAGE INTENTIONALLY BLANK

## 8.0 TRANSPLANTING OF OAK TREES

Mature and/or sapling oak trees identified within the Project footprint and proposed for removal may be transplanted to a designated Oak Planting Unit within the Potential Oak Planting Area in order to salvage the tree. Several factors influence the success of oak tree transplants including, but not limited to: tree size, root mass, and canopy loss (Watson, 2005; and Dagit and Downer, 1997). The following general methodologies will be incorporated for salvaged trees to be transplanted:

1. Assess the trees ability to be transplanted. An oak tree specialist will be consulted to verify that these conditions are favorable for transplanting;
2. Target the rootball to be approximately 10 times the diameter of the tree trunk;
3. Implement best management practices when removing the tree from the ground, transporting tree to planting area, and transplanting into ground;
4. Assess and prepare the transplanting location prior to transplanting, by having the oak tree specialist analyze the quality, depth, and drainage characteristics of the soil, and irrigation sources; and
5. Provide appropriate post-planting care, which may include watering, mulching, and monitoring to ensure success.

PAGE INTENTIONALLY BLANK

# 9.0 MAINTENANCE AND MONITORING

Maintenance and monitoring of planted trees and nurture trees will begin after planting and will continue through a five year monitoring period, or as otherwise outlined in the success criteria below. Maintenance and monitoring is expected to decrease as oaks mature and become self-sufficient; however, if success criteria are not met within the five year monitoring period, adaptive management and contingency measures will be taken, and maintenance and monitoring will continue until success criteria are met. Maintenance activities may include repair and adjustment to irrigation systems, protective cages (above and below ground, as needed), weed abatement, and replacement plantings. Monitoring activities will include the evaluation of maintenance activities, as well as success of plantings and state of nurture trees. Monitors will identify particular attributes in each Oak Planting Unit that are contributing factors to changes in success (e.g., watering regiment, soil conditions, and predation). All maintenance and monitoring activities will be recorded.

## 9.1 IRRIGATION

Irrigation lines and self-contained watering systems will be checked during regular monitoring visits and replaced when damaged. Irrigation frequency and quantity will be monitored and adaptively managed based upon the needs of the saplings (plantings and nurture trees) for survival. Saplings will be irrigated until they are self-sufficient. The goal is to provide the saplings water for up to the first three years, then remove the irrigation for the remaining two years; however, if supplemental watering is necessary, the oak tree specialist may extend this timeframe.

## 9.2 PROTECTIVE CAGES AND FENCES

All protective cages and fences will be inspected and maintained during regular monitoring visits, or as necessary, and replaced when damaged.

## 9.3 WEED CONTROL

Removal of noxious invasive weedy plant species will occur during regular monitoring visits, or as often as necessary, specifically within a three foot radius around the sapling.

## 9.4 REPLACEMENT PLANTING

Replacement planting will be used as a contingency measure for planting failure in the event that plantings have less than 60 percent survival within a designated Oak Planting Unit. It is expected that some plantings will not survive the first two years based on natural survival rates of tree saplings and potential for herbivory. Replacement oaks will be planted using the same guidelines as initial installation, and any recommendations from successful initial mitigation planting. If supplemental acorns need to be collected, collecting will be conducted in the fall, along with planting to ensure mature seed collection, and planting success.

## 9.5 MONITORING

Site visits will be scheduled, as recommended by the oak tree specialist, to monitor the growth and success of the oak trees within each Oak Planting Unit. During each monitoring event, the height of each tree will be measured and recorded, and photographs will be taken to document site conditions within each Oak Planting Unit. Changes in irrigation systems and watering

regimes, impacts from cattle or other wildlife, and other maintenance needs will be documented. This information will be summarized and recorded. A five year monitoring period is required for all mitigation plantings; however, in the event that the Oak Planting Unit did not reach success criteria outlined below, additional years may be required in order to reach success.

## 10.0 SUCCESS CRITERIA FOR PLANTED, NURTURED, AND TRANSPLANTED TREES

The following outlines the success criteria used to determine successful regeneration of oak tree plantings and nurture trees within the designated Potential Oak Planting Area. The success criteria are based on regulatory codes and guidelines detailed in Section 3.0 above. These criteria are preliminary and subject to change based on Project permitting requirements:

1. Planted live oak trees will be nurtured for five years, the last two without supplemental watering within each Oak Planting Unit. In the event the Oak Planting Unit did not reach success criteria within the five year period, or supplemental water was required for longer than three years, additional years of maintenance and monitoring may be required until the success criteria are reached;
2. An Oak Planting Unit is determined successful if at least 60 percent of the planted trees (six trees for every 10 trees planted ) are in good health and demonstrate vigor by signs of new growth without supplemental watering, as determined by an oak tree specialist;
3. Nurture trees are deemed successful if the sapling demonstrates vigor and signs of new growth after the five year minimum monitoring period without supplemental watering (after three years) and protective fencing ; and/or
4. Transplanted trees are deemed successful only if the tree demonstrates vigor and signs of new growth without supplemental watering after three years, and then continues to survive following the minimum five year monitoring period.

PAGE INTENTIONALLY BLANK

## 11.0 SUMMARY

Oak woodland communities are important to the ecological integrity of Santa Barbara County and have been recognized by the County as integral parts of the state's cultural and historical heritage worth protecting. The Project has been designed to minimize grading and land disturbance by maximizing the use of existing roads, well pads, cleared areas, and contours wherever possible. Care was taken to avoid oak tree removals by minimizing the number and size of new well pads, by routing new roads around canopies, and by designing the new facility campus as a network of smaller parking lot and building spaces that better fit in the existing spaces between oak tree canopies. Where oak tree removal is unavoidable, this Plan provides an adaptive replacement plan for successful mitigation for the loss of the mature oak trees, per guidance from Santa Barbara County standards and ordinances.

Mitigation for mature live oak trees that must be removed will be compensated 10:1 by replacement planting of acorns or young one gallon saplings, 3:1 by replacement planting of 15 gallon saplings, maintenance and protection of nurture trees (naturally occurring oak trees between six inches and six feet tall) 10:1 within the Project site, 1:1 by transplanted mature trees from within the Project development footprint, or a combination thereof.

Trees will be planted in the designated Potential Oak Planting Area consisting of non-native annual grasslands, surrounded by existing coast live oak trees and coastal sage scrub communities. This Potential Oak Planting Area lies outside the Project disturbance footprint and was selected based on a desktop evaluation of planting suitability (i.e., slope, plant community, and soil conditions), property access/ownership constraints, and existing and future land use considerations. Considering the characteristics that support suitable planting locations within the Project site, 237.2 acres of suitable planting area has been identified within the 686.4 acre Conservation Area, with the potential to support a maximum of 16,545 planted trees, spaced 20 feet apart. The remaining acreage beyond the Potential Oak Planting Area that is comprised of existing oak woodland may be used to identify and protect nurture trees.

Maintenance of the Potential Oak Planting Area will include irrigating, weeding, mulching, installing and maintaining protective caging/fencing, and additional planting/seeding for a five year monitoring period for each Oak Planting Unit. Monitoring of the Oak Planting Units will include documentation of tree height, site photographs, and documentation of site conditions for any additional maintenance activities. At the end of five years, a success rate of at least 60 percent of planted trees must be in good health and demonstrate vigor by signs of new growth without supplemental watering. In the event the Oak Planting Unit does not reach success criteria following the five year monitoring period, additional mitigation or monitoring may be required in order to reach success.

The oaks in the Potential Oak Planting Area will be conserved and protected from future removal and safeguarded from erosion, overgrazing, agriculture, and development activities. A long-term management strategy will be developed for the entire Potential Oak Planting Area to ensure the protection of planted oaks and the existing oak woodland.

PAGE INTENTIONALLY BLANK

## 12.0 REFERENCES

Bornyasz, M.; Graham, R.; Allen, M. 2002. Distribution of *Quercus agrifolia* mycorrhizae deep within weathered bedrock: a potential mechanism for transport of stored water. In: Standiford, Richard B.; McCreary, Douglas; Purcell, Kathryn L., technical coordinators. Proceedings of the 5th symposium on oak woodlands: oaks in California's changing landscape; 2001 October 22-25; San Diego, CA. Gen. Tech. Rep. PSW-GTR-184. Albany, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station: 821-825.

County of Santa Barbara Planning and Development (County). 2003. Deciduous Oak Tree Protection and Regeneration. Article IX of Chapter 35, Santa Barbara County Code. Santa Barbara, CA. June.

County of Santa Barbara Planning and Development (County). 2003. Appendix A Grading Ordinance Guidelines for Native Oak Tree Removal. Santa Barbara, CA. April.

County of Santa Barbara Planning and Development (County). 2008. Environmental Thresholds and Guidelines Manual. Santa Barbara, CA. October.

Dagit, Rosi and A. James Downer. 1997. USDA Forest Service Gen. Tech. Rep. PSW-GTR-160.Mahall, Bruce E., Frank W. Davis, Claudia M. Tyler. 2005. Santa Barbara County Oak Restoration Program August 1994 – August 2005 Final Report. University of Santa Barbara. Santa Barbara, CA.

Downie, Denise D.; Taskey, Ronald D. 1997. Soil characteristics of blue oak and coast live oak ecosystems. In: Pillsbury, Norman H.; Verner, Jared; Tietje, William D., technical coordinators. Proceedings of a symposium on oak woodlands: ecology, management, and urban interface issues; 1996 March 19-22; San Luis Obispo, CA. Gen. Tech. Rep. PSW-GTR-160. Albany, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station: 65-73.

Holland, R. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. Unpublished Report. California Fish and Game, Natural Heritage Division. Sacramento, CA.

Padre Associates, Inc. 2014b. Biological Resources Report for the East Cat Canyon Oil Field Redevelopment Project, Santa Barbara County, California.

Padre Associates, Inc. 2014a. Oak Tree Protection Plan for the East Cat Canyon Oil Field Redevelopment Project, Santa Barbara County, California.

Sawyer, John O., Todd Keeler-Wolf, and Julie M. Evans. 2009. A Manual of California Vegetation Second Edition. California Native Plant Society. Berkeley, CA.

State Board of Forestry. 2006. General Guidelines for Creating Defensible Space. California Department of Forestry and Fire Protection. February.

T.J. Cross Engineers. 2014. Preliminary Hydrology Report for East Cat Canyon Field Redevelopment Project.

T.C. Cross Engineers. 2014. Storm Water Pollution Prevention Plan for East Cat Canyon Field Redevelopment Project Phase I, Risk Level 2.

United States Department of Agriculture. 2014. SSURGO Soil Survey Data. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/survey/geo/?cid=nrcs142p2_053627

University of California. 1995. How to Grow California Oaks. Dept. of Agriculture and Natural Resources.http://ucanr.edu/sites/oak_range/Oak_Articles_On_Line/Oak_Regeneration_Restoration/How_to_Grow_California_Oaks/

Watson, Todd W. 2005. Influence of Tree Size on Transplant Establishment and Growth. Journal of the American Society for Horticultural Science. HortTechnology 15(1). 118-122. http://horttech.ashspublications.org/content/15/1/118.full.pdf

# BIOLOGICAL RESOURCES SURVEY REPORT - NATURAL GAS IMPORT PIPELINE

## EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT
## SANTA BARBARA COUNTY, CALIFORNIA

**Prepared for:**

Aera Energy LLC
10000 Ming Avenue
Bakersfield, California 93311

**Prepared by:**

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

369 Pacific Street
San Luis Obispo, California 93401

**OCTOBER 2014**

**Project No. 1002-0457**

# Authenticity and Signature Page

**Padre Associates, Inc.**
**369 Pacific Street**
**San Luis Obispo, California 93401**
**805-786-2650**

Padre Associates, Inc. hereby certifies that all statements furnished in the following Biological Resources Survey Report and all supporting information required for this biological evaluation are true and correct to the best of our knowledge and belief. Further, we certify that all field surveys associated with this report were performed by Padre using standards accepted by Santa Barbara County and accurately represent all information retained from field visits to the Project Site in Santa Barbara County, California.

Eric Snelling
Principal

Thea Benson
Senior Biologist

Christina Santala
Staff Biologist

PAGE INTENTIONALLY BLANK

## EXECUTIVE SUMMARY

The following Biological Resources Survey Report (Report) has been prepared by Padre Associates, Inc. (Padre) documenting the results of a biological survey conducted for Aera Energy LLC (Aera) for the construction of a natural gas pipeline. It is intended to deliver natural gas from the SoCalGas terminal near the town of Orcutt (7002 Graciosa Road) to the Aera-owned properties within the eastern portion of the Cat Canyon Oil Field located at 6516 Cat Canyon Road, in northern Santa Barbara County, California (Project Site). The pipeline would supply natural gas for operations at the proposed East Cat Canyon Oil Field Redevelopment Project (Project). The pipeline will be constructed below public roads, within public road rights-of-way, for nearly all of its proposed length.

The desktop analysis and field surveys concluded that suitable habitat for several special-status plants and animals exist within the regions surrounding the proposed pipeline alignment, specifically within the biological survey area (BSA) (within the roadways and rights-of-way, plus 200-foot buffer areas on either side, extending from the right-of-way boundary). Special-status plant species that have a potential for occurrence within the BSA include: Hoover's bent grass, Miles' milk-vetch, dwarf calycadenia, La Graciosa thistle, Gaviota tarplant, dune larkspur, Blochman's leafy daisy, mesa horkelia, pale-yellow layia, Gambel's water cress, and black-flowered figwort. No special-status species were observed during October and June field surveys, however, results may be confounded by seasonal fluctuations, survey timing, and access constraints. Special-status wildlife species that have the potential for occurrence within the BSA include: monarch butterfly, vernal pool fairy shrimp, coast horned lizard, coast patch-nosed snake, silvery legless lizard, southwestern pond turtle, California red-legged frog, California tiger salamander, western spadefoot, burrowing owl, California horned lark, golden eagle, least Bell's vireo, loggerhead shrike, oak titmouse, purple martin, southern California rufous-crowned sparrow, tricolored blackbird, yellow warbler, pallid bat, western red bat, hoary bat, Townsend's big-eared bat, Yuma myotis, and American badger. During the field surveys, American badger and oak titmouse were observed within the BSA.

Suitable habitat for these potentially occurring special-status species was observed outside the road and road shoulders (public right-of-way) within of the BSA. The pipeline is proposed for construction under roads where suitable habitat for these species does not occur and no grading or other vegetation removal activities will be incorporated into the Project. Additionally, the proposed pipeline construction has been designed to limit activities as much as possible to avoid stream channels, agricultural drainages, wetlands, and associated riparian habitats, to the greatest extent feasible. The construction of the pipeline would therefore not directly impact suitable habitat to potentially occurring special-status species. Local wildlife populations, including special-status species, may potentially be adversely affected by the temporary disruption of foraging, burrowing, and nesting activities due to an increase of human activity, use of heavy equipment, and noise associated with the initial road excavation, pipeline installation, and road repair activities. Impacts to biological resources are expected to be temporary and implementation of recommended avoidance and minimization measures outlined in this Report would reduce impacts to less than significant. These measures include the following:

1. The use of heavy equipment and vehicles will avoid impacts to native vegetation to the greatest extent feasible;
2. Work areas, including equipment lay-down areas, will be pre-designated on plans prior to the start of work;
3. A Drilling Fluid Release Contingency Plan will be prepared for all horizontal directional drilling (HDD) operations and will be prepared with special emphasis on stream crossings. This plan will include appropriate measures for containment of spills, agency notifications, clean-up protocols, and procedures for restoring lay down areas and other impacted areas to pre-disturbance conditions. Spill containment equipment will be available on-site during all Project drilling and fuel handling activities. A qualified Biologist knowledgeable in HDD operations will be onsite during HDD operations along actively flowing streams or ponded water to document any spill or drilling fluid release and provide additional guidance to protect biological resources in the event of a spill or drilling fluid release. In the event that a spill or drilling fluid release occurs within a stream corridor, all work will be halted and the spill will be contained using the procedures outlined in the Project-specific Drilling Fluid Release Contingency Plan;
4. In the event Project activities are scheduled during the nesting bird season, between March 15 and September 1, a nesting bird survey will be completed by a qualified Biologist with experience in bird identification and nest searching. No active nests of native bird species protected by the Migratory Bird Treaty Act will be removed by Project activities and appropriate buffers will be incorporated into the Project plan to ensure the protection of the nest. Buffers will be established and delineated by a qualified Biologist based on an appropriate distance to minimize disturbance to the active nest;
5. Project activities will be completed during the daylight hours, to the greatest extent possible. Project activities will avoid rainy nights, when California tiger salamanders (CTS) are most active. A qualified Biologist will complete a pre-activity survey prior to work that follows a rainy night, to ensure no CTS are present within the work areas. Training will be provided to the crew and crew supervisors to recognize, report, and avoid CTS. In the event a CTS is observed in the work area, the work in the immediate area of the CTS will temporarily cease until agency notification is complete;
6. A qualified Biologist with experience identifying American badger and their potential dens will conduct a pre-activity survey prior to initial work activities. All potentially active badger dens that would be directly impacted by construction activities will be inspected by a qualified Biologist using an optic scope or monitored using tracking medium/remote sensor cameras (3-days) to ensure the den is vacant. After verification that the den is unoccupied it will be immediately excavated and backfilled. If badger activity is detected at a den, the entrance to the den will blocked with soil, sticks, or debris for three to five days to discourage the use of the dens prior to Project disturbance activities. After the biologist determines that the badger has stopped using an active den, the den will be hand-excavated with a shovel to prevent re-use during Project construction;

7. A qualified Biologist with experience identifying special-status plants and associated habitats will conduct a pre-activity survey of all work areas, including staging and laydown areas, prior to any ground disturbing activities. Any special-status plant populations encountered will be flagged and avoided to the greatest extent possible. These areas will be avoided for staging or stockpiling of material or soil when feasible. La Graciosa thistle, Gaviota tarplant, and Lompoc yerba santa observations will be reported to the USFWS;
8. All food-related items and trash will be removed from the site daily or contained within a closed container;
9. An Environmental Sensitivity Orientation will be presented to all on-site personnel at the beginning of the initial work activities. The orientation will discuss sensitive species with potential to occur in the work areas, with emphasis on special-status wildlife and plant species. The orientation will explain the importance of minimizing disturbance, adhering to all permit conditions, and proper reporting of observations or incidents. The orientation will be repeated if additional personnel are added to the Project;
10. At no time will oak trees be removed as part of Project activities. A certified arborist will oversee trimming of oak tree limbs that have the potential to be impacted as a result of vehicle or equipment usage associated with Project activities; and
11. As necessary, erosion control measures will be implemented to prevent runoff into nearby drainages. Straw waddles, in conjunction with other methods, will be temporarily installed to prevent erosion of soils disturbed by the Project and to avoid and/or minimize disturbed sediments from entering adjacent waterways. Silt fencing will be avoided adjacent to water resources, to the greatest extent feasible, to minimize potential barriers to migrating amphibians and other wildlife.

PAGE INTENTIONALLY BLANK

## TABLE OF CONTENTS

**1.0 INTRODUCTION ..... 1**

1.1 PROJECT DESCRIPTION ..... 1

**2.0 REGIONAL SETTING ..... 5**

**3.0 REGULATORY SETTING ..... 7**

3.1 FEDERAL REGULATIONS ..... 7
3.2 STATE REGULATIONS ..... 8
3.3 SANTA BARBARA COUNTY REGULATIONS ..... 10

**4.0 METHODS ..... 13**

4.1 DESKTOP REVIEW ..... 13
4.2 FIELD SURVEYS ..... 14

**5.0 FINDINGS ..... 17**

5.1 REGIONALLY OCCURRING SENSTIVE HABITATS ..... 17
5.2 AQUATIC FEATURES ..... 27
5.3 VEGETATION TYPES OCCURRING WITHIN THE BSA ..... 28
5.4 SPECIAL-STATUS PLANT SPECIES ..... 51
5.5 WILDLIFE OCCURRING WITHIN THE BSA ..... 57
5.6 SPECIAL-STATUS WILDLIFE SPECIES ..... 59

**6.0 RECOMMENDED AVOIDANCE AND MINIMIZATION MEASURES ..... 75**

**7.0 IMPACT SUMMARY ..... 77**

**8.0 LITERATURE CITED ..... 79**

## FIGURES

1-1 Project Location…… 3

5-1 Documented Sensitive Resources……... 19

5-2 USFWS Critical Habitat Areas (5-2, 5-2A, 5-2B) …… 21

5-3 Biological Resources Identified within Biological Survey Area (A through J) ……...29

## TABLES

5-1 Definitions of Special-Status Plant Species…… 51

5-2 Special-Status Plant Species of the Project Region…… 52

5-3 Blooming Period for Special-Status Plants…… 54

5-4 Definitions of Special-Status Wildlife Species…… 59

5-5 Special-Status Wildlife Species of the Project Region…… 60

## APPENDICES

A Site Photographs

B Vascular Plant Inventory

C Wildlife Species List

## LIST OF ACRONYMS

| | |
|---|---|
| ACOE | U.S. Army Corps of Engineers |
| BCC | Birds of Conservation Concern |
| BMPs | Best Management Practices |
| BSA | Biological Survey Area |
| CDFG | California Department of Fish and Game |
| CDFW | California Department of Fish and Wildlife |
| CEQA | California Environmental Quality Act |
| CESA | California Endangered Species Act |
| CNDDB | California Natural Diversity Database |
| CNPS | California Native Plant Society |
| CRLF | California Red-Legged Frog |
| CSC | Species of Special Concern |
| CTS | California Tiger Salamander |
| CWA | Clean Water Act |
| DEM | Digital Elevation Model |
| DPS | Distinct Population Segment |
| EIR | Environmental Impact Report |
| EPA | U.S. Environmental Protection Agency |
| ESHA | Environmentally Sensitive Habitat Areas |
| ESU | Evolutionary Significant Unit |
| FESA | Federal Endangered Species Act |
| GIS | Geographic Information Systems |
| HDD | Horizontal Directional Drilling |
| LSAA | Lake or Streambed Alteration Agreement |
| MBTA | Federal Migratory Bird Treaty Act |
| MOU | Memorandum of Understanding |
| NMFS | National Marine Fisheries Service |
| NWI | National Wetland Inventory |
| ODPP | Oil and Gas Drilling/Production Plan |
| OHWM | Ordinary High Water Mark |
| RWQCB | Regional Water Quality Control Board |
| SBCPDD | Santa Barbara County Planning and Development Department |
| SoCalGas | Southern California Gas Company |
| SWRCB | State Water Resources Control Board |
| USFWS | U.S. Fish and Wildlife Service |
| USGS | U.S. Geological Survey |
| VPFS | Vernal Pool Fairy Shrimp |
| WoUS | Waters of the United States |

PAGE INTENTIONALLY BLANK

# 1.0 INTRODUCTION

The following Biological Resources Report (Report) has been prepared by Padre Associates, Inc. (Padre) documenting the results of a biological survey conducted for Aera Energy LLC (Aera) for the construction of a natural gas pipeline. The pipeline is intended to deliver natural gas from the Southern California Gas Company (SoCalGas) terminal near the town of Orcutt (7002 Graciosa Road) to the Aera-owned properties within the eastern portion of the Cat Canyon Oil Field located in northern Santa Barbara County, California (Project Site). It will supply natural gas for operations at the proposed East Cat Canyon Oil Field Redevelopment Project (Project). The pipeline would be constructed beneath public road rights-of-way for nearly all of its proposed length, except for portions of SoCalGas and Aera property.

The primary objectives of this biological survey were to: 1) determine the type and extent of vegetation types and wildlife habitats present along the pipeline route (roadways and rights-of-way) and within 200-foot buffer areas on either side, extending from the right-of-way boundary; 2) identify special-status plant and wildlife species, or known habitat of special-status species, occurring within the region (within five-miles of the pipeline); and, 3) recommend avoidance and minimization measures for proposed pipeline installation activities to provide protection of potentially occurring special-status species and associated habitats. The information provided in this Report is intended to support Project permitting with the appropriate regulatory agencies.

## 1.1 PROJECT DESCRIPTION

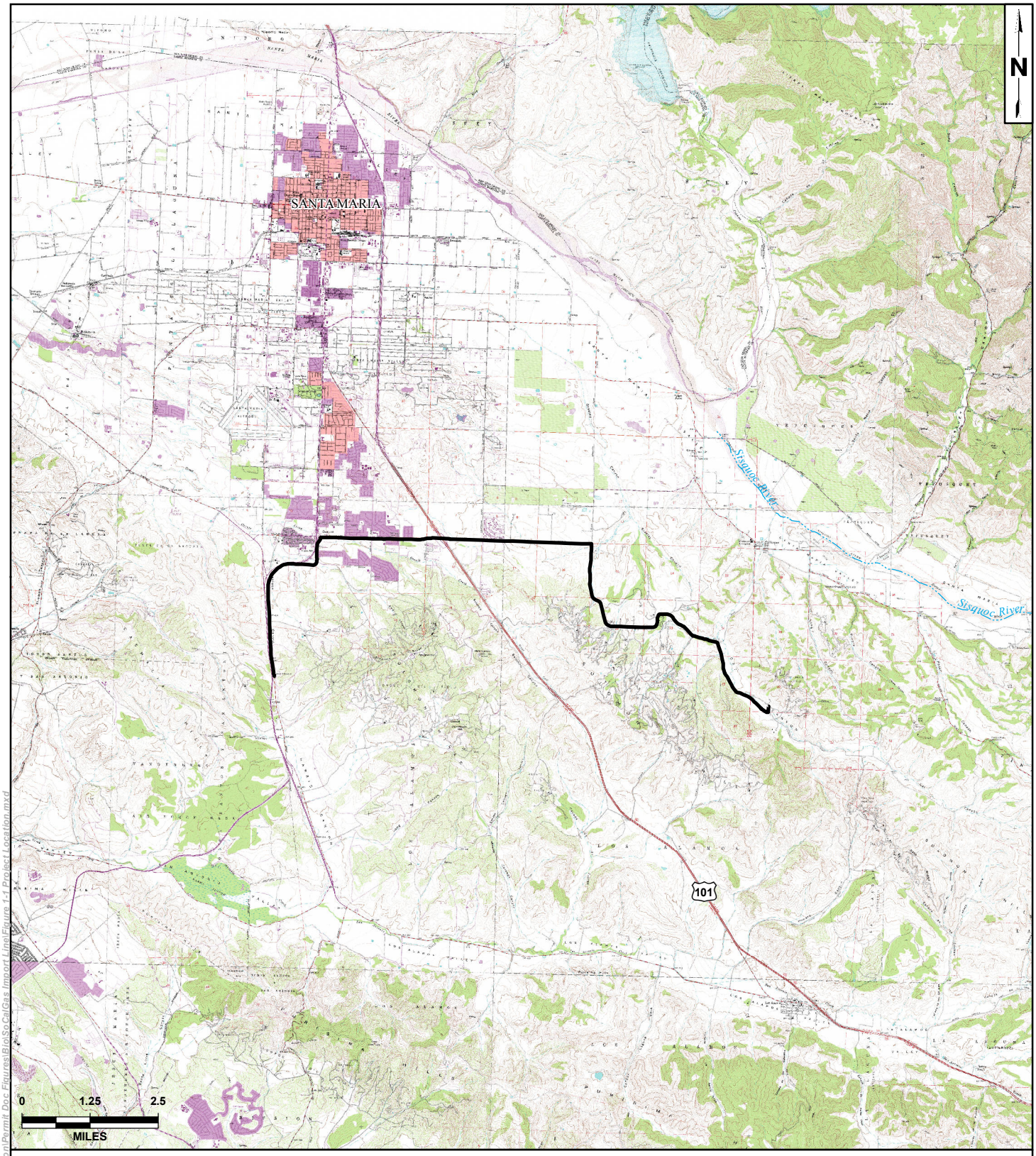
The proposed pipeline alignment begins at the SoCal Gas terminal along Graciosa Road near Orcutt, CA, and lies under established roads within public rights-of-way for all but 0.1 mile of its (approximately) 14 mile length. The pipeline begins at SoCalGas' existing Divide Station and traverses north within Graciosa Road for approximately 2.65 miles, where Graciosa Road turns into Orcutt Road. The pipeline route continues northward within Orcutt Road for approximately 0.57 mile, then turns east on Clark Avenue and continues along Clark Avenue for approximately 5.02 miles until Clark Road ends at Dominion Road. The pipeline route continues southeast within Dominion Road as the road approaches Palmer Road, approximately 3.5 miles from the intersection of Clark Avenue and Dominion Road. At this point, the pipeline route travels east within Palmer Road and Cat Canyon Road for approximately 2.18 miles before leaving the roadway and traveling across Cat Canyon Creek for approximately 0.1 mile to the terminus at the Project Site (Figure 1-1 - Project Location).

Aera is requesting approval from the Santa Barbara County Planning and Development Department (SBCPDD) of an Oil and Gas Drilling/Production Plan (ODPP) to redevelop and re-establish oil production within the Brooks formation of the East Area of the state-designated Cat Canyon Oil Field. Implementation of the ODPP will involve the re-establishment of oil production in an existing oil field by drilling and operating oil/gas production wells, steam injection wells, observation wells, brackish source water production wells, injection wells, disposal wells, and freshwater wells. In addition, there will be a steam generation operation, a central processing plant, gathering and distribution pipelines, and related ancillary equipment. The proposed natural

gas pipeline will supply gas to the oil field redevelopment project, and therefore the pipeline construction is being included in the oilfield redevelopment project studies.

This biological survey focuses entirely on potential impacts to sensitive resources resulting from the installation of the proposed natural gas pipeline. Other supporting infrastructure for the oilfield, such as production facilities and wells, production gathering pipelines, and electrical transmission lines, are not discussed as part of this report and will be included in a separate report.

The pipeline installation is expected to utilize a combination of open trenching, jack-and-bore, slick bore, and horizontal directional drilling (HDD) techniques. Approximately 13.9 miles of the expected 14 mile pipeline is expected to be underground, below paved roads or otherwise within public rights-of-way. Trenching will be used to install the natural gas pipeline under existing roads, and/or within the public road rights-of-way and Aera-owned properties. An HDD method will be used at stream/drainage crossings (at top of bank) to avoid impacts to waterways and under significant roads of high traffic, including U.S. Highway 101. Exact staging areas for equipment, jack and bore, and HDD operations have not been finalized; however, recommendations have been made (refer to Section 6.0) that staging areas will not include any significant vegetation removal and will include the installation of appropriate best management practices (BMPs) to properly manage storm water runoff and any potential fluid spills as a result of equipment fueling or drilling fluid release.




LEGEND:

Proposed Gas Pipeline Route

*Source: USGS Topo Quad, DPSI 2013 Survey, Santa Barbara County, TIGER*
*Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet*
*Notes: This map was created for informational and display purposed only*

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Permit Doc Figures\Bio\SoCalGas Import Line\Figure 1-1 Project Location.mxd

**padre associates, inc.**
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: | | PROJECT LOCATION | FIGURE |
|---|---|---|---|
| EAST CAT CANYON<br>SANTA BARBARA COUNTY, CA | | | 1-1 |
| PROJECT NUMBER: 1002-0457 | DATE: October 2014 | | |

PAGE INTENTIONALLY BLANK

## 2.0 REGIONAL SETTING

The regional topography is generally comprised of steeply to moderately incised canyons and drainages, moderate to steep hills, and valleys primarily utilized for oil extraction, rotational row-crop agriculture and vineyards, city development, and large residential lots grazed by livestock. Drainages found throughout the pipeline alignment are ephemeral and consist of dry, loose sand and rock with moderate to dense scrub and scattered oak woodland habitat. There are also a number or agricultural drainages that are regularly cleared of vegetation and the presence of water is irregular and dependent on crop irrigation cycles.

PAGE INTENTIONALLY BLANK

# 3.0 REGULATORY SETTING

This section identifies and discusses the regulations and policies administered by resource agencies pertaining to those biological resources that are known to exist and/or have the potential to occur within the Project Site and surrounding region.

## 3.1 FEDERAL REGULATIONS

**Endangered Species Act.** The Federal Endangered Species Act (FESA), administered by the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS), provides protection to species listed as Threatened or Endangered, and Critical Habitat designated for the protection of such species. The FESA prohibits "take" of Threatened and Endangered species except under certain circumstances and only with authorization from the USFWS through a permit under sections 4(d), 7, or 10(a) of the FESA. Under the FESA, "take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.

Critical Habitat is defined in Section 3(5)(A) of the FESA as: (1) specific areas within the geographical area occupied by the species at the time of listing, on which are found those physical or biological features that are essential to the conservation of the listed species and that may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by the species at the time of listing that are essential for the conservation of a listed species.

The FESA also provides protection to those species proposed to be listed under FESA and maintains lists of species that are neither formally listed nor proposed, but could potentially be listed in the future. These federal candidate species include taxa for which substantial information on biological vulnerability and potential threats exist, and are maintained in order to support the appropriateness of proposing to list the taxa as an Endangered or Threatened species. The USFWS also manages Birds of Conservation Concern (BCC), which include bird species of highest conservation priorities in effort to draw attention to species in need of conservation action.

**Migratory Bird Treaty Act.** The USFWS also administers the Federal Migratory Bird Treaty Act (MBTA) of 1918 (16 USC 703-711). The MBTA establishes Federal responsibilities for the protection of nearly all species of birds, their eggs, and their nests. The MBTA of 1918 implemented the 1916 Convention between the United States and Great Britain for the protection of birds migrating between the United States and Canada; implemented the 1936 Convention for the Protection of Migratory Birds and Animals between the United States and Mexico; and similar conventions between the United States and Japan (1972) and the Union of Soviet Socialist Republics (1976). Under the MBTA, it is unlawful to kill, collect, take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR 10, including feathers or other parts, nests, eggs or products, except as allowed by implementing regulations (50 CFR 21). Certain game bird species are allowed to be hunted for specific periods determined by federal and state governments.

**Clean Water Act.** The Clean Water Act (CWA), formally entitled the Federal Water Pollution Control Act of 1972, is comprehensive legislation enacted to protect the nation's waters. The Act generally includes reference to its substantial supplementation by the CWA of 1977. Both Acts were subsequently amended in 1981, 1987, and 1993. Overall, the CWA seeks to protect the nation's water from pollution by setting water quality standards for surface water and by limiting the discharge of effluents into waters of the United States (WoUS). These water quality standards are enforced by the U.S. Environmental Protection Agency (EPA).

The U.S. Army Corps of Engineers (ACOE) is responsible for the issuance of permits for the placement of dredged or fill material into WoUS pursuant to Section 404 of the Clean Water Act (33 USC 1344). As defined by the ACOE in 33 CFR 328.3(a)(3), WoUS are those waters that are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; tributaries and impoundments to such waters; all interstate waters including interstate wetlands; and territorial seas. In addition, federal guidance has been developed that requires careful examination and documentation of the physical location(s) and hydrologic connections among waters/wetlands. To determine federal jurisdiction, particular focus is given to (1) surface hydrologic connections between a wetland and "navigable waters in fact," (2) "adjacency" of a wetland to traditionally navigable waters, and thus (3) a "significant nexus" to interstate commerce. WoUS/wetlands features can also be determined to be under federal jurisdiction by the ACOE or EPA if a "significant nexus" can be shown between the wetland feature in question and its contribution to the maintenance or restoration of the physical, chemical, or biological integrity of downstream waters that are traditionally navigable.

In non-tidal waters, the lateral extent of ACOE jurisdiction is determined by the ordinary high water mark (OHWM), which is defined as the: "…*line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas*" (33 CFR 328[e]).

## 3.2 STATE REGULATIONS

**Porter-Cologne Water Quality Control Act.** The Porter-Cologne Water Quality Control Act (CA Water Code §§ 13000-13999.10) mandates that waters of the state shall be protected, such that activities that may affect waters of the state shall be regulated to attain the highest quality. This Act establishes the State Water Resources Control Board (SWRCB) as the principal state agency for controlling water quality in California. The SWRCB provides regulations that mandate a "non-degradation policy" for state waters, especially those of high quality. The SWRCB is divided into local Regional Water Quality Control Boards (RWQCB).

Pursuant to Section 401 of the CWA, the ACOE cannot issue a federal permit until the State of California first issues a water quality certification to ensure that a project will comply with state water quality standards. The authority to issue water quality certifications for the following Project is vested with the Central Coast RWQCB.

**California Fish and Game Code.** The California Department of Fish and Wildlife (CDFW), formerly the California Department of Fish and Game (CDFG), administers a number of laws and programs designed to protect fish and wildlife resources. Principal of these is the California Endangered Species Act of 1984 (CESA) Fish and Game Code Section 2050 that regulates the listing and take of state Endangered and Threatened species. CDFW also maintains lists of Candidate-Endangered species and Candidate-Threatened species. California candidate species are afforded the same level of protection as listed species. CDFW also designates Species of Special Concern (CSC) that are of limited distribution, declining populations, diminishing habitat, or unusual scientific, recreational, or educational value. These species do not have the same legal protection as listed species, but may be added to official lists in the future.

The CDFW also manage a Watch List that includes "Taxa to Watch" (Shuford and Gardali, 2008), which includes: 1) species not on the current Special Concern list but were on previous lists and they have not been state listed under CESA; 2) species that were previously state or federally listed and now are on neither list; or 3) species are on the list of Fully Protected species.

CDFW administers other state laws designed to protect wildlife and plants. Section 3511 of the California Fish and Game Code designates species that are afforded Fully Protected status. Fish and Game Code Sections 4700 and 5515 assign the same status to specified mammals and fish. These statutes generally provide that specifically identified birds, mammals, and fish "or parts thereof may not be taken or possessed at any time and no provision of [the Fish and Game] code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected [bird, mammal, or fish] and no permits or licenses heretofore issued shall have any force or effect" for any such purpose. For fully protected fish and mammals, the only exception to the take prohibition is that the Fish and Game Commission may authorize the collecting of such species "for necessary scientific research" (Fish and Game Code, Sections 4700, 5515). With a proper permit, Fully Protected birds may also be captured live and relocated "for the protection of livestock" (Section 3511). Section 3503.5 protects birds-of-prey (Falconiformes and Strigiformes), their eggs, and their nests.

CDFW manages the California Native Plant Protection Act of 1977 (Fish and Game Code Section 1900, *et seq*.), which was enacted to identify, designate and, protect rare plants. The California Native Plant Society (CNPS) operates under a Memorandum of Understanding (MOU) with the CDFW and outlines broad cooperation in rare plant assessment and protection, and formalizes cooperative ventures such as data sharing and production of complementary information sources for rare plants.

Pursuant to Section 1602 of the California Fish and Game Code, CDFW requires a Lake or Streambed Alteration Agreement (LSAA) between CDFW and any state or local governmental agency, public utility, or private party before the initiation of any construction project that will: 1) substantially divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake; 2) substantially change or use materials from a streambed; or 3) result in the disposal or deposition of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into any river, stream, or lake. Therefore, the CDFW claims

jurisdiction over the bed, bank, and channel of the drainage that may be impacted by project activities.

**California Environmental Quality Act.** Project-related adverse impacts on special-status species are considered significant for California Environmental Quality Act (CEQA) purposes. Section 15065 of CEQA states that a Lead Agency shall find that a project may have a significant effect on the environment and thereby require an Environmental Impact Report (EIR) to be prepared for the project where the project has the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal.

Further, CEQA Appendix G states that a project will normally have a significant effect on the environment if it will:

> "(a) Conflict with adopted environmental plans and goals of the community where it is located;
>
> (c) Substantially affect a rare or endangered species of animal, plant or the habitat of the species;
>
> (d) Interfere substantially with the movement of any resident or migratory fish or wildlife species; and
>
> (e) Substantially diminish habitat for fish, wildlife or plants."

## 3.3 SANTA BARBARA COUNTY REGULATIONS

Requirements for the protection of biological resources in the unincorporated area of Santa Barbara County are provided within the Comprehensive Plan Conservation Element, Environmental Resource Management Element, Land Use Element, Community Plans, and the Coastal Land Use Plan. These documents identify sensitive habitats and species, and provide measures to direct project design and policies to protect biological resources. These Plans/Elements provide a framework of policies designed to protect special-status species and environmentally sensitive habitat areas (ESHA). Environmental Thresholds and Guidelines Manual, published in October of 2008 by the County, is used to assist in determining levels of impacts to sensitive areas and appropriate methods for avoidance, minimization, and/or mitigation.

Factors that are used in assessing the significance of project impacts on biological resources includes size of project; the relative disturbance to habitat occurring in Project region and immediate vicinity; type of impact; and, timing relative to the occurrence of sensitive resources that project may impact.

Santa Barbara County (2008) determines that disturbance impacts may be *Significant* based on substantial evidence in the record, if a project substantially impacts sensitive resources in the following ways:

1. Substantially reduce or eliminate species diversity or abundance;

2. Substantially reduce or eliminate quantity or quality of nesting areas;
3. Substantially limit reproductive capacity through losses of individuals or habitat;
4. Substantially fragment, eliminate, or otherwise disrupt foraging areas and/or access to food sources;
5. Substantially limit or fragment range and movement (geographic distribution or animals and/or seed dispersal routes; and
6. Substantially interfere with natural processes, such as fire or flooding, upon which the habitat depends.

Disturbance impacts may be *Less Than Significant* if the project occurs in an area "where there is little or no importance to a given habitat and it is presumed that disruption would not create a significant impact" (County of Santa Barbara, 2008).

Examples of areas where impacts to habitat are presumed to be *Insignificant* include: "small acreages of non-native grassland if wildlife values are low; individuals or stands of non-native trees if not used by important animal species such as raptors or monarch butterflies; areas of historical disturbance such as intensive agriculture; small pockets of habitats already significantly fragmented or isolated, and degraded or disturbed; and, areas of primarily ruderal species resulting from pre-existing man-made disturbance" (County of Santa Barbara, 2008).

PAGE INTENTIONALLY BLANK

# 4.0 METHODS

This Report includes a desktop review of the Project region (within five-miles from the pipeline alignment) and field surveys to document resources within the Biological Survey Area (BSA), which included the area of the proposed natural gas pipeline alignment (roadways and rights-of-way) and 200-foot buffer areas on either side of this area, extending from the right-of-way boundary. Field surveys were limited to the public rights-of-way, which included the roadways and road shoulders within the BSA; however, aerial field maps were utilized during field surveys to further analyze vegetation types within the remaining areas of the BSA. Detailed information on resources utilized for the desktop analysis and field survey methodologies are provided below.

## 4.1 DESKTOP REVIEW

The desktop review included an assessment of the surrounding region of the BSA. The review included a query of the CDFW California Natural Diversity Database (CNDDB) to identify reported occurrences of special-status plant and wildlife species and sensitive habitats within the regional area surrounding and including the BSA. The CNDDB query included Twitchell Dam, Tepusquet Canyon, Sisquoc, Orcutt, Lompoc, Los Alamos, Zaca Creek, Foxen Canyon, and Santa Maria U. S. Geological Survey (USGS) quadrangles (CDFW, 2014). The CNDDB is a statewide database of the status and documented locations of rare, threatened, endangered, and special-status species and natural communities in California. All wildlife taxa listed in the CNDDB are considered "Special Animals," which the CDFW is interested in tracking, regardless of their legal protection status. The USFWS Critical Habitat Portal (2013) was also used to determine location of Critical Habitat for sensitive species that may potentially occur in the region.

The desktop review examined multiple sources of information including the following:

- *Initial Field Assessment for California Tiger Salamander for the Aera East Cat Canyon Oil and Gas Field*. January 22, 2007. Prepared by Mr. Vince Semonsen of VJS Biological Consulting. (Semonsen, 2007);
- *Habitat Assessment for California Tiger Salamander for the Aera Two-dimensional Seismic Survey Test Plan*. September 8, 2011. Prepared by Storrer Environmental. (Storrer, 2011);
- *Biological Resources Report for the Aera Energy LLC Two-dimensional Seismic Survey Project*. May 2011. Prepared by Padre Associates, Inc. (Padre, 2011a);
- *Biological Resources Survey Report for the Aera Exploratory Drilling Project, East Cat Canyon Oil Field*. May 2011. Prepared by Padre Associates, Inc. (Padre, 2011b);
- *ERG Operating Company, LLC. Los Alamos Fee "Pond E" California Red-legged Frog (Rana draytonii) Survey Results.* July 30, 2012. Letter to ERG Operating Company, LLC. Prepared by Sage Institute, Inc. (Sage, 2012); and
- *Results of Drift Net and Aquatic Surveys for California Tiger Salamanders (Ambystoma californiense) and Other Special-Status Amphibians at Five Wetlands on the ERG West Cat Canyon Lease in Northern Santa Barbara County, California.* June

14, 2012. Prepared by Paul W. Collins, Peter Gaede, and Vince Semonsen. (Collins, 2012).

An aerial imagery review of the region was conducted to identify potential sensitive resources and further analyze the surrounding habitats and potential migratory routes. This review included the incorporation of Geographic Information Systems (GIS) layers, including topographic contours and aquatic resources documented with the National Wetland Inventory (NWI) (USFWS, 2012). This review also incorporated GIS shapefiles for California tiger salamander (CTS) ponds provided by the USFWS (last updated in July 2010). These files were released by the USFWS for purposes of planning and do not constitute a comprehensive list of all the ponds that have the potential to be CTS breeding ponds in Santa Barbara County; however, the information in the shapefiles has provided information on nearby aquatic habitats.

Aerial photographs of the region were provided by Cannon Associates. Specifically, the aerial photographs consisted of 12 digital ortho-photographs using USGS digital elevation model (DEM) data for rectification. These images were reviewed and used in the field to further assist in defining and mapping existing vegetative communities, potential sensitive plant locations/habitat, and wildlife habitats.

A review of the SBCPDD GIS data for ESHAs and other planning documents was also included in this review.

In addition, a review of site records from other environmental documents and range maps including Zeiner et al., (1998, 1990a, 1990b) and Sibley (2003) were utilized to determine what species have the potential to occur in the vicinity of the BSA.

## 4.2 FIELD SURVEYS

Following the initial desktop review, field surveys were completed within the public rights-of-way within the BSA to identify the existing botanical and wildlife resources. The surveys were conducted on June 18, 2013, by Padre Biologists Christina Santala and Amy Golub, and by Jessica Adinolfi, Botanist with Terra Verde Environmental Consulting, LLC (Terra Verde). An additional survey was completed by Padre Biologists Thea Benson and Christina Santala on October 1, 2013, and Christina Santala on January 30, 2014.

During the field surveys, Biologists drove the public rights-of-way and walked sections along the roadside within the BSA documenting all plants and wildlife species. Only the public rights-of-way, where the pipeline activities will take place, were accessed during field surveys; therefore, many portions of the BSA were analyzed using aerial imagery, binoculars, and vantage points to observe the existing peripheral conditions within the 200-foot buffer areas. Direct visual observations, indirect sign (e.g., tracks, scat, skeletal remains, and burrows), and auditory cues (i.e., calls and songs) were documented. Biologists focused on the identification of special-status species, existing vegetation communities, and suitable habitat for plant and wildlife species that have the potential to occur within the BSA.

All identifiable plant species were recorded and presence of suitable habitat for potentially occurring special-status plants was noted. Plant specimens that were not positively identified in the field were further examined using a dissecting microscope and appropriate botanical keys,

including *The Jepson Manual: Vascular Plants of California, Second Edition* (Baldwin et al., 2012) and the *Jepson Herbarium Online Interchange California Floristics* (University of California, 2012). Vegetation/habitat types recorded during the surveys were classified based on the California Native Plant Society (CNPS) *A Manual of California Vegetation, Second Edition* (Sawyer et al., 2009) (MCVII) and *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland, 1986), as appropriate.

PAGE INTENTIONALLY BLANK

# 5.0 FINDINGS

The following discussion of biological resources includes those that were observed within the BSA, those identified in the desktop review within the region, and resources that are expected to occur and/or frequent a particular area based on the presence of suitable habitat.

## 5.1 REGIONALLY OCCURRING SENSTIVE HABITATS

Based on information retained from the desktop review, several protected habitats that support special-status plants and wildlife occur within the Project region and are listed as one or more of the following:

- "Critical Habitat", as defined by the FESA and afforded protection by the USFWS and/or NMFS;
- "Sensitive habitats", as defined by the CESA and afforded protection by the CDFW and/or local agencies; or
- "Rare habitats" as defined by the County of Santa Barbara, professional organizations, and/or the scientific community.

Sensitive habitats occurring within the Project region are illustrated in Figure 5-1 - Documented Sensitive Resources and USFWS Critical Habitat areas are illustrated in further detail in Figures 5-2, 5-2A and 5-2B).

**State and County Sensitive Habitats.** The CNDDB has documented Southern Vernal Pool within the Project region (Figure 5-1 - Documented Sensitive Resources). Southern Vernal Pools are considered Natural Communities of Special Concern showing a decline in California and, as such, have a designated imperilment status ranking of S1, S2, or S3 (i.e., critically imperiled, imperiled, or vulnerable, respectively) as designated by CDFW (CDFW, 2014). The CDFW also considers valley needlegrass grassland to be a sensitive plant community based on the species composition at the Alliance and provisional Alliance level including purple needlegrass (*Stipa* [*Nasella] pulchra*), foothill needlegrass (*Stipa* [*Nasella] lepida*), and nodding needlegrass (*Stipa* [*Nasella] cernua*). Areas consisting of ten percent cover or greater of needlegrass are considered an ESHA and are protected by the County. Other ESHA's provided protection by the County include maritime chaparral and Burton Mesa. Many of these communities are not typically documented by resource professionals, which make historical documentation difficult to track. None of these sensitive habitats were observed within the BSA during field surveys.

**Southern Steelhead Critical Habitat.** Critical Habitat designated for southern steelhead (*Oncorhynchus mykiss*) is defined under Section 3 of the FESA as: (1) specific areas within the geographical area occupied by the species at the time of listing, on which are found those physical or biological features that are essential to the conservation of the listed species and that may require special management considerations or protection, and (2) specific areas outside the geographical area occupied by the species at the time of listing that are essential for the conservation of a listed species (NOAA, 2005). NMFS is responsible for designating Critical Habitat for this species. The Sisquoc River is designated as an evolutionary significant unit (ESU) for Southern Steelhead. This river does not intersect the proposed natural gas pipeline alignment;

however, Cat Canyon Creek and few of its tributaries, and Orcutt Creek are tributaries within this system in which the alignment does intersect. Additional information on suitable steelhead habitat occurring within the BSA is further discussed in the sections below.

**California Red-Legged Frog Critical Habitat.** CRLF Critical Habitat contains the primary elements: upland and aquatic habitat features essential for the movement and breeding activities for the species, and locations in which CRLF have been documented. Critical Habitat may include an area that is not currently occupied by the species, but is important for its recovery. Further, CRLF are ultimately protected if occurring outside designated Critical Habitat areas. CRLF Critical Habitat occurs within the BSA along Graciosa Road, near the western terminus of the proposed pipeline corridor (Figure 5-2A - USFWS Critical Habitat Areas). The pipeline is proposed for construction under the paved roadway, outside the designated Critical Habitat area for CRLF.

**California Tiger Salamander Critical Habitat.** The BSA is located within the Santa Barbara County Distinct Population Segment (DPS) for CTS. The Santa Barbara County DPS Critical Habitat areas are separated by six metapopulation units designated by the USFWS: West Santa Maria/Orcutt, East Santa Maria, West Los Alamos/Careaga, East Los Alamos, Purisima Hills, and Santa Rita Valley. The East Santa Maria, West Los Alamos/Careaga, and East Los Alamos metapopulations occur within a five-mile radius of the BSA. Critical Habitat areas include upland and aquatic habitat features essential for movement and breeding activities and may include an area that is not currently occupied by the species, but that is important for its recovery. Further, species with designated Critical Habitat are ultimately protected if occurring outside designated Critical Habitat areas. Critical Habitat for CTS occurs within the BSA along East Clark Avenue and the intersection of Dominion Road (Figure 5-2B - USFWS Critical Habitat Areas). The pipeline is proposed for construction under the paved roadway, outside the designated Critical Habitat area for CTS.

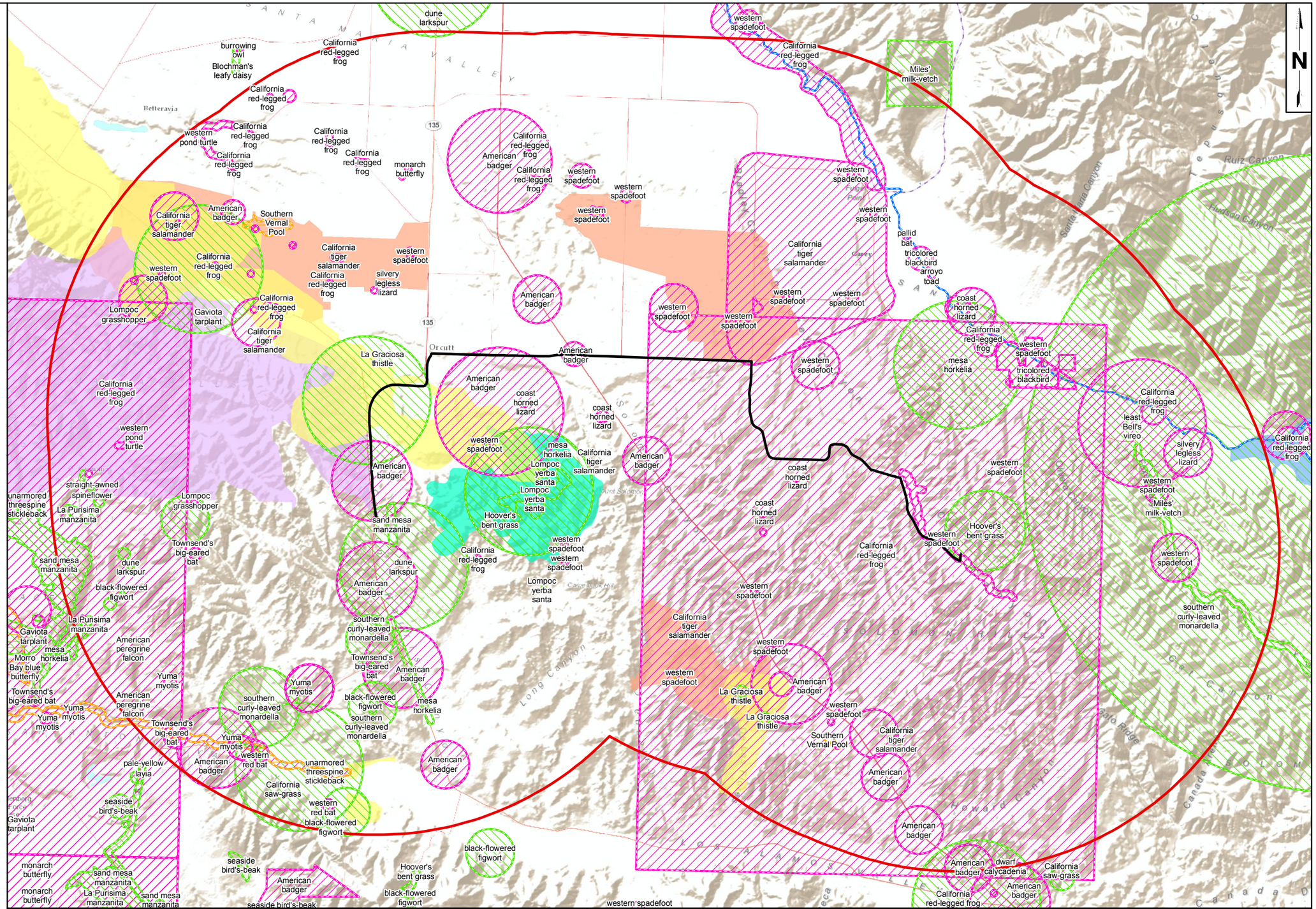
**Arroyo Toad Critical Habitat.** Arroyo toad (*Bufo californicus*) Critical Habitat contains the primary constituent elements needed for the species' survival, including: rivers or streams for all the life stages of the toads; riparian and adjacent upland areas for foraging and breeding; accessible areas between occupied habitat so that the toads can disperse; areas that flood periodically, leaving behind pools where toads breed; and, terrace habitats that provide for their life functions. Critical Habitat areas may include an area that is not currently occupied by the species but that is important for its recovery. Additionally, arroyo toad remain protected if occurring outside designated Critical Habitat areas. Arroyo toad Critical Habitat does not occur within the BSA; however, it does occur to the east within five-miles of the BSA in the upstream reaches of the Sisquoc River.

LEGEND:

- Proposed Gas Pipeline Route
- 5-mile Buffer of Project Area
- La Graciosa thistle Critical Habitat
- Lompoc yerba santa Critical Habitat
- CRLF Critical Habitat
- CTS Critical Habitat
- Arroyo toad Critical Habitat
- Southern California Steelhead Critical Habitat

**CNDDB Occurence**

- Community
- Plant
- Animal




padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: EAST CAT CANYON
SANTA BARBARA COUNTY, CA

PROJECT NUMBER: 1002-0457

DATE: October 2014

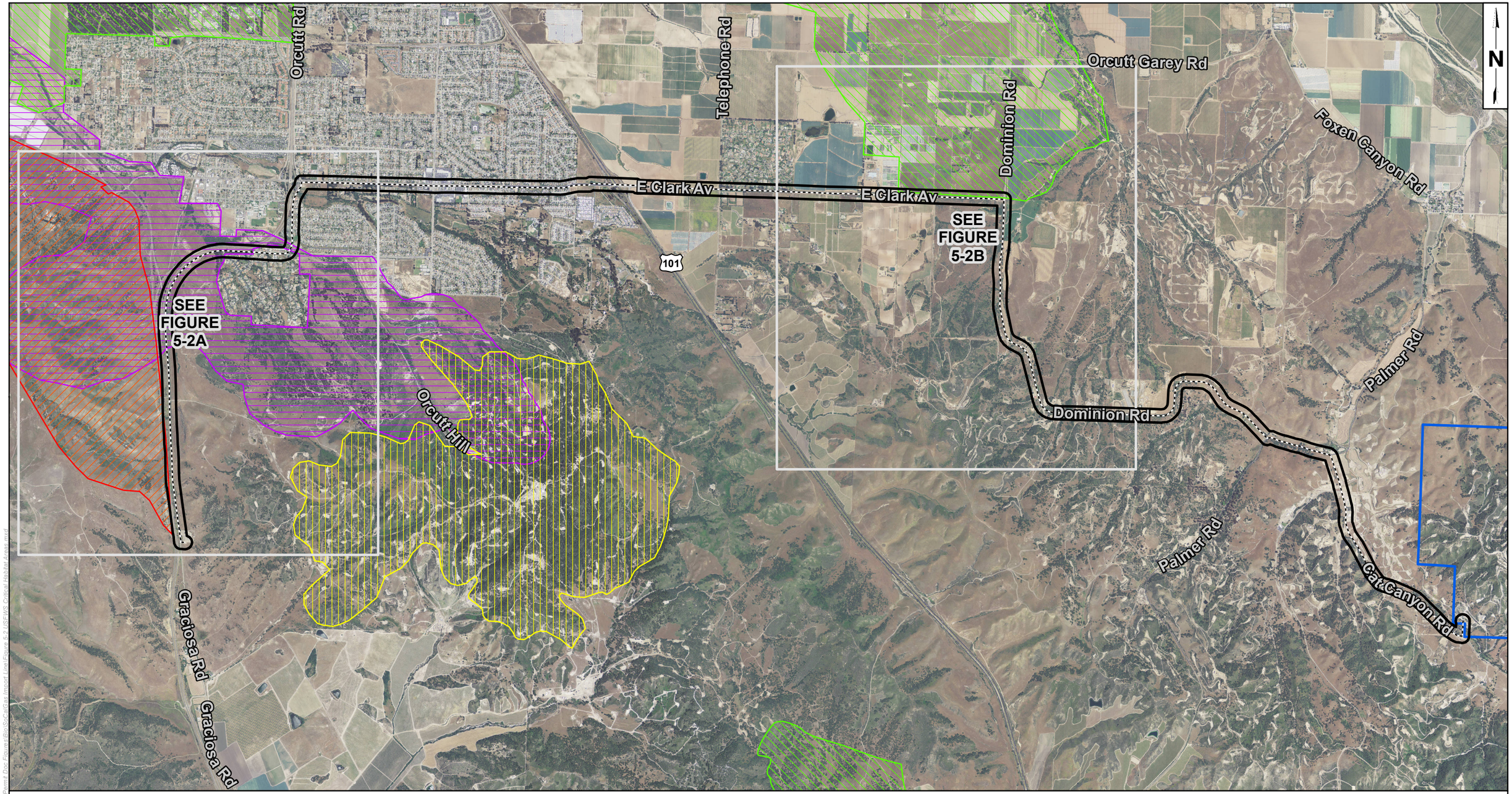
DOCUMENTED SENSITIVE RESOURCES

FIGURE 5-1

Source: CNDDB 1/2014, USFWS Critical Habitat, ESRI Online Basemap
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposes only

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Permit Doc Figures\Bio\SoCalGas Import Line\Figure 5-1 Documented Sensitive Resources.mxd

PAGE INTENTIONALLY BLANK




LEGEND:

- Proposed Common Carrier Natural Gas Pipeline Route
- BSA Area - 250ft Buffer of Proposed Pipeline Route
- Aera Energy LLC Property Boundary
- California red-legged frog Critical Habitat
- California tiger Salamander Critical Habitat
- La Graciosa thistle Critical Habitat
- Lompoc yerba santa Critical Habitat

*Source: Southern California Gas 8/2013 CAD &1/2014 PDF, Santa Barbara County Assessor, DPSI 2013 Survey, NAIP 2012, USFW Critical Habitat Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet Notes: This map was created for informational and display purposes only.*

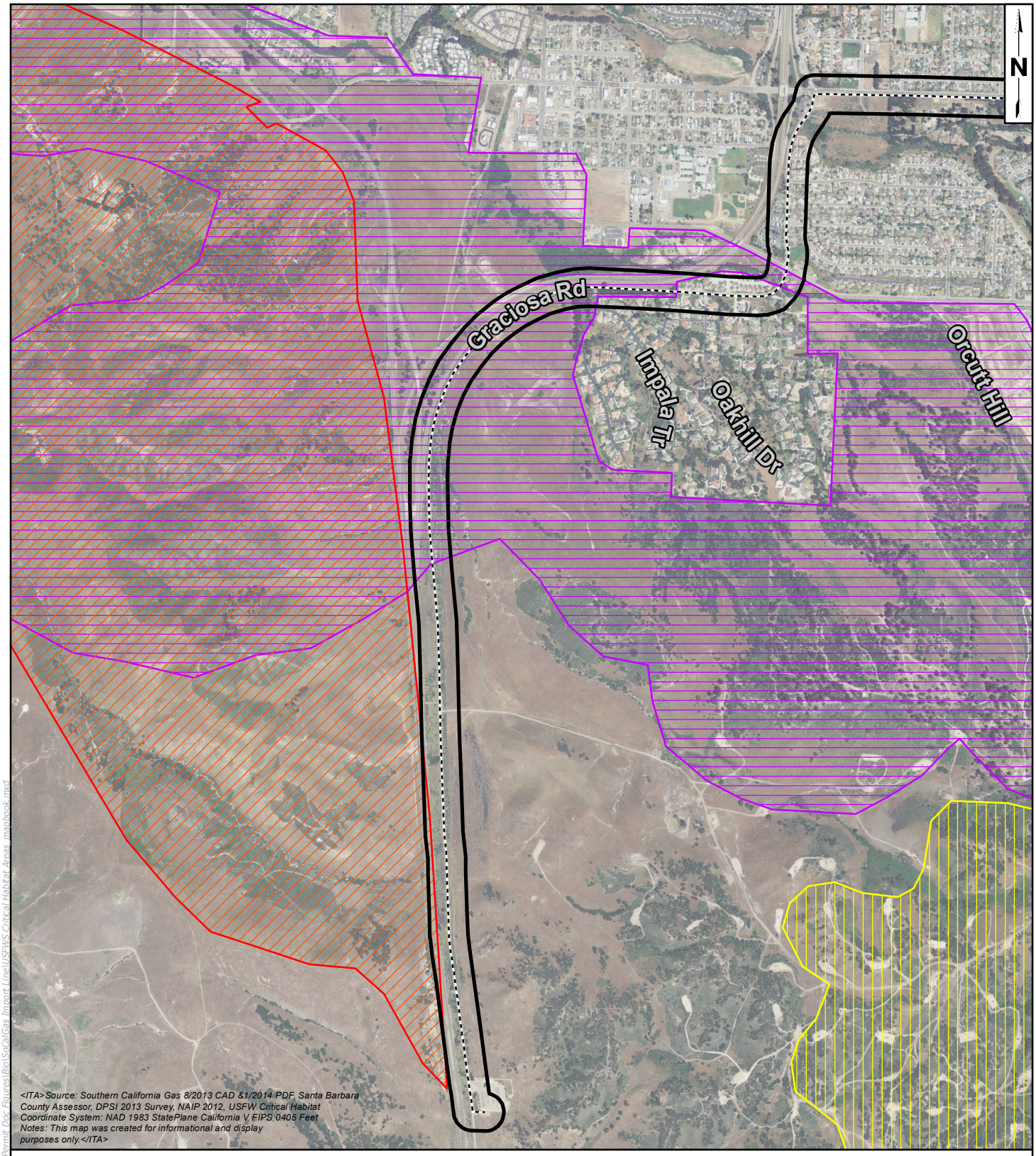
0 1,750 3,500
FEET

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: | EAST CAT CANYON SANTA BARBARA COUNTY, CA | USFWS CRITICAL HABITAT AREAS | FIGURE |
|---|---|---|---|
| PROJECT NUMBER: 1002-0457 | DATE: October 2014 | | 5-2 |

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Permit Doc Figures\Bio\SoCalGas Impact Line\Figure 5-2 USFWS Critical Habitat Areas.mxd

PAGE INTENTIONALLY BLANK




LEGEND:

- Proposed Common Carrier Natural Gas Pipeline Route
- BSA Area - 250ft Buffer of Proposed Pipeline Route
- California red-legged frog Critical Habitat
- La Graciosa thistle Critical Habitat
- Lompoc yerba santa Critical Habitat

0 900 1,800
FEET

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

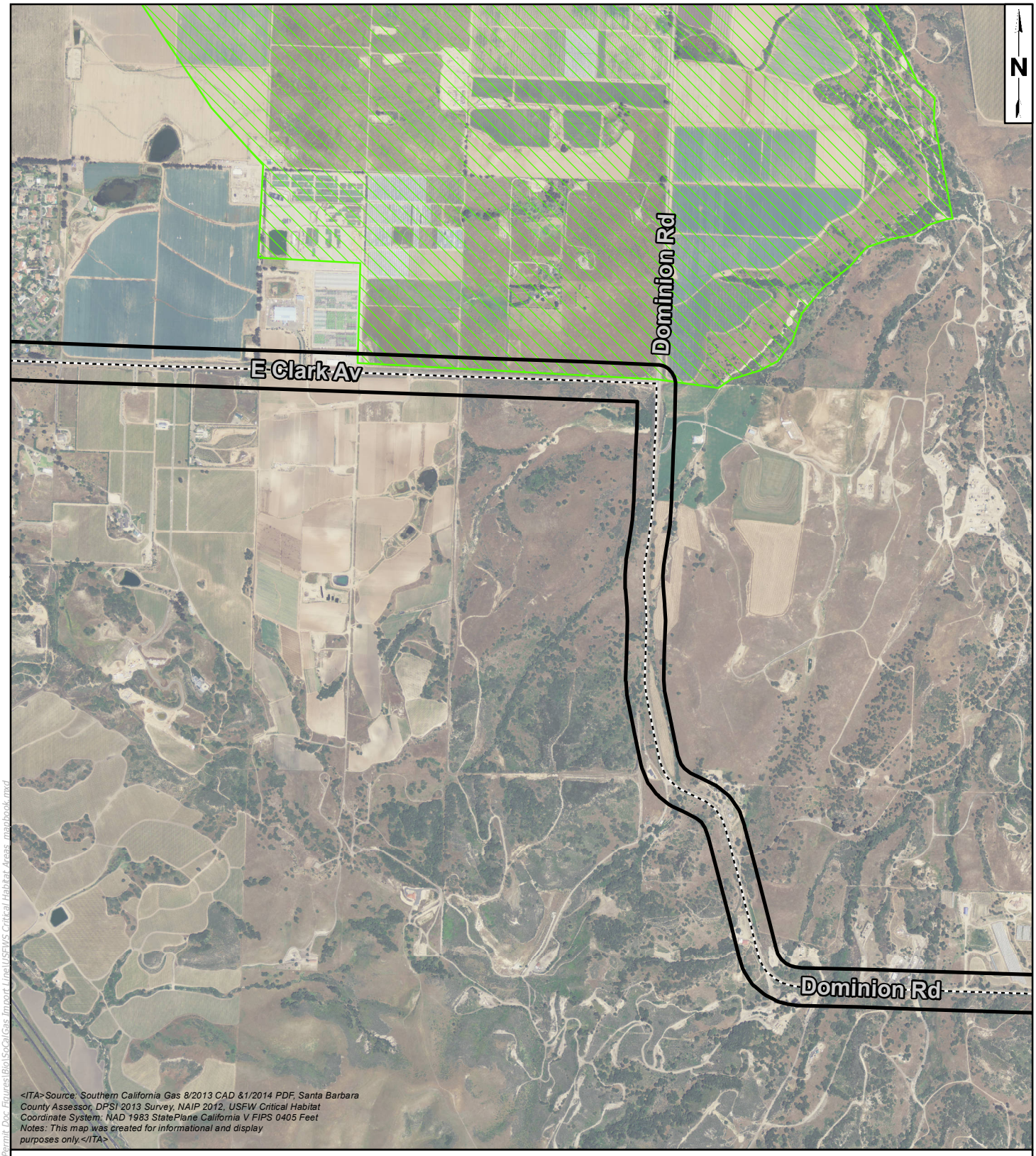
| PROJECT NAME: | | |
|---|---|---|
| EAST CAT CANYON SANTA BARBARA COUNTY, CA | | |
| PROJECT NUMBER: 1002-0457 | DATE: October 2014 | |

USFWS CRITICAL HABITAT AREAS

FIGURE 5-2A

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Permit Doc Figures\Bio\SoCalGas Import Line\USFWS Critical Habitat Areas_mapbook.mxd

PAGE INTENTIONALLY BLANK




*<ITA>Source: Southern California Gas 8/2013 CAD &1/2014 PDF, Santa Barbara County Assessor, DPSI 2013 Survey, NAIP 2012, USFW Critical Habitat*
*Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet*
*Notes: This map was created for informational and display purposes only.</ITA>*

LEGEND:

- Proposed Common Carrier Natural Gas Pipeline Route
- BSA Area - 250ft Buffer of Proposed Pipeline Route
- California tiger Salamander Critical Habitat

0 900 1,800
FEET

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: | | USFWS CRITICAL HABITAT AREAS | FIGURE |
|---|---|---|---|
| EAST CAT CANYON SANTA BARBARA COUNTY, CA | | | 5-2B |
| PROJECT NUMBER: 1002-0457 | DATE: October 2014 | | |

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Permit Doc Figures\Bio\SoCalGas Import Line\USFWS Critical Habitat Areas_mapbook.mxd

PAGE INTENTIONALLY BLANK

**La Graciosa Thistle Critical Habitat.** La Graciosa thistle (*Cirsium scariosum* var. *loncholepis*) Critical Habitat includes mesic areas associated with wetlands of the Santa Maria Valley and Santa Ynez Valley dune complexes; margins of dynamic riparian systems of the Santa Maria and Santa Ynez rivers and Orcutt and San Antonio creeks; and, freshwater wetlands found in grasslands, meadows, coastal scrub, chaparral, and oak woodland. Critical Habitat for La Graciosa thistle includes central dune scrub, coastal dune, coastal scrub, freshwater seep, coastal and valley freshwater marsh and fen, riparian scrub, oak woodland, and other wetland communities. La Graciosa thistle Critical Habitat elements also include soils with a sandy component, and features that allow dispersal and connectivity between populations, particularly in natural riparian drainages, and natural Aeolian geomorphology (USFWS, 2009a). The Santa Maria River-Orcutt Creek Critical Habitat Unit (No. 2) includes a stretch of Graciosa Road in the western portion of the BSA (Figure 5-2A - USFWS Critical Habitat Areas). Additionally, the Cañada de Las Flores Critical Habitat Unit (No. 3) occurs within five-miles to the south of the BSA (Figure 5-2 - USFWS Critical Habitat Areas). The pipeline is proposed for construction under the roadway, however, the pipeline alignment does overlap designated La Graciosa Thistle Critical Habitat areas (Figure 5-2A - USFWS Critical Habitat Areas).

**Lompoc Yerba Santa Critical Habitat.** Lompoc yerba santa (*Eriodictyon capitatum*) Critical Habitat includes: soils with a large component of sand and that tend to be acidic; and plant communities that support associated species, including maritime chaparral and southern bishop pine forests that intergrade with chaparral (USFWS, 2002). Critical Habitat for Lompoc yerba santa occurs in two units in western Santa Barbara County: Santa Ynez Mountains Unit and Solomon Hills Unit. No Lompoc yerba santa Critical Habitat occurs within the BSA; however, the Solomon Hills Critical Habitat Unit occurs approximately 0.8 mile east of the western terminus of the BSA near Graciosa Road (Figure 5-2 - USFWS Critical Habitat Areas).

## 5.2 AQUATIC FEATURES

**Streams.** The BSA intersects and/or runs parallel to several ephemeral drainages, including the following blue line streams, and their tributaries: Cat Canyon Creek, Bradley Canyon Creek, Orcutt Creek, and Graciosa Canyon Creek. These streams are ephemeral and remain dry for the majority of the year except during and immediately following rainfall. These streams do not provide a perennial water source for aquatic wildlife, including fish, that rely on a continual water source for survival and/or breeding. After seasonal rains, the streams may hold water long enough to provide suitable breeding habitat for some amphibious species or aquatic invertebrates that rely on ephemeral water sources that do not support fish or other larger predators to complete their lifecycles. Both Cat Canyon Creek and Orcutt Creek drain into the nearby ephemeral Sisquoc River, which is an important migratory corridor for a wide range of wildlife.

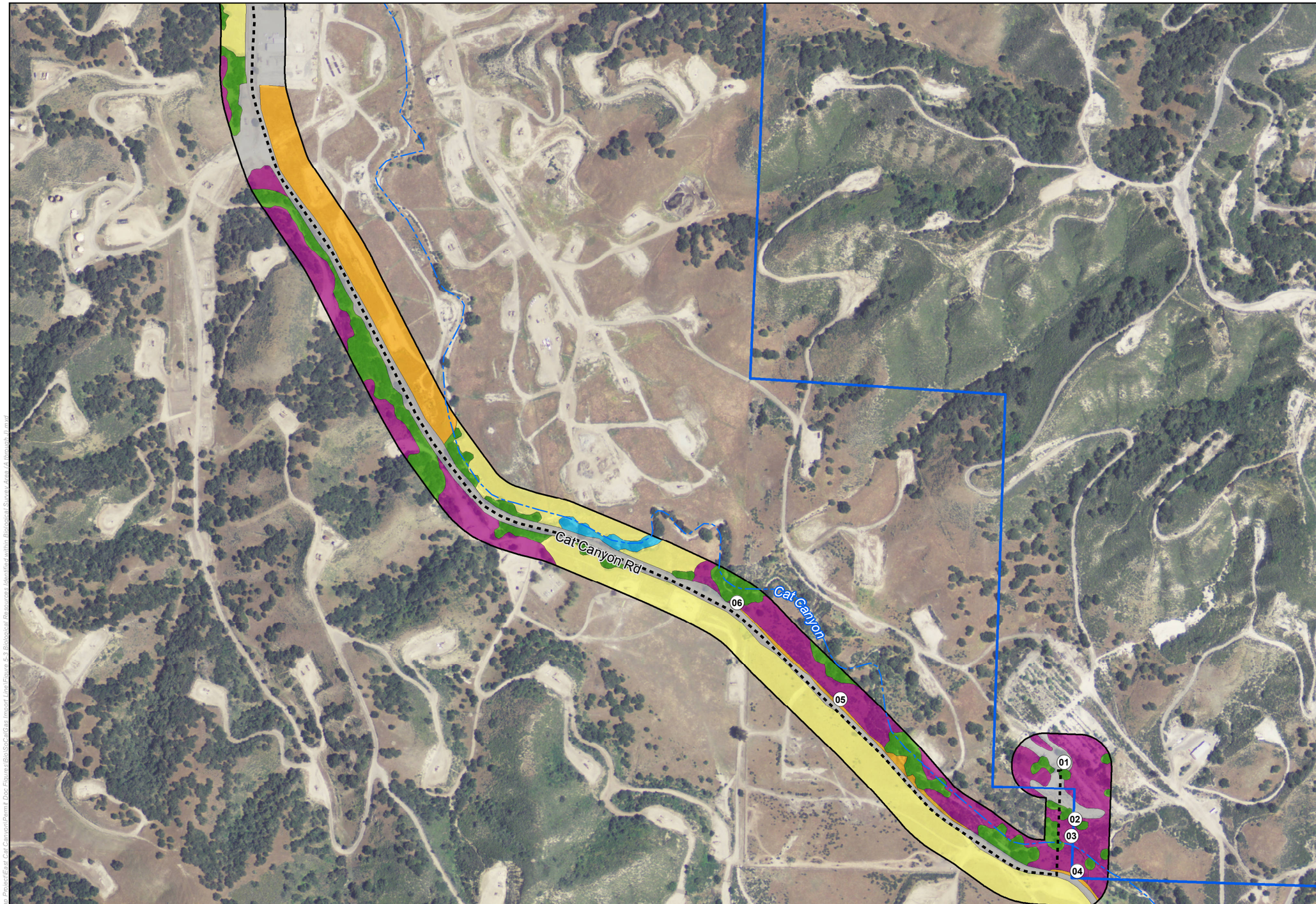
**Ephemeral Wetland Depressions and Swales.** Ephemeral wetland depressions and swales are isolated wetland features created in shallow depressions with a substrate of hardpan, clay, or basalt near the surface that restricts percolation of water. These depressions are inundated following rainfall and may remain inundated until spring or early summer, sometimes filling and emptying numerous times during the wet season. These wetted features often support endemic plant and wildlife species that rely on short duration inundation and specific soil elements.

During the field survey, a few ephemeral wetland features were identified within the westernmost stretch of the BSA, specifically within a spring that provides water to a roadside ditch (Appendix A). Vegetation identified at this location during field surveys primarily consisted of watercress (*Nasturtium officinale*), cattail (*Typha* sp.), tall flatsedge (*Cyperus eragrostis*), and annual rabbitsfoot grass (*Polypogon monspeliensis*). Water in this area is supplied by an upgradient spring that likely provides enough water to saturate the soil year round. During field surveys, this area appears to have been previously disturbed by culvert installation activities and other road maintenance activities. This wetland feature may provide suitable foraging and nesting/breeding habitat for birds and amphibians.

**Agricultural Ditches.** The BSA intersects several rotational row-crop agricultural fields, in which soils are regularly disked and the crops rotated seasonally. Vineyards are also present, but these fields are not rotated. Runoff from these fields is directed to agricultural ditches, which are frequently cleared of vegetation to maintain flows (Appendix A). Some of these agricultural ditches connect to larger agricultural drainages that terminate at catchment basins and store the water until percolating into the ground. In the Santa Maria Valley, these ditches and catchment basins are known to support amphibian movements and breeding activities. No agricultural ponds were observed within the BSA; however, agricultural ditches were observed along the roadside within the BSA and likely drain into ponds located outside of the BSA.

## 5.3 VEGETATION TYPES OCCURRING WITHIN THE BSA

Based on species composition, life form, and community membership rules, the vegetation identified within the BSA can be classified into distinct vegetation types (i.e., alliances, associations) as described in *A Manual of California Vegetation, Second Edition* (MCVII) (Sawyer, *et al.,* 2009). Further, the *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW, 2009), in conjunction with *The Natural Communities List* (CDFW, 2010), was utilized to determine presence/absence of special-status natural communities. These vegetation communities are of limited distribution statewide or within a county or region and are often vulnerable to environmental effects of projects (CDFW, 2009). These vegetation communities may or may not contain special-status species. Padre utilized aerial imagery in conjunction with field surveys to identify and classify the plant communities and wildlife habitats within disturbed areas within the BSA. Refer to Appendix A for photographs taken along the proposed pipeline route and Appendix B for a comprehensive list of plants observed within the BSA during field surveys. Vegetation types identified within the BSA are illustrated in Figure 5-3 - Biological Resources Identified within Biological Survey Area (A through J) and described in detail below.




LEGEND:

- Photo Location
- Proposed Gas_Line Route
- Hydrological Feature
- Aera Energy LLC Property
- Biological Survey Area

Vegetation Type

- Agricultural
- Annual Brome Grasslands
- Arroyo Willow Thickets
- Coast Live Oak Woodland
- Coyote Brush Scrub
- Developed
- Drainage Feature
- Eucalyptus Groves
- Ornamental
- Ruderal

N

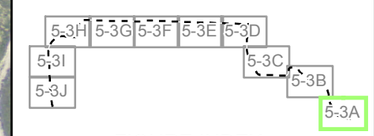



FIGURE INDEX

0 250 500
FEET

Source: Santa Barbara County, NAIP 2012 Image
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposes only

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: AERA - EAST CAT CANYON SANTA BARBARA COUNTY, CA

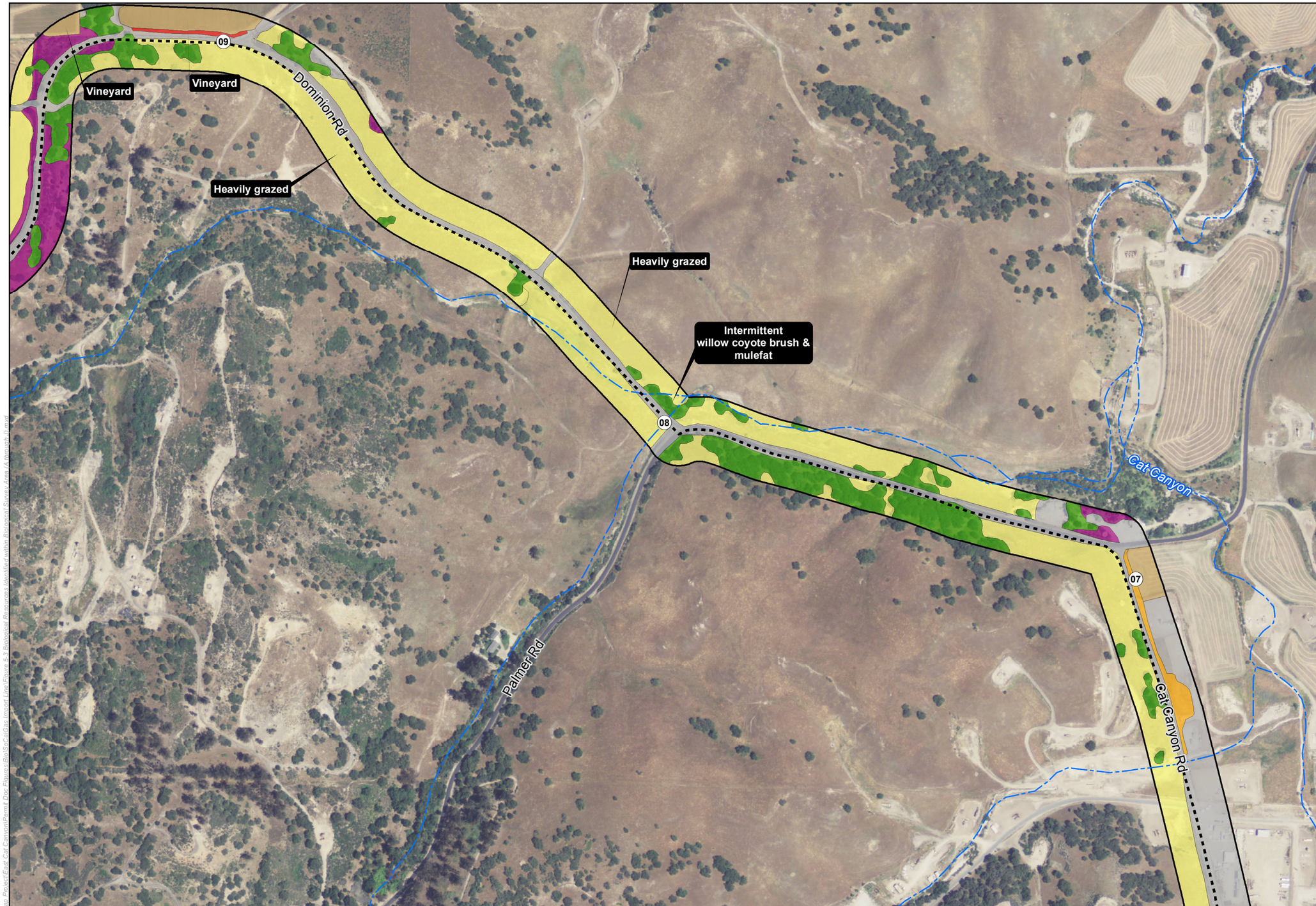
PROJECT NUMBER: 1002-0457

DATE: October 2014

BIOLOGICAL RESOURCES IDENTIFIED WITHIN BIOLOGICAL SURVEY AREA

FIGURE 5-3A

PAGE INTENTIONALLY BLANK




LEGEND:

- Photo Location
- Proposed Gas_Line Route
- Hydrological Feature
- Aera Energy LLC Property
- Biological Survey Area

Vegetation Type

- Agricultural
- Annual Brome Grasslands
- Arroyo Willow Thickets
- Coast Live Oak Woodland
- Coyote Brush Scrub
- Developed
- Drainage Feature
- Eucalyptus Groves
- Ornamental
- Ruderal

N

5-3H 5-3G 5-3F 5-3E 5-3D 5-3I 5-3C 5-3B 5-3J 5-3A

FIGURE INDEX

0 250 500
FEET

Source: Santa Barbara County, NAIP 2012 Image
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposes only

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: AERA - EAST CAT CANYON SANTA BARBARA COUNTY, CA

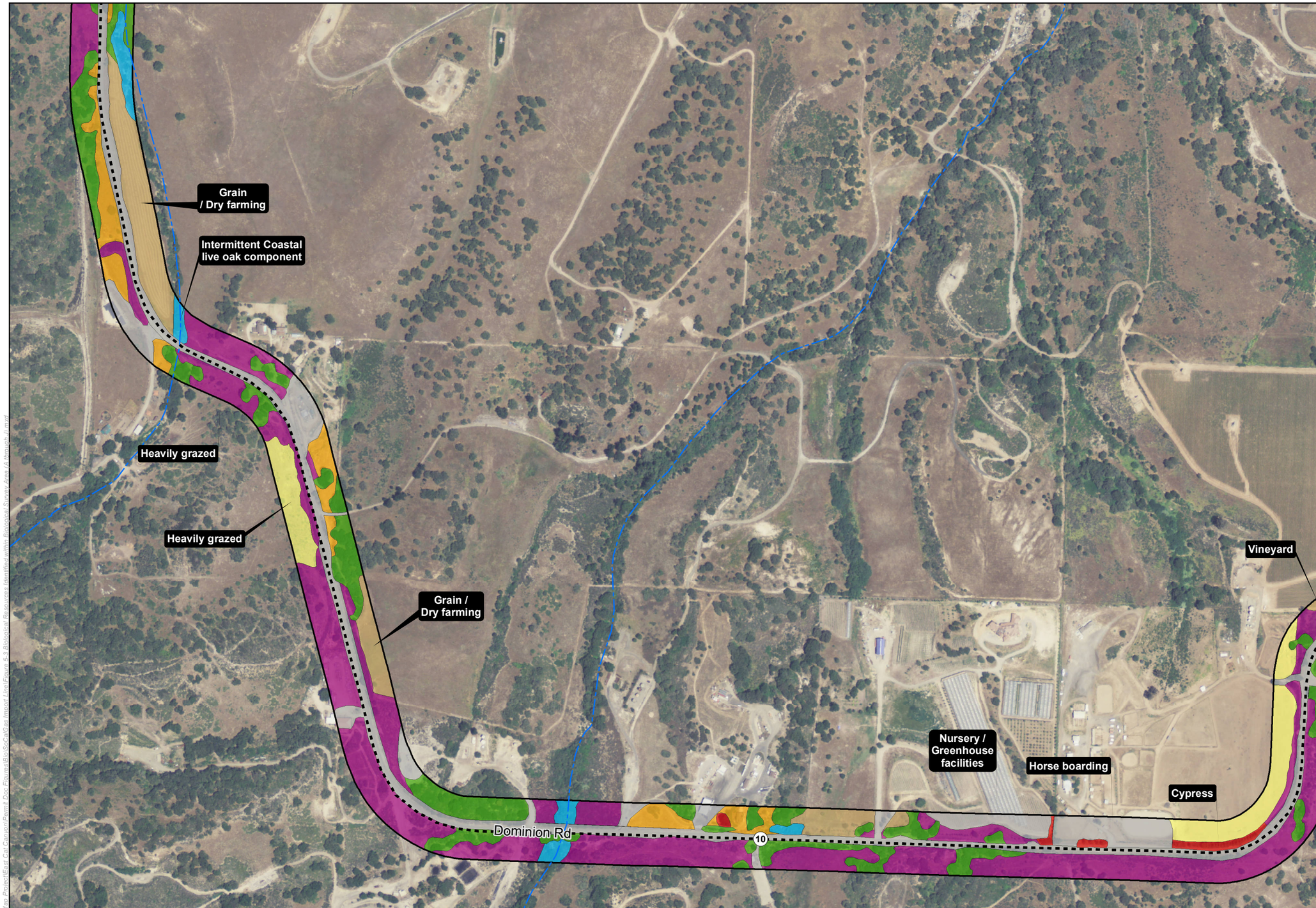
PROJECT NUMBER: 1002-0457

DATE: October 2014

BIOLOGICAL RESOURCES IDENTIFIED WITHIN BIOLOGICAL SURVEY AREA

FIGURE 5-3B

PAGE INTENTIONALLY BLANK




LEGEND:

- Photo Location
- Proposed Gas_Line Route
- Hydrological Feature
- Aera Energy LLC Property
- Biological Survey Area

Vegetation Type

- Agricultural
- Annual Brome Grasslands
- Arroyo Willow Thickets
- Coast Live Oak Woodland
- Coyote Brush Scrub
- Developed
- Drainage Feature
- Eucalyptus Groves
- Ornamental
- Ruderal

N

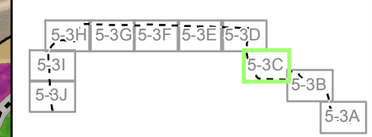



FIGURE INDEX

0 250 500
FEET

Source: Santa Barbara County, NAIP 2012 Image
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposes only

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: AERA - EAST CAT CANYON SANTA BARBARA COUNTY, CA

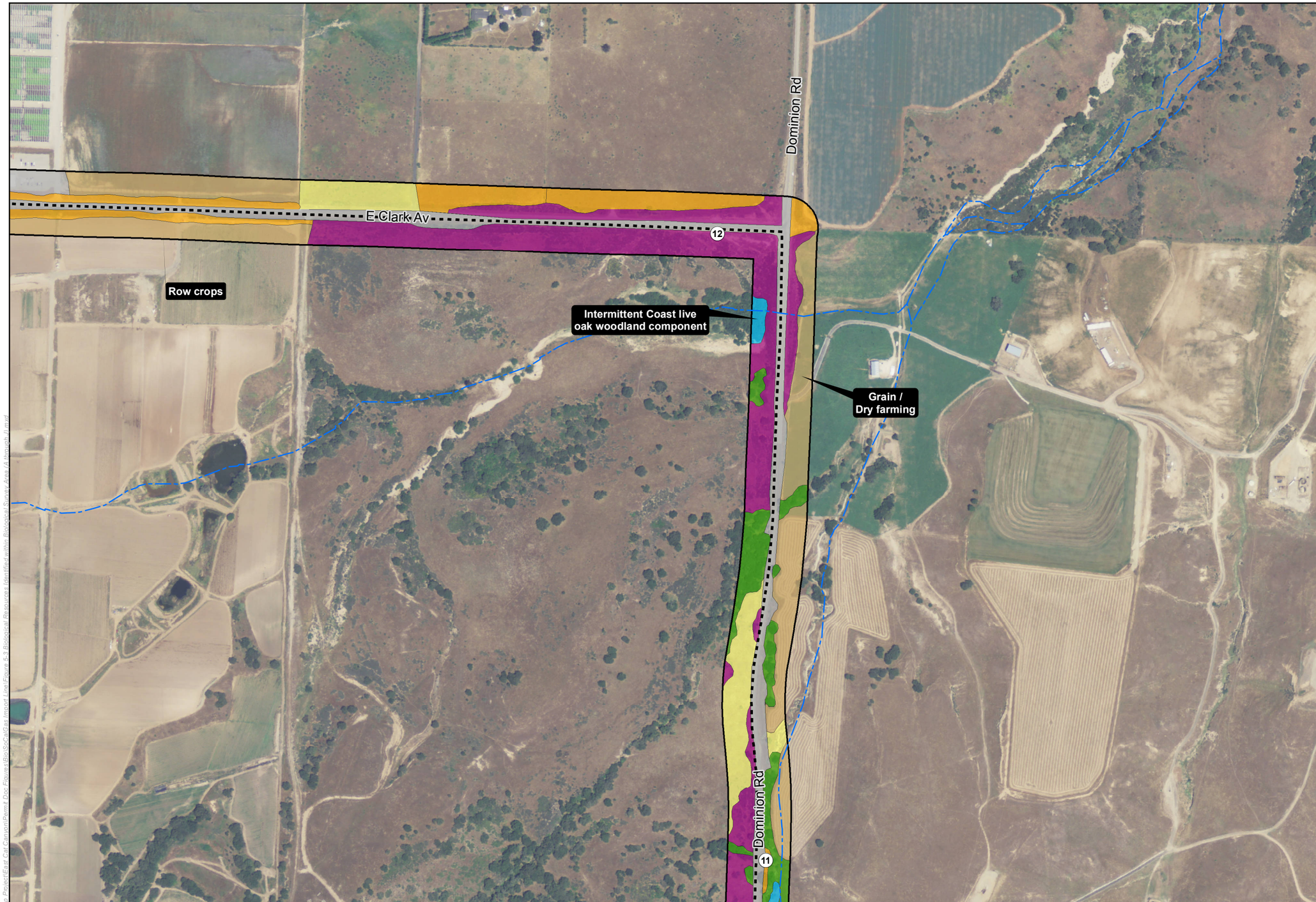
PROJECT NUMBER: 1002-0457

DATE: October 2014

BIOLOGICAL RESOURCES IDENTIFIED WITHIN BIOLOGICAL SURVEY AREA

FIGURE 5-3C

PAGE INTENTIONALLY BLANK




LEGEND:

- Photo Location
- Proposed Gas_Line Route
- Hydrological Feature
- Aera Energy LLC Property
- Biological Survey Area

Vegetation Type

- Agricultural
- Annual Brome Grasslands
- Arroyo Willow Thickets
- Coast Live Oak Woodland
- Coyote Brush Scrub
- Developed
- Drainage Feature
- Eucalyptus Groves
- Ornamental
- Ruderal

N

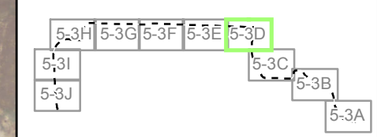



FIGURE INDEX

0 250 500
FEET

Source: Santa Barbara County, NAIP 2012 Image
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposes only

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: AERA - EAST CAT CANYON SANTA BARBARA COUNTY, CA

PROJECT NUMBER: 1002-0457

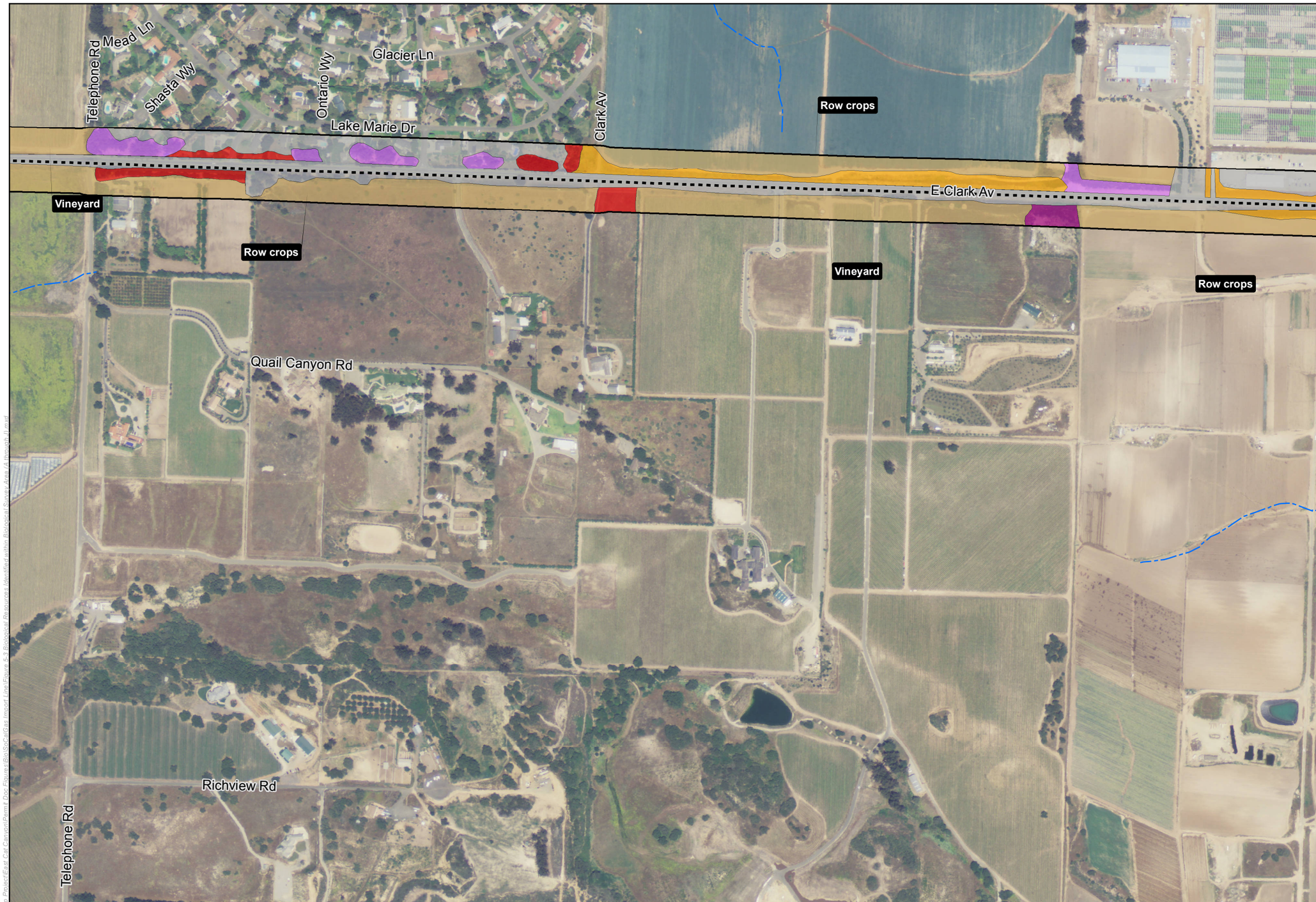
DATE: October 2014

BIOLOGICAL RESOURCES IDENTIFIED WITHIN BIOLOGICAL SURVEY AREA

FIGURE 5-3D

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Permit Doc Figures\BioSrc\CalGas Impact Line\Figure 5-3 Biological Resources Identified within Biological Survey Area.mxd

PAGE INTENTIONALLY BLANK




LEGEND:

- Photo Location
- Proposed Gas_Line Route
- Hydrological Feature
- Aera Energy LLC Property
- Biological Survey Area

Vegetation Type

- Agricultural
- Annual Brome Grasslands
- Arroyo Willow Thickets
- Coast Live Oak Woodland
- Coyote Brush Scrub
- Developed
- Drainage Feature
- Eucalyptus Groves
- Ornamental
- Ruderal

N

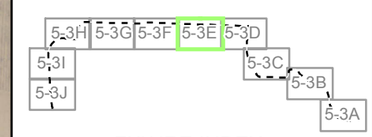



FIGURE INDEX

0 250 500
FEET

Source: Santa Barbara County, NAIP 2012 Image
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposes only

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: AERA - EAST CAT CANYON SANTA BARBARA COUNTY, CA

PROJECT NUMBER: 1002-0457

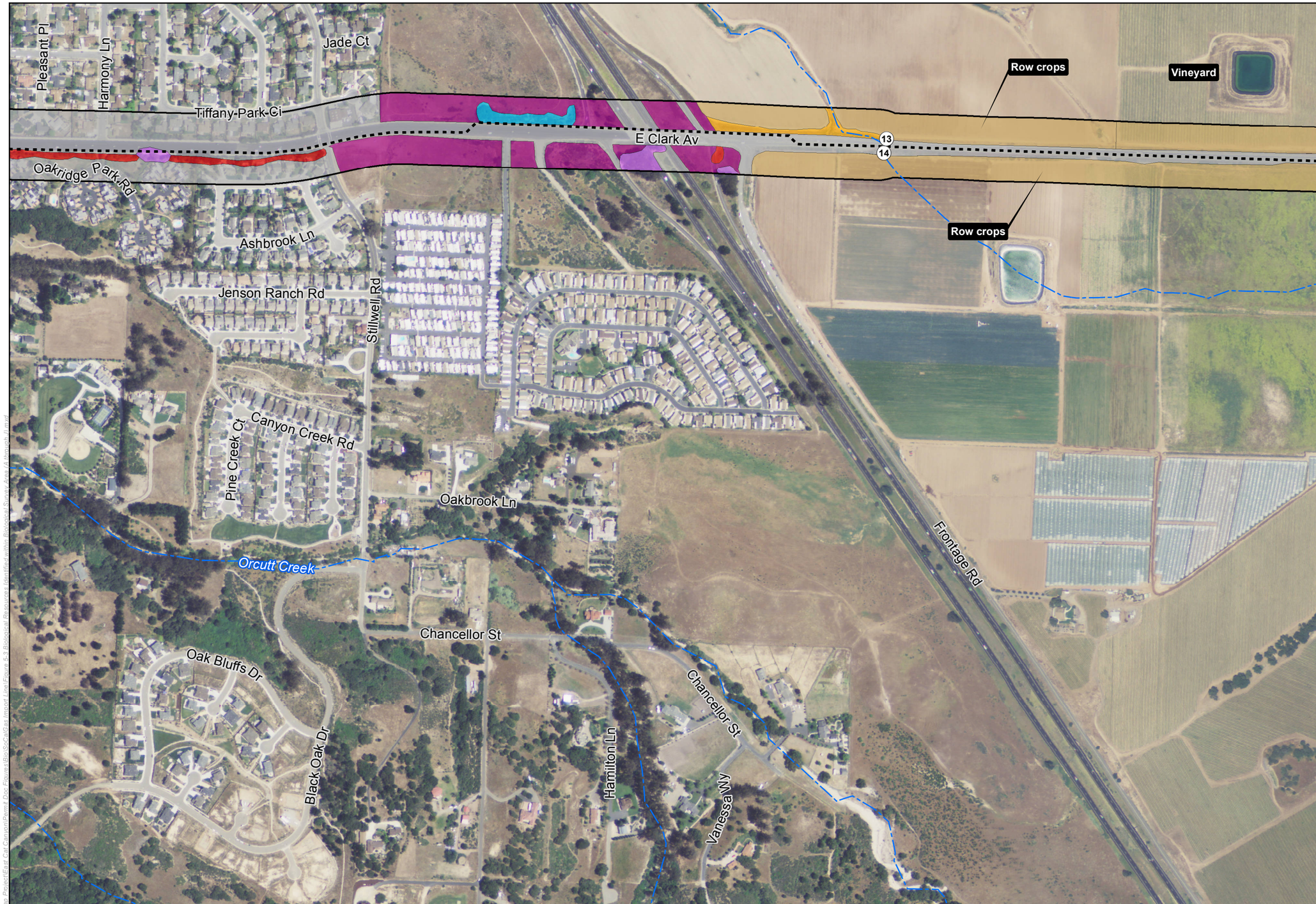
DATE: October 2014

BIOLOGICAL RESOURCES IDENTIFIED WITHIN BIOLOGICAL SURVEY AREA

FIGURE 5-3E

Z:\Kristin\GIS_Maps\Maps_Project\East Cat Canyon\Permit Doc Figures\Bio\SoCalGas Import Line\Figure 5-3 Biological Resources Identified within Biological Survey Area (4 through 1).mxd

PAGE INTENTIONALLY BLANK




LEGEND:

- Photo Location
- Proposed Gas_Line Route
- Hydrological Feature
- Aera Energy LLC Property
- Biological Survey Area

Vegetation Type

- Agricultural
- Annual Brome Grasslands
- Arroyo Willow Thickets
- Coast Live Oak Woodland
- Coyote Brush Scrub
- Developed
- Drainage Feature
- Eucalyptus Groves
- Ornamental
- Ruderal

N

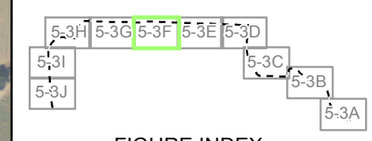



FIGURE INDEX

0 250 500
FEET

Source: Santa Barbara County, NAIP 2012 Image
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposes only

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: AERA - EAST CAT CANYON SANTA BARBARA COUNTY, CA

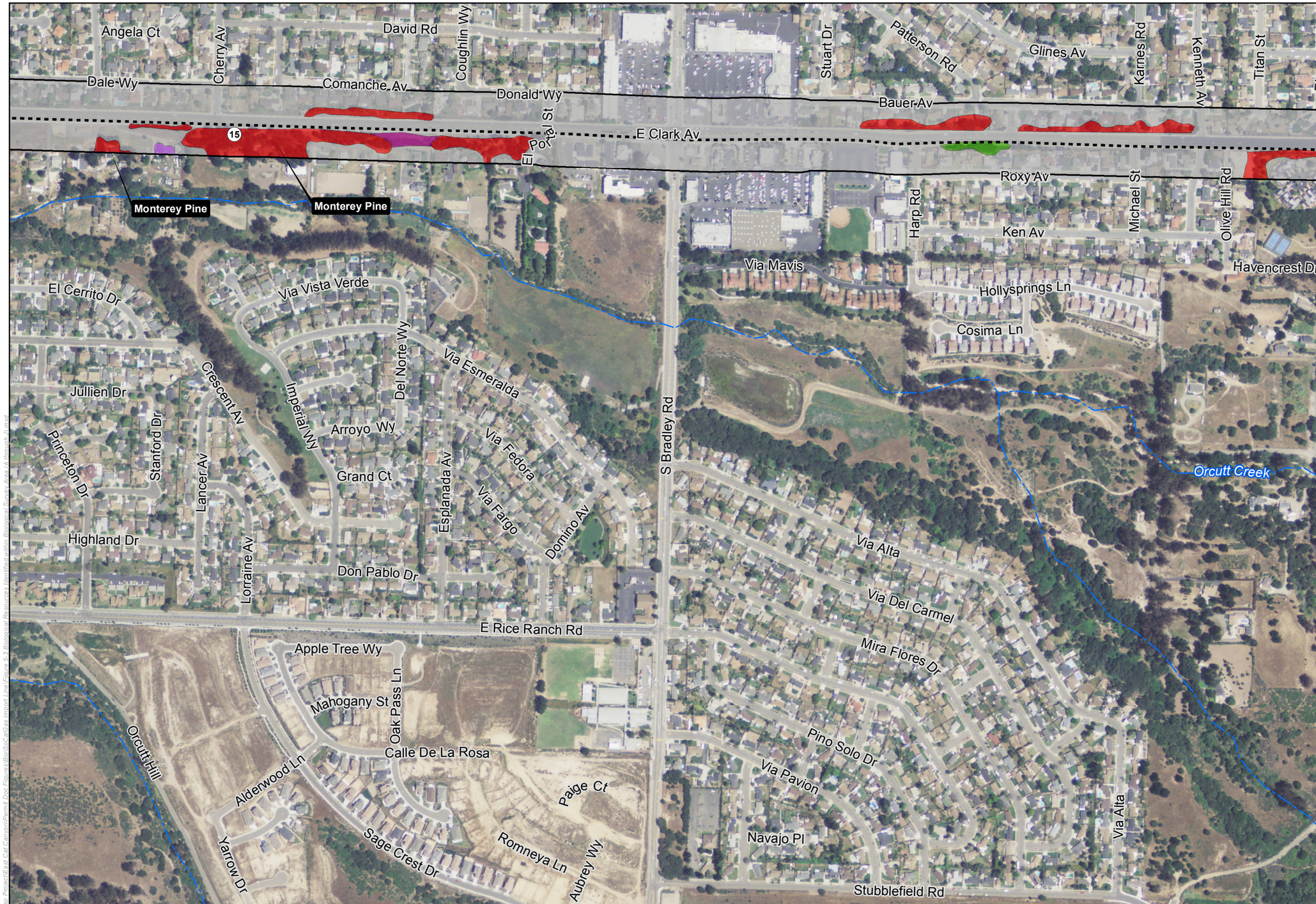
PROJECT NUMBER: 1002-0457

DATE: October 2014

BIOLOGICAL RESOURCES IDENTIFIED WITHIN BIOLOGICAL SURVEY AREA

FIGURE 5-3F

PAGE INTENTIONALLY BLANK




LEGEND:

- Photo Location
- Proposed Gas_Line Route
- Hydrological Feature
- Aera Energy LLC Property
- Biological Survey Area

Vegetation Type

- Agricultural
- Annual Brome Grasslands
- Arroyo Willow Thickets
- Coast Live Oak Woodland
- Coyote Brush Scrub
- Developed
- Drainage Feature
- Eucalyptus Groves
- Ornamental
- Ruderal

N

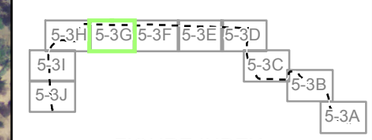



FIGURE INDEX

0 250 500
FEET

Source: Santa Barbara County, NAIP 2012 Image
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposes only

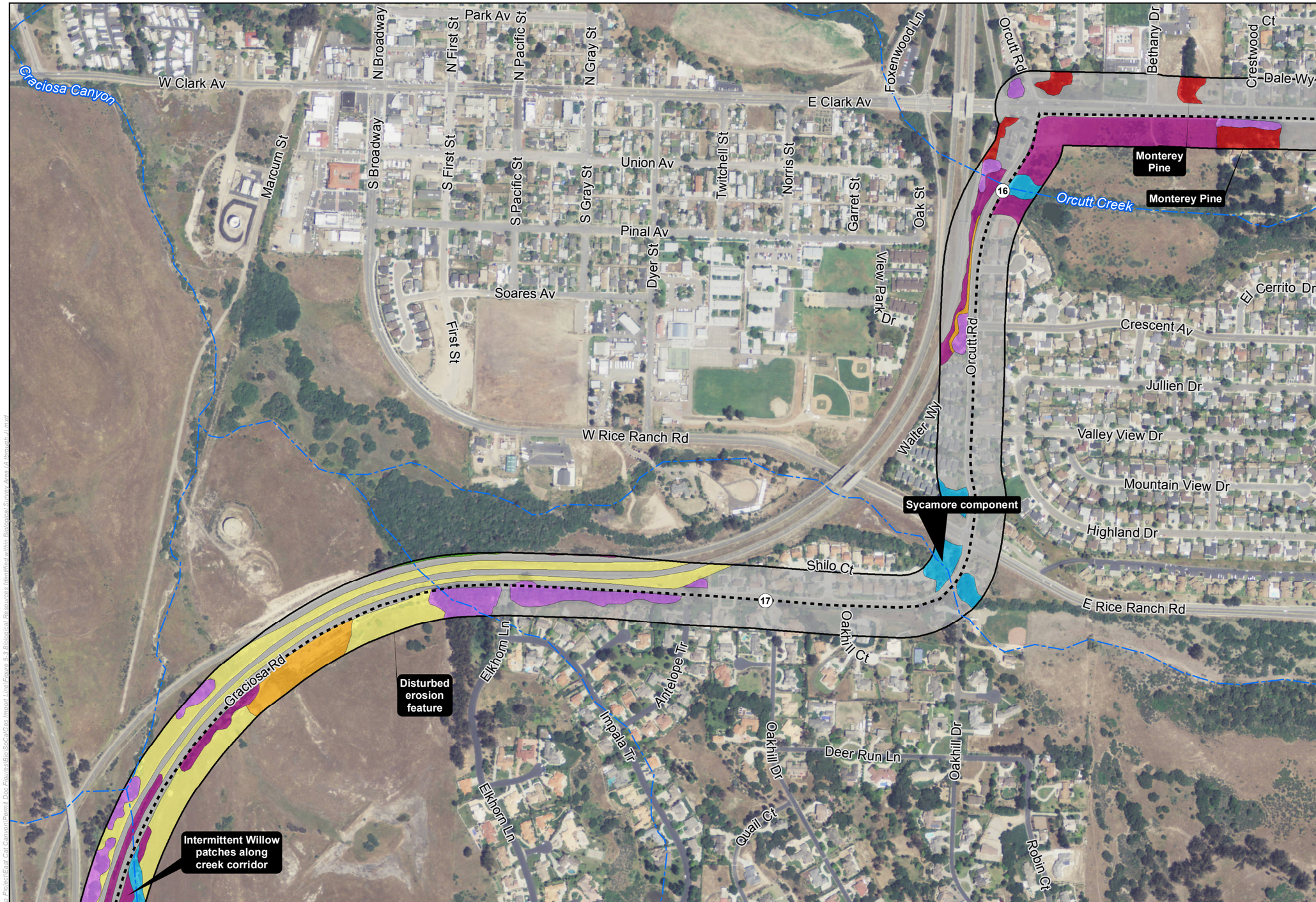
padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: | |
|---|---|
| AERA - EAST CAT CANYON<br>SANTA BARBARA COUNTY, CA | |
| PROJECT NUMBER: 1002-0457 | DATE: October 2014 |

BIOLOGICAL RESOURCES IDENTIFIED WITHIN BIOLOGICAL SURVEY AREA

FIGURE 5-3G

PAGE INTENTIONALLY BLANK




LEGEND:

- Photo Location
- Proposed Gas_Line Route
- Hydrological Feature
- Aera Energy LLC Property
- Biological Survey Area

Vegetation Type

- Agricultural
- Annual Brome Grasslands
- Arroyo Willow Thickets
- Coast Live Oak Woodland
- Coyote Brush Scrub
- Developed
- Drainage Feature
- Eucalyptus Groves
- Ornamental
- Ruderal

N

5-3H 5-3G 5-3F 5-3E 5-3D 5-3I 5-3C 5-3B 5-3J 5-3A

FIGURE INDEX

0 250 500 FEET

Source: Santa Barbara County, NAIP 2012 Image
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposes only

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: AERA - EAST CAT CANYON SANTA BARBARA COUNTY, CA

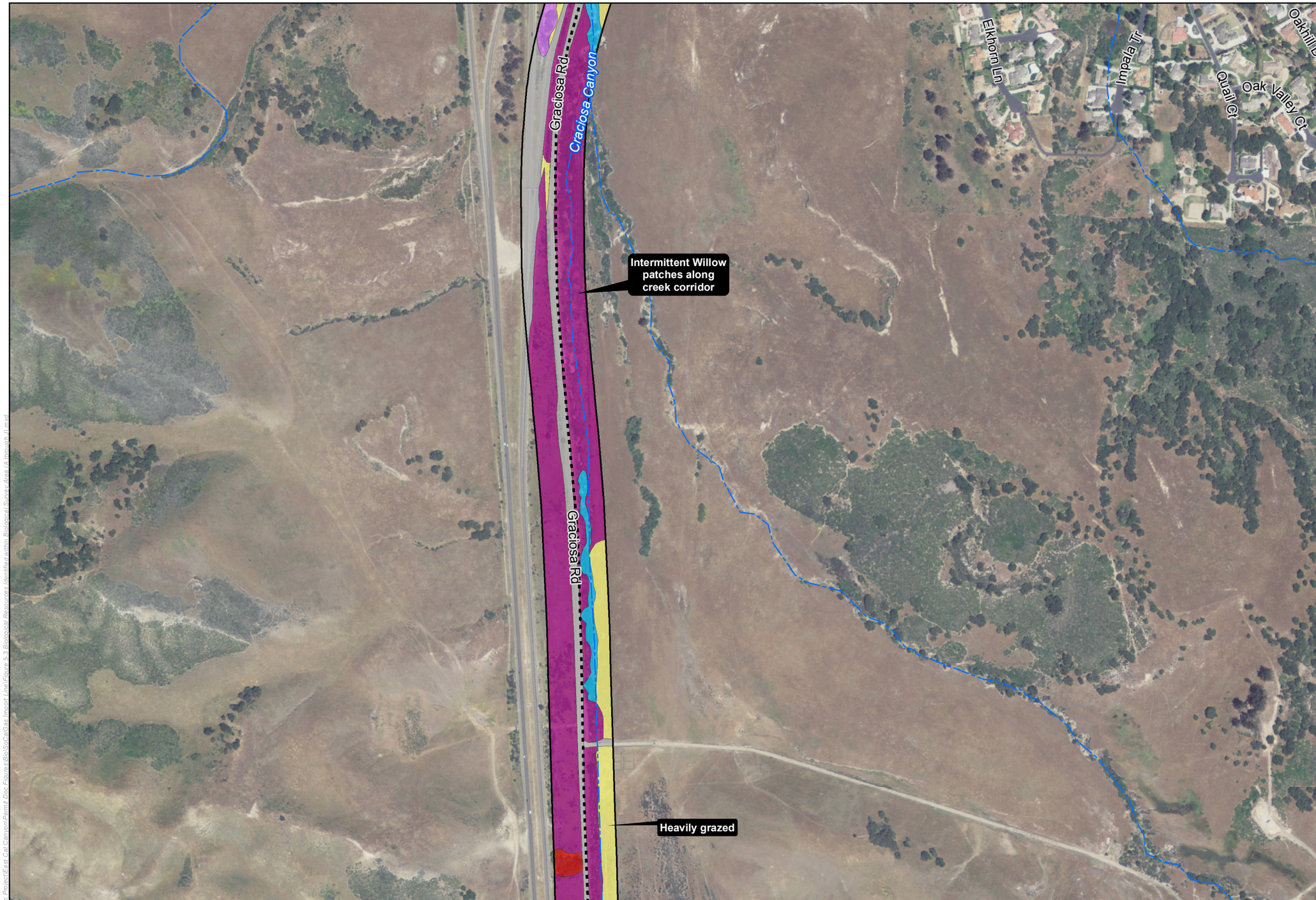
PROJECT NUMBER: 1002-0457

DATE: October 2014

BIOLOGICAL RESOURCES IDENTIFIED WITHIN BIOLOGICAL SURVEY AREA

FIGURE 5-3H

PAGE INTENTIONALLY BLANK




LEGEND:

- Photo Location
- Proposed Gas_Line Route
- Hydrological Feature
- Aera Energy LLC Property
- Biological Survey Area

Vegetation Type

- Agricultural
- Annual Brome Grasslands
- Arroyo Willow Thickets
- Coast Live Oak Woodland
- Coyote Brush Scrub
- Developed
- Drainage Feature
- Eucalyptus Groves
- Ornamental
- Ruderal

N

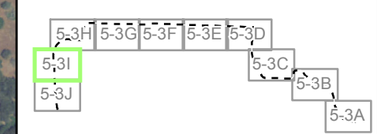



FIGURE INDEX

0 250 500
FEET

Source: Santa Barbara County, NAIP 2012 Image
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposes only

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: AERA - EAST CAT CANYON SANTA BARBARA COUNTY, CA

PROJECT NUMBER: 1002-0457

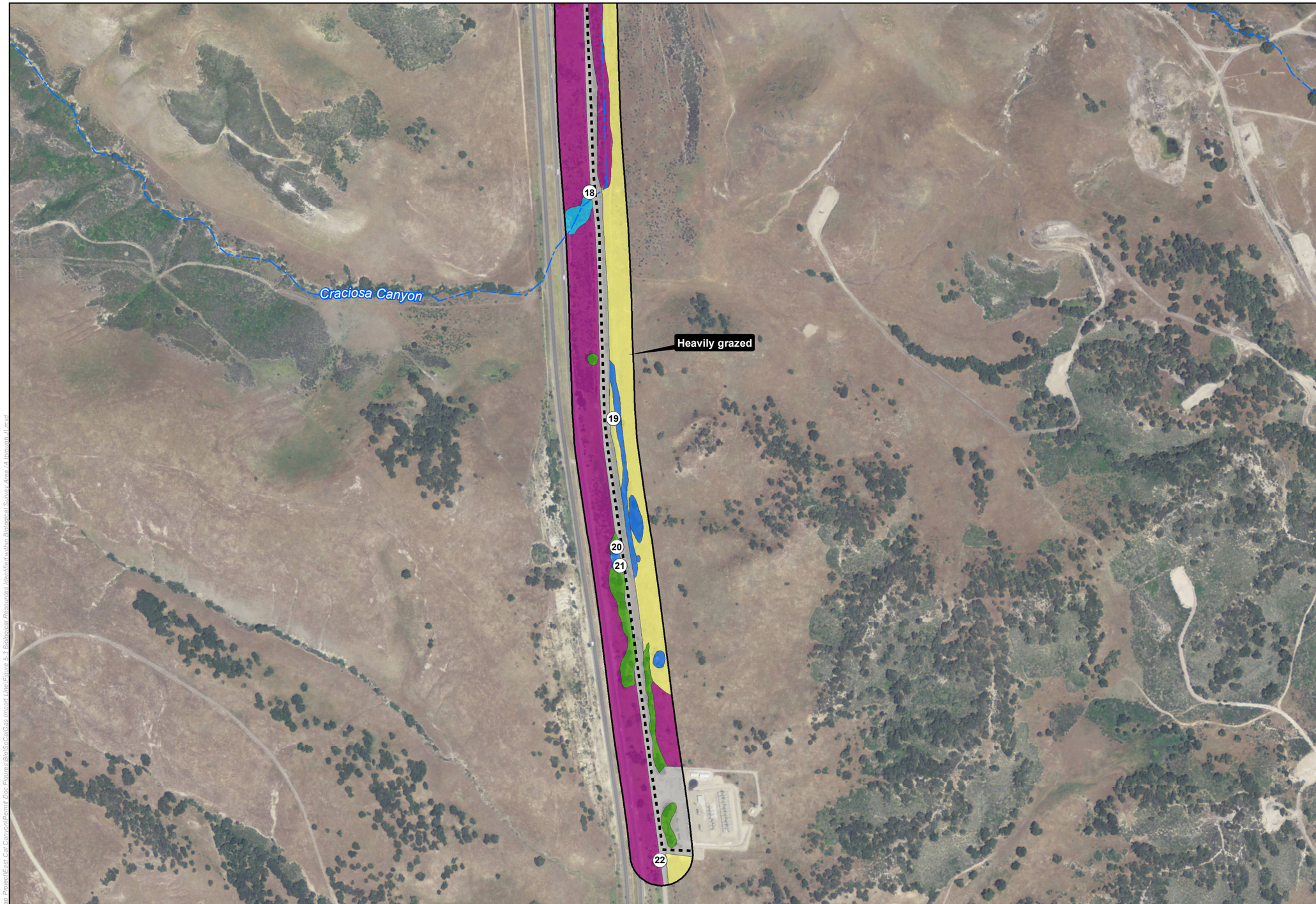
DATE: October 2014

BIOLOGICAL RESOURCES IDENTIFIED WITHIN BIOLOGICAL SURVEY AREA

FIGURE 5-3I

Z:\Kristin\GIS_Maps\Maps_Project\East Cat Canyon\Permit Doc Figures\Bio\SoCalGas Import Line\Figure 5-3 Biological Resources Identified within Biological Survey Area (4.4)map(v1).mxd

PAGE INTENTIONALLY BLANK




LEGEND:

- Photo Location
- Proposed Gas_Line Route
- Hydrological Feature
- Aera Energy LLC Property
- Biological Survey Area

Vegetation Type

- Agricultural
- Annual Brome Grasslands
- Arroyo Willow Thickets
- Coast Live Oak Woodland
- Coyote Brush Scrub
- Developed
- Drainage Feature
- Eucalyptus Groves
- Ornamental
- Ruderal

N

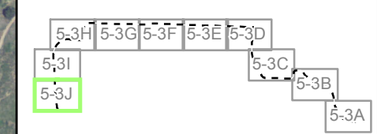



FIGURE INDEX

0 250 500
FEET

Source: Santa Barbara County, NAIP 2012 Image
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposes only

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: AERA - EAST CAT CANYON SANTA BARBARA COUNTY, CA

PROJECT NUMBER: 1002-0457

DATE: October 2014

BIOLOGICAL RESOURCES IDENTIFIED WITHIN BIOLOGICAL SURVEY AREA

FIGURE 5-3J

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Permit Doc Figures\BioSc\CalGas Import Line\Figure 5-3 Biological Resources Identified within Biological Survey Area (4 through 11).mxd

PAGE INTENTIONALLY BLANK

**Annual Brome Grasslands.** Annual brome grasslands (*Bromus diandrus, hordeaceus – Brachypodium* Semi-Natural Herbaceous Stands) occur in all topographic settings in foothills, waste places, rangelands, and openings in woodlands. Typical vegetation includes ripgut brome (*B. diandrus*), soft chess (*B. hordeaceus)*, and/or false brome (*Brachypodium distachyon*) as dominant or co-dominant with native and non-native component species in the herbaceous layer. Cover can be intermittent to continuous (Sawyer *et. al.*, 2009). Annual brome grassland are scattered throughout the BSA, primarily in the less-developed areas of the eastern portion of the proposed pipeline corridor. Based on field surveys, Annual brome grassland is principally composed of non-native annual grass species dominated by rigput grass (*Bromus diandrus*) with co-dominant to component species including slender wild oat (*Avena barbata*), soft chess, red brome (*Bromus madritensis*), foxtail barley (*Hordeum murinum*), storksbill (*Erodium botrys*), red-stemmed filaree (*Erodium cicutarium*), and Italian ryegrass (*Festuca perennis*).

**Coyote Brush Scrub.** Coyote brush scrub (*Baccharis pilularis* Shrubland Alliance) occurs in river mouths, stream sides, terraces, stabilized dunes of coastal bars, spits along the coastline, coastal bluffs, open slopes, and ridges. Coyote brush is dominant to co-dominant in the shrub canopy, and the canopy cover is variable (Sawyer *et. al*., 2009). Based on field surveys, coyote brush scrub is scattered throughout the BSA and is comprised of native and non-native shrubs, forbs and grasses, dominated by coyote brush, with component species including California sagebrush (*Artemisia californica*), black sage (*Salvia mellifera*), deerweed (*Acmispon glabra* [*Lotus scoparius*]), ripgut grass, red brome, horseweed (*Erigeron canadensis*), telegraph weed (*Heterotheca grandiflora*), black mustard (*Brassica nigra*). Coyote brush scrub was also found amid intermittent stands of coast live oak (*Quercus agrifolia*) at several locations. Areas of coyote brush scrub located on Aera property within the BSA are relatively disturbed as a result of past and current land use practices (i.e., grazing, oil field activities, buildings, etc.), and consist primarily of coyote brush, telegraph weed, and scattered pepper trees (*Schinus molle*).

**Arroyo Willow Thickets.** Arroyo willow thickets (*Salix lasiolepis* Shrubland Alliance) occur on stream banks and benches, slope seeps, and stringers along drainages. This alliance has an open to continuous canopy. Coyote brush is a dominant or co-dominant species in the shrub or tree canopy (Sawyer *et al.,* 2009). Arroyo willow thickets occurs in patches at several locations within the BSA, in drainages and or creek crossings along Cat Canyon Road, Palmer Road, and Dominion Road, and Graciosa Road. Based on field surveys, this vegetation type is dominated by arroyo willow, with component tree, shrub, forb and grass species including coyote brush, poison oak (*Toxicodendron diversilobum*), scattered coast live oak, blue elderberry (*Sambucus nigra*), and foxtail barley. These thickets occur within the majority of the drainages intersecting the BSA.

**Coast Live Oak Woodland.** Coast live oak woodland (*Quercus agrifolia* Woodland Alliance) occurs on alluvial terraces, canyon bottoms, stream banks, slopes, and flats. Soils are deep, and sandy or loamy soils associated with the alliance have high levels of organic matter. Coast live oak is a dominant or co-dominant in the tree canopy, and the canopy ranges from open to continuous (Sawyer *et al.,* 2009). Coast live oak woodland is particularly important for its ability to support a wide variety of wildlife species due to its high value as foraging habitat and protective cover (e.g., acorn production, forest canopy, etc.). Coast live oak woodland is recognized by the CDFW as a valuable habitat that should be protected. Further, oak woodland is considered to be an

ESHA by Santa Barbara County. Coast live oak woodland occurs in small stands (i.e., less than one acre) primarily within the eastern and western portions of the BSA, adjacent to Cat Canyon Road, Palmer Road, and Graciosa Road. Based on field surveys, coast live oak woodland is dominated by coast live oak with component species including coyote brush, arroyo willow, Italian thistle, ripgut grass, slender wild oat, Italian ryegrass (*Festuca perennis*), woodmint (*Stachys bullata*), poison oak, and California hummingbird sage (*Salvia spathacea*).

**Eucalyptus Groves.** Eucalyptus groves (*Eucalyptus* [*globulus, camaldulensis*] Semi-Natural Woodland Stands) were generally planted as trees, groves, and windbreaks and are naturalized on uplands and stream courses. Dominant or co-dominant species include blue gum (*E.globulus)* or river red gum (*E. camaldulensis).* The canopy is intermittent to continuous (Sawyer *et. al.* (2009). Eucalyptus groves often provide suitable nesting habitat for birds and overwintering habitat for monarch butterfly. Eucalyptus groves occur primarily within the central and western portion of the BSA, along Clark Avenue and Graciosa Road. Based on field surveys, eucalyptus groves are comprised of blue gum and Monterey pine (*Pinus radiata*), with component species including ripgut grass, Italian thistle, California everlasting (*Gnaphalia californicum*), and dense leaf litter layer.

**Ruderal.** Ruderal is a term used to describe those areas that have been significantly altered by past land use practices that may have allowed for establishment of vegetation typically consisting of disturbance-related plant species. These disturbed areas that are not paved may support minimal vegetative cover, depending on current land use of the area. Ruderal areas may occur on unpaved road shoulders, parking lots, and driveways. Overall, the BSA has extensive disturbance from historic and current urban, suburban, agricultural, oil field, and ranching activities. Plant cover within the ruderal areas range from bare ground to minimally vegetated land consisting almost entirely of non-native, annual grasses and forb species tolerant of disturbance including, but not limited to, ripgut grass, soft chess, black mustard (*Brassica nigra*), cheeseweed (*Malva parviflora*), wild radish (*Raphanus sativus*), common sowthistle (*Sonchus oleraceous*), telegraph weed, redstem filaree, tree tobacco (*Nicotiana glauca*), bur-clover (*Medicago polymorpha*), and storksbill.

**Ornamental.** The term ornamental is used to describe the presence of horticultural species planted as a component of urban and suburban landscape design within the BSA. Ornamental habitat may provide some food and cover for wildlife; however, some ornamental species may be poisonous to wildlife. Ground cover is usually limited in ornamental communities due to allelopathic properties of leaf litter from various ornamental plant species and/or landscape maintenance activities. Based on field surveys, the primary ornamental species observed include Monterey pine, Peruvian peppertree, cypress (*Cupressus* sp.), and eucalyptus.

**Agricultural.** The term agricultural is used to describe those areas that are currently or recently utilized for rotational row-crops or vineyards. Crop cover can provide suitable habitat for a variety of common wildlife species and may act as wildlife migratory corridors. Crop cover may be variable depending on time of year and species being cultivated. Based on field surveys, agricultural areas occur primarily in the central portion of the BSA, adjacent to Clark Avenue and Highway 101. All agricultural areas consisting of row-crops and vineyards are collectively referred

to as Agriculture as illustrated in Figure 5-3 - Biological Resources Identified within Biological Survey Area.

**Developed.** Developed land is a term that describes areas where soil has been modified and converted to buildings, parking lots, and paved roads. Developed lands typically do not support any vegetative cover due to the presence of impervious surfaces. Within the BSA, the majority of the developed land consists of paved roads, sidewalks, parking lots and residential development in the Orcutt community. Land that has been developed and does not provide any plant components is illustrated as Developed in Figure 5-3 - Biological Resources Identified within Biological Survey Area.

## 5.4 SPECIAL-STATUS PLANT SPECIES

Special-status plant species are either listed as Endangered or Threatened under FESA or CESA, considered rare under the California Native Plant Protection Act, or considered rare (but not legally listed) by resources agencies, professional organizations, and the scientific community. For the purposes of this Report, special-status plant species are defined in Table 5-1 - Definitions of Special-Status Plant Species.

**Table 5-1. Definitions of Special-Status Plant Species**

| Regulatory Protection Provided for Special-Status Plant Species |
|---|
| • Plants listed or proposed for listing as Threatened or Endangered under the Federal Endangered Species Act (50 CFR 17.12 for listed plants and various notices in the Federal Register for proposed species).<br>• Plants that are candidates for possible future listing as Threatened or Endangered under the Federal Endangered Species Act (Federal Register Vol. 67, No. 114, pp.40657-4067, June 13, 2002).<br>• Plants that meet the definitions of Rare or Endangered species under the CEQA (State CEQA Guidelines, Section 15380).<br>• Plants considered by the CNPS to be "Rare, Threatened, or Endangered" in California (Ranks 1B and 2 in CNPS, 2013).<br>• Plants listed by CNPS as plants about which we need more information and plants of limited distribution (Ranks 3 and 4 in CNPS, 2013).<br>• Plants listed or proposed for listing by the State of California as Threatened or Endangered under the California Endangered Species Act (14 CCR 670.5).<br>• Plants listed under the California Native Plant Protection Act (California Fish and Game Code 1900 et seq.).<br>• Plants considered sensitive by other federal agencies (i.e., U.S. Forest Service, Bureau of Land Management), state and local agencies or jurisdictions.<br>• Plants considered sensitive or unique by the scientific community or occurring at the limits of their natural range (State CEQA Guidelines). |

The desktop review and field surveys found that several special-status plant species have been recorded within the Project region (within five-miles of the BSA), and the BSA may provide suitable habitat for potentially occurring special-status species. Table 5-2 - Special-Status Plant Species of the Project Region lists these species, their current status, habitat description, nearest known occurrence to the BSA, as well as the potential for occurrence within the BSA.

## Table 5-2. Special-Status Plant Species of the Project Region

| **Plant Species** *Arranged alphabetically by scientific name* | **Regulatory Protection Status** | **Habitat Description** *As described by CDFW, 2014 and CNPS, 2013* | **Nearest Documented Occurrence** | **BSA** | | | |
|---|---|---|---|---|---|---|---|
| | | | | Habitat Present | Occurrence ≤ Five Miles | Observed | Potential for Occurrence |
| *Agrostis hooveri* Hoover's bent grass | Rank 1B.2 | Dry sandy soils within closed-cone coniferous forest, chaparral, cismontane woodland, valley and foothill grassland. | Cat Canyon Oil Field in Soloman Hills near Santa Maria; approximately 0.5 mile from the BSA (CDFW, 2014). | X | X | | X |
| *Arctostaphylos purissima* La Purisima manzanita | Rank 1B.1 | Chaparral, coastal scrub. Sandy soils. | Vandenberg Air Force Base, approximately four-miles SW of the BSA (CDFW, 2014). | X[1] | X | | |
| *Arctostaphylos rudis* Sand mesa manzanita | Rank 1B.2 | Chaparral (maritime), coastal scrub. Sandy soils. | Upper Graciosa Valley, east of Highway 1 and Highway 135, three-miles south of Orcutt; approximately 0.2 mile east of the BSA (CDFW, 2014). | X[1] | X | | |
| *Astragalus didymocarpus* var. *milesianus* Miles' milk-vetch | Rank 1B.2 | Coastal scrub (clay). | Foxen Canyon, approximately 3.2-miles east of the BSA (CDFW, 2014). | X | X | | X |
| *Calycadenia villosa* Dwarf calycadenia | Rank 1B.1 | Chaparral, cismontane woodland, valley and foothill grassland, meadows and seeps. | Los Alamos, approximately 4.5-miles south of the BSA (CDFW, 2014). | X | X | | X |
| *Chorizanthe rectispina* Straight-awned spineflower | Rank 1B.3 | Chaparral, cismontane woodland, coastal scrub. | SW of Vandenberg village, north of Highway 1 in Burton Mesa, approximately 13.5-miles SW of the BSA (CDFW, 2014). Observed by Padre within the East Cat Canyon Oil Field, within one-mile of the BSA during April 2013 surveys. | X[2] | X | | |
| *Cirsium scariosum* var. *loncholepis* La Graciosa thistle | FE, ST Rank 1B.1 | Mesic and sandy cismontane woodland, coastal dunes, riparian scrub, brackish marshes, valley and foothill grassland. | South of Orcutt; within the BSA (CDFW, 2014). | X | X | | X |
| *Cladium californicum* California sawgrass | Rank 2.2 | Meadows and seeps, marshes and swamps. | Barka Slough, Vandenberg Air Force Base, approximately three-miles SW of the BSA (CDFW, 2014). | | X | | |
| *Deinandra increscens* ssp. *villosa* Gaviota tarplant | FE, SE Rank 1B.1 | Coastal scrub, valley and foothill grassland, coastal bluff scrub. | 3.5 miles west of Orcutt on Highway 1, approximately 2.3 miles NW of the BSA (CDFW, 2014). | X | X | | X |
| *Delphinium parryi* ssp. *blochmaniae* Dune larkspur | Rank 1B.2 | Maritime chaparral, coastal dunes. | Documented within the BSA along Graciosa Road (CDFW, 2014). Not observed during field surveys. | | X | | X[3] |
| *Erigeron blochmaniae* Blochman's leafy daisy | Rank 1B.2 | Coastal dunes, coastal scrub. | SW of Santa Maria along Black Road, north of Betteravia Road, approximately 5.3 miles NW of the BSA (CDFW, 2014). | X | | | X |

## Table 5-2. Special-Status Plant Species of the Project Region

| **Plant Species** *Arranged alphabetically by scientific name* | **Regulatory Protection Status** | **Habitat Description** *As described by CDFW, 2014 and CNPS, 2013* | **Nearest Documented Occurrence** | **BSA** | | | |
|---|---|---|---|---|---|---|---|
| | | | | Habitat Present | Occurrence ≤ Five Miles | Observed | Potential for Occurrence |
| *Eriodictyon capitatum* Lompoc yerba santa | FE, SR, Rank 1B.2 | Closed-cone coniferous forest, maritime chaparral. | Orcutt Oil Field, Graciosa Ridge, Solomon Hills, approximately 0.7-mile south of the BSA (CDFW, 2014). | | X | | |
| *Horkelia cuneata* var. *puberula* Mesa horkelia | Rank 1B.1 | Chaparral, cismontane woodland, coastal scrub. | The Sisquoc River, approximately one mile NE of the BSA (CDFW, 2014). | X | X | | X |
| *Layia heterotricha* Pale-yellow layia | Rank 1B.1 | Cismontane woodland, pinyon-juniper woodland, valley and foothill grassland. | Along Highway 1, within Burton Mesa north of Lompoc, approximately 5.3 miles SW of the BSA (CDFW, 2014). | X | | | X |
| *Nasturtium gambelii* Gambel's water cress | FE, ST, Rank 1B.1 | Marshes and swamps (freshwater or brackish). | Barka Slough, San Antonio Valley, approximately four miles SW of the BSA (CDFW, 2014). | X | X | | X |
| *Scrophularia atrata* Black-flowered figwort | Rank 1B.2 | Closed-cone coniferous forest, chaparral, coastal dunes, coastal scrub, riparian scrub. | Purisima Hills, approximately 2.8 miles south of the BSA (CDFW, 2014). | X | X | | X |

Notes:

1 Although general coastal scrub habitat is present within the BSA, suitable ecological conditions consisting of maritime chaparral and sandy soils are absent, and no manzanita was observed during surveys. Therefore, this species is not expected to occur within the BSA.
2 Although general coastal scrub habitat is present within the BSA, suitable ecological conditions consisting of bare, rocky/granite areas are absent; therefore, this species is not expected to occur within the BSA.
3 No suitable habitat is present within the BSA, however, the CNDDB has documented dune larkspur along Graciosa Road within the BSA; therefore there is potential for this species to occur within the BSA.

**Status Codes:**

FE Federal Endangered (USFWS)
FC Federal Species of Concern (USFWS)
SE State Endangered (CDFW)
ST State Threatened (CDFW)
SR State Rare (CDFW)

Rank 1B Plants Rare, Threatened, or Endangered in California and Elsewhere (CNPS)
0.1 Seriously Endangered in California
0.2 Fairly Endangered in California
0.3 Not very Endangered in California
Rank 2 Plants rare, Rare, Threatened, or Endangered in California, but More Common Elsewhere (CNPS)
Rank 4 Plants of Limited Distribution – A Watch List (CNPS)

Field surveys were completed in June and October, and did not cover the blooming periods for all special-status plants occurring within the region. The June surveys had the greatest potential to capture the majority of the blooming periods for special-status plants; however, species, such as, sand mesa manzanita and dune larkspur may not have been identifiable during this time. Refer to Table 5-3 - Blooming Period for Special-Status Plants for blooming periods for special-status species listed above. Additionally, the presence/absence of plants associated with the habitats occurring in the BSA may vary from year to year based on environmental conditions. Variations in plant abundance and presence/absence can vary annually as a result of a species' resistance to stresses such as annual fluctuations in precipitation, fire, non-native and/or invasive

species, human disturbance, agricultural operations, and/or seed banks that can stay dormant for several years.

No special-status species were observed during field surveys, however, results may be confounded by seasonal fluctuations, survey timing, and access constraints. Field surveys did not consist of walking the entire BSA, only portions of the public rights-of-way where the project activities are expected to occur were walked. Some portions of the rights-of-way were driven to clear turn-outs where there were clear vantage points to see the entirety of the BSA. Therefore, special-status plant species may still have a potential to occur in the BSA, outside the right-of-way, if suitable habitat is present.

**Table 5-3. Blooming Period for Special-Status Plants**

| | Blooming Period (month) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Plant Species (common name)** | **Jan** | **Feb** | **Mar** | **Apr** | **May** | **Jun** | **Jul** | **Aug** | **Sep** | **Oct** | **Nov** | **Dec** |
| Hoover's bent grass | | | | | | | | | | | | |
| La Purisima Manzanita | | | | | | | | | | | | |
| Sand mesa manzanita | | | | | | | | | | | | |
| Miles' milk-vetch | | | | | | | | | | | | |
| Dwarf calycadenia | | | | | | | | | | | | |
| Straight-awned spineflower | | | | | | | | | | | | |
| La Graciosa thistle | | | | | | | | | | | | |
| California sawgrass* | | | | | | | | | | | | |
| Gaviota tarplant | | | | | | | | | | | | |
| Dune larkspur* | | | | | | | | | | | | |
| Blochman's leafy daisy | | | | | | | | | | | | |
| Lompoc yerba santa* | | | | | | | | | | | | |
| Mesa horkelia | | | | | | | | | | | | |
| Pale-yellow layia | | | | | | | | | | | | |
| Gambel's water cress | | | | | | | | | | | | |
| Black-flowered figwort | | | | | | | | | | | | |

Note:
*Suitable habitat does not occur within the BSA, and therefore the species does not have potential to occur within the BSA. However, known occurrences of the species are less than five miles from the BSA, and as such, blooming period is provided for informational purposes.

Source: Blooming period information was provided by Baldwin, e. al., 2012 and CNPS, 2013.

The following descriptions briefly discuss biological information and ecological requirements for those species with the greatest potential to occur, based on presence of suitable habitat and/or documented occurrences within five-miles from the BSA.

**Hoover's bent grass.** No Hoover's bent grass was observed within the BSA; however, suitable habitat may occur in the annual brome grassland community within the BSA. Project activities are not expected to include any vegetation or topsoil removal that may contain a potential seed bank for this species. Additionally, implementation of recommended avoidance and

minimization measures (refer to Section 6.0) would reduce impacts to special-status plants to less than significant.

**La Purisima manzanita.** No La Purisima manzanita or associated suitable habitat was observed within the BSA; however, La Purisima manzanita has been documented within five-miles of the BSA. Project activities are not expected to include any vegetation or topsoil removal that may contain a potential seed bank for this species. Additionally, implementation of recommended avoidance and minimization measures (refer to Section 6.0) would reduce impacts to special-status plants to less than significant.

**Sand mesa manzanita.** No sand mesa manzanita or associated suitable habitat was observed within the BSA; however, sand mesa manzanita been documented within five-miles from the BSA. Project activities are not expected to include any vegetation or topsoil removal that may contain a potential seed bank for this species. Additionally, implementation of recommended avoidance and minimization measures (refer to Section 6.0) would reduce impacts to special-status plants to less than significant.

**Miles' milk-vetch.** No Miles' milk-vetch was observed within the BSA; however, suitable habitat may occur in the coyote brush scrub communities within the BSA. Project activities are not expected to include any vegetation or topsoil removal that may contain a potential seed bank for this species. Additionally, implementation of recommended avoidance and minimization measures (refer to Section 6.0) would reduce impacts to special-status plants to less than significant.

**Dwarf calycadenia.** No dwarf calycadenia was observed within the BSA, however, suitable habitat may occur in grassland communities within the BSA. Project activities are not expected to include any vegetation or topsoil removal that may contain a potential seed bank for this species. Additionally, implementation of recommended avoidance and minimization measures (refer to Section 6.0) would reduce impacts to special-status plants to less than significant.

**Straight-awned spineflower.** No straight-awned spineflower was observed within the BSA; however, straight-awned spineflower has been documented by Padre in 2013 within one mile of the BSA in the East Cat Canyon Oil. This species occurs in bare rocky/granite soils that were not observed within the BSA; therefore, is not expected to occur within the BSA. Project activities are not expected to include any vegetation or topsoil removal that may contain a potential seed bank for this species. Additionally, implementation of recommended avoidance and minimization measures (refer to Section 6.0) would reduce impacts to special-status plants to less than significant.

**La Graciosa thistle.** No La Graciosa thistle was observed within the BSA; however, the CNDDB has documented La Graciosa thistle within the BSA along Graciosa Road and USFWS Critical Habitat has been designated in portions of the BSA. Additionally, suitable habitat may occur within grassland and wetland communities within the BSA. Project activities are not expected to include any vegetation or topsoil removal that may contain a potential seed bank for this species. Additionally, implementation of recommended avoidance and minimization

measures (refer to Section 6.0) would reduce impacts to special-status plants to less than significant.

**California sawgrass.** No California sawgrass or associated suitable habitat was observed within the BSA; however, California sawgrass has been documented within five-miles of the BSA. Project activities are not expected to include any vegetation or topsoil removal that may contain a potential seed bank for this species. Additionally, implementation of recommended avoidance and minimization measures (refer to Section 6.0) would reduce impacts to special-status plants to less than significant.

**Gaviota tarplant.** No Gaviota tarplant was observed within the BSA; however, suitable habitat may occur in grassland communities within the BSA. Project activities are not expected to include any vegetation or topsoil removal that may contain a potential seed bank for this species. Additionally, implementation of recommended avoidance and minimization measures (refer to Section 6.0) would reduce impacts to special-status plants to less than significant.

**Dune larkspur.** No dune larkspur or associated suitable habitat was observed within the BSA. The CNDDB has documented dune larkspur within the BSA along Graciosa Road, just outside the proposed pipeline alignment; therefore, dune larkspur may have the potential to occur within the BSA. Project activities are not expected to include any vegetation or topsoil removal that may contain a potential seed bank for this species. Additionally, implementation of recommended avoidance and minimization measures (refer to Section 6.0) would reduce impacts to special-status plants to less than significant.

**Blochman's leafy daisy.** No Blochman's leafy daisy was observed within the BSA; however, suitable habitat may occur in the scrub communities consisting of sandy soils within the BSA. Project activities are not expected to include any vegetation or topsoil removal that may contain a potential seed bank for this species. Additionally, implementation of recommended avoidance and minimization measures (refer to Section 6.0) would reduce impacts to special-status plants to less than significant.

**Lompoc yerba santa.** No Lompoc yerba santa or associated suitable habitat was observed within the BSA; however, USFWS Critical Habitat has been designated adjacent to the BSA along Graciosa Road. Project activities are not expected to include any vegetation or topsoil removal that may contain a potential seed bank for this species. Additionally, implementation of recommended avoidance and minimization measures (refer to Section 6.0) would reduce impacts to special-status plants to less than significant.

**Mesa horkelia.** No mesa horkelia was observed within the BSA, however, suitable habitat may occur in scrub and woodland habitats within the BSA. Project activities are not expected to include any vegetation or topsoil removal that may contain a potential seed bank for this species. Additionally, implementation of recommended avoidance and minimization measures (refer to Section 6.0) would reduce impacts to special-status plants to less than significant.

**Pale-yellow layia.** No pale-yellow layia was observed within the BSA; however, suitable habitat may occur in the grassland communities within the BSA. Project activities are not expected to include any vegetation or topsoil removal that may contain a potential seed bank for this species. Additionally, implementation of recommended avoidance and minimization

measures (refer to Section 6.0) would reduce impacts to special-status plants to less than significant.

**Gambel's watercress.** No Gambel's watercress was observed within the BSA; however, suitable habitat may occur in wetland and grassland communities within the BSA. Additionally, a common species of watercress (*Nasturtium officinale*) was observed within a small drainage feature along Graciosa Road within the BSA, and as such, indicates that there is potential for Gambel's watercress to occur. Project activities are not expected to include any vegetation or topsoil removal that may contain a potential seed bank for this species. Additionally, implementation of recommended avoidance and minimization measures (refer to Section 6.0) would reduce impacts to special-status plants to less than significant.

**Black-flowered figwort.** No black-flowered figwort was observed within the BSA; however, suitable habitat may occur in scrub habitats within the BSA. Project activities are not expected to include any vegetation or topsoil removal that may contain a potential seed bank for this species. Additionally, implementation of recommended avoidance and minimization measures (refer to Section 6.0) would reduce impacts to special-status plants to less than significant.

## 5.5 WILDLIFE OCCURRING WITHIN THE BSA

Wildlife species observed include those seen or detected by track, scat, skeletal remains, burrows, and/or vocalization during the field surveys conducted within the BSA. Complications in the quantitative assessment of terrestrial vertebrate and invertebrate populations may have influenced observations made during field surveys. These complications include:

- Many species may occur in the area only for short periods during migrations;
- Many species of amphibians and reptiles become inactive during one or more seasons;
- Seasonal or annual fluctuations in climate or weather patterns may confound observations;
- Field surveys were limited to public rights-of-way within the BSA; areas within the BSA located outside of the public-right-of-way were not accessed, but reviewed within vantage points along the roadside and with aerial imagery; and
- No focused protocol-level surveys, mist-netting, trapping, tracking surveys, invertebrate surveys, aquatic dip-net or nocturnal surveys were completed during field surveys by Padre Biologists.

A list of wildlife species potentially occurring within the BSA was compiled. The list includes species observed within the BSA during the field surveys, species reported by other sources identified in the desktop review, and species that have the potential to utilize the BSA based on suitable habitat and other environmental conditions (Appendix C). Descriptions of wildlife species that were observed within BSA or have potential to occur are discussed below.

**Invertebrates.** A wide variety of invertebrates are expected to occur in the BSA, including ground beetles (Order Coleoptera) and burrowing bugs (*Aethus* sp.), spiders (Order Araneida), millipedes (Class Diplopoda), butterflies (Order Lepidoptera), dragonflies (Order Odonata), bees, wasps, and ants (Order Hymenoptera). The presence of aquatic branchiopods is dependent on the availability of water in ephemeral pools that may form during the rainy season (typically from December through April). Several common terrestrial invertebrates were observed during the field surveys, however, aquatic surveys were not performed and no invertebrates were collected and/or further identified to the species level.

**Fish.** The streams within the BSA do not support fish due to their ephemeral nature and lack of suitable spawning habitat for anadromous fish.

**Amphibians.** Amphibians dependent upon surface water for a sufficient duration to complete breeding cycles, such as California toad (*Bufo boreas halophilus*) and California red-legged frog (*Rana draytonii*), may occur in aquatic features within the BSA, including agricultural drainages. Also, the surrounding oak woodland community, specifically within the southern portions of the BSA near the Cat Canyon Oil Field, provides shade, moist logs, and dense leaf litter that hold moisture throughout the year for terrestrial amphibians, such as ensantina (*Ensatina eschscholtzii*), black-bellied slender salamander (*Batrachoseps nigriventris*), and arboreal salamander (*Aneides lugubris*). During the rainy season, these amphibians become more active, but do not require pools of water for survival or reproduction. No aquatic surveys or protocol-level amphibian surveys were performed during field surveys.

**Reptiles.** Reptile species expected to occur within the BSA based on the presence of suitable habitat include, but are not limited to, western rattlesnake (*Crotalus veridus*), California kingsnake (*Lampropeltis getulus*), gopher snake (*Pitophis catenifer*), valley garter snake (*Thamnophis sirtalis fitchi),* striped racer (*Maticophis lateralis*), and ring-neck snake (*Diadophis punctatus*). Reptiles observed within the BSA during field surveys were limited to Coast Range fence lizard (*Sceloporus occidentalis bocourtii*).

**Birds.** Birds that were observed in the BSA during the field surveys included, but not limited to, western scrub jay (*Aphelocoma californica*), American crow (*Corvus brachyrhynchos*), spotted towhee (*Pipilo maculatus*), wrentit (*Chamaea fasciata*), California thrasher (*Toxostoma redivivum),* and red-tailed hawk (*Buteo jamaicensis*). These birds are likely to utilize surrounding habitats for breeding activities during the spring and summer months. A variety of habitats occur within the BSA, suitable to support migratory and residential foraging and breeding activities for a wide range of bird species.

**Mammals.** Mammals observed directly and/or by sign during the field survey included, but are not limited to, Audubon's cottontail (*Sylvilagus audubonii*), Botta's pocket gopher (*Thomomys bottae*) (burrow sign), American badger (*Taxidea taxus*) (burrow signs), coyote (*Canis latrans*) (tracks), black-tailed hare (*Lepus californicus*), mule deer (*Odocoileus hemionus*), and woodrat (*Neotoma* sp.) (nests). Other common mammal species expected to occur within the BSA based on the presence of suitable habitat and migratory corridors (i.e., ridgelines, roadways, stream channels) included gray fox (*Urocyon cinereoargenteus*), striped skunk (*Mephitis mephitis*), and raccoon (*Procyon lotor*).

**Migratory Corridors.** Wildlife migration corridors are generally defined as connections between habitat patches that allow for physical and genetic exchange between otherwise isolated animal populations. Migration corridors may be local, such as those between foraging and nesting/denning areas, or they may be regional in nature. Migration corridors are not unidirectional access routes; however, reference is usually made to source and receiver areas in discussions of wildlife movement networks. "Habitat linkages" are migration corridors that contain contiguous strips of native vegetation between source and receiver areas. These natural linkages provide cover and forage sufficient for temporary inhabitation by a variety of ground-dwelling animal species. Wildlife migration corridors are essential to the regional fitness of an area as they provide avenues of genetic exchange and allow animals to access alternative territories as fluctuating dispersal pressures dictate.

The BSA consists of several stream corridors and agricultural ditches that could be utilized by wildlife moving through the region. Many amphibian species in the region depend on undeveloped open space and grassland habitats between established water sources found throughout the region, in which the proposed pipeline intersects. The proposed pipeline alignment is situated along existing paved roads and road shoulders that currently provide migratory barriers to localized amphibian species, including special-status species, along stream corridors. During the night hours there is a higher potential for wildlife to cross over these barriers.

## 5.6 SPECIAL-STATUS WILDLIFE SPECIES

Special-status wildlife species are either listed as Endangered or Threatened under FESA or CESA, considered rare by resources agencies, professional organizations, and the scientific community. For the purposes of this Report, special-status wildlife species are defined in Table 5-4 – Definitions of Special-Status Wildlife Species.

**Table 5-4. Definitions of Special-Status Wildlife Species**

| Regulatory Protection Provided for Special-Status Wildlife Species |
|---|
| • Animals listed or proposed for listing as Threatened or Endangered under the Federal Endangered Species Act (50 CFR 17.11 for listed animals and various notices in the Federal Register for proposed species).<br>• Animals that are candidates for possible future listing as Threatened or Endangered under the Federal Endangered Species Act (Federal Register Vol. 70, No. 90, pp. 24869-24934, May 11, 2005).<br>• Animals that meet the definitions of Rare or Endangered species under the CEQA (*State CEQA Guidelines*, Section 15380)<br>• Animal Species of Special Concern to the CDFW (Shuford and Gardali, 2008 for birds; Williams, 1986 for mammals; Moyle *et al.*, 1989 for fish; and Jennings and Hayes, 1994 for amphibians and reptiles).<br>• Animals listed or proposed for listing by the State of California as Threatened and Endangered under the California Endangered Species Act (14 CCR 670.5).<br>• Animal species of special concern to the CDFW (Shuford and Gardali, 2008 for birds; Williams, 1986 for mammals).<br>• Animal species that are fully protected in California (California Fish and Game Code, Section 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians]).<br>• Birds of Conservation Concern. Migratory and nonmigratory bird species (beyond those already designated as federally Threatened or Endangered) that represent the USFWS highest conservation priorities in effort to draw attention to species in need of conservation action (USFWS, 2008).<br>• Birds on the CDFW Watch List include "Taxa to Watch" (Shuford and Gardali, 2008) 1) not on the current Special Concern list but were on previous lists and they have not been state listed under CESA; 2) were previously state or federally listed and now are on neither list; or 3) are on the list of "Fully Protected" species. |

| Regulatory Protection Provided for Special-Status Wildlife Species |
|---|
| • The Western Bat Working Group is comprised of agencies, organizations and individuals interested in bat research, management and conservation from the 13 western states and provinces. Species designated as "High Priority" are imperiled or are at high risk of imperilment based on available information on distribution, status, ecology and known threats.<br>• The CNDDB ranking element codes are part of the "Heritage Methodology" for special animals in which the CDFW is interested in tracking, regardless of their legal protection status. It is a shorthand formula that provides information about the status of a taxon, both throughout its entire range and within California. |

Table 5-5 – Special-Status Wildlife Species of the Project Region lists special-status wildlife that have been documented within the Project region (within five-miles of the BSA) and/or may occur within the region based on presence of suitable habitat within the BSA. Figure 5-1 - Documented Sensitive Resources illustrates occurrences of special-status wildlife documented within the region.

**Table 5-5. Special-Status Wildlife Species of the Project Region**

| **Wildlife Species** *Arranged alphabetically by common name in phylogenetic order* | **Regulatory Protection Status** | **Habitat Description** | **Nearest Documented Occurrence** | **BSA** | | | |
|---|---|---|---|---|---|---|---|
| | | | | Habitat Present | Occurrence ≤ Five Miles | Observed | Potential for Occurrence |
| **Invertebrates** | | | | | | | |
| Lompoc grasshopper *Trimerotropis occulens* | GH/SH | Known only in San Luis Obispo and Santa Barbara counties. Limited information available. | Lompoc in 1938 (CDFW, 2014). | | X | | |
| Monarch butterfly *Danaus plexippus* | G5/S3 | Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, cypress) with nectar and water sources nearby. | Waller Park, Santa Maria, 2.7 miles from BSA (CDFW, 2014). | | X | | X |
| Vernal pool fairy shrimp *Branchinecta lynchi* | FT | Vernal pools, swales, and ephemeral depressions where pooling occurs during rainy season as long as the pool persist for longer than 40-days. | Sargent Fee (Padre, 2010), within one mile of the BSA. | X | X | | X |
| **Fish** | | | | | | | |
| Southern Steelhead – southern California ESU *Oncorhynchus mykiss irideus* | FE, CSC | Warmer waters and more variable conditions from Santa Maria river into San Diego County. | USFWS Critical Habitat occurs along the Sisquoc River, approximately three miles of BSA. | | X | | |
| Unarmored threespine stickleback *Gasterosteus aculeatus williamsoni* | FE, SE | Weedy pools, backwaters and emergent vegetation at the stream edge in small southern California streams. | San Antonio Creek, approximately four miles from BSA (CDFW, 2014). | | X | | |
| **Reptiles** | | | | | | | |

## Table 5-5. Special-Status Wildlife Species of the Project Region

| **Wildlife Species** *Arranged alphabetically by common name in phylogenetic order* | **Regulatory Protection Status** | **Habitat Description** | **Nearest Documented Occurrence** | **BSA** | | | |
|---|---|---|---|---|---|---|---|
| | | | | Habitat Present | Occurrence ≤ Five Miles | Observed | Potential for Occurrence |
| Blainville's horned lizard *Phrynosoma blainvillii* | CSC | Wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. | Cat Canyon Oil Field located adjacent to the BSA. | X | X | | X |
| Coast patch-nosed snake *Salvadora hexalepis virgultea* | CSC | Brushy or shrubby vegetation in Southern California. Require small mammal burrows for refuge and overwintering sites. | Avena Rd., 2.2 miles NE of La Purisima Mission State Historical Park, greater than five miles from BSA (CDFW, 2014). | X | | | X |
| California legless lizard *Anniella pulchra* | CSC | Sandy or loose loamy soils, under sparse vegetation. Soil moisture is essential. | South of Santa Maria airport, approximately 1.2 miles northwest of BSA (CDFW, 2014). | X | X | | X |
| Southwestern pond turtle *Actinemys marmorata pallida* | CSC | Permanent or nearly permanent bodies of water in many habitat types. | Nearest documented location: along the Sisquoc River, adjacent to the BSA (CDFW, 2014). | X | X | | X |
| **Amphibians** | | | | | | | |
| Arroyo toad *Anaxyrus californicus* | FE, CSC | Rivers with sandy banks, willows, cottonwoods, and sycamores; loose, gravely areas of streams in drier parts of range. | Sisquoc River, approximately 3.1 miles north-northeast of BSA (CDFW, 2014). | | X | | |
| California red-legged frog *Rana draytonii* | FT, CSC | Lowlands and foothills in water with dense, shrubby or emergent riparian vegetation. | Stock pond near Sisquoc River, adjacent to the BSA (CDFW, 2014). | X | X | | X |
| California tiger salamander *Ambystoma californiense* | FT, ST, CSC | Upland ground squirrel burrows and vernal pools or other seasonal water sources for breeding. | Gill Pond near the Dominion and Clark Road (CDFW, 2014), within one mile of the BSA. | X | X | | X |
| Western spadefoot *Spea hammondii* | CSC | Sandy soils in a wide variety of habitats. Vernal pools are essential for egg laying and breeding. | Along Cat Canyon Road (Sage, 2012, and CDFW, 2014), within one mile from BSA. | X | X | | X |
| **Birds** | | | | | | | |
| Burrowing owl *Athene cunicularia* | CSC, BCC, MBTA | Open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. | Northwest of junction of Betteravia Road and Black Road, within five miles of the BSA (CDFW, 2014). | X | X | | X |

## Table 5-5. Special-Status Wildlife Species of the Project Region

| **Wildlife Species** *Arranged alphabetically by common name in phylogenetic order* | **Regulatory Protection Status** | **Habitat Description** | **Nearest Documented Occurrence** | **BSA** | | | |
|---|---|---|---|---|---|---|---|
| | | | | Habitat Present | Occurrence ≤ Five Miles | Observed | Potential for Occurrence |
| California horned lark *Eremophila alpestris actia* | MBTA, BCC, WL | Grasslands with low-lying vegetation. | Observed during Padre April 2013 field surveys within Cat Canyon Oil Field. | X | X | | X |
| Golden eagle *Aquila chrysaetos* | FP, MBTA, WL, BCC | Open grasslands, foothills, prairies, open forests. | Cat Canyon Oil Field during field visits. | X | X | | X |
| Least Bell's vireo *Vireo belii pusillus* | FE, SE, MBTA | Low riparian in vicinity of water or in dry river bottoms, below 2000 ft. | Sisquoc River in Foxen Canyon, approximately 3.3 miles east of BSA. (CDFW, 2014). | X | X | | X |
| Loggerhead shrike *Lanius ludovicianus* | CSC, BCC, MBTA | Open pastures and prairies with scattered bushes, hedgerows and trees. | Observed during field surveys within the Cat Canyon Oil Field. | X | X | | X |
| Oak titmouse *Baeolophus inornatus* | MBTA, BCC | Oak woodland | Observed within BSA during field surveys. | X | X | X | X |
| Purple martin *Progne subis* | MBTA, CSC | Oak woodland, conifer forests | No observations for this species were noted in the desktop review; however, species may occur in region. | X | | | X |
| Southern California rufous-crowned sparrow *Aimophila ruficeps canescens* | MBTA, WL | Coastal scrub. | Observed during Padre April 2013 field surveys within the Cat Canyon Oil Field. | X | X | | X |
| Tricolored blackbird *Agelaius tricolor* | CSC, BCC, MBTA | Requires open water and protected nesting substrate and foraging area with insect prey within a few km of the colony. | Cat Canyon Road by Padre Biologists on previous site visits in 2012. | X | X | | X |
| Yellow warbler *Dendroica petechia brewsteri* | CSC, MBTA | Riparian plant associations, prefers willows, cottonwoods, aspens, sycamores and alders for nesting and foraging. | Sisquoc River, approximately 2.5 miles north-northeast of BSA (CDFW, 2014). | X | X | | X |
| **Mammals** | | | | | | | |
| Pallid bat *Antrozous pallidus* | CSC, WBWG-H | Deserts, grasslands, shrublands, woodlands, and forests, open dry habitats with rocky outcrops for roosting | Cat Canyon Oil Fields, approximately one- mile from BSA. | | X | | X |
| Western red bat *Lasiurus blossevillii* | CSC, WBWG-H | Prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging. | Vandenberg Air Force Base, 2.9 miles from BSA (CDFW, 2014). | | X | | X |

**Table 5-5. Special-Status Wildlife Species of the Project Region**

| **Wildlife Species** *Arranged alphabetically by common name in phylogenetic order* | **Regulatory Protection Status** | **Habitat Description** | **Nearest Documented Occurrence** | **BSA** | | | |
|---|---|---|---|---|---|---|---|
| | | | | Habitat Present | Occurrence ≤ Five Miles | Observed | Potential for Occurrence |
| Hoary bat *Lasiurus cinereus* | G5/S4, WBWG-M | Open habitats or open mosaics, with access to trees for cover and open areas or habitat edges for feeding. Requires water. | Vandenberg Air Force Base, 2.9 miles from BSA (CDFW, 2014). | | X | | X |
| Townsend's big-eared bat *Corynorhinus townsendii* | CSC, WBWG-H | Roosts in the open, hanging from walls, ceilings. Roosting sites extremely sensitive to human disturbance. | Vandenberg Air Force Base, 4.1 miles from BSA (CDFW, 2014). | | X | | X |
| Yuma myotis *Myotis yumanesis* | G5/S4, WBWG-LM | Distribution is closely tied to bodies of water. Maternity colonies in caves, mines, buildings or crevices. | Vandenberg Air Force Base, 2.8 miles from BSA (CDFW, 2014). | | X | | X |
| American badger *Taxidea taxus* | CSC | Shrub, forest, and herbaceous habitats, with friable soils. | Badger burrows observed within BSA during field surveys and individuals observed during 2013 field surveys within Aera East Cat Canyon Oil Field. | X | X | X | X |

**Status Codes:**

FE Federal Endangered (USFWS/NMFS)
FT Federal Threatened (USFWS/NMFS)
CSC California Species of Special Concern (CDFW)
MBTA Migratory Bird Treaty Act (USFWS)
FP Fully Protected (CDFW)
SE State Endangered (CDFW)
ST State Threatened (CDFW)
BCC Birds of Conservation Concern (USFWS)
WBWG Western Bat Working Group; H – High Priority; MH – Medium-High Priority; LM – Low-Medium Priority
CNDDB Global (G) and State (S) Rank

G1/S1 Less than 6 viable element occurrences (EOs) OR less than 1,000 individuals OR less than 2,000 acres. Critically Imperiled– At very high risk of extinction or elimination due to extreme rarity, very steep declines, or other factors.

G2/S2 6-20 EOs OR 1,000-3,000 individuals OR 2,000-10,000 acres. Imperiled – At high risk of extinction or elimination due to very restricted range, very few populations or occurrences, steep declines, or other factors.

G3/S3 21-80 EOs or 3,000-10,000 individuals OR 10,000-50,000. Vulnerable – At moderate risk of extinction or elimination due to a restricted range, relatively few populations or occurrences, recent and widespread declines, or other factors.

G4/S4 Apparently secure - this rank is clearly lower than S3 but factors exist to cause some concern; i.e. there is some threat, or somewhat narrow habitat

S5/G5 Common, widespread, and abundant. Population or stand demonstrably secure to ineradicable due to being commonly found in the world
SH/GH Possibly Extinct – Known from only historical occurrences but still some hope of rediscovery.

Based on the desktop review and field surveys, the BSA may provide suitable habitat to support several special-status wildlife species. The following discussion provides an overview of the general habitat requirements for these species and further detail on the potential for each of these wildlife species to occur in the BSA.

### 5.6.1 Invertebrates

**Lompoc grasshopper.** No invertebrates were collected or identified to species-level during field survey visits. Grasshopper species are likely to occur within the BSA; however, further

survey efforts would be required to determine presence/absence of this species. Limited information is available on this species occurring within Santa Barbara County and the last documented occurrence was in 1938. Project activities are not expected to include any vegetation or topsoil removal that may support habitat for this species. Additionally, implementation of recommended avoidance and minimization measures (refer to Section 6.0) would reduce impacts to less than significant.

**Monarch butterfly.** Monarch butterfly wintering sites are classified as "demonstrably secure" worldwide but within California they are considered of "restricted range; rare." Monarch butterflies will begin to abandon autumnal roosts within northern United States and Canada in early November to December to over-wintering sites in the warmer climates in southern California (butterflies west of the Rocky Mountains) and Mexico (butterflies east of the Rocky Mountains). Monarch butterflies will fly north for breeding as the milkweed plants bloom in the spring. Wintering aggregations of monarch butterflies in California can primarily be found on Monterey pines and in eucalyptus groves (Sakai and Calvert, 1991). Wintering habitat components frequently include sources of moisture, such as streams, ponds or abundant morning dew. Other habitat preferences include little direct sunlight, minimal wind, and moist ambient conditions. No monarch butterflies were observed during field surveys; however, the eucalyptus groves and clusters of Monterey pine and other large trees occurring along the pipeline route may provide suitable over-wintering roosts. Project activities are temporary and do not include the removal of any large trees. Additionally, implementation of recommended avoidance and minimization measures (refer to Section 6.0) would reduce impacts to less than significant.

**Vernal pool fairy shrimp (VPFS).** VPFS are uniquely adapted to the ephemeral conditions of vernal pools. Vernal pools are seasonal depressional wetlands that contain water for variable periods and dry completely during the summer and fall. VPFS do not occur in riverine, marine, or other permanent bodies of water. When these ephemeral pools dry down in the summer, VPFS persist as resting eggs in the soil and remain in a state of suspended development (diapause) until rainfall and environmental stimuli hatch them during the wet season (USFWS, 1994). The VPFS die when water temperatures rise and/or the pools dry down. Vernal pool habitat that supports VPFS is protected by the USFWS both when the pool is inundated and after the pool has dried during the summer months.

The CNDDB has documented VPFS in Santa Barbara County on Porter Peak in the Los Padres National Forest located over 18 miles northeast of the BSA. The nearest documented occurrence of VPFS occurs at the Chevron Sargent Fee Project Site located less than one mile from the BSA. This occurrence was identified during spring surveys by Padre Biologists in 2010 and has not yet been recorded in the CNDDB (Padre, 2010). The existing conditions within the BSA are generally inconsistent with natural vernal pool systems typically occurring in valley and foothill grasslands. Potential aquatic habitat is limited to manmade roadside drainages, ephemeral creek crossings, and ponded areas on highly compacted paved areas. Project activities are not expected to include any vegetation or topsoil removal that may support habitat for this species. Additionally, implementation of recommended avoidance and minimization measures (refer to Section 6.0) would reduce impacts to less than significant.

### 5.6.2 Fishes

**Southern steelhead.** Steelhead are an anadromous form of rainbow trout that reproduce in freshwater, but spend much of their life cycle in the ocean, where increased prey density provides a greater growth rate and size. Steelhead have been divided into 15 evolutionary significant units (ESUs) based on similarity in life history, location, and genetic markers. The southern California ESU includes all naturally spawned populations of steelhead (and their progeny) in streams from the Santa Maria River to the San Mateo Creek in San Diego County.

No steelhead streams designated by the NMFS/USFWS occur within the BSA. Southern Steelhead Critical Habitat includes the Sisquoc River (USFWS, 2005), east of the Aera East Cat Canyon Oil Field. Drainages that occur within the BSA are highly ephemeral and do not support suitable hydroperiods to support the steelhead life cycles. Additionally, these stream corridors are very sandy and do not contain suitable cobble and gravel for nesting sites. Project activities are not expected to include any activities in stream channels with the potential to support this species. Additionally, implementation of recommended avoidance and minimization measures (refer to Section 6.0) would reduce impacts to less than significant.

**Unarmored threespine stickleback.** Unarmored three-spine stickleback are anadromous fish with the ability to establish non-anadromous freshwater populations. They inhabit slow moving reaches of streams and rivers with dense and abundant vegetation or in-stream cover (algal mats, rocks, and snags) in open waters. This species reproduces throughout the year, with the least breeding activity occurring from October to January (Baskin, 1974). The species historically was distributed throughout southern California but are now restricted to three areas: the upper Santa Clara River and its tributaries in Los Angeles County, San Antonio Creek on the Vandenberg Air Force Base in Santa Barbara County (within five-miles of the BSA), and Shay Creek vicinity in San Bernardino County (USFWS, 2009b).

Nearest documented occurrence of unarmored threespine stickleback occurs within San Antonio Creek, within five-miles of the BSA. The drainages that occur within the BSA are highly ephemeral and do not support suitable hydroperiods to support this species. Project activities are not expected to include any activities in stream channels with the potential to support this species. Additionally, implementation of recommended avoidance and minimization measures would reduce impacts to less than significant.

### 5.6.3 Reptiles

**Blainville's horned lizard.** Blainville's horned lizard inhabit open areas of sandy soil and low vegetation in valleys and foothills throughout northern California to Baja California. This species is found in grasslands, coniferous forests, woodlands, and chaparral, with open areas and patches of loose soil, including sandy washes and along dirt roads.

Blainville's horned lizard have been documented throughout the Aera East Cat Canyon Oil Field during multiple field visit. No horned lizards were observed during field surveys; however, the sandy habitats along the roadsides may provide suitable habitat. Project activities are not expected to include removal of habitats with the potential to support this species. Additionally,

implementation of recommended avoidance and minimization measures (refer to Section 6.0) would reduce impacts to less than significant.

**Coast patch-nose snake.** Coast patch-nosed snake occurs in California from the northern Carrizo Plains in San Luis Obispo County, south through the coastal zone, south and west of the deserts, into coastal northern Baja California. It inhabits semi-arid brushy areas and chaparral in canyons, rocky hillsides, and plains. This snake is considered uncommon along the southern coast area due to land changes from heavy grazing, development and loss of former habitat, though it's natural history and abundance have not been extensively studied.

Coast patch-nose snake was not been observed within the BSA during surveys; however, suitable scrub habitat may occur within the BSA. Project activities are not expected to include removal of habitats with the potential to support this species. Additionally, implementation of recommended avoidance and minimization measures (refer to Section 6.0) would reduce impacts to less than significant.

**California legless lizard.** California legless lizard occur in moist warm loose soil found in sparsely vegetated areas of beach dunes, chaparral, sandy washes, and stream terraces with oaks and is often found under surface objects such as rocks, boards and logs (Stebbins, 2003). The range for this species is from the southern Santa Barbara County, San Luis Obispo County, and Monterey County, and patches in the San Joaquin vallay west of the Sierra Nevada.

Nearest documented occurrence of California legless lizard is within five-miles of the BSA within the La Purisima Mission State Historical Park. California legless lizard were not been identified within the BSA; however, suitable sandy habitat to support this species may occur within the BSA. Project activities are not expected to include removal of habitats with the potential to support this species. Additionally, implementation of recommended avoidance and minimization measures would reduce impacts to less than significant.

**Southwestern pond turtle.** The southwestern pond turtle is an aquatic turtle inhabiting streams, marshes, ponds, and irrigation ditches within woodland, grassland, and open forest communities. This species requires upland sites, usually along stream or pond margins, for nesting and over-wintering. Stream habitat consists of large, deep pool areas with moderate-to-good plant and debris cover, and rock and cobble substrates for escape retreats. Southwestern pond turtles will over-winter underwater, often in the muddy bottom of a pool, making it difficult to determine presence or absence in a given creek without completing aquatic surveys. Females dig upland nests between April and August and hatchlings emerge in early fall or overwinter (Stebbins, 2003; Behler and King, 1992). They may travel some distance from water for egg-laying, moving as much as 0.5 mile away from the nearest source of water. Females will also cover the nest with soil and adjacent low vegetation, making it difficult to find nests.

No pond turtles were observed within the BSA during field surveys. Southwestern pond turtle have been documented within five-miles from the BSA, specifically within the Sisquoc River. Suitable habitat occurs along many of the drainages throughout the BSA and is likely to occur throughout the BSA. Project activities are not expected to include removal of habitats with the potential to support this species. Additionally, implementation of recommended avoidance and minimization measures would reduce impacts to less than significant.

### 5.6.4 Amphibians

Sensitive amphibian species that have been documented within a five-mile radius from the BSA include: Arroyo toad, western spadefoot toad, CTS, and CRLF. All of these species include both aquatic and terrestrial components in their life cycles, each requiring a different hydroperiod (period in which a soil area is waterlogged) for egg laying and to metamorphose into their adult stage. Determining presence/absence is difficult due to the species limited movements and limited pool availability in dry years. The USFWS has created survey protocols to assist surveyors in determining presence/absence by focusing on specific natural history for each species. No protocol-level surveys were completed as part of this assessment. Aquatic resources observed within the BSA were limited to agricultural and roadway drainages that may or may not provide suitable conditions for aquatic amphibians in any given time of year.

**Arroyo toad.** Arroyo toad occupy habitats consisting of shallow pools and open sand and gravel flood terraces of streams that flood on a regular basis (USFWS, 2011). Breeding pools for this species must persist for a minimum of two months for the completion of larval developments (USFWS, 2011). Designated USFWS Arroyo Toad Critical Habitat is present along the Sisquoc River, within five miles of the BSA. Critical Habitat for arroyo toad includes: 1) rivers or streams for all the life stages of the toads; 2) riparian and adjacent upland areas for foraging and breeding, and accessible areas between occupied habitat so that the toads can disperse; and 3) areas that flood periodically, leaving behind pools where toads breed, and terrace habitats that provide for their life functions.

The drainages occurring within the BSA do not support suitable habitat conditions of regular flooding or provide pools with suitable hydroperiod to support toad development. No protocol-level surveys were completed for arroyo toad as part of this assessment. Project activities are not expected to include any activities in stream channels or aquatic pools with the potential to support this species. Additionally, implementation of recommended avoidance and minimization measures would reduce impacts to less than significant.

**California red-legged frog (CRLF).** CRLF is generally found along marshes, streams, ponds, and other permanent sources of water where dense scrubby vegetation such as willows, cattails, and bulrushes dominate. Breeding sites occur along watercourses with pools that remain long enough for breeding and the development of larvae. Breeding time occurs between November and April, depending on locality (Stebbins, 1985; Storer, 1925). Permanent or nearly permanent pools are required for larval development, which takes 11 to 20 weeks (Storer, 1925; Calef, 1973).

Critical Habitat for the CRLF occurs along the southern extent of the BSA and several documented occurrences of CRLF occur within five-miles of the BSA (CDFW, 2014). No CRLFs were observed during field surveys and no suitable aquatic habitat to support CRLF lifecycles was observed within the BSA; however, seasonal rainfall fluctuations vary from year to year and may suitable habitat may be provided in periods of wet years. Suitable CRLF habitat may also occur in agricultural ditches adjacent to the BSA during periods of flow; therefore, there remains a potential for CRLF to occur within the BSA. No protocol-level surveys have been conducted within the BSA. Project activities are not expected to include any activities in aquatic resources

with the potential to support this species. Additionally, implementation of recommended avoidance and minimization measures would reduce impacts to less than significant.

**California tiger salamander (CTS).** The Santa Barbara County CTS population is federally listed as Endangered and recently listed with the State of California as Threatened. Adults breed in ponds between November and March after migrating from upland habitats during the first big rain within November/December. Females lay eggs in ephemeral pools and within three to four months the larvae metamorph and then migrate upland from May through August. The young CTS remain strictly terrestrial for three to four years remaining in small mammal burrows, then migrate to aquatic habitats to breed. CTS move through terrestrial habitats during the night and rarely come to the surface to feed during non-migration periods. The aquatic habitats include agricultural stock ponds, vernal pools, and ditches. Breeding ponds must be non-permanent and water must persist in these pools at least into May (preferably into July or August) to allow more time for metamorphosis. Upland habitat includes grasslands, edge of oak savannas, sometimes chaparral and shrublands (in coastal areas) and may or may not be grazed by cattle. CTS regularly use California ground squirrel (*Otopermophilus beecheyi*) and Botta's pocket gopher burrows and other man-made structures (Shaffer *et al.*, 1993, Barry and Shaffer, 1994) in upland habitats.

The BSA is located along the southern border of the USFWS-designated Critical Habitat for this species (Figure 5-2 and 5-2B - USFWS Critical Habitat Areas). Known and potential CTS breeding pools have been documented within one-mile from the BSA, specifically near East Clark Avenue and Dominion Road (CDFW, 2014). The USFWS has also identified several pools with aerial imagery that occur within the vicinity of the BSA. These pools have not been surveyed for CTS and may or may not contain suitable breeding or upland habitat; however, the USFWS is interested in the protection of these potentially important pools. While CTS are known to disperse up to 1.2 miles away from breeding ponds, 95 percent of adult and sub-adult CTS are found within 0.4 mile of breeding ponds (Trenham, Koenig, and Shaffer, 2001). The habitat with the highest conservation value for CTS therefore occurs within one-half mile of a known breeding pond. The BSA occurs within one mile of a known CTS breeding pond (TWDA-12), located near East Clark Avenue and Dominion Road. Project activities are not expected to include any activities in or adjacent to any known pools with the potential to support this species. Additionally, implementation of recommended avoidance and minimization measures would reduce impacts to less than significant.

**Western spadefoot.** Western spadefoot is not seen during most of the year, as it resides in burrows up to nine months with infrequent nocturnal sojourns. The species is typically associated with sandy, friable soils that inundate temporarily with water, similar to the stream channels occurring throughout the BSA. They emerge during spring rains and breed in temporary pools from January to May. Oviposition (egg laying) will not occur until water temperatures reach a minimum of 48°F, usually between late February and late May (Jennings and Hayes, 1994). Eggs hatch within three to four days and tadpoles will transform within four to 11 weeks, depending on food availability and the duration of the pool. Spadefoot require temporary breeding pools that must last for at least 30 days or larvae will not survive. Suitable habitat occurs within depressional features that are capable of providing ponded water for at least 30 days following a rain event.

This species has been identified within the Cat Canyon valley, south of the BSA, and documented by Sage Institute (2012) during CRLF surveys. This species can be difficult to detect due their mostly terrestrial lifecycle expect for years they emerge for breeding, which may not occur every year, dependent on rainfall and available aquatic habitats. Project activities are not expected to include any activities in aquatic resources with the potential to support this species. Additionally, implementation of recommended avoidance and minimization measures would reduce impacts to less than significant.

### 5.6.5 Birds

**Burrowing owl.** Burrowing owls are year-round residents in annual and perennial grasslands or other vegetation communities that support little to no tree or shrub cover. In California, the species is typically found in close association with California ground squirrels, which create burrows that are used by burrowing owls for year-round shelter and seasonal nesting habitat. They may also utilize badger, coyote and fox dens, or holes (Ronan, 2002), as well as human-made structures such as culverts, corrugated metal pipes, debris piles, or openings beneath pavement as shelter and nesting habitat (CDFG, 1995). Typical burrowing owl breeding season in California is from March to August, but can begin as early as February and extend into December (Rosenberg and Haley, 2004).

Burrowing owls were not observed within the BSA; however, suitable habitat does occur within the BSA. No protocol-level surveys were completed as part of this assessment. Project activities are not expected to include any removal of habitats with the potential to support this species. Additionally, implementation of recommended avoidance and minimization measures would reduce impacts to less than significant.

**California horned lark.** California horned lark are included within the CDFW Watch List as a species not on the current Special Concern list but were on previous lists. Therefore, they are considered a taxa to watch and conservation of the habitat for this species should be considered. Horned lark commonly occur in grasslands and other open habitats with low, sparse vegetation, often flocking together in small groups. It nests is low lying vegetation during the spring months.

Horned lark was observed by Padre Biologists during the April 2013 field surveys within the Cat Canyon Oil Field and potential suitable habitat occurs throughout the grassland and previously disturbed areas within the BSA. Project activities are not expected to include any removal of habitats with the potential to support this species. Additionally, implementation of recommended avoidance and minimization measures would reduce impacts to less than significant.

**Least Bell's vireo**. Least Bell's vireo is a state and federally listed Endangered species. It prefers dense, low, shrubby vegetation in riparian areas, brushy fields, young second-growth forest or woodland, scrub oak, coastal chaparral, and mesquite brushlands, often near water. Least Bell's vireo begin to return to breeding sites in mid- to late-March and are generally present on the breeding grounds until late September before migrating to wintering grounds in southern Baja California, Mexico. Current breeding distribution is concentrated in Ventura and San Diego counties, but breeding is known to occur in the Sisquoc and Santa Ynez rivers to the south of the

BSA. Along the Santa Ynez River, least Bell's vireo have occurred mainly in mugwort, mulefat, and willow shrubs (*Salix* spp.) (Olson and Gray, 1989).

Least Bell's vireo has been documented along the Sisquoc River within five-miles from the BSA. Critical Habitat occurs approximately 40 miles south of the BSA. Suitable habitat may occur in portions of the willow thickets occurring within the BSA. No least Bell's vireo were observed during field surveys; however, protocol-level surveys have not been completed as part of this assessment to accurately determine presence or absence. Project activities are not expected to include any removal of habitats with the potential to support this species. Additionally, implementation of recommended avoidance and minimization measures would reduce impacts to less than significant.

**Loggerhead shrike.** Loggerhead shrike is a USFWS Bird of Conservation Concern and CDFW Species of Special Concern. It is a common species within the Project vicinity; however, was not observed within the BSA during field surveys. This species generally occurs in a variety of open grassland, oak savanna, shrubland, and other similar habitats where it feeds on arthropods, reptiles, amphibians, small rodents, and birds (Craig, 1978). Loggerhead shrikes nest from March to June with young becoming independent during July or August. Nests are generally well-concealed in dense foliage on stable branches of a shrub or tree.

This species is expected to occur within the annual grassland habitats throughout the BSA. Project activities are not expected to include any removal of habitats with the potential to support this species. Additionally, implementation of recommended avoidance and minimization measures would reduce impacts to less than significant.

**Oak titmouse.** Oak titmouse is a USFWS Bird Species of Concern and conservation of the habitat for this species should be considered. Oak titmouse occur in oak woodland and mixed riparian habitats and occur year-round throughout California. They nest in natural cavities in tree trunks in mid-March. Oak titmouse was identified in the oak woodland habitats throughout the BSA during field surveys. Project activities are not expected to include any removal of habitats with the potential to support this species. Additionally, implementation of recommended avoidance and minimization measures would reduce impacts to less than significant.

**Purple martin.** Purple martin is distributed throughout California in central and northern coastal conifer forests, interior foothills, and southern California forests. Purple martin are migratory birds the primarily occur within the eastern United States during the summer months and winter in South America. However, purple martin do occur along the California coast during migration from mid-March to late September and some small populations stay to breed from May to mid-August (Williams, 1998). Purple martins rely on cavities in trees, bridges, utility poles, lava tubes, and buildings. Most tree nest sites in San Luis Obispo and Santa Barbara counties occur in large oaks and sycamores and will commonly colonize one area year after year; therefore, protection of nest sites are critical to the protection of the species. Purple martin populations have been threatened primarily by removal of large snags, specifically from post-fire salvage logging, and competition from European starlings (*Sturnus vulgaris*), an invasive non-native bird species that have colonized much of the United States.

Purple martins were not observed within the BSA; however, large oak trees with snags and abandoned woodpecker holes that occur within the oak woodland habitats in the BSA may provide suitable habitat for purple martin nesting colonies. Project activities are not expected to include any removal of habitats with the potential to support this species. Additionally, implementation of recommended avoidance and minimization measures would reduce impacts to less than significant.

**Southern California rufous-crowned sparrow.** Southern California rufous-crowned sparrow is a resident of southwest California on the slopes of the Transverse and Coastal ranges from northern Santa Barbara and Ventura counties south to Baja California. The CNDDB does not document this bird in the region; however, it was identified by Padre Biologists during the April 2013 field survey within the Cat Canyon Oil Field among hillsides consisting of sage scrub, specifically along Foxen Canyon Road. This sparrow nests on the ground, often wedged in hollows among rocks or under clumps of grass, low bushes, or shrubs on open brush or grass-covered rocky hillsides from mid-March through mid-July (Cogswell, 1968; Wolf, 1977; Harrison, 1978; Shuford, 1993; and Rising, 1996). It appears to prefer coastal sage scrub dominated by California sagebrush (Grinnell and Miller, 1944), but they can also be found breeding in coastal bluff scrub, low-growing serpentine chaparral, and along the edges of tall chaparral habitats (Thorngate and Parsons, 2005).

Southern California rufous-crowned sparrow was observed in scrub habitats within the East Cat Canyon Oil Field during April 2013 field surveys and are expected to occur in scrub habitats within the BSA. Project activities are not expected to include any removal of habitats with the potential to support this species. Additionally, implementation of recommended avoidance and minimization measures would reduce impacts to less than significant.

**Tricolored blackbird.** The tricolored blackbird is a colonial nesting species breeding from mid-March through early August (Beedy and Hamilton, 1999). They nest at colony sites near freshwater marshes (Neff, 1937), in canopies of willows (*Salix* spp.), and other riparian trees. They require open areas accessible to water, a protected nesting substrate within flooded areas or thorny or spiny vegetation, and a suitable foraging space providing adequate insect prey near the colony (Beedy and Hamilton, 1999). Wintering tricolored blackbirds congregate in flocks with mixed species of blackbirds that forage in grasslands and agricultural fields with low-growing vegetation and at dairies and feedlots (Shuford *et al.*, 2008). Preferred foraging habitats include agriculture fields (e.g., rice, alfalfa, oats, and wheat). Degradation of habitat from human activities, such as converting grassland and pastures to vineyards or developed lots, is the greatest threat to the sustainability of this species (Beedy and Hamilton, 1999).

Tricolored blackbirds have been observed along Cat Canyon Road along ephemeral and perennial stream channels by Padre Biologists and may also occur within the BSA; however, no tricolored blackbirds were observed during field surveys within the BSA. Project activities are not expected to include any removal of habitats with the potential to support this species. Additionally, implementation of recommended avoidance and minimization measures would reduce impacts to less than significant.

**Yellow warbler.** Yellow warbler generally occupy riparian vegetation in close proximity to water (Lowther *et al.*, 1999), and is a common nesting species in riparian habitats in San Luis

Obispo and Santa Barbara counties. Breeding season begins in mid-March and the potential for this species to occur within riparian habitats as a migratory stop-over, for nesting, or for foraging is considered moderate to high.

Yellow warbler was not observed within the BSA during field surveys; however, this species has the potential to occur in the spring/summer months within willow thickets occurring in the BSA. Project activities are not expected to include any removal of habitats with the potential to support this species. Additionally, implementation of recommended avoidance and minimization measures would reduce impacts to less than significant.

**Birds of Prey.** Red-tailed hawk, American kestrel (*Falco sparverius*), Cooper's hawk, (*Accipiter cooperii*), merlin (*Falco columbarius*), golden eagle, and turkey vulture (*Cathartes aura*) are wide ranging birds-of-prey that could use the BSA for the purposes of foraging during migration and/or movement through the region. Birds of prey may also utilize the region for nest sites, which are protected by federal and/or state agencies. Use of the BSA by these species is expected to be temporary in nature throughout the region; however, there is also a potential for these raptors to use the BSA for nesting. Project activities are not expected to include any vegetation or tree removal that may support raptor nest sites. Additionally, implementation of recommended avoidance and minimization measures would reduce impacts to less than significant.

**Other Protected Birds.** A number of bird species potentially occurring within the BSA are protected during their nesting period under the provisions of the federal MBTA. The MBTA restricts the killing, taking, collecting, and selling or purchasing of native bird species or their parts, nests, or eggs. During the field surveys within the BSA, several bird species protected by the MBTA were observed. Refer to Appendix C for a complete list of birds observed during the field surveys within the BSA and other protected bird species expected to utilize the area. Project activities are not expected to include any vegetation removal that support nesting birds. Additionally, implementation of recommended avoidance and minimization measures reduce impacts to less than significant.

### 5.6.6 Mammals

**Bats.** Special-status bat species that could occur in the Project region include Townsend's bat, pallid bat, hoary bat, western red bat, and Yuma myotis. Maternal colonies for most bats occur between April and August. Most bat species will migrate from maternal roosts to wintering sites and some bats will migrate out of the area to warmer climates during the winter months. Bats will often occupy abandoned structures, caves, abandoned mines, and/or trees for roosting sites and will forage in a variety of habitats. Each bat species require specific habitat features for roosting and foraging sites.

Padre Biologists and Central Coast Bat Research Group completed a bat survey in the western extent of Cat Canyon on June 19, 2008. Numerous bats were observed and/or detected as part of this survey effort via Anabat acoustic detectors including several species in the *Myotis* genus, California myotis (*Myotis californicus*), Mexican free-tailed bat (*Tadarida brasiliensis*), and the special-status pallid bat. No bats or sign of bat (i.e., guano) were observed during field surveys; however, no specific bat surveys were completed as part of this assessment. It is

expected that several bat species utilize the BSA for foraging and day-time roost sites. Project activities are not expected to include any removal of habitats with the potential to support this species. Additionally, implementation of recommended avoidance and minimization measures would reduce impacts to less than significant.

**American badger.** American badger typically inhabits grasslands, farmland, and forest edges with friable soils (CDFG, 1986). Badgers dig elliptical burrows with 8 to 12-inch openings, which they utilize for cover, sleeping, hunting, caching food, and breeding (CDFW, 1986). They breed in the months of July and August (National Audubon Society, 1996). Badgers do not hibernate; however, they will occupy their burrows during torpor during the coldest part of the winter, remaining in the burrow for several days per week. This species typically preys on small burrowing mammals, such as ground squirrels, rats, and mice, and will also feed on birds, snakes and other reptiles. Badgers are nocturnal; however, they are well known to be active during the day as well. Badger's typically have a large home range varying from 590 to 4,200 acres, in which they will utilize for foraging, denning, and breeding.

Badger activity was identified within grassland and agricultural communities throughout the BSA and within the Aera property during several field visits by Padre Biologists. Project activities are not expected to include any removal of habitats with the potential to support this species. Additionally, implementation of recommended avoidance and minimization measures would reduce impacts to less than significant.

PAGE INTENTIONALLY BLANK

## 6.0 RECOMMENDED AVOIDANCE AND MINIMIZATION MEASURES

The proposed Project has incorporated many avoidance and minimization measures into the Project design, including, use of HDD to minimize impacts to waterways. The pipeline alignment, however, is surrounded by large sections of relatively undisturbed habitats suitable to support a wide variety of species including special-status species. Therefore, it is recommended that the following additional measures be implemented during proposed Project activities to further reduce potential impacts to sensitive biological resources to a less than significant level.

1. The use of heavy equipment and vehicles will avoid impacts to native vegetation to the greatest extent feasible.
2. Work areas, including equipment lay-down areas, will be pre-designated on plans prior to the start of work.
3. A Drilling Fluid Release Contingency Plan will be prepared for all horizontal directional drilling (HDD) operations and will be prepared with special emphasis on stream crossings. This plan will include appropriate measures for containment of spills, agency notifications, clean-up protocols, and procedures for restoring lay down areas and other impacted areas to pre-disturbance conditions. Spill containment equipment will be available on-site during all Project drilling and fuel handling activities. A qualified Biologist knowledgeable in HDD operations will be onsite during HDD operations along actively flowing streams or ponded water to document any spill or drilling fluid release and provide additional guidance to protect biological resources in the event of a spill or drilling fluid release. In the event that a spill or drilling fluid release occurs within a stream corridor, all work will be halted and the spill will be contained using the procedures outlined in the Project-specific Drilling Fluid Release Contingency Plan.
4. In the event Project activities are scheduled during the nesting bird season, between March 15 and September 1, a nesting bird survey will be completed by a qualified Biologist with experience in bird identification and nest searching. No active nests of native bird species protected by the Migratory Bird Treaty Act will be removed by Project activities and appropriate buffers will be incorporated into the Project plan to ensure the protection of the nest. Buffers will be established and delineated by a qualified Biologist based on an appropriate distance to minimize disturbance to the active nest.
5. Project activities will be completed during the daylight hours, to the greatest extent possible. Project activities will avoid rainy nights, when California tiger salamanders (CTS) are most active. A qualified Biologist will complete a pre-activity survey prior to work that follows a rainy night, to ensure no CTS are present within the work areas. Training will be provided to the crew and crew supervisors to recognize, report, and avoid CTS. In the event a CTS is observed in the work area, the work in the immediate area of the CTS will temporarily cease until agency notification is complete.

6. A qualified Biologist with experience identifying American badger and their potential dens will conduct a pre-activity survey prior to initial work activities. All potentially active badger dens that would be directly impacted by construction activities will be inspected by a qualified Biologist using an optic scope or monitored using tracking medium/remote sensor cameras (3-days) to ensure the den is vacant. After verification that the den is unoccupied it will be immediately excavated and backfilled. If badger activity is detected at a den, the entrance to the den will blocked with soil, sticks, or debris for three to five days to discourage the use of the dens prior to project disturbance activities. After the biologist determines that the badger has stopped using an active den, the den will be hand-excavated with a shovel to prevent re-use during project construction.
7. A qualified Biologist with experience identifying special-status plants and associated habitats will conduct a pre-activity survey of all work areas, including staging and laydown areas, prior to any ground disturbing activities. Any special-status plant populations encountered will be flagged and avoided to the greatest extent possible. These areas will be avoided for staging or stockpiling of material or soil when feasible. La Graciosa thistle, Gaviota tarplant, and Lompoc yerba santa observations will be reported to the USFWS.
8. All food-related items and trash will be removed from the site daily or contained within a closed container.
9. An Environmental Sensitivity Orientation will be presented to all on-site personnel at the beginning of the initial work activities. The orientation will discuss sensitive species with potential to occur in the work areas, with emphasis on special-status wildlife and plant species. The orientation will explain the importance of minimizing disturbance, adhering to all permit conditions, and proper reporting of observations or incidents. The orientation will be repeated if additional personnel are added to the Project.
10. At no time will oak trees be removed as part of Project activities. A certified arborist will oversee trimming of oak tree limbs that have the potential to be impacted as a result of vehicle or equipment usage associated with Project activities.
11. As necessary, erosion control measures will be implemented to prevent runoff into nearby drainages. Straw waddles, in conjunction with other methods, will be temporarily installed to prevent erosion of soils disturbed by the project and to avoid and/or minimize disturbed sediments from entering adjacent waterways. Silt fencing will be avoided adjacent to water resources, to the greatest extent feasible, to minimize potential barriers to migrating amphibians and other wildlife.

Implementation of the above-mentioned measures will reduce impacts to special-status species and existing sensitive habitat areas to a less than significant level.

# 7.0 IMPACT SUMMARY

The following impact discussion incorporates FESA, CESA, and Santa Barbara County biological resource policies for determining the level of effect on biological resources as a result of the proposed installation of a SoCalGas pipeline.

The Project has been designed to limit construction activities as much as possible to areas beneath public roadways and to avoid stream channels, agricultural drainages, wetlands, and associated riparian habitats, to the greatest extent feasible. HDD will be used for areas along the pipeline alignment that must intersect these resources. HDD activities will be staged at the top of bank outside designated wetlands to avoid impacts to the integrity of the channel and wildlife that may utilize the channels for any portions of their life cycle (i.e., cover, foraging, local migration, and/or breeding). The Project has also been designed to avoid impacts to oak trees and no oak trees will be removed as part of Project activities.

The proposed pipeline construction has been designed to focus activities within the public right-of-way to the greatest extent feasible. Specifically, the pipeline would be installed predominantly under existing paved roads and staging areas would be restricted to pre-disturbed road shoulders and adjacent ruderal areas. No grading or other vegetation removal activities will be incorporated into the Project. Construction activities (i.e., trenching, staging, HDD activities) may result in short-term temporary disturbances to existing communities, specifically ruderal and disturbed areas along the road shoulders. The impacts to these communities are not considered to be significant because the quality of habitat in these areas provides low value of cover, native species components, and regularly disturbed by adjacent traffic (dust, vehicles).

Local wildlife populations, including special-status species, may potentially be adversely affected by the temporary disruption of foraging, burrowing, and nesting activities due to an increase of human activity, use of heavy equipment, and noise associated with the initial road excavation, pipeline installation, and road repair activities. Impacts to biological resources are expected to be temporary and implementation of recommended avoidance and minimization measures (refer to Section 6.0) would reduce impacts to less than significant.

PAGE INTENTIONALLY BLANK

## 8.0 LITERATURE CITED

Baldwin, B., D. Goldman, D. Keil, and T. Rosatti. 2012. The Jepson Manual: Vascular Plants of California, Second Edition. University of California Press. Berkeley, Ca.

Barry, S.J. and H.B. Shaffer. 1994. The Status of the California tiger salamander *Ambystoma californiense* at Lagunita: A 50 year update. Journal of Herpetology 28:159-164.

Baskin, J.N., and M.A. Bell. 1976. Unarmored threespine stickleback survey and report. Unpublished report, Contract Number 39-5495. U.S. Department of Agriculture, Forest Service, San Francisco.

Beedy, E.C., and W. Hamilton, III. 1999. Tricolored blackbird (*Agelaius tricolor*), in The Birds of North America (A. Poole and F. Gill, eds.), No. 423. Birds North America, Philadelphia.

Behler, John L., & F. King. 1992. The Audubon Society Field Guide to North American Reptiles and Amphibians. Alfred A. Knopf.

Calef, G.W. 1973. Natural mortality of tadpoles in a population of *Rana aurora*. Ecology 54: 741:758.

California Department of Fish and Game. 1986. Mammalian Species of Special Concern in California, American Badger. http://www.delta.dfg.ca.gov/gallery/ badger.asp.

------ 1988. California's Wildlife, Amphibians and Reptiles, California Newt. California Wildlife Habitat Relationships System.

------ 1995. Central Valley Bay-Delta Branch, Wildlife Gallery, Burrowing Owl. http://www.delta.dfg.ca.gov/gallery/burowl.asp

------ 1999. List of California Terrestrial Natural Communities Recognized by the Natural Diversity Data Base. California Department of Fish and Game, Natural Heritage Division. Sacramento, CA.

------ 2009. Biogeographic Data Branch. California Natural Diversity Database. Special Animals (901 taxa).

------ 2010. List of Vegetation Alliances and Associations. Vegetation Classification and Mapping Program, California Department of Fish and Game. Sacramento, CA. September 2010

California Department of Fish and Wildlife. 2014. California Natural Diversity Database (CNDDB) Rare Find. Twitchell Dam, Tepusquet Canyon, Sisquoc, Orcutt, Lompoc, Los Alamos, Zaca Creek, Foxen Canyon, and Santa Maria Quadrangles.

California Native Plant Society (CNPS). 2013. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society. Sacramento, CA. http://www.rareplants.cnps.org.

Carraway L.N. and B. Verts. 1991. *Neotoma fuscipes*. Mammalian Species 386: 1-10. American Society of Mammalogists.

Cogswell, H.L. 1968. *Aimophila ruficeps ruficeps* in Life histories of North American cardinals, grosbeaks, buntings, towhees, finches, sparrows, and allies. U.S. National Museum Bulletin 237, Part 2.

Collins, P., P. Gaede, and V. Semonsen. June 2012. Results of Drift Net and Aquatic Surveys for California Tiger Salamanders (*Ambystoma californiense*) and Other Special-Status Amphibians at Five Wetlands on the ERG West Cat Canyon Lease in Northern Santa Barbara County, California.

County of Santa Barbara. 2003. Amendment to the Conservation Element and Land Use Element of the Santa Barbara County Comprehensive Plan. Resolution No. 03-120. Oak Tree Protection Policy 1. Development Standard 1: Protection of All Species of Mature Oak Trees.

Craig, R.B. 1978. An analysis of the predatory behavior of the Loggerhead Shrike. Auk 95:221-234.

Grinnell, J., and A. H. Miller. 1944. The distribution of the birds of California. Pacific Coast Avifauna No. 27. Cooper Ornithological Society. 608pp.

Harrison, C. 1978. A field guide to the nests, eggs and nestlings of North American birds. W. Collins Sons and Co., Cleveland, OH. 416pp.

Holland, R. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. Unpublished Report. California Fish and Game, Natural Heritage Division. Sacramento, CA.

Jameson, E., and H. Peeters. 1988. California Mammals. University of California Press. Berkeley, CA.

Jennings, M. and M. Hayes. 1994. Amphibian and Reptile Species of Special Concern in California. California

Lichvar, R. and S. McColley. 2008. A field Guide to the Identification of the Ordinary High Water Mark in the Arid West Region of the Western United States. A Delineation Manual. Cold Regions Research and Engineering Laboratory. U.S. Army Corps of Engineers.

Linsdale, J. M. & L. Tevis. 1951. The dusky-footed woodrat. Berkeley and Los Angeles: University of California Press.

Lowther, P.E., C. Celada, N.K. Klein, C.C. Rimmer, and D.A. Spector. 1999. Yellow Warbler (*Dendroica petechia*). In The Birds of North America, No. 454 (A. Poole and F. Gill, Eds.). Academy of Natural Sciences, Philadelphia, and American Ornithologists' Union, Washington, D.C.

Montanucci, R. R. 1968. Notes on the distribution and ecology of some lizards in the San Joaquin Valley, California. Herpetologica 24(4):316-320.

Moyle, P., J. Williams, and E. Wikramanayake. 1989. Fish Species of Special Concern of California. California Department of Fish and Game. Sacramento, CA.

National Audubon Society. 1996. Field guide to North American mammals. New York, New York.

National Marine Fisheries Service (NMFS). 1997. Endangered and Threatened Species: Listing of Several Evolutionary Significant Units of West Coast Steelhead. Federal Register 62(159): 43937-43953.

National Oceanic and Atmospheric Administration (NOAA). 1996. Status Review of West Coast Steelhead. Northwest Fisheries Science Center, Technical Memo 27.

------ August 2005. Southern Steelhead Critical Habitat – NOAA [ds122]. Calif. Dept. of Fish and Game. Biogeographic Information and Observation System (BIOS). Retrieved November 10, 2009.

------ September 2005. Endangered and Threatened Species; Designation of Critical Habitat for Seven Evolutionarily Significant Units of Pacific Salmon and Steelhead in California; Final Rule. *Federal Register* 70 (170): 52488-52585. September 2, 2005.

Neff, J.A. 1937. Nesting distribution of the tri-colored red-wing. Condor 39:61-81.

Olson, T. E. and M. V. Gray. 1989. Characteristics of least Bell's vireo nest sites along the Santa Ynez River. In: Proceedings of the California Riparian Systems Conference: protection, management, and restoration for the 1990's; September 22-24; Davis, CA. Dana L. Abell, ed., Gen. Tech. Rep. PSW-110, Berkeley, CA., pp. 278-284.

Orloff, S. 2007. Migratory movements of California tiger salamander in upland habitat – a Five year study, Pittsburg, California. Prepared for Bailey Estates LLC. 47 + pp.

Padre Associates, Inc. May 2010. 90-Day Report on Mid-Wet Season Fairy Shrimp Identification Survey for the Chevron Sargent Fee Site, Santa Maria Valley, Santa Barbara County, CA. Prepared for Chevron Environmental Management Company.

Padre Associates, Inc. May 2011a. Biological Resources Report for the Aera Energy, LLC. Two-Dimensional Seismic Survey Project within the Cat Canyon Oil Field. Prepared for Aera Energy LLC.

Padre Associates, Inc. May 2011b. Biological Resources Survey Report for the Aera Exploratory Drilling Project, East Cat Canyon Oil Field. Prepared for Aera Energy LLC.

Padre Associates, Inc. March 2013. Protocol-Level Red-Legged Frog Survey Report for the Chevron Alva Paul Canyon Pipeline Removal Project. Prepared for Chevron Environmental Management Company.

Rising J.D. 1996. A Guide to the Identification and Life History of the Sparrows of the United States and Canada. San Diego, CA. Academic Press. 365pp.

Roberson, D. 2002. Monterey Birds, 2nd ed. Monterey Peninsula Audubon Soc., Carmel, CA.

Ronan, N. A. 2002. Habitat selection, reproductive success, and site fidelity of burrowing owls in a grassland ecosystem. M.S. Thesis, Oregon State University, Corvallis, OR.

Rosenberg, D. K. and K. L. Haley. 2004. The ecology of Burrowing Owls in the agroecosystem of the Imperial Valley, California. Studies Avian Biol. 27:120–135.

Sage Institute, Inc. July 2012. ERG Operating Company, LLC., Los Alamos Fee "Pond E" California Red-Legged Frog (*Rana draytonii*) Survey Results. Letter prepared for ERG Operating Company, LLC.

Sakai, W., and W. Calvert. 1991. Statewide Monarch Butterfly Management Plant for the State of California Department of Parks and Recreation – Final Report. Life Sciences Department, Santa Monica College, 1900 Pico Blvd., Santa Monica, CA 90405.

Santa Barbara County. 2002. County of Santa Barbara Environmental Thresholds and Guidelines Manual. County of Santa Barbara Planning and Development Department.

Shaffer, H.B., R.N. Fisher, and S.E. Stanley. 1993. Status Report: The California tiger salamander (*Ambystoma californiense*). Final report to California Department of fish and Game, Inland fisheries division, contract #FG9422 and FG1393.

Sawyer, John O., Todd Keeler-Wolf, and Julie M. Evans. 2009. A Manual of California Vegetation Second Edition. California Native Plant Society. Berkeley, CA.

Semonsen, Vince. 2007. Initial Field Assessment for California Tiger Salamander for the Aera East Cat Canyon Oil and Gas Field. VJS Biological Consulting.

Shuford, W. 1993. The Marin County Breeding Bird Atlas: A Distributional and Natural History of Coastal California Birds. California Avifauna Series 1. Bushtit Books, Bolinas, CA.

Shuford, W. and T. Gardali, Editors. 2008. California Bird Species of Special Concern. Western Field Ornithologists and California Department of Fish and Game. Sacramento, CA.

Sibley, D. 2003. The Sibley field guide to birds of western North America. Alfred A. Knopf, New York.

Smith, C. 1976. A Flora of the Santa Barbara Region, California. Santa Barbara Museum of Natural History.

Stebbins, R. 2003. A Field Guide to Western Reptiles and Amphibians. 3rd Edition. Houghton Mifflin Company.

Storer, T. 1925. A Synopsis of the Amphibia of California. University of California Publications in Zoology - Volume 27. The University of California Press

Storrer, J. September 2011. Habitat Assessment for California Tiger Salamander for the Aera Two-Dimensional Seismic Survey Test Plan. Prepared by Storrer Environmental. Prepared for Padre Associates, Inc.

Swift, C., T. Haglund, M. Ruiz, and R. Fisher. 1993. The Status and Distribution of the Freshwater Fishes of Southern California. Bull. Southern California Acad. Sci. 92(3):101-167.

Thorngate, N. and M. Parsons. 2005. Rufous-crowned Sparrow (*Aimophila ruficeps*). In The Coastal Scrub and Chaparral Bird Conservation Plan: a strategy for protecting and managing coastal scrub and chaparral habitats and associated birds in California. California Partners in Flight.

Trenham, P.C., W.D. Koenig, and H.B. Shaffer. 2001. Spatially autocorrelated demography and interpond dispersal in the California tiger salamander, *Ambystoma californiense*. Ecology 82:3519-3530.

U.S. Fish and Wildlife Service. 1994. Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for the Conservancy Fairy Shrimp, Longhorn Fairy Shrimp, and the Vernal Pool Tadpole Shrimp; and Threatened Status for the Vernal Pool Fairy Shrimp. Portland, Oregon.

------ 1999. Programmatic Formal Endangered Species Act Consultation on Issuance of Permits under Section 404 of the Clean Water Act or Authorizations under the Nationwide Permit Program for Projects that May Affect the California Red-legged Frog. pp. 8-9

------ 2005. Federal Register. 50 CFR Part 17 Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for Seven Evolutionary Significant Units of Pacific Salmon and Steelhead in California. Vol. 70, No. 170. Final Rule.

------ 2002. Federal Register. 50 CFR Part 226 Endangered and Threatened Species; Designation of Critical Habitat for *Eriodictyon capitatum* (Lompoc yerba santa) and *Deinandra increscens* ssp.*villosa* (Gaviota tarplant); Final Rule.

---- 2008. Birds of Conservation Concern. United States Department of Interior, Fish and Wildlife Service, Division of Migratory Bird Management, Arlington, Virginia. 85 pp. http://www.fws.gov/migratorybirds/

------ 2009a. Federal Register Volume 74, Number 211. November 3, 209. 50 CFR Part 17. Endangered and Threatened Wildlife and Plants; Revised Critical Habitat for *Cirsium loncholepis* (La Graciosa Thistle). Final Rule.

------ 2009b. Unarmored Threespine Stickleback 5-Year Review: Summary and Evaluation.

------ 2011. Federal Register Volume 76, Number 27. February 9, 2011. 50 CFR Part 17. Endangered and Threatened Wildlife and Plants; Revised Critical Habitat for Arroyo Toad. Final Rule.

------ 2012. National Wetlands Inventory website. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. http://www.fws.gov/wetlands/

------ 2013. Critical Habitat Portal. http://criticalhabitat.fws.gov/crithab/

University of California. 2012. The Jepson Online Interchange California Floristics. University of California, Berkeley, CA. http://ucjeps.berkeley.edu/interchange.html.

Vestal, E.H. 1938. Biotic relations of the woodrat (*Neotoma fuscipes*) in the Berkeley Hills. Journal of Mammalogy 18: 364.

Whitson, Tom D., L. Burill, S. Dewey, D. Cudney, B. Nelson, R. Lee, and R. Parker. 1999. Weeds of the West. Western Society of Weed Science, Newark, CA.

Williams, B.D.C. 1998. Distribution, habitat associations, and conservation of Purple Martins breeding in California. M.S. Thesis, California State University Sacramento.

Wiskowski, Tara. 1988. Sensitive Plants of Santa Barbara County. Santa Barbara County Resource Management Department, Division of Environmental Review.

Wolf, L.L. 1977. Species relationships in the avian genus *Aimophila*. Ornithological Monographs No. 23. American Ornithologists' Union.

Zeiner, D., W. Laudenslayer, Jr. and K. Mayer. 1988. California's Wildlife, Volume I, Amphibians and Reptiles. California Department of Fish and Game. Sacramento, CA.

Zeiner, D., W. Laudenslayer, Jr., K. Mayer, and M. White. 1990a. California's Wildlife, Volume II, Birds. California Department of Fish and Game. Sacramento, CA.

Zeiner, D., W. Laudenslayer, Jr., K. Mayer, and M. White. 1990b. California's Wildlife, Volume III, Mammals. California Department of Fish and Game. Sacramento, CA.

# APPENDIX A

## SITE PHOTOGRAPHS

**Photo 1**
**Latitude:** 34.822881
**Longitude:**-120.289149
**Aspect:** W
**Date:** 1/30/2014
**Description:** Eastern terminus of pipeline corridor.

**Photo 2**
**Latitude:** 34.822038
**Longitude:** -120.289149
**Aspect:** E
**Date:** 1/30/2014
**Description:** Coastal sage scrub habitat and scattered coast live oak within pipeline corridor.

Photo Location
Existing Road
Proposed Gas Line Route
Aera Energy LLC Property

0 0.5 1
MILES

*Source: County of Santa Barbara, NAIP 2012 Image*
*Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet*
*Notes: This map was created for informational and display purposes only*

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Gas line photo plate revised\Photo Plate 1 Gas Line.mxd

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: | | APPENDIX A: SITE PHOTOGRAPHS | PLATE |
|---|---|---|---|
| EAST CAT CANYON SANTA BARBARA COUNTY, CA | | | 1 |
| PROJECT NUMBER: 1002-0457 | DATE: February 2014 | | |

**Photo 3**
**Latitude:** 34.821789
**Longitude:**-120.289207
**Aspect:** S
**Date:** 1/30/2014
**Description:** Overview of pipeline crossing creek corridor.

**Photo 4**
**Latitude:** 34.821264
**Longitude:** -120.28909
**Aspect:** E
**Date:** 1/30/2014
**Description:** Additional view of pipeline corridor creek crossing; grazed coastal sage scrub and coast live oak.

Photo Location
Existing Road
Proposed Gas Line Route
Aera Energy LLC Property

0 0.5 1
MILES

*Source: County of Santa Barbara, NAIP 2012 Image*
*Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet*
*Notes: This map was created for informational and display purposes only*

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Gas line photo plate revised\Photo Plate 2 Gas Line.mxd

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: | | APPENDIX A: SITE PHOTOGRAPHS | PLATE |
|---|---|---|---|
| EAST CAT CANYON SANTA BARBARA COUNTY, CA | | | 2 |
| PROJECT NUMBER: 1002-0457 | DATE: February 2014 | | |

**Photo 5**
**Latitude:** 34.823736
**Longitude:**-120.293429
**Aspect:** NW
**Date:** 6/18/2013
**Description:** Representative ruderal habitat on road shoulder

**Photo 6**
**Latitude:** 34.825145
**Longitude:** -120.295344
**Aspect:** SE
**Date:** 6/18/2013
**Description:** Representative view of roadside ruderal habitat.

Photo Location
Existing Road
Proposed Gas Line Route
Aera Energy LLC Property

0 0.5 1
MILES

*Source: County of Santa Barbara, NAIP 2012 Image*
*Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet*
*Notes: This map was created for informational and display purposes only*

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Gas line photo plate revised\Photo Plate 3 Gas Line.mxd

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: | | APPENDIX A: SITE PHOTOGRAPHS | PLATE |
|---|---|---|---|
| EAST CAT CANYON SANTA BARBARA COUNTY, CA | | | 3 |
| PROJECT NUMBER: 1002-0457 | DATE: February 2014 | | |

**Photo 7**
**Latitude:** 34.83903
**Longitude:**-120.306007
**Aspect:** North
**Date:** 6/18/2013
**Description:** Ruderal and grazed annual grassland plant communities

**Photo 8**
**Latitude:** 34.841198
**Longitude:** -120.314581
**Aspect:** SW
**Date:** 10/1/2013
**Description:** Culvert for unamed ephemeral drainage at intersection of Palmer Road and Dominion Road

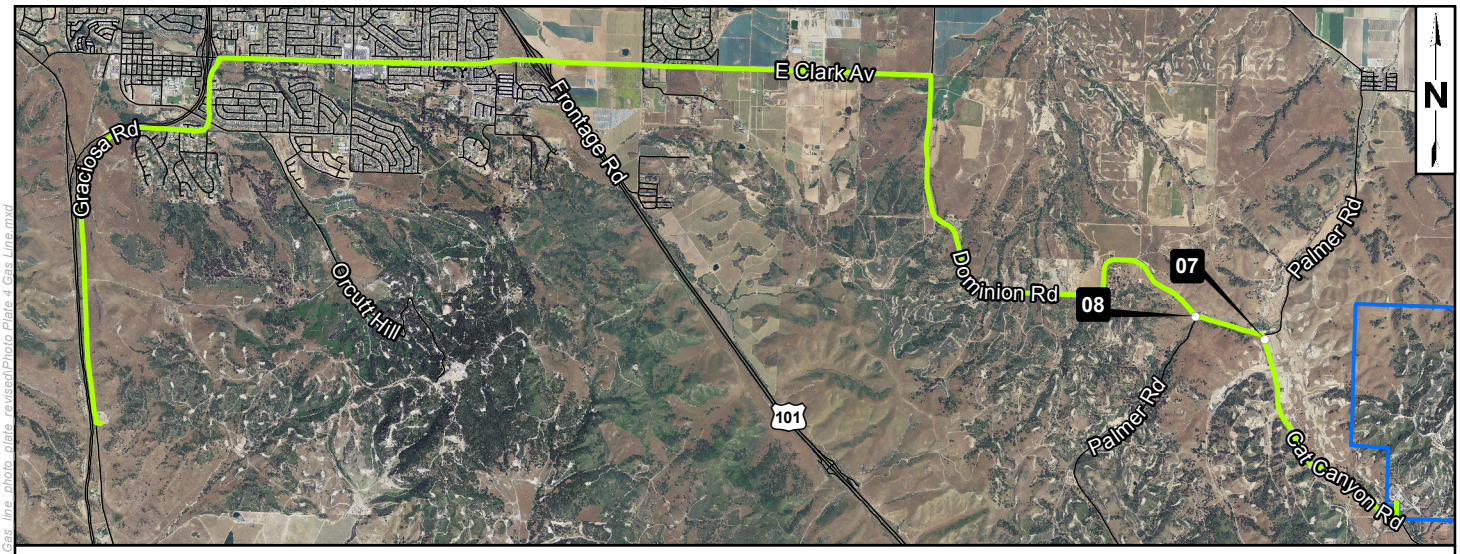



Photo Location
Existing Road
Proposed Gas Line Route
Aera Energy LLC Property

0 0.5 1
MILES

*Source: County of Santa Barbara, NAIP 2012 Image*
*Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet*
*Notes: This map was created for informational and display purposes only*

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Gas line photo plate revised\Photo Plate 4 Gas Line.mxd

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: | | APPENDIX A: SITE PHOTOGRAPHS | PLATE |
|---|---|---|---|
| EAST CAT CANYON SANTA BARBARA COUNTY, CA | | | 4 |
| PROJECT NUMBER: 1002-0457 | DATE: February 2014 | | |

**Photo 9**
**Latitude:** 34.846718
**Longitude:**-120.322705
**Aspect:** West
**Date:** 6/18/2013
**Description:** Heavily grazed annual grassland, ornamental and vineyard (agricultural) along Cat Canyon Road

**Photo 10**
**Latitude:** 34.843144
**Longitude:**-120.335722
**Aspect:** East
**Date:** 6/18/2013
**Description:** Representative view of coastal scrub and willow thicket within drainage feature along Cat Canyon Road

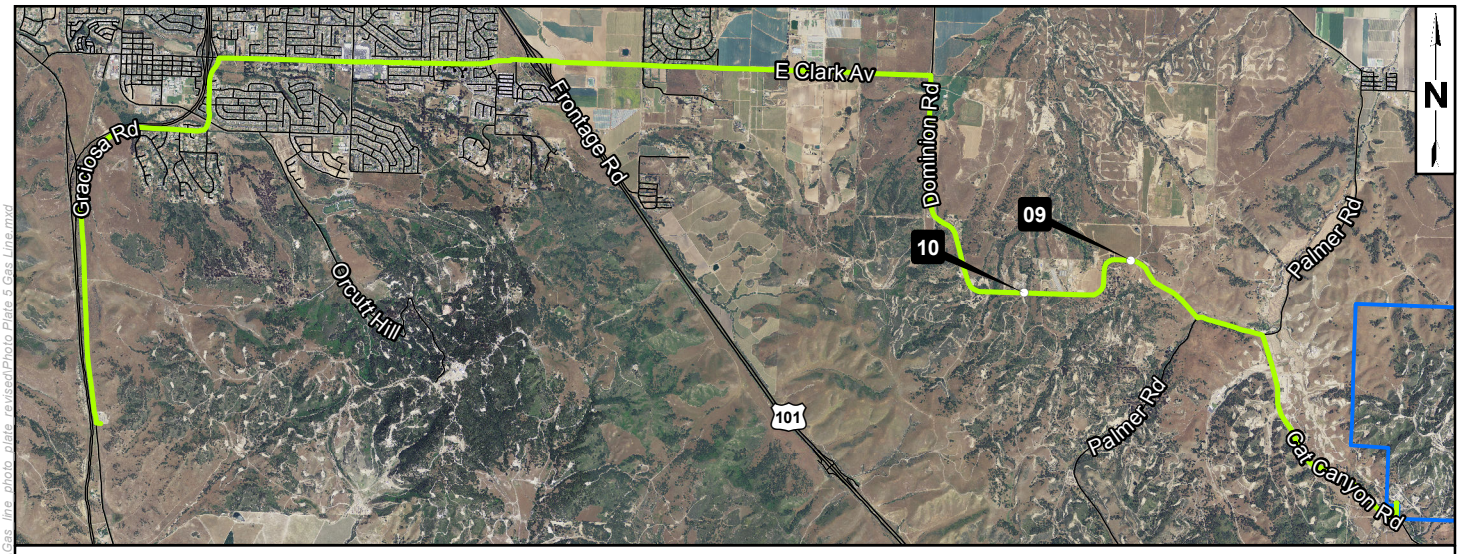



Photo Location
Existing Road
Proposed Gas Line Route
Aera Energy LLC Property

0 0.5 1
MILES

*Source: County of Santa Barbara, NAIP 2012 Image*
*Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet*
*Notes: This map was created for informational and display purposes only*

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Gas line photo plate revised\Photo Plate 5 Gas Line.mxd

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: | | APPENDIX A: SITE PHOTOGRAPHS | PLATE |
|---|---|---|---|
| EAST CAT CANYON SANTA BARBARA COUNTY, CA | | | 5 |
| PROJECT NUMBER: 1002-0457 | DATE: February 2014 | | |

**Photo 11**
**Latitude:** 34.855562
**Longitude:**-120.347806
**Aspect:** North
**Date:** 6/18/2013
**Description:** Ruderal, coastal scrub, and coast live oak woodland plant communities along Dominion Road

**Photo 12**
**Latitude:** 34.864881
**Longitude:**-120.348951
**Aspect:** SE
**Date:** 10/1/2013
**Description:** Ephemeral channel with willow thicket and scattered oaks

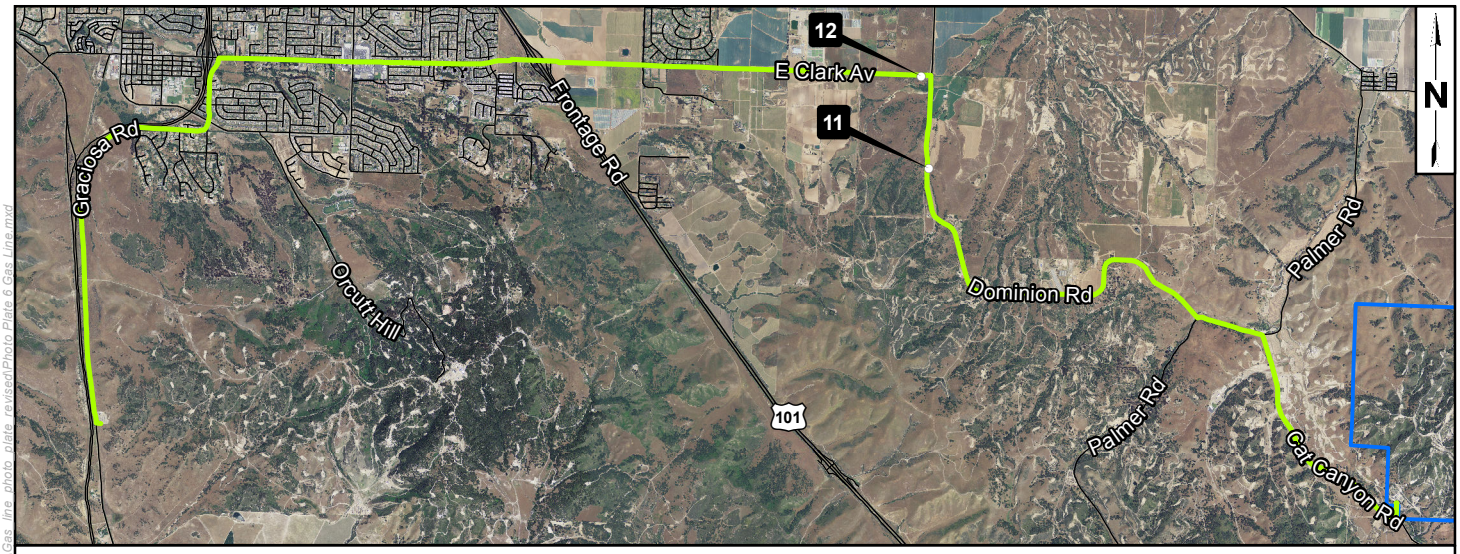



Photo Location
Existing Road
Proposed Gas Line Route
Aera Energy LLC Property

0 0.5 1
MILES

*Source: County of Santa Barbara, NAIP 2012 Image*
*Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet*
*Notes: This map was created for informational and display purposes only*

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Gas line photo plate revised\Photo Plate 6 Gas Line.mxd

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: | | APPENDIX A: SITE PHOTOGRAPHS | PLATE |
|---|---|---|---|
| EAST CAT CANYON SANTA BARBARA COUNTY, CA | | | 6 |
| PROJECT NUMBER: 1002-0457 | DATE: February 2014 | | |

**Photo 13**
**Latitude:** 34.865459
**Longitude:**-120.391901
**Aspect:** NW
**Date:** 10/1/2013
**Description:** Agricultural drainage feature

**Photo 14**
**Latitude:** 34.865248
**Longitude:**-120.391941
**Aspect:** South
**Date:** 10/1/2013
**Description:** Agricultural drainage feature

Photo Location
Existing Road
Proposed Gas Line Route
Aera Energy LLC Property

0 0.5 1
MILES

*Source: County of Santa Barbara, NAIP 2012 Image*
*Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet*
*Notes: This map was created for informational and display purposes only*

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Gas line photo plate revised\Photo Plate 7 Gas Line.mxd

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: | | APPENDIX A: SITE PHOTOGRAPHS | PLATE |
|---|---|---|---|
| EAST CAT CANYON SANTA BARBARA COUNTY, CA | | | 7 |
| PROJECT NUMBER: 1002-0457 | DATE: February 2014 | | |

**Photo 15**
**Latitude:** 34.864837
**Longitude:**-120.426769
**Aspect:** West
**Date:** 10/1/2013
**Description:** Ornamental plant community consisting of; Monterey pine and scattered eucalyptus

**Photo 16**
**Latitude:** 34.863811
**Longitude:**-120.435912
**Aspect:** North
**Date:** 6/1/2013
**Description:** Willow thicket and oak woodland adjacent to Orcutt Creek bridge

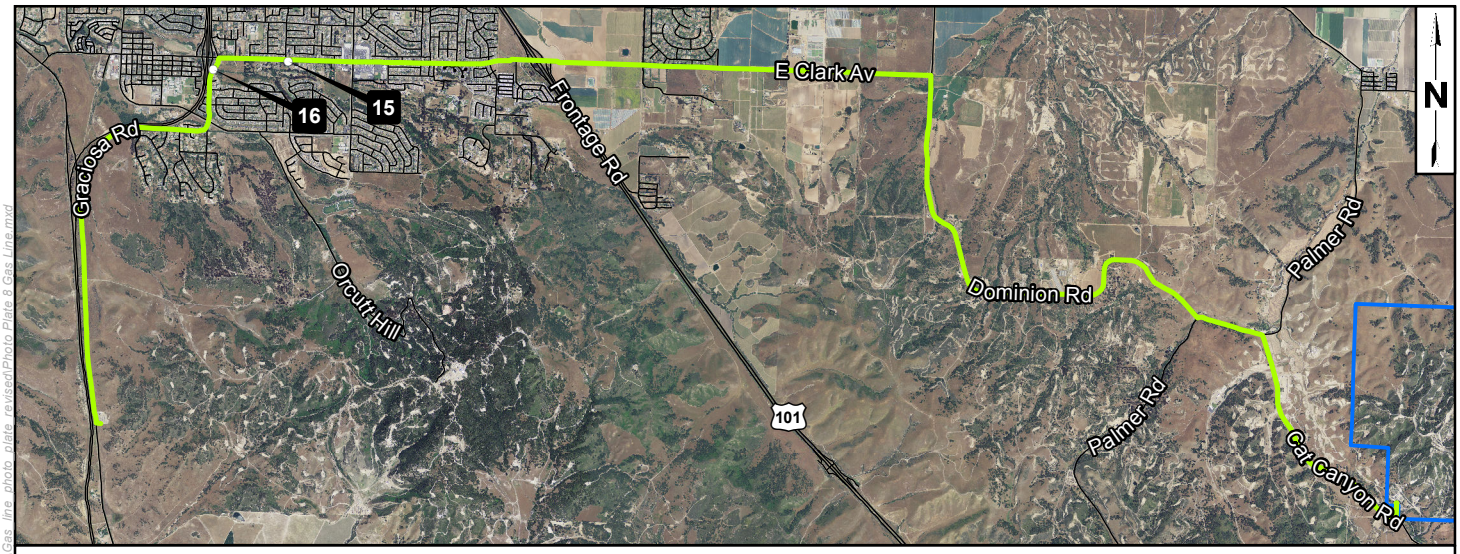



Photo Location
Existing Road
Proposed Gas Line Route
Aera Energy LLC Property

0 0.5 1
MILES

*Source: County of Santa Barbara, NAIP 2012 Image*
*Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet*
*Notes: This map was created for informational and display purposes only*

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Gas line photo plate revised\Photo Plate 8 Gas Line.mxd

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: | | |
|---|---|---|
| EAST CAT CANYON SANTA BARBARA COUNTY, CA | | |
| PROJECT NUMBER: 1002-0457 | DATE: February 2014 | |

APPENDIX A: SITE PHOTOGRAPHS

PLATE 8

**Photo 17**
**Latitude:** 34.85762
**Longitude:**-120.440019
**Aspect:** West
**Date:** 10/1/2013
**Description:** Developed and Ornamental plant community consisting of eucalyptus along Graciosa Road

**Photo 18**
**Latitude:** 34.837506
**Longitude:**-120.450844
**Aspect:** South
**Date:** 10/1/2013
**Description:** Drainage feature adjacent to Coyote brush scrub along Graciosa Road

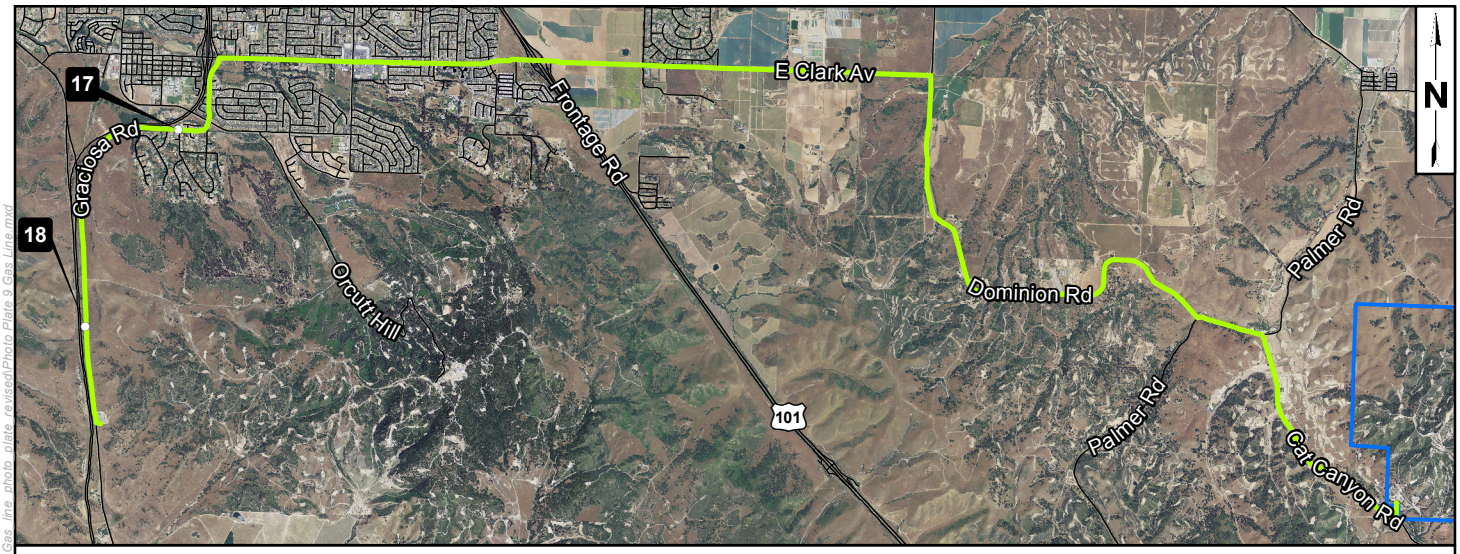



Photo Location
Existing Road
Proposed Gas Line Route
Aera Energy LLC Property

0 0.5 1
MILES

*Source: County of Santa Barbara, NAIP 2012 Image*
*Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet*
*Notes: This map was created for informational and display purposes only*

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Gas line photo plate revised\Photo Plate 9 Gas Line.mxd

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: | | APPENDIX A: SITE PHOTOGRAPHS | PLATE |
|---|---|---|---|
| EAST CAT CANYON SANTA BARBARA COUNTY, CA | | | 9 |
| PROJECT NUMBER: 1002-0457 | DATE: February 2014 | | |

**Photo 19**
**Latitude:** 34.834147
**Longitude:**-120.450313
**Aspect:** North
**Date:** 6/18/2013
**Description:** Drainage feature and coast live oak woodland adjacent to Graciosa Road

**Photo 20**
**Latitude:** 34.832232
**Longitude:**-120.450202
**Aspect:** SW
**Date:** 6/18/2013
**Description:** Drainage feature and culvert along Graciosa Road

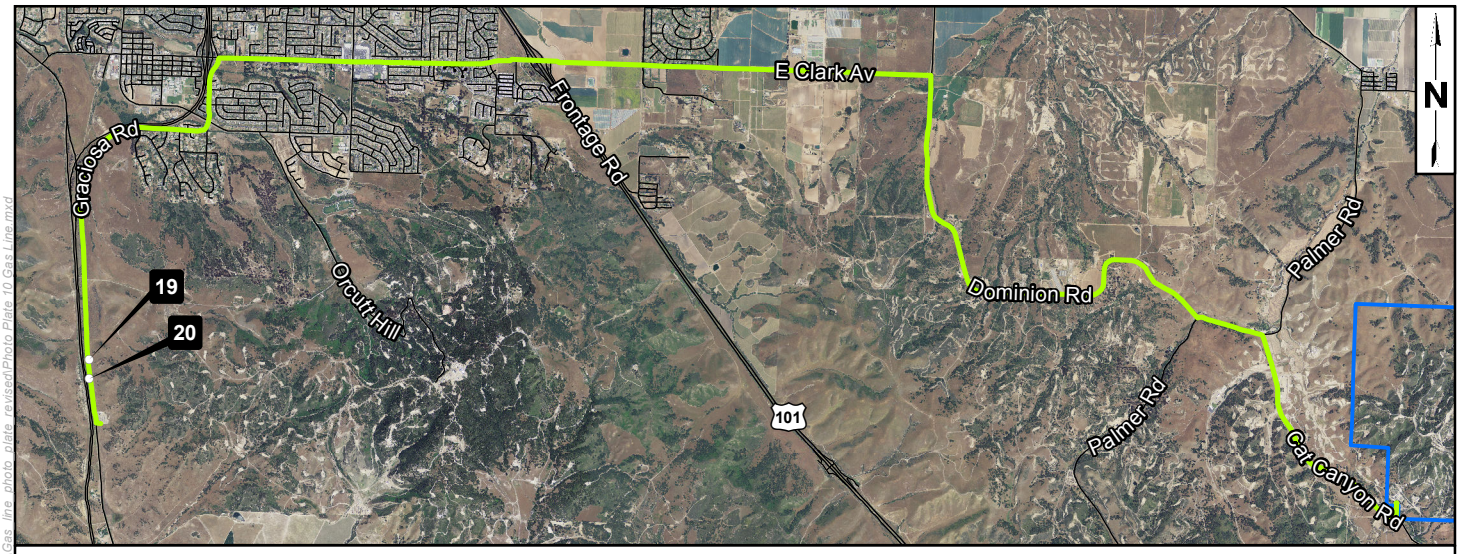



Photo Location
Existing Road
Proposed Gas Line Route
Aera Energy LLC Property

0 0.5 1
MILES

*Source: County of Santa Barbara, NAIP 2012 Image*
*Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet*
*Notes: This map was created for informational and display purposes only*

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Gas line photo plate revised\Photo Plate 10 Gas Line.mxd

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: | | |
|---|---|---|
| EAST CAT CANYON<br>SANTA BARBARA COUNTY, CA | | |
| PROJECT NUMBER: 1002-0457 | DATE: February 2014 | |

APPENDIX A:
SITE PHOTOGRAPHS

PLATE
10

**Photo 21**
**Latitude:** 34.831952
**Longitude:**-120.45013
**Aspect:** NW
**Date:** 10/1/2013
**Description:** Drainage feature and culvert along Graciosa Road

**Photo 22**
**Latitude:** 34.827578
**Longitude:**-120.449278
**Aspect:** North
**Date:** 10/1/2013
**Description:** Terminus of proposed SCG pipeline

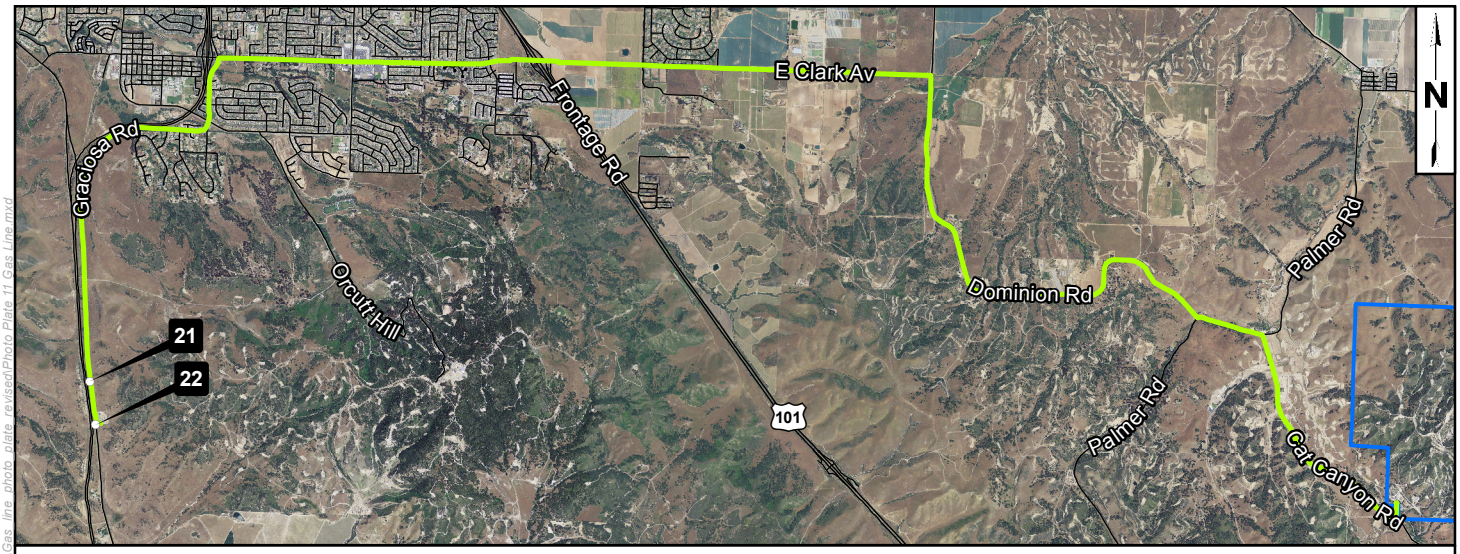



Photo Location
Existing Road
Proposed Gas Line Route
Aera Energy LLC Property

0 0.5 1
MILES

*Source: County of Santa Barbara, NAIP 2012 Image*
*Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet*
*Notes: This map was created for informational and display purposes only*

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Gas line photo plate revised\Photo Plate 11 Gas Line.mxd

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: | | APPENDIX A: SITE PHOTOGRAPHS | PLATE |
|---|---|---|---|
| EAST CAT CANYON SANTA BARBARA COUNTY, CA | | | 11 |
| PROJECT NUMBER: 1002-0457 | DATE: February 2014 | | |

# APPENDIX B

## VASCULAR PLANT INVENTORY

**Vascular Plant List for the East Cat Canyon Redevelopment Project - Gas Pipeline**
**Santa Barbara County, California**

| Scientific Name | Common Name | Habit | Wetland Indicator Status | Family |
|---|---|---|---|---|
| *Acmispon americanus* [*Lotus purshianus*] | Spanish lotus | AH | . | Fabaceae |
| *Acmispon glaber* [*Lotus scoparius*] | Deerweed/California broom | PH | . | Fabaceae |
| *Ailanthus altissima** | Tree of Heaven | T | FACU | Simaroubaceae |
| *Ambrosia artemisiifolia** | Common ragweed | AH | FACU | Asteraceae |
| *Anagallis arvensis** | Scarlet pimpernel | BH | FAC | Myrsinaceae |
| *Apium graveolens** | Celery | A/BH | . | Apiaceae |
| *Artemisia californica* | California sagebrush | S | . | Asteraceae |
| *Artemisia douglasiana* | California mugwort | PH | FAC | Asteraceae |
| *Asclepias eriocarpa* | Kotolo | PH | . | Apocynaceae |
| *Asphodelus fistulosus** | Asphodel | A/PH | . | Asphodelaceae |
| *Avena barbata** | Slender wildoat | AG | . | Poaceae |
| *Baccharis pilularis* | Coyote brush | S | . | Asteraceae |
| *Briza minor** | Annual quaking grass | AG | FAC | Poaceae |
| *Baccharis salicifolia* ssp. *salicifolia* | Mule fat | S | FAC | Asteraceae |
| *Brassica nigra** | Black mustard | AH | . | Brassicaceae |
| *Bromus diandrus** | Ripgut grass | AG | . | Poaceae |
| *Bromus hordeaceus** | Soft chess brome | AG | FACU | Poaceae |
| *Bromus madritensis* ssp. *rubens** | Red brome | AG | . | Poaceae |
| *Camissonia strigulosa* | Contorted primrose | AH | . | Onagraceae |
| *Carduus pycnocephalus** | Italian thistle | AH | . | Asteraceae |
| *Carpobrotus edulis** | Freeway iceplant | PH/S | . | Aizoaceae |
| *Centaurea melitensis** | Tocalote | A/BH | . | Asteraceae |
| *Centromadia sp.* | Spikeweed | A/PH | . | Asteraceae |
| *Chamaesyce maculata** | Spotted spurge | AH | . | Euphorbiaceae |
| *Cirsium vulgare** | Bull thistle | PH | FACU | Asteraceae |
| *Conium maculatum** | Poison hemlock | PH | FACW | Apiaceae |
| *Cortaderia jubata** | Pampas grass | PG | FACU | Poaceae |
| *Croton californicus* | California croton | PH | . | Euphorbiaceae |
| *Croton setigerus* [*Eremocarpus setigerus*] | Turkey mullein | A/PH | . | Euphorbiaceae |
| *Cynodon dactylon** | Bermuda grass | PG | FAC | Poaceae |
| *Cyperus eragrostis* | Tall flatsedge | PH | FACW | Cyperaceae |
| *Datura wrightii* | Jimsonweed | A/PH | . | Solanaceae |
| *Deinandra paniculata* [*Hemizonia paniculata*] | Tarweed | AH | . | Asteraceae |
| *Distichlis spicata* | Saltgrass | PG | FACW | Poaceae |
| *Dracaena* sp.* | Dragon tree | S/T | . | Asparagaceae |
| *Dudleya* lanceolata | Dudleya | PH | . | Crassulaceae |
| *Ehrharta calycina** | Veldt grass | PG | . | Poaceae |
| *Eleocharis macrostachya* | Common spikerush | PH | OBL | Cyperaceae |
| *Eleocharis parishii* | Parish's spikerush | PH | FACW | Cyperaceae |
| *Elymus condensatus* [*Leymus condensatus*] | Giant wild rye | PG | FACU | Poaceae |
| *Epilobium brachycarpum* | Annual willowherb | AH | . | Onagraceae |
| *Epilobium ciliatum* | Fringed willowherb | PH | FACW | Onagraceae |
| *Erigeron canadensis* | Horseweed | AH | FACU | Asteraceae |
| *Eriophyllum confertiflorum* | Golden yarrow | S | . | Asteraceae |
| *Erodium botrys** | Storksbill, filaree | AH | . | Geraniaceae |
| *Erodium cicutarium** | Red-stemmed filaree | AH | . | Geraniaceae |
| *Eschscholzia californica* | California poppy | A/PH | . | Papaveraceae |
| *Eucalyptus globulus** | Blue gum | T | . | Myrtaceae |
| *Festuca perennis* [ Lolium perenne ssp. multiflorum]* | Italian ryegrass | A/BG | FAC | Poaceae |
| *Foeniculum vulgare** | Fennel | PH | . | Apiaceae |
| *Frangula californica* [*Rhamnus californica*] | California coffeeberry | S | . | Rhamnaceae |

| Scientific Name | Common Name | Habit | Wetland Indicator Status | Family |
|---|---|---|---|---|
| *Heliotropium curassavicum* var. *oculatum* | Seaside heliotrope | PH | FACU | Boraginaceae |
| *Helminthotheca echioides** [*Picris echioides*] | Bristly ox-tongue | A/BH | FACU | Asteraceae |
| *Hemizonia congesta* | Hayfield tarweed | AH | . | Asteraceae |
| *Heteromeles arbutifolia* | Toyon | S | . | Rosaceae |
| *Heterotheca grandiflora* | Telegraph weed | AH | . | Asteraceae |
| *Hirschfeldia incana** | Shortpod mustard | A/BH | . | Brassicaceae |
| *Holcus lanatus** | Common velvet grass | PG | FAC | Poaceae |
| *Hordeum murinum* ssp. *leporinum** | Foxtail barley | AG | . | Poaceae |
| *Hypochaeris glabra** | Smooth cat's ear | AH | . | Asteraceae |
| *Juglans californica* | California walnut | T | . | Juglandaceae |
| *Juncus bufonius* | Toad rush | AH | FACW | Juncaceae |
| *Juncus patens* | Spreading rush | PH | FACW | Juncaceae |
| *Juncus phaeocephalus* | Brown-headed rush | PH | FACW | Juncaceae |
| *Lactuca serriola** | Prickly lettuce | AH | FACU | Asteraceae |
| *Lupinus sp.* | Silver lupine | S | . | Fabaceae |
| *Lythrum hyssopifolia** | Hyssop loosestrife | A/PH | OBL | Lythraceae |
| *Malva parviflora** | Cheeseweed | AH | . | Malvaceae |
| *Marah fabacea* | California manroot | PH,V | . | Cucurbitaceae |
| *Marrubium vulgare** | Horehound | PH | FAC | Lamiaceae |
| *Medicago polymorpha** | Bur clover | AH | . | Fabaceae |
| *Melilotus indicus** | Yellow sweet clover | AH | FACU | Fabaceae |
| *Mimulus guttatus* | Sticky monkeyflower | S | . | [Scrophulariaceae] |
| *Nasturtium officinale* | Watercress | PH | OBL | Brassicaceae |
| *Nicotiana glauca** | Tobacco tree | S/T | FAC | Solanaceae |
| *Oxalis corniculata** | Creeping wood sorrel | PH | FACU | Oxalidaceae |
| *Opuntia* sp. | Prickly pear | P/S | . | Cactaceae |
| *Phacelia ramosissima* | Branching phacelia | PH | FACU | Boraginaceae |
| *Piptatherum miliaceum** | Smilo grass | PG | . | Poaceae |
| *Plantago coronopus** | Cut leaf plantain | A/BH | FACW | Plantaginaceae |
| *Plantago lanceolata** | English plantain | PH | FAC | Plantaginaceae |
| *Plantago major** | Common plantain | A/PH | FAC | Plantaginaceae |
| *Platanus racemosa* | Western sycamore | T | FAC | Platanaceae |
| *Poa annua** | Annual bluegrass | A/BH | FACU | Poaceae |
| *Polygonum aviculare* subsp. *depressum** | Prostrate knotweed | AH | FACW | Polygonaceae |
| *Polypogon monspeliensis** | Annual rabbitsfoot grass | AG | FACW | Poaceae |
| *Polypogon viridis** | Water beard grass | PG | FACW | Poaceae |
| *Pteridium aquilinum* | Bracken fern | PF | FACU | Dennstaedtiaceae |
| *Pseudognaphalium californicum [Gnaphalium californicum]* | California everlasting | A/PH | . | Asteraceae |
| *Pseudognaphalium luteoalbum** | Jersey cudweed | AH | FAC | Asteraceae |
| *Quercus agrifolia* | Coast live oak | T | . | Fagaceae |
| *Raphanus sativus** | Radish | A/BH | . | Brassicaceae |
| *Rubus ursinus* | California blackberry | S | FACU | Rosaceae |
| *Rumex acetosella** | Sheep sorrel | PH | FACU | Polygonaceae |
| *Rumex crispus** | Curly dock | B/PH | FACU | Polygonaceae |
| *Rumex salicifolius** | Willow dock | PH | FACW | Polygonaceae |
| *Salix lasiolepis* | Arroyo willow | S | FACW | Salicaceae |
| *Salvia columbariae* | Chia | AH | . | Lamiaceae |
| *Salvia mellifera* | Black sage | S | . | Lamiaceae |
| *Salvia spathacea* | California hummingbird sage | PH | . | Lamiaceae |
| *Sambucus nigra* ssp. *caerulea [Sambucus mexicana]* | Blue elderberry | S | FAC | Adoxaceae [Caprifoliaceae] |
| *Schismus arabicus** | Mediterranean grass | AG | . | Poaceae |
| *Schoenoplectus californica* | Southern bulrush | PH | OBL | Cyperaceae |

| Scientific Name | Common Name | Habit | Wetland Indicator Status | Family |
|---|---|---|---|---|
| *Schinus molle** | Pepper tree | T | . | Anacardiaceae |
| *Scrophularia californica* | California bee plant | PH | FAC | Scrophulariaceae |
| *Senecio vulgaris** | Common groundsel | AH | FACU | Asteraceae |
| *Silene gallica** | Windmill pink | | . | Caryophyllaceae |
| *Silybum marianum** | Milk thistle | AH | . | Asteraceae |
| *Sonchus asper** | Prickly sow thistle | AH | FAC | Asteraceae |
| *Sonchus oleraceous** | Common sowthistle | AH | . | Asteraceae |
| *Spergularia rubra** | Red sand spurry | A/PH | FAC | Caryophyllaceae |
| *Stachys bullata* | Woodmint | PH | . | Lamiaceae |
| *Stephanomeria virgata* | Tall stephanomeria | AH | . | Asteraceae |
| *Toxicodendron diversilobum* | Western poison oak | S | . | Anacardiaceae |
| *Trifolium* sp. | Clover | AH | . | Fabaceae |
| *Verbena lasiostachys* | Western vervain | PH | . | Verbenaceae |
| *Vicia villosa* | Hairy vetch | AH,V | . | Fabaceae |
| *Typha* sp. | Cattail | PH | OBL | Typhaceae |
| *Urtica dioica* | Stinging nettle | PH | FAC | Urticaceae |

Notes: Scientific nomenclature follows Second Edition of the Jepson Manual (Baldwin, et.al., 2012)
"*" indicates non-native species which have become naturalized or persist without cultivation.

Habit definitions:

| | | |
|---|---|---|
| AF: annual fern or fern ally | AV: annual vine | S: shrub |
| AG: annual grass | PG: perennial grass | T: tree |
| AH: annual herb | PH: perennial herb | |
| BH: biennial herb | PF: perennial fern or fern ally | |

Wetland indicator status California - Arid West Region, U.S. Army Corps of Engineers (CRREL 2012):
OBL: obligate wetland species, occurs almost always in wetlands (>99% probability)
FACW: facultative wetland species, usually found in wetlands (67-99% probability).
FAC: facultative species, equally likely to occur in wetlands or non-wetlands (34-66% probability).
FACU: facultative upland species, usually occur in nonwetlands (1-33% probability).
UPL: upland species, almost always occurs in non-wetlands in the region specified (<1% probability).
A period (.) indicates that no wetland indicator status has been given.

# APPENDIX C

## WILDLIFE SPECIES LIST

Aera Oil Field Redevelopment Project - Gas Pipeline
Wildlife Species List
Project No. 1002-0457

| Common Name | *Scientific Name* | Observed During Field Surveys* | Residence Status | Protected Status | Habitat |
|---|---|---|---|---|---|
| **Amphibians** | | | | | |
| Arboreal salamander | *Aneides lugubris* | | R | - | W |
| Black-bellied slender salamander | *Batrachoseps nigriventris* | | R | - | W |
| California toad | *Bufo boreas halophilus* | | R | -- | M |
| Monterey ensatina | *Ensatina eschscholtzii eschscholtzii* | | R | -- | R,G,P |
| California tiger salamander | *Ambystoma californiense* | | | | |
| Pacific treefrog | *Pseudacris regilla* | | R | -- | A,R |
| **Reptiles** | | | | | |
| Silvery legless lizard | *Anniella pulchra pulchra* | | R | CSC | M |
| California whiptail | *Aspidoscelis tigris munda* | | R | -- | G,D,P,M |
| Western yellow-bellied racer | *Coluber constrictor mormon* | | R | | M |
| Northern Pacific rattlesnake | *Crotalus oreganus oreganus* | | R | -- | R,G,P |
| Ringneck snake | *Diadophis punctatus* | | R | -- | R,G,P |
| Skilton's skink | *Eumeces skiltonianus skiltonianus* | | R | -- | M |
| Southern alligator lizard | *Gerrhonotus multicarinatus* | | R | -- | A,R,G |
| California kingsnake | *Lampropeltis getula californiae* | | R | -- | A,R,P,M |
| Red coachwhip | *Masticophis flagellum piceus* | | R | | M |
| California striped racer | *Masticophis lateralis* | | R | -- | M |
| Coast horned lizard | *Phrynosoma coronatum frontale* | | R | CSC | G,P |
| Pacific gopher snake | *Pituophis catenifer* | | R | -- | R,G,P |
| Western fence lizard | *Sceloporus occidentalis* | | R | -- | G,D,P,M |
| Skilton's skink | *Plestiodon skiltonianus siltonianus* | | R | - | G,D,P,M |
| Coast garter snake | *Thamnophis elegans terrestris* | | R | -- | R,G,P |
| Western side-blotched lizard | *Uta stanburiana elegans* | | R | -- | G,D,P,M |
| **Birds** | | | | | |
| Acorn woodpecker | *Melanerpes formicivorous* | X | R | M | P |
| Allen's hummingbird | *Selasphorus sasin* | | B | M | R,G,P |
| American crow | *Corvus brachyrhynchos* | | R | M | M |
| American goldfinch | *Carduelis tristis* | | R | M | R,P |
| American kestrel | *Falco sparverius* | X | R | M | R,G,P |
| American robin | *Turdus migratorius* | | R | M | P,G |
| Anna's hummingbird | *Calypte anna* | | R | M | R,G,P |
| Ash-throated flycatcher | *Myiarchus cinerascens* | | B | M | R,G,P |
| Band-tailed pigeon | *Columba fasciata* | | R | M | R |
| Barn owl | *Tyto alba* | | R | M | R,G,P |
| Barn swallow | *Hirundo rustica* | | B | M | R,G |
| Bewick's wren | *Thryomanes bewickii* | | R | M | R,G |
| Black phoebe | *Sayornis nigricans* | | R | M | R,G,P |
| Black-chinned hummingbird | *Archilochus alexandri* | | B | M | R,G,P |
| Black-headed grosbeak | *Pheucticus melanocephalus* | | B | M | R,P |
| Black-throated gray warbler | *Dendroica nigrescens* | | B | M | G,P |
| Blue grosbeak | *Guiraca caerulea* | | B | M | R,W,G |
| Blue-gray gnatcatcher | *Polioptila caerulea* | | B | M | R,G |
| Brewer's blackbird | *Euphagus cyanocephalus* | X | R | M | R,W,G |
| Brown creeper | *Certhia americana* | | R | M | W,R,P |
| Brown-headed cowbird | *Molothrus ater* | | R | M | R,W,G |

| Common Name | *Scientific Name* | Observed During Field Surveys* | Residence Status | Protected Status | Habitat |
|---|---|---|---|---|---|
| Bullock's oriole | *Icterus bullockii* | | B | M | R,P |
| Bushtit | *Psaltriparus minimus* | X | R | M | P |
| California quail | *Cillipepla californica* | X | R | -- | R,P |
| California thrasher | *Toxostoma redivivum* | X | R | M | W,G |
| California towhee | *Pipilo crissalis* | X | R | M | W, G |
| Canyon wren | *Catherpes mexicanus* | | R | M | M |
| Cassin's finch | *Carpodacus cassinii* | | R | M | M |
| Cassin's kingbird | *Tyrannus vociferans* | | B | M | G |
| Cassin's vireo | *Vireo cassinii* | | B | M | W,R |
| Cedar waxwing | *Bombycilla cedrorum* | | W | M | G,W |
| Chestnut-backed chickadee | *Parus rufescens* | | R | M | R,P |
| Cliff swallow | *Hirundo pyrrhonota* | | B | M | R,G |
| Common raven | *Corvus corax* | X | R | M | M |
| Common yellowthroat | *Geothlypis trichas* | | R | M | W,R |
| Cooper's hawk | *Accipiter cooperii* | | R | M, CSC | R,G |
| Costa's hummingbird | *Calypte costae* | | B | M | R,G,P |
| Dark-eyed junco | *Junco hyemalis* | X | R | M | R,W,G |
| Downy woodpecker | *Picoides pubescens* | | R | M | R,P |
| European starling | *Sturnus vulgaris* | X | R | -- | R,P |
| Fox sparrow | *Passerella iliaca* | | W | M | G,W |
| Golden eagle | *Aquila chrysaetos* | | R | M | R,G,P |
| Golden-crowned sparrow | *Zonotrichia atricapilla* | | W | M | W,R |
| Great horned owl | *Bubo virginianus* | | R | M | R,G,P |
| Great-tailed grackle | *Quiscalus mexicanus* | | R | M | M |
| Greater roadrunner | *Geococcyx californianus* | | | | |
| Hairy woodpecker | *Picoides villosus* | | R | M | W, R |
| Hermit thrush | *Catharus guttatus* | | W | M | R,G |
| Hermit warbler | *Dendroica occidentalis* | | W | M | P |
| Hooded oriole | *Icterus cucullatus* | | B | M | M |
| House finch | *Carpodacus mexicanus* | X | R | M | R,G,P |
| House sparrow | *Passer domesticus* | | R | -- | D |
| House wren | *Troglodytes aedon* | | R | M | R,G |
| Hutton's vireo | *Vireo huttoni* | | R | M | W,R |
| Killdeer | *Charadrius vociferus* | | R | M | W,G |
| Lark sparrow | *Chondestes grammacus* | | B | M | G |
| Lawrence's goldfinch | *Carduelis lawrencei* | | R | M | R,P |
| Lazuli bunting | *Passerina amoena* | | B | M | R,W,G |
| Lesser goldfinch | *Carduelis psaltria* | | B | M | R,P |
| Lewis's woodpecker | *Melanerpes lewis* | | W | M | P |
| Lincoln's sparrow | *Melospiza lincolnii* | | W | M | W,R |
| Long-eared owl | *Asio otus* | | R | M | R,P,W |
| MacGillivray's warbler | *Oporonis tolmiei* | | B | M | W,R |
| Merlin | *Falco columbarius* | | W | M | R,G,P |
| Mountain quail | *Oreotyx pictus* | | R | M | P |
| Mourning dove | *Zenaida macroura* | X | R | M | R,G |
| Nashville warbler | *Vermivora ruficapilla* | | B | M | R, W |
| Northern flicker | *Colaptes auratus* | X | R | M | R,P |
| Northern mockingbird | *Mimus polyglottos* | | R | M | R |
| Northern pygmy-owl | *Glaucidium gnoma* | | R | M | R |
| Northern rough-winged swallow | *Stelgidopteryx serripennis* | | B | M | R,G |

| Common Name | *Scientific Name* | Observed During Field Surveys* | Residence Status | Protected Status | Habitat |
|---|---|---|---|---|---|
| Northern saw-whet owl | *Aegolius acadicus* | | R | M | R,G,P |
| Nuttall's woodpecker | *Picoides nuttallii* | | R | M | R,P |
| Oak titmouse | *Baeolophus inornatus* | X | R | M | R,P |
| Olive-sided flycatcher | *Contopus cooperi* | | B | M | R,P |
| Orange-crowned warbler | *Vermivora celata* | | R | M | G,P |
| Pacific-slope flycatcher | *Empidonax difficilis* | | B | M | R,G,P |
| Purple finch | *Carpodacus purpureus* | | R | M | R,G,P |
| Red-breasted nuthatch | *Sitta canadensis* | | W | M | P |
| Red-breasted sapsucker | *Sphyrapicus ruber* | | B | M | R,P |
| Red-shouldered hawk | *Buteo lineatus* | | R | M | R,G |
| Red-tailed hawk | *Buteo jamaicensis* | X | R | M | R,G |
| Rock dove | *Columba livia* | | R | -- | D |
| Rock wren | *Salpinctes obsoletus* | | R | M | M |
| Ruby-crowned kinglet | *Regulus calendula* | | W | M | P |
| Rufous-crowned sparrow | *Aimophila ruficeps* | | R | M | G |
| Savannah sparrow | *Passerculus sandwichensis* | | R | M | G |
| Say's phoebe | *Sayornis saya* | | R | M | G |
| Sharp-shinned hawk | *Accipiter striatus* | | W | M | P,R,G |
| Song sparrow | *Melospiza melodia* | | R | M | G,W |
| Spotted towhee | *Pipilo maculatus* | | R | M | R,P |
| Steller's jay | *Cyanocitta stelleri* | | R | M | R,G |
| Swainson's thrush | *Catharus ustulatus* | | B | M | P |
| Townsend's warbler | *Dendroica townsendi* | | W | M | P |
| Tree swallow | *Tachycineta bicolor* | | R | M | R,G |
| Turkey vulture | *Cathartes aura* | X | R | M | R,G,P |
| Varied thrush | *Ixoreus naevius* | | W | M | P |
| Violet-green swallow | *Tachycineta thalassina* | | R | M | R,G |
| Warbling vireo | *Vireo gilvus* | | R | M | W,R |
| Western bluebird | *Sialia mexicana* | X | R | M | R |
| Western kingbird | *Tyrannus verticalis* | | B | M | G |
| Western meadowlark | *Sturnella neglecta* | | R | M | G |
| Western screech-owl | *Otus kennicottii* | | R | M | R,G,P |
| Western scrub-jay | *Aphelocoma c. californica* | | R | M | R,G,P |
| Western wood-pewee | *Contopus sordidulus* | | B | M | R,P |
| White throated swift | *Aeronautes saxatalis* | | R | M | R,G,P |
| White-breasted nuthatch | *Sitta carolinensis* | | R | M | P |
| White-crowned sparrow | *Zonotrichia leucophrys* | | R | M | R,W,G |
| White-tailed kite | *Elanus leucurus* | | R | M, FP | G,P |
| Wild turkey | *Meleagris gallopavo* | | R | -- | P |
| Wilson's warbler | *Wilsonia pusilla* | | B | M | W,R |
| Wrentit | *Chamaea fasciata* | | R | -- | R |
| Yellow-bellied sapsucker | *Sphyrapicus varius* | | R | M | R, W |
| Yellow-billed magpie | *Pica nuttalli* | | R | M | W,G |
| Yellow-rumped warbler | *Dendroica coronata* | | B | M | G,P |
| **Mammals** | | | | | |
| Pallid bat | *Antrozous pallidus* | | R | CSC | M |
| Ringtail | *Bassariscus astutus* | | R | FP | R |
| Domestic dog | *Canis familiaris* | | R | -- | D |
| Coyote | *Canis latrans* | | R | -- | M |
| California pocket mouse | *Chaetodipus californicus* | | R | -- | M |

| Common Name | *Scientific Name* | Observed During Field Surveys* | Residence Status | Protected Status | Habitat |
|---|---|---|---|---|---|
| Townsend's Big-eared Bat | *Corynorhinus townsendii* | | R | CSC | G, M |
| Virginia opossum | *Didelphis virginiana* | | R | -- | R,P |
| Big brown bat | *Episticus fuscus* | | R | -- | M |
| Common Porcupine | *Erethizon dorsatum* | | R | | G, M |
| Domestic cat | *Felis catus* | | R | -- | M |
| Mountain lion | *Felis concolor* | | R | -- | R,P |
| Red bat | *Lasiurus borealis* | | R | -- | M |
| Hoary bat | *Lasiurus cinereus* | | R | -- | M |
| Western yellow bat | *Lasiurus xanthinus* | | R | -- | M |
| Black-tailed jackrabbit | *Lepus californicus* | | R | -- | P,G |
| Bobcat | *Lynx rufus* | | R | -- | R |
| Striped skunk | *Mephitis mephitis* | X | R | -- | R,G |
| California vole | *Microtus californicus* | | R | -- | R,G,W |
| House mouse | *Mus musculus* | | R | -- | D |
| Long-tailed weasel | *Mustela frenata* | | R | -- | M |
| California myotis | *Myotis californicus* | | R | -- | P |
| Western small-footed myotis | *Myotis ciliolabrum* | | R | -- | M |
| Long-eared myotis bat | *Myotis evotis* | | R | -- | R,P |
| Fringed myotis | *Myotis thysanodes* | | R | -- | P |
| Long-legged myotis | *Myotis volans* | | R | -- | P |
| Yuma myotis | *Myotis yumanensis* | | R | -- | P, G, R |
| San Diego desert woodrat | *Neotoma lepida intermedia* | | R | CSC | R,P |
| Dusky footed woodrat | *Neotoma fuscipes* | | R | | M |
| Mule deer | *Odocoileus hemionus* | | R | -- | R,G |
| White-eared pocket mouse | *Perognathus alticolus* | | R | -- | M |
| San Joaquin pocket mouse | *Perognathus inornatus inornatus* | | R | -- | M |
| Little pocket mouse | *Perognathus longimembris* | | R | -- | M |
| Pacific pocket mouse | *Perognathus longimembris pacificus* | | R | -- | M |
| Brush mouse | *Peromyscus boylii* | | R | -- | G |
| California mouse | *Peromyscus californicus* | | R | -- | G |
| Deer mouse | *Peromyscus maniculatus* | | R | -- | M |
| Pinyon Mouse | *Peromyscus truei* | | R | -- | M |
| Western pipistrelle | *Pipestrellus hesperus* | | R | -- | M |
| Townsend's big-eared bat | *Plecotus townsendii* | | R | CSC | M |
| Raccoon | *Procyon lotor* | | R | -- | M |
| Mountain Lion | *Puma concolor* | | R | | P, R, B |
| Norway rat | *Rattus norvegicus* | | R | -- | D |
| Black rat | *Rattus rattus* | | R | -- | M |
| Western harvest mouse | *Reithrodontomys megalotis* | | R | -- | G |
| Broad-footed Mole | *Scapanus latimanus* | | R | | M |
| Western gray squirrel | *Sciurus griseus* | | R | -- | R,P |
| Ornate Shrew | *Sorex ornatus* | | R | | M |
| California ground squirrel | *Spermophilus beecheyi* | X | R | -- | G |
| Western spotted skunk | *Spilogale gracilis* | | R | -- | R |
| Wild pig | *Sus scrofa* | | R | -- | M |
| Audubon's cottontail | *Sylvilagus audubonii* | X | R | | M |
| Brush rabbit | *Sylvilagus bachmani* | | R | -- | R |
| Brazilian free-tailed bat | *Tadarida brasiliensis* | | R | -- | R,P,G |

| Common Name | *Scientific Name* | Observed During Field Surveys* | Residence Status | Protected Status | Habitat |
|---|---|---|---|---|---|
| American badger | *Taxidea taxus* | X | R | SSC | M |
| Botta's pocket gopher | *Thomomys bottae* | X | R | -- | R,G,P |
| Gray fox | *Urocyon cinereoargenteus* | | R | -- | M |
| Black bear | *Ursus americanus* | | R | -- | R,P,G |

*Observed and/or signs (e.g., scat, tracks, vocalization, etc.) detected during field surveys conducted by Padre

**Residence Status**

R = Permanent resident
W- Winter resident
B - Summer resident

**Protected Status**

FE – Federal endangered species
FT -- Federal threatened species
FC – Federal candidate species
M – Migratory Bird Treaty Act
SE – State endangered species
ST – State threatened species
CSC – California Species of Special Concern
FP – California Fully Protected Species

**Typical Habitat**

A – Aquatic
D – Developed areas
G – Grassland
M – Multiple habitats
P – Woodland
R – Riparian
W - Wetland

# BIOLOGICAL RESOURCES SURVEY REPORT - ELECTRICAL TRANSMISSION LINE

## EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT

## SANTA BARBARA COUNTY, CALIFORNIA

**Prepared for:**

Aera Energy LLC
10000 Ming Avenue
Bakersfield, California 93311

**Prepared by:**

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

369 Pacific Street
San Luis Obispo, California 93401

**DECEMBER 2014**

**Project No. 1002-0458**

# Authenticity and Signature Page

**Padre Associates, Inc.**
**369 Pacific Street**
**San Luis Obispo, California 93401**
**805-786-2650**

Padre Associates, Inc. hereby certifies that all statements furnished in the following Biological Resources Survey Report and all supporting information required for this biological evaluation are true and correct to the best of my knowledge and belief. Further, we certify that all field surveys associated with this report were performed by Padre using standards accepted by Santa Barbara County and accurately represent all information retained from field visits to the proposed Project Site in Santa Barbara County, California.

Eric Snelling
Principal

Thea Benson
Senior Biologist

Christina Santala
Staff Biologist

PAGE INTENTIONALLY BLANK

## EXECUTIVE SUMMARY

The following Biological Resources Survey Report (Report) has been prepared by Padre Associates, Inc. (Padre) documenting the results of a biological survey conducted for Aera Energy LLC (Aera) for the installation of a proposed 1,200 foot long electrical transmission line. The transmission line is intended to deliver power from an existing Pacific Gas and Electric Company (PG&E) power line adjacent to Cat Canyon Road into the eastern portion of the Cat Canyon Oil Field located at 6516 Cat Canyon Road, in northern Santa Barbara County, California (Project Site). The transmission line will supply power for the proposed East Cat Canyon Oil Field Redevelopment Project (Project). The transmission line will be constructed within the Aera property and other privately-owned agricultural land for its proposed length with the exception of the crossing at Cat Canyon Road (a county public right of way).

The desktop analysis and field surveys conclude that suitable habitat for special-status plants and animals exists within the regions surrounding the proposed transmission line alignment, specifically within the biological survey area (BSA) (the proposed alignment plus a 500 foot buffer area on either side). Special-status plant species that have a potential for occurrence within the BSA include: Hoover's bent grass, Miles' milk-vetch, dwarf calycadenia, and mesa horkelia. No special-status species were observed during February and May (2014) field surveys; however, results may be confounded by seasonal fluctuations, and survey timing. Special-status wildlife species that have the potential for occurrence within the BSA include: Blainville's horned lizard, coast patch-nosed snake, California legless lizard, western spadefoot, burrowing owl, California horned lark, golden eagle, loggerhead shrike, oak titmouse, southern California rufous-crowned sparrow, tricolored blackbird, yellow warbler, and American badger. During the field surveys, American badger burrows and oak titmouse were observed within the BSA.

No grading or other vegetation removal activities will be conducted as part of the installation of the transmission line. Additionally, the proposed installation of the transmission line has been designed to avoid wetlands, stream channels and associated riparian habitats, to the greatest extent feasible. Local wildlife populations, including special-status species, may potentially be adversely affected by the temporary disruption of foraging, burrowing, and nesting activities due to an increase of human activity, use of heavy equipment, and noise associated with the initial pole installation activities. Impacts to biological resources are expected to be temporary and implementation of recommended avoidance and minimization measures outlined in this Report will reduce impacts to less than significant.

This Report includes a discussion of impacts to biological resources that may be directly or indirectly impacted by initial ground disturbing activities and power pole/line installation.

Recommended avoidance and minimization measures that have been provided in this Report to reduce impacts to biological resources to less than significant include the following:

1. The use of heavy equipment and vehicles will be limited to the proposed work areas, existing roadways, and defined laydown areas, staging areas, and access points. At no time will staging or stockpiling of equipment or materials occur in the Cat Canyon Creek channel.

2. Work areas, including equipment staging and laydown areas, will be pre-designated on plans prior to the start of work.
3. In the event Project activities are scheduled during the nesting bird season, between March 15 and September 15, a nesting bird survey will be completed by a qualified Biologist with experience in bird identification and nest searching. No active nests of native bird species protected by the Migratory Bird Treaty Act (MBTA) will be removed by project activities and appropriate buffers will be incorporated into the Project plan to ensure the protection of the nest. Buffers will be delineated by a qualified Biologist based on an appropriate distance to minimize disturbance to the active nest.
4. Project activities will be completed during the daylight hours, to the greatest extent possible. Project activities will avoid rainy nights, when California tiger salamanders (CTS) are most active. A qualified biologist will complete a pre-activity survey prior to work that follows a rainy night, to ensure no CTS are present within the work areas. Training will be provided to the crew and crew supervisors to recognize, report, and avoid CTS. A biologist will be on-site or on-call during all construction activities to respond to questions or incidents. In the event a CTS is observed in the work area, the work will cease and the U.S. Fish and Wildlife Service (USFWS) will be immediately contacted for further direction.
5. An Environmental Sensitivity Orientation will be prepared and presented to all on-site personnel at the beginning of the initial work activities. The orientation will discuss sensitive species with potential to occur in the work areas, with emphasis on special-status wildlife and plant species. The orientation will explain the importance of minimizing disturbance, adhering to all permit conditions, and proper reporting of observations or incidents. The orientation will be repeated if additional personnel are added to the Project.
6. At no time will oak trees be removed as part of project activities. Further, a certified arborist will be retained to perform any necessary trimming of oak tree limbs that have the potential to be impacted as a result of vehicle or equipment usage associated with Project activities.
7. To the extent feasible, the proposed pole installation will avoid impacting the sensitive root systems of large trees. During drilling activities, root structures of nearby trees will be cleanly cut and trimming of branches will be completed by hand (i.e., avoiding the use of heavy equipment).
8. A qualified biologist with experience identifying special-status plants and associated habitats will conduct a pre-activity survey of all work areas, including staging and laydown areas, prior to any ground disturbing activities. The surveys will be conducted within appropriate blooming periods for potentially occurring special-status plants. Any special-status plant populations encountered will be avoided; however, if they cannot be avoided, a relocation and monitoring plan will be prepared and approved by the appropriate regulatory agency prior to any disturbance to the plants. Observations of special-status species will be reported to the CDFW and/or USFWS, as required.

9. A qualified biologist with experience identifying American badger and burrowing owl and their potential burrows will conduct a pre-activity survey prior to initial work activities. Potential badger and burrowing owl burrows will be avoided with a 50 foot buffer. If a burrow is identified within the immediate work area, the CDFW will be contacted for further guidance on appropriate protective measures during Project activities.
10. As necessary, erosion control measures will be implemented to prevent runoff into nearby drainages. Straw waddles, in conjunction with other methods, will be temporarily installed to prevent erosion of soils disturbed by the project and to avoid and/or minimize disturbed sediments from entering adjacent waterways. Silt fencing will be avoided to the greatest extent feasible to minimize potential barriers to migrating amphibians and other wildlife.
11. During Project activities and periods of high vehicle/equipment traffic along dirt roads and work areas, dust control methods to minimize dust impacts to surrounding vegetation will be implemented. Dust control methods include, but are not limited to, the following:
    - Light water spray or soil stabilizer application on stockpiles;
    - Watering areas of vehicle movement to prevent the generation of fugitive dust;
    - Reducing vehicle speed; and
    - Suspending earth moving or other dust-producing activities during periods of high winds or when dust control measures are not able to prevent visible dust plumes.
12. All food-related items and trash will be removed from the work areas at the end of each working day.

PAGE INTENTIONALLY BLANK

## TABLE OF CONTENTS

**1.0 INTRODUCTION ..... 1**

1.1 PROJECT DESCRIPTION ..... 1

**2.0 REGIONAL SETTING ..... 3**

**3.0 REGULATORY SETTING ..... 7**

3.1 FEDERAL REGULATIONS ..... 9
3.2 STATE REGULATIONS ..... 10
3.3 SANTA BARBARA COUNTY REGULATIONS ..... 12

**4.0 METHODS ..... 15**

4.1 DESKTOP REVIEW ..... 15
4.2 FIELD SURVEYS ..... 16

**5.0 FINDINGS ..... 19**

5.1 REGIONALLY OCCURRING SENSTIVE HABITATS ..... 19
5.2 AQUATIC FEATURES ..... 23
5.3 VEGETATION TYPES OCCURRING WITHIN THE BSA ..... 23
5.4 SPECIAL-STATUS PLANT SPECIES ..... 27
5.5 WILDLIFE OCCURRING WITHIN THE BSA ..... 30
5.6 SPECIAL-STATUS WILDLIFE SPECIES ..... 31

**6.0 IMPACT SUMMARY ..... 45**

**7.0 RECOMMENDED AVOIDANCE AND MINIMIZATION MEASURES ..... 47**

**8.0 REFERENCES ..... 49**

## FIGURES

1-1 Project Location……..... 3
2-1 Electrical Transmission Installation Staging and Laydown Areas……..…7
5-1 Documented Sensitive Resources……... 21
5-2 Biological Resources Identified within Biological Survey Area…… 25

## TABLES

5-1 Definitions of Special-Status Plant Species ……...27
5-2 Special-Status Plant Species of the Project Region……..28
5-3 Blooming Period for Special-Status Plants…… 29
5-4 Definitions of Special-Status Wildlife Species……... 32
5-5 Special-Status Wildlife Species of the Project Region…….. 33

## APPENDICES

A Site Photographs
B Vascular Plant Inventory
C Wildlife Species List

## LIST OF ACRONYMS

| | |
|---|---|
| ACOE | U.S. Army Corps of Engineers |
| BCC | Birds of Conservation Concern |
| BSA | Biological Survey Area |
| CDFW | California Department of Fish and Wildlife |
| CEQA | California Environmental Quality Act |
| CESA | California Endangered Species Act |
| CNDDB | California Natural Diversity Database |
| CNPS | California Native Plant Society |
| CRLF | California Red-Legged Frog |
| CSC | Species of Special Concern |
| CTS | California Tiger Salamander |
| CWA | Clean Water Act |
| DEM | Digital Elevation Model |
| DPS | Distinct Population Segment |
| EIR | Environmental Impact Report |
| EPA | U.S. Environmental Protection Agency |
| ESHA | Environmentally Sensitive Habitat Areas |
| ESU | Evolutionary Significant Unit |
| FESA | Federal Endangered Species Act |
| GIS | Geographic Information Systems |
| GPS | Global Positioning System |
| LSAA | Lake or Streambed Alteration Agreement |
| MBTA | Federal Migratory Bird Treaty Act |
| MOU | Memorandum of Understanding |
| NMFS | National Marine Fisheries Service |
| NWI | National Wetland Inventory |
| ODPP | Oil and Gas Drilling/Production Plan |
| OHWM | Ordinary High Water Mark |
| RWQCB | Regional Water Quality Control Board |
| SBCPDD | Santa Barbara County Planning and Development Department |
| SWRCB | State Water Resources Control Board |
| USFWS | U.S. Fish and Wildlife Service |
| USGS | U.S. Geological Survey |
| VPFS | Vernal Pool Fairy Shrimp |

PAGE INTENTIONALLY BLANK

# 1.0 INTRODUCTION

The following Biological Resources Survey Report (Report) has been prepared by Padre Associates, Inc. (Padre), on behalf of Aera Energy LLC (Aera). The Report documents the results of a desktop evaluation and field surveys for biological resources that may be impacted by the installation of an electrical transmission line. The transmission line is intended to deliver power from an existing Pacific Gas and Electric Company (PG&E) power line adjacent to Cat Canyon Road into the eastern portion of the Cat Canyon Oil Field located in northern Santa Barbara County, California (Project Site). The transmission line will supply power for the proposed East Cat Canyon Oil Field Redevelopment Project (Project). The transmission line will be constructed within the Aera property and other privately-owned land over its proposed length except for the road crossing at Cat Canyon Road, which is a county public right of way.

The primary objectives of this assessment were to: 1) determine the type and extent of vegetation types present along the transmission line corridor and 500 foot buffer areas on either side of the proposed route; 2) identify special-status plant and wildlife species, or known habitat of special-status species occurring within the region (within five miles of the transmission line); 3) analyze impacts associated within initial ground disturbing activities and power pole/line installation; and, 4) recommend avoidance and minimization measures for proposed transmission line installation activities to provide protection for potentially occurring special-status species and associated habitats to the greatest extent possible.

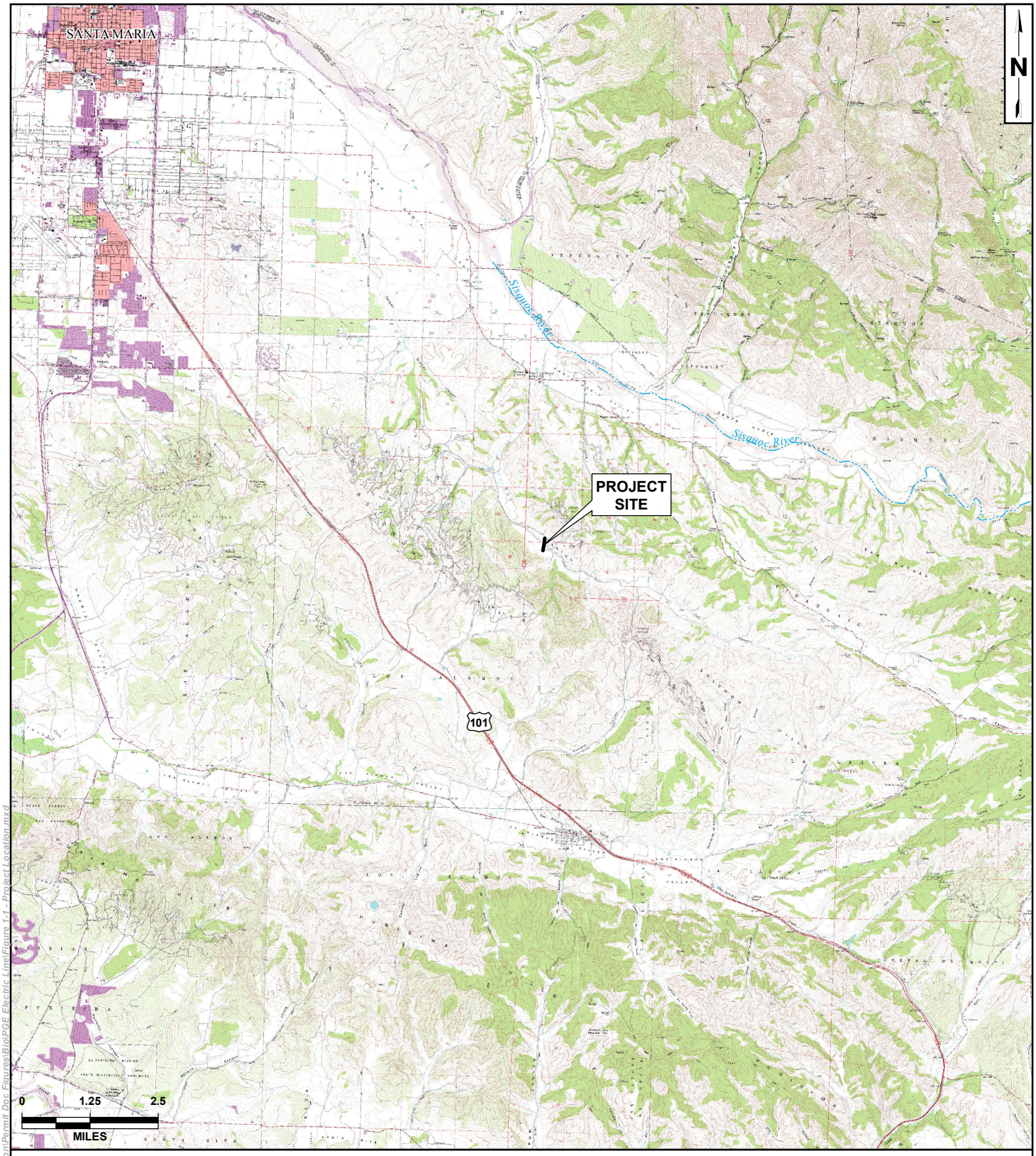
## 1.1 PROJECT DESCRIPTION

Aera is requesting approval from the Santa Barbara County Planning and Development Department (SBCPDD) of an Oil and Gas Drilling/Production Plan (ODPP) to redevelop and re-establish oil production within the Brooks formation of the East Area of the state-designated Cat Canyon Oil Field. Implementation of the ODPP will involve the re-establishment of oil production in an existing oil field by drilling and operating oil/gas production wells, steam injection wells, observation wells, brackish source water production wells, injection wells, disposal wells, and freshwater wells. In addition, there will be a steam generation operation, a central processing plant, gathering and distribution pipelines, and related ancillary equipment. The proposed electrical power transmission line will supply gas to the oil field redevelopment project, and therefore the transmission line construction is being included in the oilfield redevelopment project studies.

Aera's existing facilities are currently being served electrical power from Pacific Gas and Electric Company's distribution system via the Palmer Substation. The Project will require transmission-level service as the Project site load demand increases. The expected maximum electric load of the Project is approximately 12 megawatt.

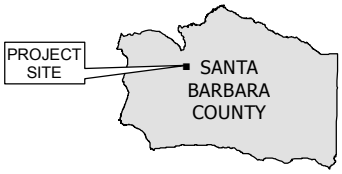
Aera has submitted an application to PG&E to interconnect a new Aera-owned substation to PG&E's electric transmission system. Electrical power is to be provided by new overhead transmission lines which will interconnect into PG&E's Santa Ynez – Sisquoc 115 kilovolt line (Figure 1-1 - Project Location). The connection will be designed, constructed, and operated by PG&E.

PAGE INTENTIONALLY BLANK




LEGEND:

Proposed Electrical Line Route




*Source: USGS Topo Quad, Santa Barbara County, TIGER*
*Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet*
*Notes: This map was created for informational and display purposed only*

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: | | | FIGURE |
|---|---|---|---|
| EAST CAT CANYON SANTA BARBARA COUNTY, CA | | PROJECT LOCATION | 1-1 |
| PROJECT NUMBER: 1002-0458 | DATE: October 2014 | | |

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Permit Doc Figures\Bio\PGE Electric Line\Figure 1-1 - Project Location.mxd

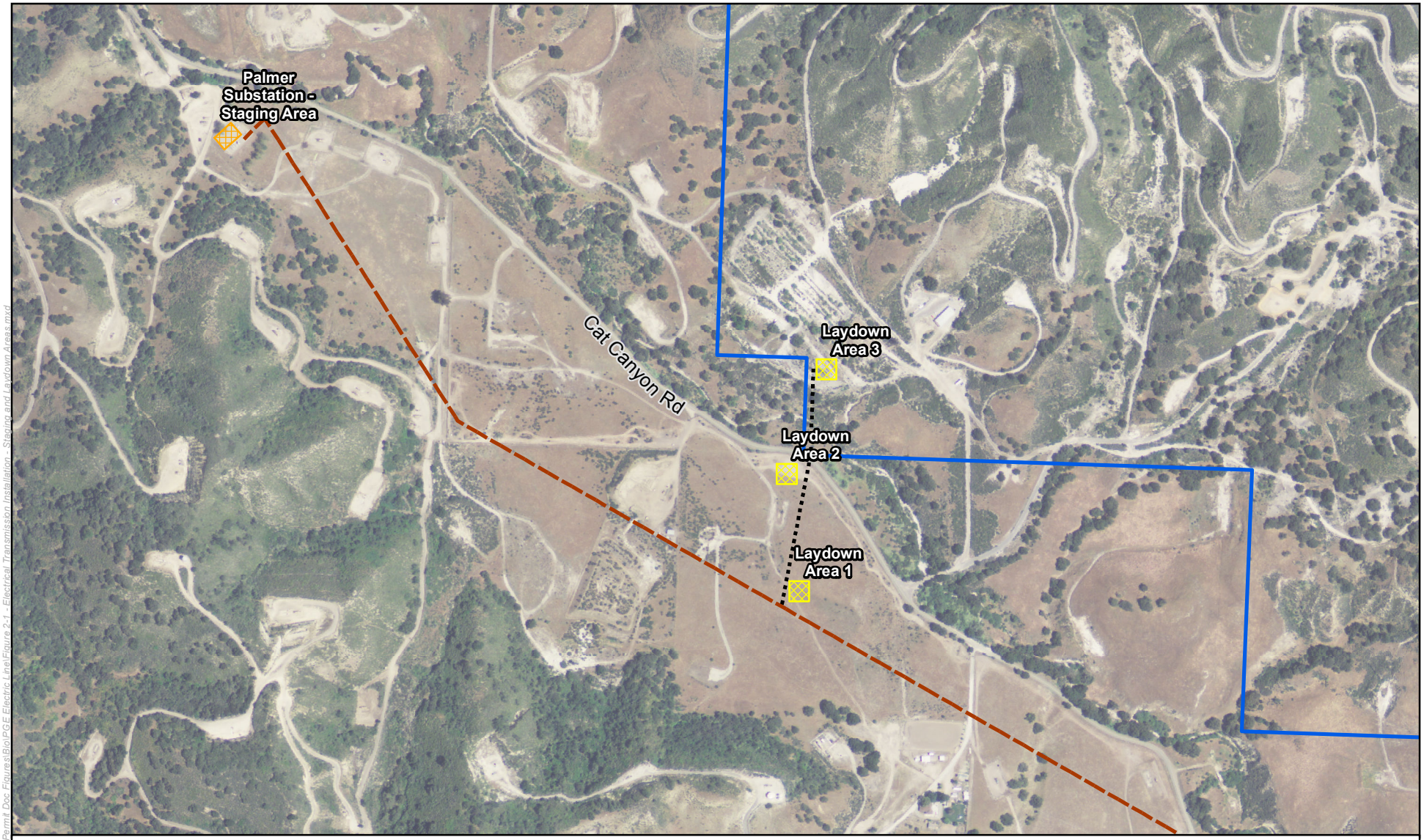
PAGE INTENTIONALLY BLANK

## 2.0 REGIONAL SETTING

The proposed transmission line is located within the Solomon Hills northeast of the Gato Ridge mountain ranges within East Cat Canyon, approximately 10 miles southeast of the communities of Santa Maria and Orcutt located in northern Santa Barbara County, California (Figure 1-1 - Project Location). The proposed transmission line will extend from an existing PG&E transmission line west of Cat Canyon Road to the Aera property through privately-owned land currently used for cattle grazing and oil and gas operations (Figure 2-1 - Electrical Transmission Installation Staging and Laydown Areas).

The regional topography is generally comprised of steeply to moderately incised canyons and drainages, moderate to steep hills, and valleys primarily reserved for oil extraction, and large residential lots grazed by livestock. The portion of Cat Canyon Creek that intersects the transmission line corridor is ephemeral and consists of dry, loose sand and rock, with sparse to moderate scrub and scattered oak woodland habitat. The transmission line alignment consists primarily of grazed grassland, and disturbed scrub habitat with sparse oak tree canopy.

PAGE INTENTIONALLY BLANK




Aera Energy LLC Property
Project Footprint
Approximate Route of Existing 115kV Line
Proposed 115kV Service Line
Proposed Laydown Area - 100'x100'
Proposed Staging Area within Existing Palmer Substation

*Source: County of Santa Barbara, NAIP 2012 Image, PGE, Aera Energy LLC, TJCross 8/20/14, DPSI 2013 Survey*
*Notes: This map was created for informational and display purposes only*

0 350 700
Feet

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: EAST CAT CANYON SANTA BARBARA COUNTY, CA

PROJECT NUMBER: 1002-0458

DATE: October 2014

ELECTRICAL TRANSMISSION INSTALLATION STAGING AND LAYDOWN AREAS

FIGURE 2-1

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Permit Doc Figures\Bio\PGE Electric Line\Figure 2-1 - Electrical Transmission Installation - Staging and Laydown Areas.mxd

PAGE INTENTIONALLY BLANK

# 3.0 REGULATORY SETTING

This section identifies and discusses the regulations and policies administered by resource agencies pertaining to those biological resources that are known to exist and/or have the potential to occur along the proposed transmission line and surrounding region.

## 3.1 FEDERAL REGULATIONS

**Endangered Species Act.** The Federal Endangered Species Act (FESA), administered by the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS), provides protection to species listed as Threatened or Endangered, and Critical Habitat designated for the protection of such species. The FESA prohibits "take" of Threatened and Endangered species except under certain circumstances and only with authorization from the USFWS through a permit under sections 4(d), 7, or 10(a) of the FESA. Under the FESA, "take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.

Critical Habitat is defined in Section 3(5)(A) of the FESA as: (1) specific areas within the geographical area occupied by the species at the time of listing, on which are found those physical or biological features that are essential to the conservation of the listed species and that may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by the species at the time of listing that are essential for the conservation of a listed species.

The FESA also provides protection to those species proposed to be listed under FESA and maintains lists of species that are neither formally listed nor proposed, but could potentially be listed in the future. These federal candidate species include taxa for which substantial information on biological vulnerability and potential threats exist, and are maintained in order to support the appropriateness of proposing to list the taxa as an Endangered or Threatened species. The USFWS also manages Birds of Conservation Concern (BCC), which include bird species of highest conservation priorities in effort to draw attention to species in need of conservation action.

**Migratory Bird Treaty Act.** The USFWS also administers the Federal Migratory Bird Treaty Act (MBTA) of 1918 (16 USC 703-711). The MBTA establishes Federal responsibilities for the protection of nearly all species of birds, their eggs, and their nests. The MBTA of 1918 implemented the 1916 Convention between the United States and Great Britain for the protection of birds migrating between the United States and Canada; implemented the 1936 Convention for the Protection of Migratory Birds and Animals between the United States and Mexico; and similar conventions between the United States and Japan (1972) and the Union of Soviet Socialist Republics (1976). Under the MBTA, it is unlawful to kill, collect, take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR 10, including feathers or other parts, nests, eggs or products, except as allowed by implementing regulations (50 CFR 21). Certain game bird species are allowed to be hunted for specific periods determined by federal and state governments.

**Clean Water Act.** The Clean Water Act (CWA) is a comprehensive piece of legislation that generally includes reference to the Federal Water Pollution Control Act of 1972, and its substantial supplementation by the CWA of 1977. Both Acts were subsequently amended in

1981, 1987, and 1993. Overall, the CWA seeks to protect the nation's water from pollution by setting water quality standards for surface water and by limiting the discharge of effluents into waters of the United States. These water quality standards are enforced by the U.S. Environmental Protection Agency (EPA).

The Army Corps of Engineers (ACOE) is responsible for the issuance of permits for the placement of dredged or fill material into waters of the United States (waters of the U.S.) pursuant to Section 404 of the Clean Water Act (33 USC 1344). As defined by the ACOE in 33 CFR 328.3(a)(3), waters of the U.S. are those that are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; tributaries and impoundments to such waters; all interstate waters including interstate wetlands; and territorial seas. In addition, federal guidance has been developed that requires careful examination and documentation of the physical location(s) and hydrologic connections among waters/wetlands. To determine federal jurisdiction, particular focus is given to (1) surface hydrologic connections between a wetland and "navigable waters in fact," (2) "adjacency" of a wetland to traditionally navigable waters, and thus (3) a "significant nexus" to interstate commerce. Waters of the U.S./wetlands features can also be determined to be under federal jurisdiction by the ACOE or EPA if a "significant nexus" can be shown between the wetland feature in question and its contribution to the maintenance or restoration of the physical, chemical, or biological integrity of downstream waters that are traditionally navigable.

In non-tidal waters, the lateral extent of ACOE jurisdiction is determined by the ordinary high water mark (OHWM), which is defined as the: "…line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" (33 CFR 328[e]).

## 3.2 STATE REGULATIONS

**Porter-Cologne Water Quality Control Act.** The Porter-Cologne Water Quality Control Act (CA Water Code §§ 13000-13999.10) mandates that waters of the state shall be protected, such that activities that may affect waters of the state shall be regulated to attain the highest quality. This Act establishes the State Water Resources Control Board (SWRCB) as the principal state agency for controlling water quality in California. The SWRCB provides regulations that mandate a "non-degradation policy" for state waters, especially those of high quality. The SWRCB is divided into local Regional Water Quality Control Boards (RWQCB).

Pursuant to Section 401 of the Clean Water Act, the ACOE cannot issue a federal permit until the State of California first issues a water quality certification to ensure that a project will comply with state water quality standards. The authority to issue water quality certifications for the following Project is vested with the Central Coast RWQCB.

**California Fish and Game Code.** The California Department of Fish and Wildlife (CDFW) administers a number of laws and programs designed to protect fish and wildlife resources. Principal of these is the California Endangered Species Act of 1984 (CESA) Fish and Game Code Section 2050 that regulates the listing and take of state Endangered and Threatened species. CDFW also maintains lists of Candidate-Endangered species and Candidate-Threatened

species. California candidate species are afforded the same level of protection as listed species. CDFW also designates Species of Special Concern that are of limited distribution, declining populations, diminishing habitat, or unusual scientific, recreational, or educational value. These species do not have the same legal protection as listed species, but may be added to official lists in the future.

The CDFW also manage a Watch List that includes "Taxa to Watch" (Shuford and Gardali, 2008), which includes: 1) species not on the current Special Concern list but were on previous lists and they have not been state listed under CESA; 2) species that were previously state or federally listed and now are on neither list; or 3) species are on the list of Fully Protected species.

CDFW administers other state laws designed to protect wildlife and plants. Section 3511 of the California Fish and Game Code designates species that are afforded Fully Protected status. Fish and Game Code Sections 4700 and 5515 assign the same status to specified mammals and fish. These statutes generally provide that specifically identified birds, mammals, and fish "or parts thereof may not be taken or possessed at any time and no provision of [the Fish and Game] code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected [bird, mammal, or fish] and no permits or licenses heretofore issued shall have any force or effect" for any such purpose. For fully protected fish and mammals, the only exception to the take prohibition is that the Fish and Game Commission may authorize the collecting of such species "for necessary scientific research" (Fish and Game Code, Sections 4700, 5515). With a proper permit, Fully Protected birds may also be captured live and relocated "for the protection of livestock" (Section 3511). Section 3503.5 protects birds-of-prey (Falconiformes and Strigiformes), their eggs, and their nests.

CDFW manages the California Native Plant Protection Act of 1977 (Fish and Game Code Section 1900, *et seq*.), which was enacted to identify, designate and, protect rare plants. The California Native Plant Society (CNPS) operates under a Memorandum of Understanding (MOU) with the CDFW and outlines broad cooperation in rare plant assessment and protection, and formalizes cooperative ventures such as data sharing and production of complementary information sources for rare plants.

Pursuant to Section 1602 of the California Fish and Game Code, CDFW requires a Lake or Streambed Alteration Agreement between CDFW and any state or local governmental agency, public utility, or private party before the initiation of any construction project that will: 1) substantially divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake; 2) substantially change or use materials from a streambed; or 3) result in the disposal or deposition of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into any river, stream, or lake. Therefore, the CDFW claims jurisdiction over the bed, bank, and channel of the drainage that may be impacted by project activities.

**California Environmental Quality Act.** Project related adverse impacts on special-status species are considered significant for California Environmental Quality Act (CEQA) purposes. Section 15065 of CEQA states that a Lead Agency shall find that a project may have a significant effect on the environment and thereby require an Environmental Impact Report (EIR) to be prepared for the project where the project has the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife

population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal.

Further, CEQA Appendix G states that a project will normally have a significant effect on the environment if it will:

> "(a) Conflict with adopted environmental plans and goals of the community where it is located;
>
> (c) Substantially affect a rare or endangered species of animal, plant or the habitat of the species;
>
> (d) Interfere substantially with the movement of any resident or migratory fish or wildlife species; and
>
> (e) Substantially diminish habitat for fish, wildlife or plants."

## 3.3 SANTA BARBARA COUNTY REGULATIONS

Requirements for the protection of biological resources in the unincorporated area of Santa Barbara County are provided within the Comprehensive Plan Conservation Element, Environmental Resource Management Element, Land Use Element, Community Plans, and the Coastal Land Use Plan. These documents identify sensitive habitats and species, and provide measures to direct project design and policies to protect biological resources. These Plans/Elements provide a framework of policies designed to protect special-status species and environmentally sensitive habitat areas (ESHA). Environmental Thresholds and Guidelines Manual, published in October of 2008 by the County, is used to assist in determining levels of impacts to sensitive areas and appropriate methods for avoidance, minimization, and/or mitigation.

Factors that are used in assessing the significance of project impacts on biological resources includes size of project; the relative disturbance to habitat occurring in Project region and immediate vicinity; type of impact; and, timing relative to the occurrence of sensitive resources that project may impact.

Santa Barbara County (2008) determines that disturbance impacts may be *Significant* based on substantial evidence in the record, if a project substantially impacts sensitive resources in the following ways:

1. Substantially reduce or eliminate species diversity or abundance;
2. Substantially reduce or eliminate quantity or quality of nesting areas;
3. Substantially limit reproductive capacity through losses of individuals or habitat;
4. Substantially fragment, eliminate, or otherwise disrupt foraging areas and/or access to food sources;
5. Substantially limit or fragment range and movement (geographic distribution or animals and/or seed dispersal routes; and
6. Substantially interfere with natural processes, such as fire or flooding, upon which the habitat depends.

Disturbance impacts may be *Less Than Significant* if the project occurs in an area "where there is little or no importance to a given habitat and it is presumed that disruption would not create a significant impact" (County, 2008).

Examples of areas where impacts to habitat are presumed to be *Insignificant* include: "small acreages of non-native grassland if wildlife values are low; individuals or stands of non-native trees if not used by important animal species such as raptors or monarch butterflies; areas of historical disturbance such as intensive agriculture; small pockets of habitats already significantly fragmented or isolated, and degraded or disturbed; and, areas of primarily ruderal species resulting from pre-existing man-made disturbance" (County, 2008).

PAGE INTENTIONALLY BLANK

# 4.0 METHODS

This biological resources assessment includes a desktop review of the region (within five miles from the proposed transmission line) and field surveys to document resources within the Biological Survey Area (BSA), which includes the area of the proposed transmission line and 500 foot buffer areas on either side of the alignment. Detailed information on the desktop review and field surveys within the BSA are further discussed below.

## 4.1 DESKTOP REVIEW

The desktop review included an assessment of the surrounding region of the BSA. The review included a query of the CDFW California Natural Diversity Database (CNDDB) to identify reported occurrences of special-status plant and wildlife species and sensitive habitats within the regional area surrounding and including the BSA. The CNDDB query included Twitchell Dam, Tepusquet Canyon, Sisquoc, Orcutt, Lompoc, Los Alamos, Zaca Creek, Foxen Canyon, and Santa Maria U. S. Geological Survey (USGS) quadrangles (CDFW, 2014). The CNDDB is a statewide database of the status and documented locations of rare, threatened, endangered, and special-status species and natural communities in California. All wildlife taxa listed in the CNDDB are considered "Special Animals," which the CDFW is interested in tracking, regardless of their legal protection status. The USFWS Critical Habitat Portal (2014) was also used to determine location of Critical Habitat for sensitive species that may potentially occur in the region.

The desktop review examined multiple sources of information including the following:

- *Initial Field Assessment for California Tiger Salamander for the Aera East Cat Canyon Oil and Gas Field*. January 22, 2007. Prepared by Mr. Vince Semonsen of VJS Biological Consulting. (VJS, 2007);
- *Habitat Assessment for California Tiger Salamander for the Aera Two-dimensional Seismic Survey Test Plan*. September 8, 2011. Prepared by Storrer Environmental. (Storrer, 2011);
- *Habitat Assessment for California Tiger Salamander for the Aera East Cat Canyon Production Plan, Santa Barbara County, California (*Storrer, 2013*)*;
- *Biological Resources Report for the Aera Energy LLC Two-dimensional Seismic Survey Project*. May 2011. Prepared by Padre Associates, Inc. (Padre, 2011a);
- *Biological Resources Survey Report for the Aera Exploratory Drilling Project, East Cat Canyon Oil Field*. May 2011. Prepared by Padre Associates, Inc. (Padre, 2011b);
- *ERG Operating Company, LLC., Los Alamos Fee "Pond E" California Red-legged Frog (Rana draytonii) Survey Results.* July 30, 2012. Letter to ERG Operating Company, LLC. Prepared by Sage Institute, Inc. (Sage, 2012); and
- *Results of Drift Net and Aquatic Surveys for California Tiger Salamanders (Ambystoma californiense) and Other Special-Status Amphibians at Five Wetlands on the ERG West Cat Canyon Lease in Northern Santa Barbara County, California.* June 14, 2012. Prepared by Paul W. Collins, Peter Gaede, and Vince Semonsen. (Collins, 2012).

An aerial imagery review of the region was conducted to identify potential sensitive resources and further analyze the surrounding habitats and potential migratory routes. This review included the incorporation of geographic information systems (GIS) layers, including topographic contours and aquatic resources documented with the National Wetland Inventory (NWI) (USFWS, 2012). This review also incorporated GIS shapefiles for California tiger salamander (CTS) ponds provided by the USFWS (last updated in July 2010). These files were released by the USFWS for purposes of planning and do not constitute a comprehensive list of all the ponds that have the potential to be CTS breeding ponds in Santa Barbara County; however, the information in the shapefiles has provided information on nearby aquatic habitats.

Aerial photographs of the region were provided by Cannon Associates. Specifically, the aerial photographs consisted of 12 digital ortho-photographs using USGS digital elevation model (DEM) data for rectification. These images were reviewed and used in the field to further assist in defining and mapping existing vegetative communities, potential sensitive plant locations/habitat, and wildlife habitats.

A review of the SBCPDD GIS data for ESHAs and other planning documents was also included in this review.

In addition, a review of site records from other environmental documents and range maps including Zeiner et al., (1998, 1990a, 1990b) and Sibley (2003) were utilized to determine what species have the potential to occur in the vicinity of the BSA.

## 4.2 FIELD SURVEYS

Following the initial desktop review, a field survey was completed within the BSA to identify existing botanical and wildlife resources. The initial survey was conducted on February 5, 2014, by Padre Biologists Thea Benson and Christina Santala. A subsequent survey was conducted on May 16, 2014.

During the field survey, Biologists walked the entire BSA while documenting all plant and wildlife species, wetlands, and other biological resources. Direct visual observations, indirect sign (e.g., tracks, scat, skeletal remains, and burrows), and auditory cues (i.e., calls and songs) were documented. Biologists focused on the identification of potential habitat for special-status species, presence/absence of special-status species, and existing conditions, including vegetation community classification and suitable habitat for plant and local wildlife species that have the potential to occur within the BSA.

All identifiable plant species were documented and presence of suitable habitat for potentially occurring special-status plants was noted. Plant specimens that were not positively identified in the field were further examined using appropriate botanical keys, including the *Jepson Manual: Vascular Plants of California, Second Edition* (Baldwin *et al*., 2012) and the *Jepson Herbarium Online Interchange California Floristics* (University of California, 2012). Vegetation/habitat types recorded during the surveys were classified based on the California Native Plant Society (CNPS) *A Manual of California Vegetation, Second Edition* (Sawyer et al., 2009) (MCVII) as appropriate. Further, the *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW, 2009) in conjunction with The Natural Communities List (CDFW, 2010) was utilized to determine presence/absence of

special-status natural communities, which are communities that are of limited distribution statewide or within a county or region and are often vulnerable to environmental effect of projects (CDFW, 2009). These communities may or may not contain special-status species. Padre utilized aerial imagery in conjunction with field surveys to identify and classify the plant communities and disturbance related areas within the BSA.

All resources occurring within the BSA were mapped either by hand directly on aerial imagery and/or using a GeoXH handheld global positioning system (GPS). All collected GPS data were downloaded into a GIS mapping program for use in graphics development.

PAGE INTENTIONALLY BLANK

# 5.0 FINDINGS

The following discussion of findings includes those biological resources that were observed within the BSA, those identified in the desktop review and identified within the region, and resources that are expected to occur and/or frequent a particular area based on the presence of suitable habitat.

## 5.1 REGIONALLY OCCURRING SENSTIVE HABITATS

Based on information retained from the desktop review, several protected habitats that support special-status plants and wildlife occur within the region and are listed as one or more of the following:

- "Critical Habitat", as defined by the FESA and afforded protection by the USFWS and/or NMFS;
- "Sensitive habitats", as defined by the CESA and afforded protection by the CDFW and/or local agencies; or
- "Rare habitats" as defined by the County of Santa Barbara, professional organizations, and/or the scientific community.

Sensitive habitats occurring within the region are illustrated in Figure 5-1 - Documented Sensitive Resources and resources documented within the BSA are illustrated in Figure 5-2 - Biological Resources Identified within Biological Survey Area. No sensitive habitats are present within the BSA.

**State and County Sensitive Habitats.** The CNDDB has documented Southern Vernal Pool approximately 3.5 miles to the southwest of the BSA, near Highway 101 (CDFW, 2014). Southern Vernal Pools are considered Natural Communities of Special Concern showing a decline in California and, as such, have a designated imperilment status ranking of S1, S2, or S3 (i.e., critically imperiled, imperiled, or vulnerable, respectively) as designated by CDFW (CDFW, 2014). The CDFW also considers valley needlegrass grassland to be a sensitive plant community based on the species composition at the Alliance and provisional Alliance level including purple needlegrass (*Stipa* [*Nasella] pulchra*), foothill needlegrass (*Stipa* [*Nasella] lepida*), and nodding needlegrass (*Stipa* [*Nasella] cernua*). Areas consisting of ten percent cover or greater of needlegrass are considered an ESHA and are protected by the County. Other ESHA's provided protection by the County include maritime chaparral and Burton Mesa. Many of these communities are not typically documented by resource professionals, which make historical documentation difficult to track. None of these sensitive habitats were observed within the BSA during field surveys.

**Southern Steelhead Critical Habitat**. Critical Habitat designated for southern steelhead *(Oncorhynchus mykiss*) includes is defined under Section 3 of the FESA as: (1) specific areas within the geographical area occupied by the species at the time of listing, on which are found those physical or biological features that are essential to the conservation of the listed species and that may require special management considerations or protection, and (2) specific areas outside the geographical area occupied by the species at the time of listing that are essential for the conservation of a listed species (NOAA, 2005). NMFS is responsible for designating Critical

Habitat for this species. The Sisquoc/Santa Maria River is designated as an evolutionary significant unit (ESU) for southern steelhead. This river does not intersect the BSA. Cat Canyon Creek transects the BSA, and is a tributary within this Sisquoc/Santa Maria watershed; however, Cat Canyon Creek has not been designated Critical Habitat for southern steelhead. No southern steelhead Critical Habitat occurs within the BSA.

**California Tiger Salamander Critical Habitat**. The BSA is located within the Santa Barbara County Distinct Population Segment (DPS) for CTS. The Santa Barbara County DPS Critical Habitat areas are separated into six metapopulation units designated by USFWS: West Santa Maria/Orcutt, East Santa Maria, West Los Alamos/Careaga, East Los Alamos, Purisima Hills, and Santa Rita Valley. Critical Habitat for the East Santa Maria and West Los Alamos/Careaga metapopulations occur within a five mile radius from the BSA (Figure 5-1 - Documented Sensitive Resources). No CTS Critical Habitat occurs within the BSA.

**California Red-Legged Frog Critical Habitat**. Critical Habitat for California red-legged frog (*Rana draytonii*) (CRLF) contains the primary elements required by CRLF, including upland and aquatic habitat features essential for the movement and breeding activities for the species, and locations in which CRLF have been documented. CRLF Critical Habitat occurs within three miles of the BSA. No CRLF Critical Habitat occurs within the BSA.

**Arroyo Toad Critical Habitat**. Critical Habitat for Arroyo toad (*Bufo californicus*) contains the primary constituent elements needed for the species' survival, including rivers or streams for all the life stages of the toads; riparian and adjacent upland areas for foraging and breeding; accessible areas between occupied habitat so that the toads can disperse; areas that flood periodically, leaving behind pools where toads breed; and, terrace habitats that provide for their life functions. Arroyo toad Critical Habitat occurs within four miles to the east of the BSA along the Sisquoc/Santa Maria River. No Arroyo toad Critical Habitat occurs within the BSA.

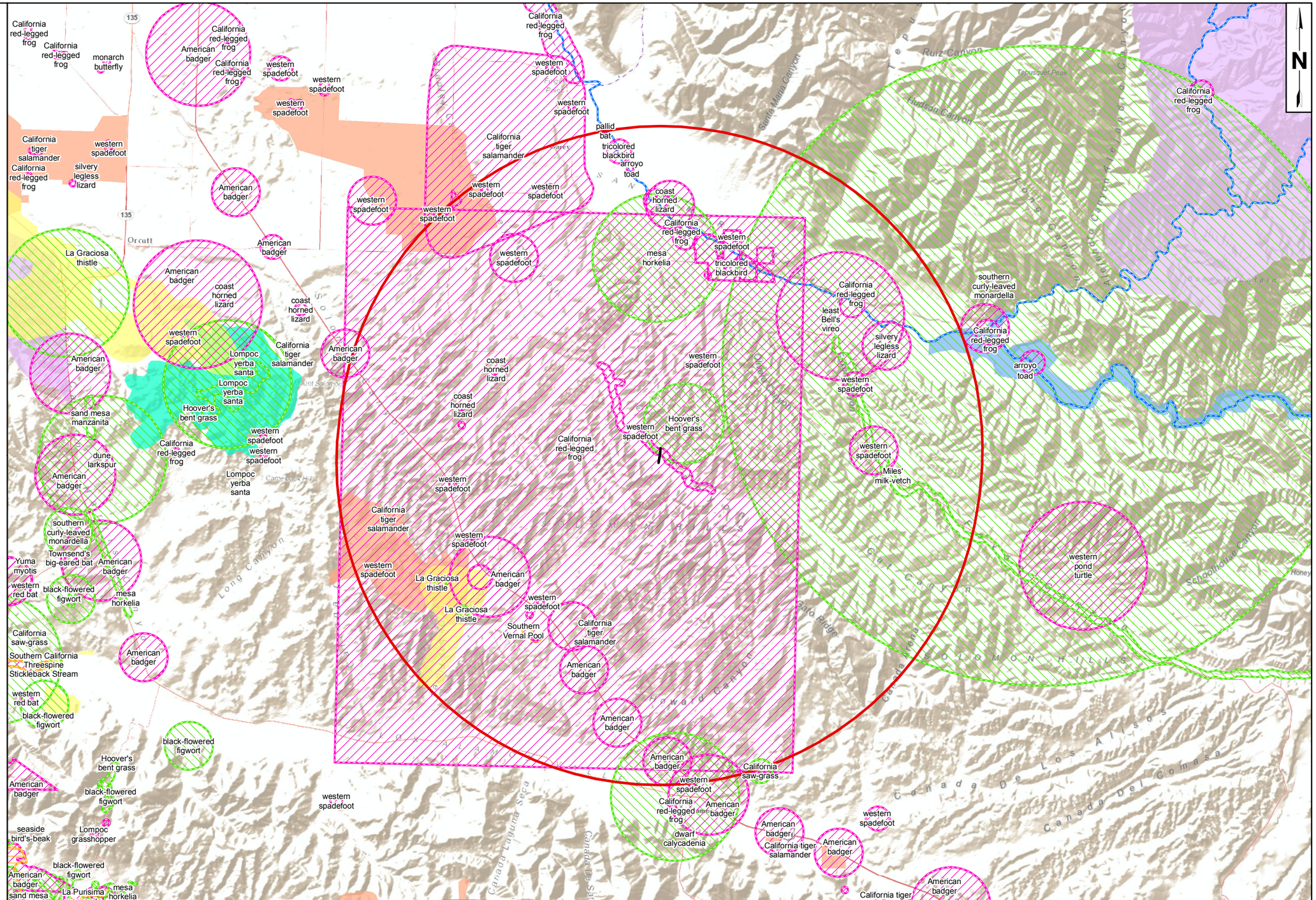
**La Graciosa Thistle Critical Habitat.** La Graciosa thistle (*Cirsium scariosum var. loncholepis*) Critical Habitat includes mesic areas associated with wetlands of the Santa Maria Valley and Santa Ynez Valley dune complexes; margins of dynamic riparian systems of the Santa Maria and Santa Ynez Rivers and Orcutt and San Antonio Creeks; and, freshwater wetlands found in grasslands, meadows, coastal scrub, chaparral, and oak woodland. Critical Habitat for La Graciosa thistle includes central dune scrub, coastal dune, coastal scrub, freshwater seep, coastal and valley freshwater marsh and fen, riparian scrub, oak woodland, and other wetland communities. La Graciosa thistle Critical Habitat elements also include soils with a sandy component, and features that allow dispersal and connectivity between populations, particularly in natural riparian drainages, and natural Aeolian geomorphology (USFWS, 2009). Critical Habitat for La Graciosa thistle occurs in five units in Santa Barbara County. No La Graciosa thistle Critical Habitat occurs within the BSA; however, the Cañada de Las Flores Critical Habitat Unit (Unit No. 3) occurs approximately three miles west from the BSA (Figure 5-1 - Documented Sensitive Resources).

LEGEND:

- Proposed Electrical Line Route
- 5-mile Buffer of Project Area
- La Graciosa thistle Critical Habitat
- Lompoc yerba santa Critical Habitat
- CRLF Critical Habitat
- CTS Critical Habitat
- Arroyo toad Critical Habitat
- Southern California Steelhead Critical Habitat

**CNDDB Occurence**

- Community
- Plant
- Animal




0 0.75 1.5
MILES

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: EAST CAT CANYON SANTA BARBARA COUNTY, CA

PROJECT NUMBER: 1002-0458

DATE: October 2014

# DOCUMENTED SENSITIVE RESOURCES

FIGURE 5-1

*Source: CNDDB 1/2014, USFWS Critical Habitat, ESRI Online Basemap*
*Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet*
*Notes: This map was created for informational and display purposes only*

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Permit Doc Figures\BirdPDF Electric Line\Figure 5-1_Documented Sensitive Resources.mxd

PAGE INTENTIONALLY BLANK

**Lompoc Yerba Santa Critical Habitat**. Lompoc yerba santa (*Eriodictyon capitatum*) Critical Habitat includes soils with a large component of sand and that tend to be acidic; and plant communities that support associated species, including maritime chaparral and southern bishop pine forests that intergrade with chaparral (USFWS, 2002). Critical Habitat for Lompoc yerba santa occurs in two units in western Santa Barbara County: Santa Ynez Mountains Unit and Solomon Hills Unit. No Lompoc yerba santa Critical Habitat occurs within the BSA; however, the Solomon Hills Critical Habitat Unit occurs approximately five miles west from the BSA.

**Gaviota Tarplant Critical Habitat**. Gaviota tarplant (*Deinandra increscens* ssp*. villosa*) Critical Habitat includes grasslands and open areas of coastal sage scrub generally consisting of sandy soils associated with marine terraces and uplifted marine sediments, and are highly localized in western Santa Barbara County (USFWS, 2002). Critical habitat for Gaviota tarplant occurs in three units in western Santa Barbara County: Sudden Peak Unit, Santa Ynez Mountains Unit, and Conception-Gaviota Unit. No Gaviota tarplant Critical Habitat occurs within the BSA. Sudden Peak Unit is the nearest Gaviota tarplant Critical Habitat Unit at approximately 20 miles southwest from the BSA.

## 5.2 AQUATIC FEATURES

Cat Canyon Creek intersects the BSA in a southeastern to a northwestern direction. Cat Canyon Creek is a U.S. Geological Survey (USGS) designated “blue-line” stream providing a significant nexus to the Sisquoc River, thus provided protection with the ACOE, CDFW, and RWQCB. Cat Canyon Creek is ephemeral and remains dry for the majority of the year except during and immediately following rainfall. The creek does not provide a perennial water source for aquatic wildlife, including fish, that rely on a continual water source for survival and/or breeding. After seasonal rains, the creek may hold water long enough to provide suitable breeding habitat for some amphibious species or aquatic invertebrates that rely on ephemeral water sources that do not support fish or other larger predators to complete their lifecycles. Cat Canyon Creek drains into the nearby ephemeral Sisquoc River, which is an important migratory corridor for a wide range of wildlife. Cat Canyon Creek also provides a continuous canopy for cover, shelter, and movements of wildlife throughout the region; however, within the BSA, this canopy is intermittent with oak trees and lacks riparian vegetation. Additionally, within the BSA the creek channel has been heavily impacted as a result of past oil field activities and cattle grazing. No other aquatic features were identified within the BSA during field surveys.

## 5.3 VEGETATION TYPES OCCURRING WITHIN THE BSA

Based on species composition, life form, and community membership rules, the vegetation identified within the BSA can be classified into distinct communities (i.e., alliances, associations) as described in Sawyer, *et al*., 2009. Refer to Appendix A for photographs taken within the BSA and Appendix B for a list of plants observed within the BSA during field surveys. Vegetation types identified within the BSA are illustrated in Figure 5-2 - Biological Resources Identified within Biological Survey Area and described in detail below.

**Annual Brome Grassland**. Annual brome grasslands (*Bromus diandrus, hordeaceus – Brachypodium* Semi-Natural Herbaceous Stands) occur in all topographic settings in foothills, waste places, rangelands, and openings in woodlands, characterized by ripgut brome (*B.*

*diandrus*), soft chess (*B. hordeaceus)*, or false brome (*Brachypodium distachyon*) as dominant or co-dominant with native and non-native component species in the herbaceous layer; cover is intermittent to continuous (Sawyer et al., 2009). Annual brome grassland occurs primarily along the southern portion of the BSA, and is scattered throughout the northern portion. Based on field surveys, annual brome grassland is principally composed of non-native annual grass species dominated by rigput grass with co-dominant to component species including slender wild oat (*Avena barbata*), soft chess, red brome (*Bromus madritensis*), storksbill (*Erodium botrys*), red-stemmed filaree (*Erodium cicutarium*), and Italian ryegrass (*Festuca perennis*).

**Coyote Brush Scrub**. Coyote brush scrub (*Baccharis pilularis* Shrubland Alliance) occurs in river mouths, stream sides, terraces, stabilized dunes of coastal bars, spits along the coastline, coastal bluffs, open slopes, and ridges, characterized by coyote brush as dominant to co-dominant in the shrub canopy; canopy is variable (Sawyer et al., 2009). Based on field surveys, coyote brush scrub is scattered throughout the BSA, occurring primarily within the northern portions of the BSA, and is comprised of native and non-native shrubs, forbs and grasses, dominated by coyote brush, with component species including California sagebrush (*Artemisia californica*), black sage (*Salvia mellifera*), deerweed (*Acmispon glabra [Lotus scoparius]*), ripgut grass, red brome (*Bromus madritensis*), horseweed (*Erigeron canadensis*), telegraph weed (*Heterotheca grandiflora*), black mustard (*Brassica nigra*), and intermittent coast live oak (*Quercus agrifolia*) at several locations. The coyote brush scrub within the Project Site along the northernmost portion of the BSA is relatively disturbed as a result of past and current land use practices (grazing and oil field activities) and consists primarily of coyote brush, telegraph weed, and scattered pepper tree (*Schinus molle*) and California walnut (*Juglans californica*) (Figure 5-2 - Biological Resources Identified within Biological Survey Area).

**Coast Live Oak Woodland** Coast live oak woodland (*Quercus agrifolia* Woodland Alliance) occurs on alluvial terraces, canyon bottoms, stream banks, slopes, flats, with soils that are deep, and among sandy or loamy soils with high organic matter, characterized by coast live oak as dominant or co-dominant in the tree canopy; canopy is open to continuous (Sawyer et al., 2009). Coast live oak woodland is particularly important for its ability to support a wide variety of wildlife species due to its high value as foraging habitat and protective cover (e.g., acorn production, forest canopy, etc.). Coast live oak woodland is recognized by the CDFW as a valuable habitat that should be protected and considered to be an ESHA by Santa Barbara County. Coast live oak woodland occurs in small stands (i.e., less than one-acre) primarily within the northern portions of the BSA, adjacent to Cat Canyon Creek. Within the BSA, coast live oak woodlands are dominated by coast live oak with component species of coyote brush, arroyo willow, Italian thistle, ripgut grass, slender wild oat, Italian ryegrass, woodmint (*Stachys bullata*), poison oak, and California hummingbird sage (*Salvia spathacea*).

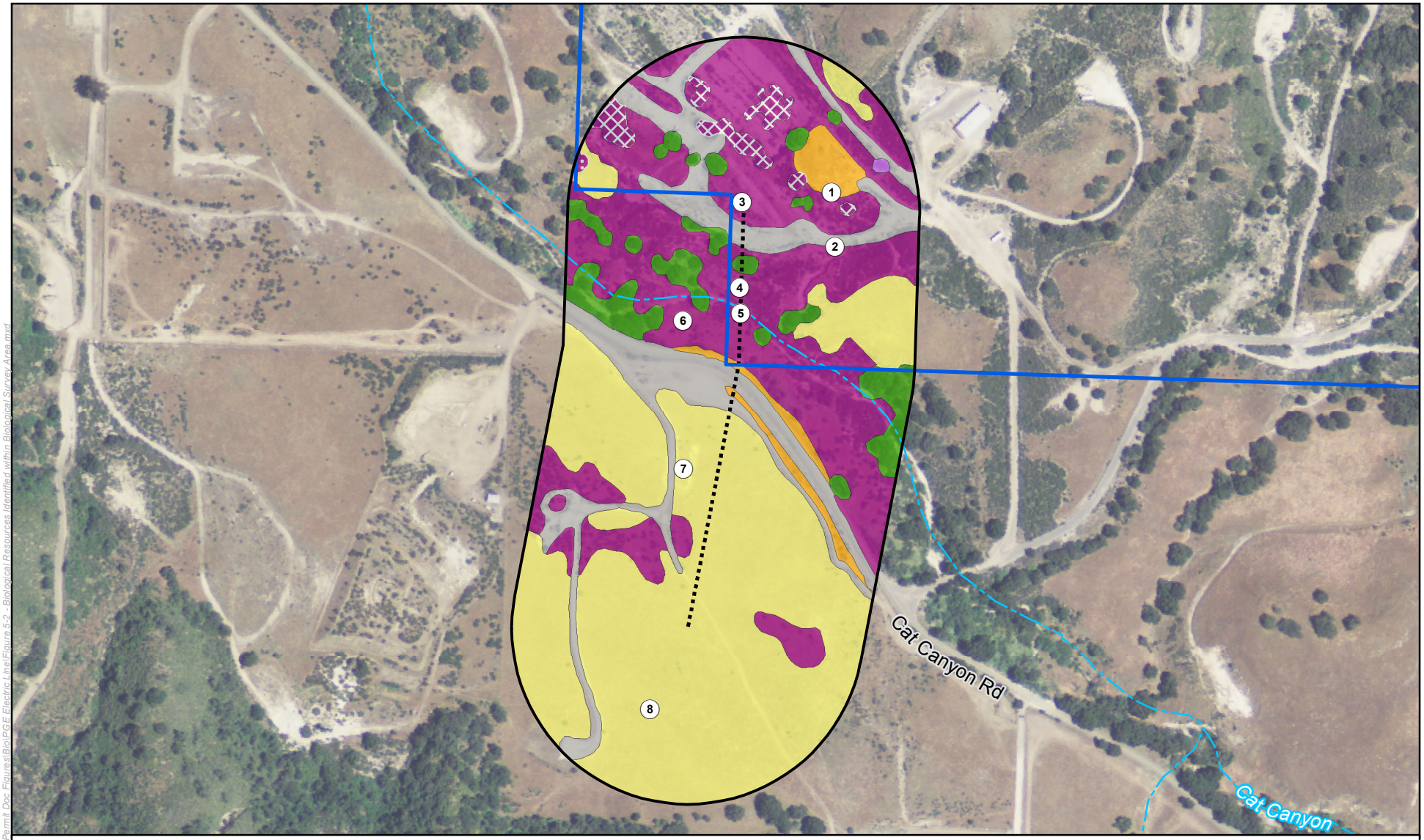



Photo Location
Proposed 115kV Service Line
Hydrological Feature
Aera Energy LLC Property
Biological Survey Area

**Vegetation Type**

Annual Brome Grasslands
Coast Live Oak Woodland
Coyote Brush Scrub
Developed
Blue Gum Tree (*Eucalyptus globulus*)
Ruderal
Coyte Brush Scrub and California Walnut (*Juglans californica*)
Coyte Brush Scrub and Peppertree (*Schinus molle*)

*Source: County of Santa Barbara, NAIP 2012, PGE, Aera Energy LLC 1 1-20-13 drawing, DPSI 2013 Survey*
*Notes: This map was created for informational and display purposes only*

0 200 400
Feet

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: EAST CAT CANYON SANTA BARBARA COUNTY, CA

PROJECT NUMBER: 1002-0458

DATE: October 2014

# BIOLOGICAL RESOURCES IDENTIFIED WITHIN BIOLOGICAL SURVEY AREA

FIGURE 5-2

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Permit Doc Figures\Bio\PGE Electric Line\Figure 5-2 - Biological Resources Identified within Biological Survey Area.mxd

PAGE INTENTIONALLY BLANK

**Ruderal**. Ruderal is a term used to describe those areas that have been significantly altered by past land use practices that may have allowed for establishment of vegetation typically consisting of disturbance-related plant species. These disturbed areas that are not paved may support minimal vegetative cover, depending on current land use of the area. Ruderal areas may occur on unpaved road shoulders, abandoned parking lots. Overall, the BSA has extensive disturbance from agricultural practices, oil field, and is currently grazed by cattle and horses. Plant cover within the ruderal roadside areas within the BSA range from bare ground to minimally vegetated land consisting almost entirely of non-native, annual grasses and forb species tolerant of disturbance including, but not limited to, ripgut grass, soft chess, black mustard (*Brassica nigra*), cheeseweed (*Malva parviflora*), wild radish (*Raphanus sativus*), common sowthistle (*Sonchus oleraceous*), telegraph weed, redstem filaree, tree tobacco (*Nicotiana glauca*), bur-clover (*Medicago polymorpha*), and storksbill. Plant cover within the ruderal areas within the northern portion of the BSA consists primarily of bare ground and coyote brush.

**Developed**. Developed land is a term that describes areas where soil has been modified and converted to buildings, parking lots, and paved roads. Developed lands typically do not support any vegetative cover due to the presence of impervious surfaces. Within the BSA, the majority of the developed land consists of paved roads, parking lots and structures associated with oil field operations. Land that has been developed and does not provide any plant components is illustrated as Developed in Figure 5-2 - Biological Resources Identified within Biological Survey Area.

## 5.4 SPECIAL-STATUS PLANT SPECIES

Special-status plant species are either listed as Endangered or Threatened under FESA or CESA, considered rare under the California Native Plant Protection Act (CNPS), or considered rare (but not legally listed) by resources agencies, professional organizations, and the scientific community. For the purposes of this Report, special-status plant species are defined in Table 5-1 - Definitions of Special-Status Plant Species.

**Table 5-1. Definitions of Special-Status Plant Species**

| Regulatory Protection Provided for Special-Status Plant Species |
|---|
| • Plants listed or proposed for listing as Threatened or Endangered under the Federal Endangered Species Act (50 CFR 17.12 for listed plants and various notices in the Federal Register for proposed species).<br>• Plants that are candidates for possible future listing as Threatened or Endangered under the Federal Endangered Species Act (Federal Register Vol. 67, No. 114, pp.40657-4067, June 13, 2002).<br>• Plants that meet the definitions of Rare or Endangered species under the CEQA (State CEQA Guidelines, Section 15380).<br>• Plants considered by the CNPS to be "Rare, Threatened, or Endangered" in California (Ranks 1B and 2 in CNPS, 2013).<br>• Plants listed by CNPS as plants about which we need more information and plants of limited distribution (Ranks 3 and 4 in CNPS, 2013).<br>• Plants listed or proposed for listing by the State of California as Threatened or Endangered under the California Endangered Species Act (14 CCR 670.5).<br>• Plants listed under the California Native Plant Protection Act (California Fish and Game Code 1900 et seq.).<br>• Plants considered sensitive by other federal agencies (i.e., U.S. Forest Service, Bureau of Land Management), state and local agencies or jurisdictions.<br>• Plants considered sensitive or unique by the scientific community or occurring at the limits of their natural range (State CEQA Guidelines). |

The desktop review and field survey results conducted for this assessment indicate that several special-status plant species have been documented within the Project region (within five miles from the BSA) (Figure 5-1 - Documented Sensitive Resources), and the BSA may provide suitable habitat for potentially occurring special-status species. Table 5-2 - Special-Status Plant Species of the Project Region lists these species, their current status, habitat description, nearest known occurrence, as well as the potential for occurrence within the BSA.

**Table 5-2. Special-Status Plant Species of the Project Region**

| **Plant Species** *Arranged alphabetically by scientific name* | **Regulatory Protection Status** | **Habitat Description** *As described by CDFW, 2013 and CNPS, 2013* | **Nearest Documented Occurrence** | **BSA** | | | |
|---|---|---|---|---|---|---|---|
| | | | | Habitat Present | Occurrence ≤ Five Miles | Observed | Potential for Occurrence |
| *Agrostis hooveri* Hoover's bent grass | Rank 1B.2 | Dry sandy soils within closed-cone coniferous forest, chaparral, cismontane woodland, valley and foothill grassland. | Cat Canyon in the Solomon Hills near Santa Maria; approximately 0.5 miles from the BSA (CDFW, 2014). | X | X | | X |
| *Astragalus didymocarpus* var. *milesianus* Miles' milk-vetch | Rank 1B.2 | Coastal scrub (clay). | Foxen Canyon, approximately 3.3 miles east of the BSA (CDFW, 2014). | X | X | | X |
| *Calycadenia villosa* Dwarf calycadenia | Rank 1B.1 | Chaparral, cismontane woodland, valley and foothill grassland, meadows and seeps. | Los Alamos, approximately 4.3 miles south of the BSA (CDFW, 2014). | X | X | | X |
| *Chorizanthe rectispina* Straight-awned spineflower | Rank 1B.3 | Chaparral, cismontane woodland, coastal scrub. | East of Lompoc-Casmalia Road 0.4 miles SE of Casmalia, Vandenberg AFB, approximately 13.7 miles west of the BSA (CDFW, 2014). Observed by Padre within the East Cat Canyon Oil Field, within one mile of the BSA during April 2013 surveys. | X[1] | X | | |
| *Cladium californicum* California sawgrass | Rank 2.2 | Meadows and seeps, marshes and swamps. | Open marsh on Price Road, NE of Los Alamos, approximately 4.9 miles SE of the BSA (CDFW, 2014). | | X | | |
| *Horkelia cuneata* var. *puberula* Mesa horkelia | Rank 1B.1 | Chaparral, cismontane woodland, coastal scrub. | In the vicinity of Sisquoc, approximately 2.0 miles N of the BSA (CDFW, 2014). | X | X | | X |

Notes:

Although coastal scrub habitat is present within the BSA, suitable ecological conditions consisting of bare, rocky/granite areas are absent; therefore, this species is not expected to occur within the BSA.

Status Codes:

Rank 1B Plants Rare, Threatened, or Endangered in California and Elsewhere (CNPS)
- 0.1 Seriously Endangered in California
- 0.2 Fairly Endangered in California
- 0.3 Not very Endangered in California

Rank 2 Plants rare, Rare, Threatened, or Endangered in California, but More Common Elsewhere (CNPS)
Rank 4 Plants of Limited Distribution – A Watch List (CNPS)

Field surveys were completed during blooming periods for all special-status plants occurring within the region. The initial field survey was completed in February 2014, and a follow up survey was completed in May 2014 to capture the remaining blooming periods. No special-status species were observed during field surveys. Table 5-3 – Blooming Period for Special Status Plants, illustrates the blooming periods for special-status species listed above. Additionally, the presence/absence of plants associated with the habitats occurring in the BSA may vary from year to year based on environmental conditions. Variations in plant abundance and presence/absence from year to year can be a result of a species' resistance to stresses such as annual fluctuations in precipitation, fire, non-native and/or invasive species, human disturbance, agricultural operations, and/or seed banks that can stay dormant for several years.

**Table 5-3. Blooming Period for Special-Status Plants**

| | Blooming Period (month) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Plant Species (common name)** | **Jan** | ***Feb*** | **Mar** | **Apr** | ***May*** | **Jun** | **Jul** | **Aug** | **Sep** | **Oct** | **Nov** | **Dec** |
| Hoover's bent grass | | | | | | | | | | | | |
| Miles' milk-vetch | | | | | | | | | | | | |
| Dwarf calycadenia | | | | | | | | | | | | |
| Straight-awned spineflower | | | | | | | | | | | | |
| California sawgrass | | | | | | | | | | | | |
| Mesa horkelia | | | | | | | | | | | | |

Sources: Blooming period information was provided by Baldwin et al., 2012 and CNPS, 2013.

The following descriptions briefly discuss biological information and ecological requirements for those species with the greatest potential to occur, based on presence of suitable habitat and/or documented occurrences within five miles from the BSA.

**Hoover's bent grass.** No Hoover's bent grass was observed within the BSA; however, Hoover's bent grass has been documented approximately 0.5 miles from the BSA in the Solomon Hills near Santa Maria. The grassland habitats within the BSA may provide marginal suitable conditions for Hoover's bent grass due to the historic and current grazing activities. Implementation of recommended avoidance and minimization measures will reduce impacts to potentially occurring Hoover's bent grass to less than significant.

**Miles' milk-vetch.** No Miles' milk-vetch was observed within the BSA; however, Miles' milk-vetch has been documented approximately 0.5 miles from the BSA and suitable habitat may occur in the coyote brush scrub within the northern portions of the BSA. Implementation of recommended avoidance and minimization measures will reduce impacts to potentially occurring Miles' milk-vetch to less than significant.

**Dwarf calycadenia.** No dwarf calycadenia was observed within the BSA; however, has been documented approximately 4.3 miles from the BSA. The grassland habitats within the BSA may provide marginal suitable conditions for dwarf calycadenia due to the historic and current grazing activities. Implementation of recommended avoidance and minimization measures will reduce impacts to potentially occurring dwarf calycadenia to less than significant.

**Mesa horkelia.** No mesa horkelia was observed within the BSA; however, mesa horkelia has been documented approximately 2.0 miles from the BSA and suitable habitat may occur in scrub and woodland habitats within the northern portions of the BSA. Implementation of recommended avoidance and minimization measures will reduce impacts to potentially occurring mesa horkelia to less than significant.

## 5.5 WILDLIFE OCCURRING WITHIN THE BSA

Faunal species observed within the BSA include those seen or detected by track, scat, skeletal remains, burrows, and/or vocalization during the field surveys conducted within the BSA. Complications in the quantitative assessment of terrestrial vertebrate and invertebrate populations may have influenced observations made during field surveys. These complications include:

- Many species may occur in the area only for short periods during migrations;
- Many species of amphibians and reptiles become inactive during one or more seasons;
- Seasonal or annual fluctuations in climate or weather patterns may confound observations; and
- No focused protocol-level surveys, mist-netting, trapping, tracking surveys, aquatic dip-net surveys or nocturnal surveys were completed during field surveys by Padre Biologists.

A compilation of wildlife species observed within the BSA during the field surveys, wildlife that have been previously documented by other sources identified in the desktop review, and species that have the potential to utilize the BSA based on suitable habitat and other environmental conditions is provided in Appendix C and further discussed below.

**Invertebrates**. A wide variety of invertebrates are expected to occur in the BSA, including ground beetles (Order Coleoptera) and burrowing bugs (*Aethus* sp.), spiders (Order Araneida), millipedes (Class Diplopoda), butterflies (Order Lepidoptera), dragonflies (Order Odonata), and bees, wasps, and ants (Order Hymenoptera). Potato bug (*Stenopelmatus* sp.) remains were discovered within the BSA; however, they were not collected and/or further identified to the species level. The presence of aquatic branchiopods is dependent on the availability of water in ephemeral pools that may form during the rainy season (typically from December through April). Aquatic surveys were not completed during field survey efforts.

**Fish**. Cat Canyon Creek within the BSA does not support fish due to their ephemeral nature and lack of suitable spawning habitat for anadromous fish.

**Amphibians**. Due to the ephemeral nature of surface water within Cat Canyon Creek, amphibians dependent upon the long-term availability of surface water and/or surface water that will remain for long enough duration to support breeding cycles are not likely to occur within the BSA. Scattered oak woodland habitat found within and to the north of Cat Canyon Creek (Figure 5-2 - Biological Resources Identified within Biological Survey Area) may provide shade, moist logs, and dense leaf litter that holds sufficient moisture throughout the year for terrestrial amphibians, such as, ensantina (*Ensatina eschscholtzii*), black-bellied slender salamander (*Batrachoseps nigriventris*), and arboreal salamander (*Aneides lugubris*). During the rainy season, these amphibians become more active, but do not require pools of water for survival or

reproduction. No aquatic surveys or protocol-level amphibian surveys were completed during field surveys. No amphibians were observed within the BSA during the February 2014 and May 2014 field surveys.

**Reptiles**. Reptile species expected to occur within the BSA based on the presence of suitable habitat include, but are not limited to, western rattlesnake (*Crotalus veridus*), California kingsnake (*Lampropeltis getulus*), gopher snake (*Pitophis catenifer*), valley garter snake (*Thamnophis sirtalis fitchi*), striped racer (*Maticophis lateralis*), and ring-neck snake (*Diadophis punctatus*). No reptiles were observed within the BSA during the February 2014 and May 2014 field surveys.

**Avifauna.** Birds that were observed in the BSA during the field surveys include, but are not limited to, western scrub jay (*Aphelocoma californica*), Anna's hummingbird (*Calypte anna*), killdeer (*Charadrius vociferus*), wrentit (*Chamaea fasciata*), bushtit (*Psaltriparus minimus*), and red-tailed hawk (*Buteo jamaicensis*). These birds are likely to utilize surrounding habitats for breeding activities during the spring and summer months. Habitats occurring within the BSA, including scrub, open grassland, and woodland areas, are suitable to support migratory and residential foraging and breeding activities for a wide range of bird species.

**Mammals.** Mammals observed directly and/or through indirect signs during the field survey include, but are not limited to, Botta's pocket gopher (*Thomomys bottae*) (burrow sign, skeletal remains), American badger (*Taxidea taxus*) (burrow signs), coyote (*Canis latrans*) (scat, tracks), black-tailed jackrabbit (*Lepus californicus*), mule deer (*Odocoileus hemionus*), wild pig (*Sus scrofa*), and domestic horse (*Equus caballus*). Other common mammal species expected to occur within the BSA based on the presence of suitable habitat and the Cat Canyon Creek migratory corridor included gray fox (*Urocyon cinereoargenteus*), striped skunk (*Mephitis mephitis*), and raccoon (*Procyon lotor*).

**Migratory Corridors.** Wildlife migration corridors are generally defined as connections between habitat patches that allow for physical and genetic exchange between otherwise isolated animal populations. Migration corridors may be local, such as those between foraging and nesting/denning areas, or they may be regional in nature. Migration corridors are not unidirectional access routes; however, reference is usually made to source and receiver areas in discussions of wildlife movement networks. "Habitat linkages" are migration corridors that contain contiguous strips of native vegetation between source and receiver areas. These natural linkages provide cover and forage sufficient for temporary inhabitation by a variety of ground-dwelling animal species. Wildlife migration corridors are essential to the regional fitness of an area as they provide avenues of genetic exchange and allow animals to access alternative territories as fluctuating dispersal pressures dictate. Cat Canyon Creek does provide a significant wildlife corridor within the region, specifically due to its position in the lower canyon that provides cover throughout most of its length.

## 5.6 SPECIAL-STATUS WILDLIFE SPECIES

Special-status wildlife species are either listed as Endangered or Threatened under FESA or CESA, considered rare by resources agencies, professional organizations, and the scientific community. For the purposes of this Report, special-status wildlife species are defined in Table 5-4 - Definitions of Special-Status Wildlife Species.

### Table 5-4. Definitions of Special-Status Wildlife Species

| Regulatory Protection Provided for Special-Status Wildlife Species |
|---|
| • Animals listed or proposed for listing as Threatened or Endangered under the Federal Endangered Species Act (50 CFR 17.11 for listed animals and various notices in the Federal Register for proposed species).<br>• Animals that are candidates for possible future listing as Threatened or Endangered under the Federal Endangered Species Act (Federal Register Vol. 70, No. 90, pp. 24869-24934, May 11, 2005).<br>• Animals that meet the definitions of rare or endangered species under the CEQA (*State CEQA Guidelines*, Section 15380)<br>• Animal Species of Special Concern to the CDFW (CDFW, 2011).<br>• Animals listed or proposed for listing by the State of California as Threatened and Endangered under the California Endangered Species Act (14 CCR 670.5).<br>• Animal species that are fully protected in California (California Fish and Game Code, Section 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians]).<br>• Animal species protected under the Marine Mammal Protection Act (as amended in 1994).<br>• Birds of Conservation Concern. Migratory and nonmigratory bird species (beyond those already designated as federally Threatened or Endangered) that represent the USFWS highest conservation priorities in effort to draw attention to species in need of conservation action (USFWS, 2008).<br>• Birds on the CDFW Watch List include "Taxa to Watch" (Shuford and Gardali, 2008) 1) not on the current Special Concern list but were on previous lists and they have not been state listed under CESA; 2) were previously state or federally listed and now are on neither list; or 3) are on the list of "Fully Protected" species.<br>• The Western Bat Working Group is comprised of agencies, organizations and individuals interested in bat research, management and conservation from the 13 western states and provinces. Species designated as "High Priority" are imperiled or are at high risk of imperilment based on available information on distribution, status, ecology and known threats.<br>• The CNDDB ranking element codes are part of the "Heritage Methodology" for special animals in which the CDFW is interested in tracking, regardless of their legal protection status. It is a shorthand formula that provides information about the status of a taxon, both throughout its entire range and within California. |

Table 5-5 – Special-Status Wildlife Species of the Project Region lists special-status wildlife that have been documented within the region (within five miles from the BSA) and/or may occur within the region based on presence of potentially occurring suitable habitat observed within the BSA during field surveys. Figure 5-1 - Documented Sensitive Resources illustrates occurrences of special-status wildlife documented within the region.

## Table 5-5. Special-Status Wildlife Species of the Project Region

| Common Name *Scientific Name* | Regulatory Protection Status | General Habitat Description | Nearest Documented Occurrence | BSA | | | |
|---|---|---|---|---|---|---|---|
| | | | | Habitat Present | Occurrence < five miles | Observed | Potential for Occurrence |
| **Invertebrates** | | | | | | | |
| Lompoc grasshopper *Trimerotropis occulens* | GH/SH | Known only in San Luis Obispo and Santa Barbara counties. Limited information available. | Lompoc in 1938 (CDFW, 2014). | | X | | |
| Vernal pool fairy shrimp *Branchinecta lynchi* | FT | Vernal pools, swales, and ephemeral depressions where pooling occurs during rainy season as long as the pool persist for longer than 40-days. | Sargent Fee (Padre, 2010), within 5.0 miles from BSA. | | X | | |
| **Fish** | | | | | | | |
| Southern Steelhead *Oncorhynchus mykiss irideus* | FE, CSC | Warmer waters and more variable conditions from Santa Maria river into San Diego County. | USFWS Critical Habitat occurs along the Sisquoc River, approximately 3.0 miles from BSA. | | X | | |
| **Reptiles** | | | | | | | |
| Blainville's horned lizard *Phrynosoma blainvillii* | CSC | Wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. | Observed by Padre during spring 2013 surveys in the Cat Canyon Oil Field. | X | X | | X |
| Coast patch-nosed snake *Salvadora hexalepis virgultea* | CSC | Brushy or shrubby vegetation in Southern California. Require small mammal burrows for refuge and overwintering sites. | Avena Rd., 2.2 miles NE of La Purisima Mission State Historical Park, greater than five miles from BSA, (CDFW, 2014). | X | | | X |
| California legless lizard *Anniella pulchra* | CSC | Sandy or loose loamy soils, under sparse vegetation. Soil moisture is essential. | One-mile east of Foxen Canyon Road, along the south side of Sisquoc River, approximately 3.5 miles northeast from BSA (CDFW, 2014). | X | X | | X |
| Southwestern pond turtle *Actinemys marmorata pallida* | CSC | Permanent or nearly permanent bodies of water in many habitat types (<6000 feet elevation). | North side of Hwy 176 near the Sisquoc River, approximately 2.8 miles northeast from the BSA (CDFW, 2014). | | X | | |
| **Amphibians** | | | | | | | |
| Arroyo toad *Anaxyrus californicus* | FE, CSC | Rivers with sandy banks, willows, cottonwoods, and sycamores; loose, gravely areas of streams in drier parts of range. | Sisquoc River, approximately 4.4 miles north from BSA (CDFW, 2014). | | X | | |

## Table 5-5. Special-Status Wildlife Species of the Project Region

| Common Name *Scientific Name* | Regulatory Protection Status | General Habitat Description | Nearest Documented Occurrence | BSA | | | |
|---|---|---|---|---|---|---|---|
| | | | | Habitat Present | Occurrence < five miles | Observed | Potential for Occurrence |
| California tiger salamander *Ambystoma californiense* | FT, CSC | Need underground refuges, especially ground squirrel burrows and vernal pools or other seasonal water sources for breeding. | One-mile south of the intersection of Highway 101 and Palmer Road, approximately 2.8 miles southwest from BSA (CDFW, 2014). | X | X | | X |
| California red-legged frog *Rana draytonii* | FT, CSC | Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. | Sage Institute, Inc. (2012) documented a CRLF in a small stock pond (pond "E") south of the Aera property, within five miles of the BSA, during a CRLF eye-shine survey in June of 2011. | X | X | | X |
| Western spadefoot *Spea hammondii* | CSC | Grassland habitats, valley-foothill hardwood woodlands. Vernal pools are essential for egg laying and breeding. | Along Cat Canyon Road (Sage, 2012, and CDFW, 2014), within 1.0 mile from BSA. | X | X | | X |
| **Birds** | | | | | | | |
| Tricolored blackbird *Agelaius tricolor* | CSC, MBTA | Requires open water and protected nesting substrate and foraging area with insect prey. | Cat Canyon Road by Padre Biologists on previous site visits in 2012. | X | X | | X |
| Burrowing owl *Athene cunicularia* | CSC, MBTA | Open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. | Northwest of junction of Betteravia Road and Mahoney Road, greater than 5.0 miles from BSA (CDFW, 2014). | X | | | X |
| Yellow warbler *Dendroica petechia* | CSC, M | Riparian plant association, prefers willows, cottonwoods, aspens, sycamores and alders for nesting and foraging. | Sisquoc River, approximately 2.7 miles northeast from BSA (CDFW, 2014). | X | X | | X |
| Southern California rufous-crowned sparrow *Aimophila ruficeps canescens* | M, WL | Coastal scrub. | Observed during Padre April 2013 field surveys within the Cat Canyon Oil Field. | X | X | | X |
| California horned lark *Eremophila alpestris actia* | MBTA, WL | Grasslands with low-lying vegetation. | Observed during Padre April 2013 field surveys within Cat Canyon Oil Field. | X | X | | X |
| Loggerhead shrike *Lanius ludovicianus* | CSC, BCC, M | Open pastures and prairies with scattered bushes, hedgerows and trees. | Observed during Padre April 2013 field surveys within Cat Canyon Oil Field. | X | X | | X |

## Table 5-5. Special-Status Wildlife Species of the Project Region

| **Common Name** ***Scientific Name*** | **Regulatory Protection Status** | **General Habitat Description** | **Nearest Documented Occurrence** | **BSA** | | | |
|---|---|---|---|---|---|---|---|
| | | | | Habitat Present | Occurrence < five miles | Observed | Potential for Occurrence |
| Oak titmouse *Baeolophus inornatus* | M, BCC | Oak woodland | Observed within the BSA during field surveys. | X | X | X | X |
| Golden eagle *Aquila chrysaetos* | FP, MBTA, WL, BCC | Open grasslands, foothills, prairies, open forests. | Observed by Padre within Cat Canyon Oil Field during previous field visits. | X | X | | X |
| Least Bell's vireo *Vireo belii pusillus* | FE, SE, MBTA | Low riparian in vicinity of water or in dry river bottoms, below 2000 ft. | Sisquoc River in Foxen Canyon, approximately 3.3 miles northeast from BSA. (CDFW, 2014). | | X | | |
| **Mammals** | | | | | | | |
| Pallid bat *Antrozous pallidus* | CSC | Deserts, grasslands, shrublands, woodlands, and forests, open dry habitats with rocky outcrops for roosting | Cat Canyon Oil Fields, approximately 1.0 mile from BSA. | X | X | | X |
| Western red bat *Lasiurus blossevillii* | CSC | Prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging. | Vandenberg Air Force Base, approximately 13.7 miles west of the BSA (CDFW, 2014). | X | | | X |
| Hoary bat *Lasiurus cinereus* | CSC | Open habitats or open mosaics, with access to trees for cover and open areas or habitat edges for feeding. Requires water. | Vandenberg Air Force Base, approximately 13.7 miles west of the BSA (CDFW, 2014). | X | | | X |
| Townsend's big-eared bat *Corynorhinus townsendii* | CSC | Roosts in the open, hanging from walls, ceilings. Roosting sites extremely sensitive to human disturbance. | Vandenberg Air Force Base, approximately 13.7 miles west of the BSA (CDFW, 2014). | X | | | X |
| Yuma myotis *Myotis yumanesis* | CSC | Distribution is closely tied to bodies of water. Maternity colonies in caves, mines, buildings or crevices. | Vandenberg Air Force Base, approximately 13.7 miles west of the BSA (CDFW, 2014). | X | | | X |
| American badger *Taxidea taxus* | CSC | Shrub, forest, and herbaceous habitats, with friable soils. | Badger burrows observed within BSA during field survey, and individuals observed during 2013 field surveys within Cat Canyon Oil Field. | X | X | X | X |

**Table 5-5. Special-Status Wildlife Species of the Project Region**

| Common Name *Scientific Name* | Regulatory Protection Status | General Habitat Description | Nearest Documented Occurrence | BSA | | | |
|---|---|---|---|---|---|---|---|
| | | | | Habitat Present | Occurrence < five miles | Observed | Potential for Occurrence |

**Status Codes**

| | | | |
|---|---|---|---|
| BCC | Bird of Conservation Concern (USFWS) | FP | Fully Protected (CDFW) |
| CSC | California Species of Special Concern (CDFW) | MBTA | Migratory Bird Treaty Act (USFWS) |
| CNDDB | Conservation Status Element Ranks (CDFW) | SE | State Endangered (CDFW) |
| FE | Federal Endangered (USFWS/NMFS) | ST | State Threatened (CDFW) |
| FT | Federal Threatened (USFWS/NMFS) | WL | Watch List (CDFW) |

| | |
|---|---|
| G1/S1 | Global/State Rank, less than 6 viable element occurrences (EOs) OR less than 1,000 individuals OR less than 2,000 acres. Critically Imperiled– At very high risk of extinction or elimination due to extreme rarity, very steep declines, or other factors. |
| G2/S2 | Global/State Rank, 6-20 EOs OR 1,000-3,000 individuals OR 2,000-10,000 acres. Imperiled – At high risk of extinction or elimination due to very restricted range, very few populations or occurrences, steep declines, or other factors. |
| G3/S3 | Global/State Rank, 21-80 EOs or 3,000-10,000 individuals OR 10,000-50,000. Vulnerable – At moderate risk of extinction or elimination due to a restricted range, relatively few populations or occurrences, recent and widespread declines, or other factors. |
| G4/S4 | Global/State Rank. Apparently secure - this rank is clearly lower than S3 but factors exist to cause some concern; i.e. there is some threat, or somewhat narrow habitat |
| S5/G5 | Global/State Rank. Common, widespread, and abundant. Population or stand demonstrably secure to ineradicable due to being commonly found in the world |
| SH/GH | Global/State Rank. Possibly Extinct – Known from only historical occurrences but still some hope of rediscovery. |

Based on the desktop review and field survey conducted within the BSA, the BSA may provide suitable habitat to support several special-status wildlife species. The following discussion provides an overview of the general habitat requirements for these species and further detail on the potential for each of these wildlife species to occur in the BSA.

### 5.6.1 Invertebrates

No special-status invertebrates are expected to occur within the BSA due to absence of available suitable habitat observed during field surveys.

### 5.6.2 Fish

**Southern steelhead.** Steelhead are an anadromous form of rainbow trout that reproduce in freshwater, but spend much of their life cycle in the ocean, where increased prey density provides a greater growth rate and size. Steelhead have been divided into 15 ESUs based on similarity in life history, location, and genetic markers. The southern California ESU includes all naturally spawned populations of steelhead (and their progeny) in streams from the Santa Maria River to the San Mateo Creek in San Diego County.

No steelhead streams designated by the NMFS/USFWS occur within the BSA; however, Cat Canyon Creek is a tributary to Sisquoc River, designated southern steelhead Critical Habitat. Drainages that occur within the BSA are highly ephemeral and do not provide suitable hydroperiods to support the steelhead life cycles. Implementation of recommended avoidance

and minimization measures will reduce impacts to stream channels and downstream steelhead habitat to less than significant.

### 5.6.3 Reptiles

**Blainville's horned lizard.** Blainville's horned lizard inhabit open areas of sandy soil and low vegetation in valleys and foothills throughout northern California to Baja California. This species is found in grasslands, coniferous forests, woodlands, and chaparral, with open areas and patches of loose soil, including sandy washes and along dirt roads.

Blainville's horned lizard have been documented throughout the Project Site during previous field visits. No Blainville's horned lizards were observed during the February 2014 and May 2014 field surveys of the BSA; however, the sandy habitats along roadsides and other areas throughout the BSA may provide suitable habitat. Implementation of recommended avoidance and minimization measures will reduce impacts to Blainville's horned lizard to less than significant.

**Coast patch-nose snake.** Coast patch-nosed snake occurs in California from the northern Carrizo Plains in San Luis Obispo County, south through the coastal zone, south and west of the deserts, into coastal northern Baja California. It inhabits semi-arid brushy areas and chaparral in canyons, rocky hillsides, and plains. This snake is considered uncommon along the southern coast area due to land changes from heavy grazing, development and loss of former habitat, though it's natural history and abundance have not been extensively studied.

Coast patch-nose snake was not identified within the BSA during surveys; however, suitable scrub habitat occurs within the BSA. Implementation of recommended avoidance and minimization measures will reduce impacts to potentially occurring coast patch-nose snake to less than significant.

**California legless lizard.** California legless lizard occurs in moist, warm, and loose soil found in sparsely vegetated areas of beach dunes, chaparral, sandy washes, and stream terraces with oaks and is often found under surface objects such as rocks, boards and logs (Stebbins, 2003). The range for this species extends along the coast from southern Santa Barbara County, San Luis Obispo County and Monterey County and scattered locations in the San Joaquin Valley, and along the southern Sierra Nevada Mountains.

The nearest documented occurrence of California legless lizard is within five miles from the BSA within the Sisquoc Ranch (CDFW, 2014). California legless lizard have not been identified within the BSA; however, suitable sandy habitat to support this species occurs within the BSA along Cat Canyon Creek. Implementation of recommended avoidance and minimization measures will reduce impacts to California legless lizard to less than significant.

### 5.6.4 Amphibians

Special-status amphibian species that have been documented within five miles from the BSA include: Arroyo toad, western spadefoot toad, California tiger salamander (CTS), and California red-legged frog (CRLF). All of these species include both aquatic and terrestrial components in their life cycles, each requiring different hydroperiod (period in which a soil area is waterlogged) for egg laying and metamorphose into their adult stage. Determining presence/absence is difficult due to the species limited movements and limited pool availability in

dry years. The USFWS has created survey protocols to assist surveyors in determining presence/absence by focusing on specific natural history for each species. No protocol-level surveys were completed as part of this assessment; however, protocol-level surveys from Sage Institute, Inc., 2012 and Collins et al., 2012 for CRLF and CTS provide important information regarding presence/absence of special-status species occurring within the vicinity of the BSA, as discussed below.

**Arroyo toad.** Arroyo toad occupy habitats consisting of shallow pools and open sand and gravel flood terraces of streams that flood on a regular basis (USFWS, 2011). Breeding pools for this species must persist for a minimum of two-months for the completion of larval developments (USFWS, 2011). Designated USFWS Arroyo toad Critical Habitat is present along the Sisquoc River, within approximately five miles east of the BSA. Critical Habitat for Arroyo toad includes: 1) rivers or streams for all the life stages of the toads; 2) riparian and adjacent upland areas for foraging and breeding, and accessible areas between occupied habitat so that the toads can disperse; and 3) areas that flood periodically, leaving behind pools where toads breed, and terrace habitats that provide for their life functions. There have been two documented occurrences within five miles from the BSA, within the Sisquoc River (CDFW, 2014).

The portion of Cat Canyon Creek occurring within the BSA does not support suitable habitat conditions of regular flooding, or pools with a suitable hydroperiod to support Arroyo toad development. No protocol-level surveys were completed for Arroyo toad as part of this assessment. Project activities are not expected to include any activities in stream channels with the potential to support this species. Additionally, implementation of recommended avoidance and minimization measures will reduce impacts to less than significant.

**California red-legged frog (CRLF).** CRLF is generally found along marshes, streams, ponds, and other permanent sources of water where dense scrubby vegetation such as willows, cattails, and bulrushes dominate. Breeding sites occur along watercourses with pools that remain long enough for breeding and the development of larvae. Breeding time occurs between November and April, depending on locality (Stebbins, 1985; Storer, 1925). Permanent or nearly permanent pools are required for larval development, which takes 11 to 20 weeks (Storer, 1925; Calef, 1973).

Several documented occurrences of CRLF occur within five miles from the BSA; specifically, within the Sisquoc River, as well as within man-made ponds adjacent to the river (CDFW, 2014). There are no designated Critical Habitat areas for the CRLF within five miles from the BSA; however, species with designated Critical Habitat are ultimately protected if occurring outside designated Critical Habitat. No CRLFs were observed during field surveys; however, no optic scope surveys of burrows or aquatic dip net surveys were completed. Suitable CRLF habitat may occur within portions of Cat Canyon Creek during years of significant rainfall that result in hydroperiods sufficient to support larval development and suitable upland grassland habitat is present within the southern portions of the BSA; therefore, there remains some potential for CRLF to occur within the BSA. Project activities are not expected to include any activities in stream channels with the potential to support this species. Additionally, implementation of recommended avoidance and minimization measures will reduce impacts to less than significant.

**California tiger salamander (CTS).** The Santa Barbara County CTS population is federally listed as Endangered and recently listed with the State of California as Threatened.

Adults breed in ponds between November and March after migrating from upland habitats during the first big rain within November/December. Females lay eggs in ephemeral pools and within three to four months the larvae metamorph and then migrate upland from May through August. The young CTS remain strictly terrestrial for three to four years remaining in small mammal burrows, then migrate to aquatic habitats to breed. CTS move through terrestrial habitats during the night and rarely come to the surface to feed during non-migration periods. The aquatic habitats include agricultural stock ponds, vernal pools, and ditches. Breeding ponds must be non-permanent and water must persist in these pools at least into May (preferably into July or August) to allow more time for metamorphosis. Upland habitat includes grasslands, edge of oak savannas, sometimes chaparral and shrublands (in coastal areas) and may or may not be grazed by cattle. CTS regularly use California ground squirrel (*Otospermophilus beecheyi*) and Botta's pocket gopher burrows and other man-made structures (Shaffer et al., 1993, Barry and Shaffer, 1994) in upland habitats.

The East Santa Maria, West Los Alamos/Careaga, and East Los Alamos metapopulations units occur within a five mile radius from the BSA, with the West Los Alamos/Careaga unit being closest at approximately three miles west from the BSA, west of Highway 101 (Figure 2-1 - Electrical Transmission Installation Staging and Laydown Areas). The nearest documented CTS breeding pools are located approximately 2.8 miles to the southwest from the BSA near the intersection of Palmer Road and Highway 101 (CDFW, 2014). CTS habitat assessments were completed by Mr. Vince Semenson in 2007 and Storrer Environmental in 2011 within the vicinity of the Project Site. These assessments resulted that upland habitat within the Project Site is not suitable for CTS (VJS, 2007; Storrer, 2011). Drift net surveys completed by Collins, etal., 2012 were completed in properties to the west of the Project Site, within five miles of the BSA, resulted in negative findings.

The BSA does not contain any aquatic pools that support suitable hydroperiod which could be used by breeding CTS; however, upland grassland habitat within the BSA may provide suitable non-breeding habitat. Implementation of recommended avoidance and minimization measures will reduce impacts to any potential upland habitat which may occur within the BSA to less than significant.

**Western spadefoot toad.** Western spadefoot toad is not seen during most of the year, as it resides in burrows up to nine months with infrequent nocturnal sojourns. The species is typically associated with sandy, friable soils that inundate temporarily with water, similar to the stream channels occurring throughout the BSA. They emerge during spring rains and breed in temporary pools from January to May. Oviposition (egg laying) will not occur until water temperatures reach a minimum of 48°F, usually between late February and late May (Jennings and Hayes, 1994). Eggs hatch within three to four days and tadpoles will transform within 4- to 11 weeks, depending on food availability and the duration of the pool. Spadefoot require temporary breeding pools that must last for at least 30 days or larvae will not survive. Suitable habitat occurs within drainage features that are capable of providing pooled areas that hold water at least 30-days following a rain event.

This species has been identified within the Cat Canyon valley (CDFW, 2014) and documented by Sage Institute (2012) during CRLF surveys in ponds within five miles from the BSA. This species can be difficult to detect due to their mostly terrestrial lifecycle except for years

that they emerge for breeding, which may not occur every year, dependent on rainfall and available aquatic habitats. Project activities are not expected to include any activities in wetlands with the potential to support breeding habitat for this species; however, upland habitat may occur throughout the BSA. Implementation of recommended avoidance and minimization measures will reduce impacts to any potential upland habitat within the BSA to less than significant.

### 5.6.5 Birds

**Tricolored blackbird.** The tricolored blackbird is a colonial nesting species breeding from mid-March through early August (Beedy and Hamilton, 1999). They nest at colony sites near freshwater marshes (Neff, 1937) in canopies of willows (*Salix* spp.) and other riparian trees, requiring open areas accessible to water, a protected nesting substrate within flooded areas or thorny or spiny vegetation, and a suitable foraging space providing adequate insect prey near the colony (Beedy and Hamilton, 1999). Wintering tricolored blackbirds congregate in flocks with mixed-species of blackbirds that forage in grasslands and agricultural fields with low-growing vegetation and at dairies and feedlots (Shuford et al., 2008). Preferred foraging habitats include agriculture fields (e.g., rice, alfalfa, oats, and wheat). Degradation of habitat from human activities, such as converting grassland and pastures to vineyards or developed lots, is the greatest threat to the sustainability of this species (Beedy and Hamilton, 1999).

Tricolored blackbirds have been observed along Cat Canyon Road along ephemeral Cat Canyon Creek, within five miles of the BSA and may utilize the grassland habitats within the BSA for foraging. Implementation of recommended avoidance and minimization measures will reduce impacts to less than significant.

**Burrowing owl.** Burrowing owls are year-round residents in annual and perennial grasslands or other vegetation communities that support little to no tree or shrub cover. In California, the species is typically found in close association with California ground squirrels, which create burrows that are used by burrowing owls for year-round shelter and seasonal nesting habitat. They may also utilize badger, coyote and fox dens, or holes (Ronan, 2002), as well as human-made structures such as culverts, corrugated metal pipes, debris piles, or openings beneath pavement as shelter and nesting habitat (CDFW, 1995). Typical burrowing owl breeding season in California is from March to August, but can begin as early as February and extend into December (Rosenberg and Haley, 2004).

Burrowing owls were not observed within the BSA; however, suitable habitat does occur within the southern portions of the BSA. No protocol-level surveys were completed as part of this assessment. Implementation of recommended avoidance and minimization measures will reduce impacts to potentially occurring burrowing owl to less than significant.

**Yellow Warbler.** Yellow warbler generally occupy riparian vegetation in close proximity to water (Lowther et al., 1999), and is a common nesting species in riparian habitats in San Luis Obispo and Santa Barbara counties. Breeding season begins in mid-March and the potential for this species to occur within riparian habitats as a migratory stop-over, for nesting, or for foraging is expected. It is expected that yellow warbler will occur within the BSA, however, implementation of recommended avoidance and minimization measures will reduce impacts to potentially occurring yellow warbler to less than significant.

**Southern California rufous-crowned sparrow.** Southern California rufous-crowned sparrow is a resident of southwest California on the slopes of the Transverse and Coastal ranges from northern Santa Barbara and Ventura Counties south to Baja California. The CNDDB does not document this bird in the region; however, it was identified by Padre Biologists during the April 2013 field survey within the Cat Canyon Oil Field among hillsides consisting of sage scrub, specifically along Foxen Canyon Road. This sparrow nests on the ground, often wedged in hollows among rocks or under clumps of grass, low bushes, or shrubs on open brush or grass-covered rocky hillsides from mid-March through mid-July (Cogswell, 1968; Wolf, 1977; Harrison, 1978; Shuford, 1993; and Rising, 1996). It appears to prefer coastal sage scrub dominated by California sagebrush (Grinnell and Miller, 1944), but they can also be found breeding in coastal bluff scrub, low-growing serpentine chaparral, and along the edges of tall chaparral habitats (Thorngate and Parsons, 2005).

Southern California rufous-crowned sparrow was not observed within the BSA during the February 2014 and May 2014 field surveys: however, this species was observed in scrub habitats within the Project Site during field surveys in 2012 and is expected to occur in scrub habitats within the BSA. Implementation of recommended avoidance and minimization measures will reduce impacts to less than significant.

**California horned lark.** California horned lark are included within the CDFW Watch List as a species not on the current Special Concern list but were on previous lists; therefore, are considered a taxa to watch and conservation of the habitat for this species should be considered. Horned lark commonly occur in grasslands and other open habitats with low, sparse vegetation, often flocking together in small groups. It nests is low lying vegetation during the spring months.

Horned lark was observed by Padre Biologists during field surveys within the adjacent Project Site and potential suitable habitat occurs throughout the grassland and previously disturbed areas within the BSA. Implementation of recommended avoidance and minimization measures will reduce impacts to less than significant.

**Loggerhead shrike.** Loggerhead shrike is a USFWS Bird of Conservation Concern and CDFW Species of Special Concern and is a common species within the Project vicinity. This species generally occurs in a variety of open grassland, oak savannah, shrubland, and other similar habitats where it feeds on arthropods, reptiles, amphibians, small rodents, and birds (Craig, 1978). Loggerhead shrikes nest from March to June with young becoming independent during July or August. Nests are generally well-concealed in dense foliage, on stable branches of a shrub or tree.

Loggerhead shrike was not observed within the BSA during field surveys; however, this species has been documented by Padre Biologists in the adjacent Project Site during April 2013 field surveys. Implementation of recommended avoidance and minimization measures will reduce impacts to less than significant.

**Oak titmouse.** Oak titmouse are a USFWS Bird Species of Concern and conservation of the habitat for this species should be considered. Oak titmouse occur in oak woodland and mixed riparian habitats and occur year-round throughout California. They nest in natural cavities in tree trunks in mid-March. Oak titmouse was identified in the oak woodland habitats throughout the

BSA during field surveys. Implementation of recommended avoidance and minimization measures will reduce impacts to less than significant.

**Birds of Prey.** Red-tailed hawk, American kestrel (*Falco sparverius*), Cooper's hawk, (*Accipiter cooperii*), merlin (*Falco columbarius*), golden eagle, and turkey vulture (*Cathartes aura*) are wide ranging birds-of-prey that could use the BSA for the purposes of foraging during migration and/or movement through the region. Birds of prey may also utilize the region for nest sites, which are protected by federal and/or state agencies. Use of the BSA by these species is expected to be temporary in nature throughout the region; however, there is also a potential for these raptors to use the BSA for nesting. Implementation of recommended avoidance and minimization measures will reduce impacts to less than significant.

**Other Protected Birds.** A number of bird species potentially occurring within the BSA are protected during their nesting period under the provisions of the federal MBTA. The MBTA restricts the killing, taking, collecting, and selling or purchasing of native bird species or their parts, nests, or eggs. During the field surveys within the BSA, several bird species protected by the MBTA were observed. Refer to Appendix C for a complete list of birds observed during the field surveys within the BSA and other protected bird species expected to utilize the area. Implementation of recommended avoidance and minimization measures will reduce impacts to less than significant.

### 5.6.6 Mammals

**Bats.** Special-status bat species that have a distribution that includes the Project region include Townsend's bat, pallid bat, hoary bat, western red bat, and Yuma myotis. Maternal colonies for most bats occur between April and August. Most bat species will migrate from maternal roosts to wintering sites and some bats will migrate out of the area to warmer climates during the winter months. Bats will often occupy abandoned structures, caves, abandoned mines, and/or trees for roosting sites and will forage in a variety of habitats. Each bat species require specific habitat features for roosting and foraging sites.

Padre Biologists and Central Coast Bat Research Group completed a bat survey in the western extent of Cat Canyon on June 19, 2008. Numerous bats were observed and/or detected as part of this survey effort via Anabat acoustic detectors including several species in the *Myotis* genus, California myotis (*Myotis californicus*), Mexican free-tailed bat (*Tadarida brasiliensis*), and the special-status pallid bat (*Antrozous pallidus*). No bats or sign of bat (i.e., guano) were observed during field surveys; however, no specific bat surveys were completed as part of this assessment. It is expected that several bat species utilize the BSA for foraging; however, maternal roost colonies were not observed during field surveys, nor, expected to occur within the BSA. Implementation of recommended avoidance and minimization measures will reduce impacts to less than significant.

**American badger.** American badger typically inhabits grasslands, farmland, and forest edges within friable soils (CDFW, 1986). Badgers dig elliptical burrows with 8 to 12-inch openings, which they utilize for cover, sleeping, hunting, caching food and breeding (CDFW, 1986). They breed in the months of July and August (National Audubon Society, 1996). Badgers do not hibernate; however, they will occupy their burrows during torpor during the coldest part of the winter, remaining in the burrow for several days per week. This species typically preys on small

burrowing mammals, such as ground squirrels, rats, and mice, and will also feed on birds, snakes and other reptiles. Badgers are nocturnal; however, they are well known to be active during the day as well. Badgers typically have a large home range varying from 590- to 4,200-acres, in which they will utilize for foraging, denning, and breeding.

Badger activity was identified within grassland communities throughout the BSA during the February 2014 and May 2014 field surveys. Implementation of recommended avoidance and minimization measures will reduce impacts to less than significant.

PAGE INTENTIONALLY BLANK

# 6.0 IMPACT SUMMARY

The following impact discussion incorporates FESA, CESA, and Santa Barbara County biological resource policies for determining the level of effect on biological resources as a result of the proposed installation of an electrical transmission line that will deliver power from existing PG&E lines near Cat Canyon Road to the Project Site.

The proposed transmission line has been designed to avoid pole installation and vehicle/equipment use in stream channels when the channel contains water or dry, wetland resources, and associated riparian habitats, to the greatest extent feasible. The Project has also been designed to avoid impacts to oak trees and no oak trees will be removed as part of Project activities. No grading or other vegetation removal activities will be conducted as part of the transmission line construction activities. Construction activities may result in short-term temporary disturbances to existing communities, specifically during pole installation and vehicle use that may result in dust and temporary ground disturbance.

No special-status plants or sensitive plant communities were identified within the BSA during field surveys and are not expected to occur prior to Project start. In the event a special-status plant is identified during recommended pre-activity surveys, the species will be avoided to the greatest extent possible; however, if the species cannot be avoided appropriate relocation methods may be implemented per a relocation and monitoring plan approved by the appropriate regulatory agencies. Relocation of a species will result in direct impacts, however, these impacts will be reduced to less than significant in the event the plants are monitored and survive following relocation.

Direct mortality of some wildlife could occur during construction as a result of increased vehicular and foot traffic, use of heavy equipment, and other Project activities. Specifically, reptiles and amphibians that spend much of their life cycles underground may be inadvertently crushed by equipment. There is also potential for impacts related to fugitive dust, exposure to hazardous substances accidentally released by vehicles or other equipment, sedimentation into Cat Canyon Creek, or the colonization of non-native, invasive plant species.

A wide variety of birds are expected to occur within the work areas during construction, utilizing the area for foraging and nesting. Foraging birds are expected to leave the immediate vicinity of the work areas during construction activities into adjacent habitats. Birds that may be nesting within the work areas may be adversely affected by construction activities; however, these impacts will be reduced to less than significant with the incorporation of the avoidance and minimization measures listed in Section 7.0, such as pre-activity nesting bird surveys and incorporating buffers from nest locations.

Minimal ground disturbance is expected to occur as a result of the installation of the transmission line support poles. Wildlife that utilize burrows for all or portions of their lifecycle may be impacted by use of heavy equipment (crushing of burrows) and/or during installation of transmission line support poles. With the incorporation of avoidance and minimization measures, including pre-activity surveys, these impacts will be reduced to less than significant.

A portion of the Cat Canyon Creek corridor found within the BSA is likely utilized by several types of wildlife moving through the region. In addition, many amphibian species in the region

depend on undeveloped open space and grassland habitats, such as those found within the BSA, to migrate between established water sources throughout the region. The proposed transmission line, being suspended above-ground, is not expected to impede movement of wildlife.

Raptors are susceptible to electrocution by power lines following project activities; however, this Report does not include impact discussion regarding impacts to biological resources, such as raptors, following the installation of power poles/lines. Additional impact analysis and specific avoidance and minimization measures will be assesses by PG&E and their representative biological evaluation team.

## 7.0 RECOMMENDED AVOIDANCE AND MINIMIZATION MEASURES

The proposed installation of the electrical transmission line has incorporated many avoidance and minimization measures into the Project design, including, restricting activities to avoid rainy nights, pre-activity surveys completed by a qualified biologist, and placement of the alignment to avoid riparian corridors and wetland resources. The alignment, however, is surrounded by large sections of relatively undisturbed habitats suitable to support a wide variety of species including special-status species. Therefore, it is recommended that the following additional measures be implemented during proposed Project activities to further reduce potential impacts to sensitive biological resources to a less than significant level.

1. The use of heavy equipment and vehicles will be limited to the proposed work areas, existing roadways, and defined laydown areas, staging areas, and access points. At no time will staging or stockpiling of equipment or materials occur in the Cat Canyon Creek channel.
2. Work areas, including equipment staging and laydown areas, will be pre-designated on plans prior to the start of work.
3. In the event Project activities are scheduled during the nesting bird season, between March 15 and September 15, a nesting bird survey will be completed by a qualified Biologist with experience in bird identification and nest searching. No active nests of native bird species protected by the Migratory Bird Treaty Act (MBTA) will be removed by Project activities and appropriate buffers will be incorporated into the Project plan to ensure the protection of the nest. Buffers will be delineated by a qualified biologist based on an appropriate distance to minimize disturbance to the active nest.
4. Project activities will be completed during the daylight hours, to the greatest extent possible. Project activities will avoid rainy nights, when California tiger salamanders (CTS) are most active. A qualified biologist will complete a pre-activity survey prior to work that follows a rainy night, to ensure no CTS are present within the work areas. Training will be provided to the crew and crew supervisors to recognize, report, and avoid CTS. A biologist will be on-site or on-call during all construction activities to respond to questions or incidents. In the event a CTS is observed in the work area, the work will cease and the U.S. Fish and Wildlife Service (USFWS) will be immediately contacted for further direction.
5. An Environmental Sensitivity Orientation will be prepared and presented to all on-site personnel at the beginning of the initial work activities. The orientation will discuss sensitive species with potential to occur in the work areas, with emphasis on special-status wildlife and plant species. The orientation will explain the importance of minimizing disturbance, adhering to all permit conditions, and proper reporting of observations or incidents. The orientation will be repeated if additional personnel are added to the Project.
6. At no time will oak trees be removed as part of Project activities. Further, a certified arborist will be retained to perform any necessary trimming of oak tree limbs that have

the potential to be impacted as a result of vehicle or equipment usage associated with Project activities.

7. To the extent feasible, the proposed pole installation will avoid impacting the sensitive root systems of large trees. During drilling activities, root structures of nearby trees will be cleanly cut and trimming of branches will be completed by hand (i.e., avoiding the use of heavy equipment).

8. A qualified biologist with experience identifying special-status plants and associated habitats will conduct a pre-activity survey of all work areas, including staging and laydown areas, prior to any ground disturbing activities. The surveys will be conducted within appropriate blooming periods for potentially occurring special-status plants. Any special-status plant populations encountered will be avoided; however, if they cannot be avoided, a relocation and monitoring plan will be prepared and approved by the appropriate regulatory agency prior to any disturbance to the plants. Observations of special-status species will be reported to the CDFW and/or USFWS, as required.

9. A qualified biologist with experience identifying American badger and burrowing owl and their potential burrows will conduct a pre-activity survey prior to initial work activities. Potential badger and burrowing owl burrows will be avoided with a 50 foot buffer. If a burrow is identified within the immediate work area, the CDFW will be contacted for further guidance on appropriate protective measures during Project activities.

10. As necessary, erosion control measures will be implemented to prevent runoff into nearby drainages. Straw waddles, in conjunction with other methods, will be temporarily installed to prevent erosion of soils disturbed by the Project and to avoid and/or minimize disturbed sediments from entering adjacent waterways. Silt fencing will be avoided to the greatest extent feasible to minimize potential barriers to migrating amphibians and other wildlife.

11. During Project activities and periods of high vehicle/equipment traffic along dirt roads and work areas, dust control methods to minimize dust impacts to surrounding vegetation will be implemented. Dust control methods include, but are not limited to, the following:

    - Light water spray or soil stabilizer application on stockpiles;
    - Watering areas of vehicle movement to prevent the generation of fugitive dust;
    - Reducing vehicle speed; and
    - Suspending earth moving or other dust-producing activities during periods of high winds or when dust control measures are not able to prevent visible dust plumes.

12. All food-related items and trash will be removed from the work areas at the end of each working day.

Implementation of the above-mentioned measures should reduce impacts to native biological resources and special-status species potentially occurring within the proposed transmission line corridor to a less than significant level.

## 8.0 REFERENCES

Baldwin, Bruce G., Goldman, Douglas H., Keil, David J., Rosatti, Thomas J. The Jepson Manual: Vascular Plants of California, Second Edition. 2012. University of California Press. Berkeley, Ca.

Barry, S.J. and H.B. Shaffer. 1994. The Status of the California tiger salamander Ambystoma californiense at Lagunita: A 50 year update. Journal of Herpetology 28:159-164.

Beedy, E.C., and Hamilton, W. J., III. 1999. Tricolored blackbird (*Agelaius tricolor*), in The Birds of North America (A. Poole and F. Gill, eds.), No. 423. Birds North America, Philadelphia.

Behler, John L., & F. Wayne King. 1992. The Audubon Society Field Guide to North American Reptiles and Amphibians. Alfred A. Knopf.

Calef, G.W. 1973. Natural mortality of tadpoles in a population of *Rana aurora*. Ecology 54: 741:758.

California Department of Fish and Widlife (CDFW). 1986. Mammalian Species of Special Concern in California, American Badger. [Available online at: http://www.delta.dfg.ca.gov/gallery/badger.asp]

------ 1995. Central Valley Bay-Delta Branch, Wildlife Gallery, Burrowing Owl. [Available online at: http://www.delta.dfg.ca.gov/gallery/burowl.asp]

------ 2011. Biogeographic Data Branch. California Natural Diversity Database. Special Animals (901 taxa).

------ 2009. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities.

------ 2010. Natural Communities Listed Alphabetically by Life Form. [Available online at: http://www.dfg.ca.gov/biogeodata/vegcamp/pdfs/natcomlist.pdf]

------ 2014. California Natural Diversity Database (CNDDB) Rare Find. Twitchell Dam, Tepusquet Canyon, Sisquoc, Orcutt, Lompoc, Los Alamos, Zaca Creek, Foxen Canyon, and Santa Maria Quadrangles.

California Native Plant Society (CNPS). 2013. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society. Sacramento, CA. [Available online at: http://www.rareplants.cnps.org] Accessed Thursday, October 10, 2013.

Carraway L.N.; Verts, B.J. 1991. Neotoma fuscipes. Mammalian Species 386: 1-10. American Society of Mammalogists.

Cogswell, H. L. 1968. *Aimophila ruficeps canescens* . Ashy rufous-crowned sparrow. Pages 943-954 in Life histories of North American cardinals, grosbeaks, buntings, towhees, finches, sparrows, and allies. (O. L. Austin, Jr., editor) U.S. National Museum Bulletin 237.

Collins, P. W., P. Gaede, and V. Semonsen. 2012. Results of Drift Fence and Aquatic Surveys for California Tiger Salamanders (*Ambystoma californiense*) and other Special-Status Amphibians at Five Wetlands on the ERG West Cat Canyon Lease in Northern Santa

Barbara County, California. Prepared for ERG Operating Company LLC, Santa Maria, CA. 66 pp.

County of Santa Barbara Planning and Development (County). 2011. A Planner's Guide to Conditions of Approval and Mitigation Measures.

County of Santa Barbara Planning and Development (County). 2008. Environmental Thresholds and Guidelines Manual.

Craig, R. B. 1978. An analysis of the predatory behavior of the loggerhead shrike. Auk 95:221-234.

Grinnell, J., and A. H. Miller. 1944. The distribution of the birds of California. Pac. Coast Avifauna no. 27. Cooper Ornith. Society. 608pp.

Harrison, C. 1978. A Field Guide to the Nests, Eggs and Nestlings of North American Birds. Collins, Cleveland, Ohio.

Holland, R. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. Unpublished Report. California Fish and Game, Natural Heritage Division. Sacramento, CA.

Jennings, M. and M. Hayes. 1994. Amphibian and Reptile Species of Special Concern in California. California

Lichvar, Robert W. and Shawn M. McColley. 2008. A field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States. A Delineation Manual. Cold Regions Research and Engineering Laboratory. U.S. Army Corps of Engineers.

Linsdale, J. M. & Tevis, L. 1951. The dusky-footed woodrat. Berkeley and Los Angeles: University of California Press.

Lowther, P.E., C. Celada, N.K. Klein, C.C. Rimmer, and D.A. Spector. 1999. Yellow Warbler (Dendroica petechia). In The Birds of North America, No. 454 (A. Poole and F. Gill, Eds.). Academy of Natural Sciences, Philadelphia, and American Ornithologists' Union, Washington, D.C.

Moyle, P., J. Williams, and E. Wikramanayake. 1989. Fish Species of Special Concern of California. California Department of Fish and Game. Sacramento, CA.

National Audubon Society. 1996. Field guide to North American mammals. New York, New York.

National Marine Fisheries Service. 1997. Endangered and Threatened Species: Listing of Several Evolutionary Significant Units (ESUs) of West Coast Steelhead. Federal Register 62(159): 43937-43953.

National Oceanic and Atmospheric Administration (NOAA). 2005. Endangered and Threatened Species; Designation of Critical Habitat for Seven Evolutionarily Significant Units of Pacific Salmon and Steelhead in California; Final Rule. Federal Register 70 (170): 52488-52585. September 2, 2005.

Neff, J.A. 1937. Nesting distribution of the tri-colored red-wing. Condor 39:61-81.

Padre Associates, Inc. May 2010. 90-Day Report on Mid-Wet Season Fairy Shrimp Identification Survey for the Chevron Sargent Fee Site, Santa Maria Valley, Santa Barbara County, CA. Prepared for Chevron.

Padre Associates, Inc. May 2011a. Biological Resources Report for the Aera Energy, LLC. Two-Dimensional Seismic Survey Project within the Cat Canyon Oil Field. Prepared for Aera Energy, LLC.

Padre Associates, Inc. May 2011b. Biological Resources Survey Report for the Aera Exploratory Drilling Project, East Cat Canyon Oil Field. Prepared for Aera Energy, LLC.

Rising, J. D. 1996. A guide to the identification and natural history of the sparrows of the United States and Canada. Academic Press, New York. 365 pages.

Ronan, N. A. 2002. Habitat selection, reproductive success, and site fidelity of burrowing owls in a grassland ecosystem. M.S. Thesis, Oregon State University, Corvallis, OR.

Rosenberg, D. K., and Haley, K. L. 2004. The ecology of Burrowing Owls in the agroecosystem of the Imperial Valley, California. Studies Avian Biol. 27:120–135.

Sage, 2012. ERG Operating Company, LLC., Los Alamos Fee “Pond E” California Red-Legged Frog (*Rana draytonii*) Survey Results. Letter to ERG Operating Company, LLC. Prepared by Sage Institute, Inc.

Sakai, W., and W. Calvert. 1991. Statewide Monarch Butterfly Management Plant for the State of California Department of Parks and Recreation – Final Report. Life Sciences Department, Santa Monica College, 1900 Pico Blvd., Santa Monica, CA 90405.

Shaffer, H.B., R.N. Fisher, and S.E. Stanley. 1993. Status Report: The California tiger salamander (*Ambystoma californiense*). Final report to California Department of fish and Game, Inland fisheries division, contract #FG9422 and FG1393.

Sawyer, John O., Keeler-Wolf, Todd, Evans, Julie M. 2009. A Manual of California Vegetation Second Edition. California Native Plant Society. Berkeley, CA.

Shuford, W. D. 1993. The Marin County Breeding Bird Atlas: A Distributional and Natural History of Coastal California Birds. California Avifauna Series 1. Bushtit Books, Bolinas, CA.

Shuford, W. Davis and Thomas Gardali, Editors. 2008. California Bird Species of Special Concern. Western Field Ornithologists and California Department of Fish and Game. Sacramento, CA.

Sibley, David Allen. 2003. The Sibley field guide to birds of western North America. Alfred A. Knopf, New York.

Smith, Clifton F. 1976. A Flora of the Santa Barbara Region, California. Santa Barbara Museum of Natural History.

Stebbins, Robert C. 1985. A Field Guide to Western Reptiles and Amphibians, Second Edition Houghton Mifflin Company. New York, NY.

Stebbins, Robert C. 2003. A Field Guide to Western Reptiles and Amphibians. 3rd Edition. Houghton Mifflin Company.

Storer, Tracy. 1925. A Synopsis of the Amphibia of California. University of California Publications in Zoology - Volume 27. The University of California Press.

Storrer Environmental. 2011. Habitat Assessment for California Tiger Salamander for the Aera Two-dimensional Seismic Survey Test Plan. Prepared by Storrer Environmental.

Storrer Environmental. 2013. Habitat Assessment for California Tiger Salamander for the Aera East Cat Canyon Production Plan, Santa Barbara County, California. Prepared for Aera Energy LLC.

Thorngate, N. and M. Parsons. 2005. Rufous-crowned Sparrow (*Aimophila ruficeps*). In The Coastal Scrub and Chaparral Bird Conservation Plan: a strategy for protecting and managing coastal scrub and chaparral habitats and associated birds in California. California Partners in Flight.

U. S. Fish and Wildlife Service (USFWS). 2002. 50 CFR Part 17 Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for *Eriodictyon capitatum* (Lompoc yerba santa) and *Deinandra increscens* ssp.*villosa* (Gaviota tarplant); Final Rule.

------ 2005. Federal Register Volume 70, Number 170. September 2, 2005. 50 CFR Part 226. Designation of Critical Habitat for Seven Evolutionarily Significant Units of Pacific Salmon and Steelhead in California; Final Rule.

------- 2008. Birds of Conservation Concern 2008. United States Department of Interior, Fish and Wildlife Service, Division of Migratory Bird Management, Arlington, Virginia. [Available online at: http://www.fws.gov/migratorybirds/NewReportsPublications/SpecialTopics/BCC2008/BCC2008.pdf]

____ 2009. 50 CFR Part 17 Endangered and Threatened Wildlife and Plants; Revised Designation of Critical Habitat for *Cirsium loncholepis* (La Graciosa Thistle); Final Rule

------ 2011. Federal Register Volume 76, Number 27. February 9, 2011. 50 CFR Part 17. Endangered and Threatened Wildlife and Plants; Revised Critical Habitat for Arroyo Toad; Final Rule.

------ 2012. National Wetlands Inventory website. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. [available online at: http://www.fws.gov/wetlands/]

------ 2014. Accessed 2014. Critical habitat portal. http://criticalhabitat.fws.gov/crithab/

University of California. 2012. The Jepson Online Interchange California Floristics. University of California, Berkeley, CA. [available online at: http://ucjeps.berkeley.edu/interchange.html]

Vestal, E.H. 1938. Biotic relations of the woodrat (*Neotoma fuscipes*) in the Berkeley Hills. Journal of Mammalogy 18: 364.

VJS, 2007. Initial Field Assessment for California Tiger Salamander for the Aera East Cat Canyon Oil and Gas Field. Prepared by Mr. Vince Semonsen of VJS Biological Consulting.

Whitson, Tom D., Burill, Larry C., Dewey, Steven A., Cudney, David W., Nelson, B.E., Lee, Richard D., Parker, Robert. 1999. Weeds of the West. Western Society of Weed Science, Newark, CA.

Williams, Daniel F. 1986. Mammalian Species of Special Concern in California. Prepared for the California Department of Fish and Wildlife.

Williams, B.D.C. 1998. Distribution, habitat associations, and conservation of Purple Martins breeding in California. M.S. Thesis, Calif. St. Univ., Sacramento.

Wiskowski, Tara. 1988. Sensitive Plants of Santa Barbara County. Santa Barbara County Resource Management Department, Division of Environmental Review.

Wolf, L.L. 1977. Species relationships in the avian genus *Aimophila*. Ornithological Monographs No. 23. American Ornithologists' Union.

Zeiner, D., W. Laudenslayer, Jr. and K. Mayer. 1998. California's Wildlife, Volume I, Amphibians and Reptiles. California Department of Fish and Game. Sacramento, CA.

Zeiner, D., W. Laudenslayer, Jr., K. Mayer, and M. White. 1990a. California's Wildlife, Volume II, Birds. California Department of Fish and Game. Sacramento, CA.

Zeiner, D., W. Laudenslayer, Jr., K. Mayer, and M. White. 1990b. California's Wildlife, Volume III, Mammals. California Department of Fish and Game. Sacramento, CA.

# APPENDIX A

## SITE PHOTOGRAPHS

**Photo 1**
**Latitude:** 34.822522
**Longitude:** 120.288236
**Aspect:** W
**Date:** 02/05/2014
**Description:** Ruderal and Coyote Brush Scrub within the BSA.

**Photo 2**
**Latitude:** 34.8221
**Longitude:**120.288192
**Aspect:** W
**Date:** 2/05/2014
**Description:** Existing fence and developed area with scattered coyote brush.

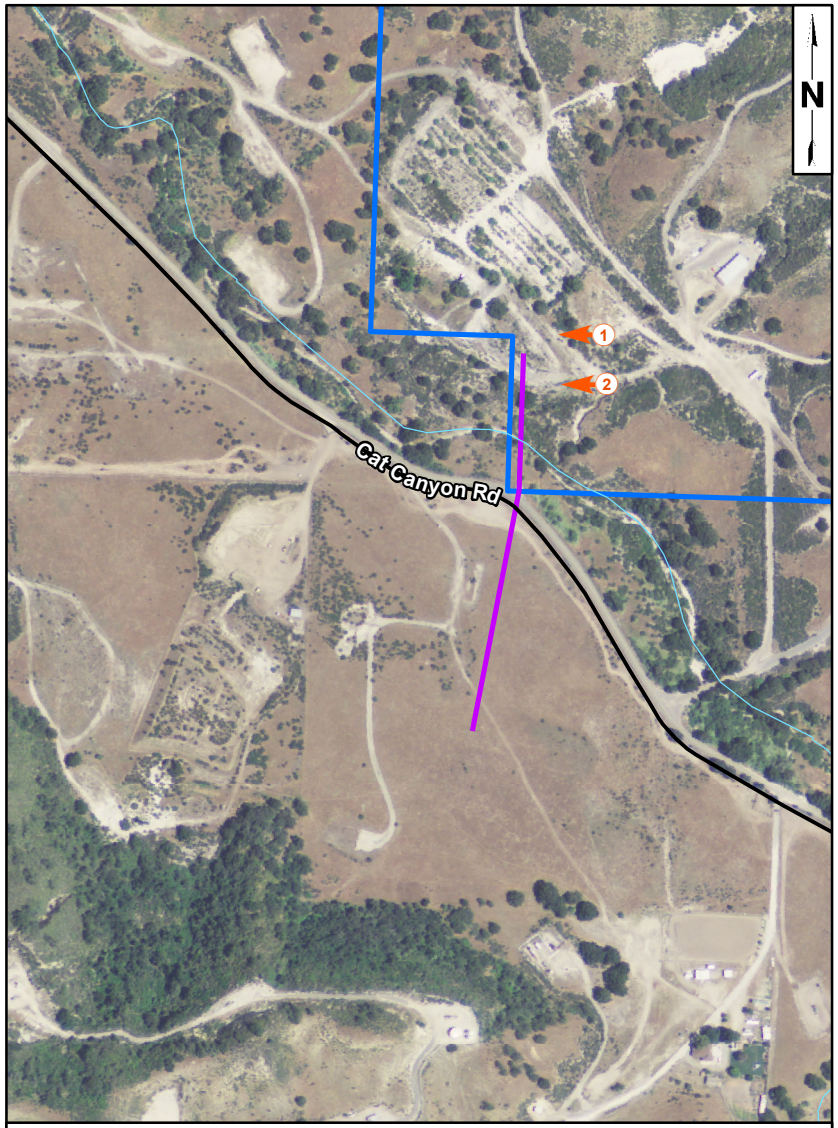



Photo Location
Proposed Power Line Route
Aera Property Boundary
Existing Road
Existing Channel

0 300 600 Feet

*Source: Santa Barbara County, NAIP 2012 Image, DPSI 2013*
*Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet*
*Notes: This map was created for informational and display purposes only.*

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: AERA - EAST CAT CANYON SANTA BARBARA COUNTY, CA
PROJECT NUMBER: 1002-0458
DATE: March 2014

APPENDIX A
SITE PHOTOGRAPHS

PLATE 1

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Photo Figure 1 OHTL.mxd

**Photo 3**
**Latitude:** 34.82243
**Longitude:** 120.289081
**Aspect:** S
**Date:** 02/05/2014
**Description:** Northern terminus area of proposed transmission line.

**Photo 4**
**Latitude:** 34.821762
**Longitude:**120.289086
**Aspect:** N
**Date:** 2/05/2014
**Description:** Proposed transmission line corridor.

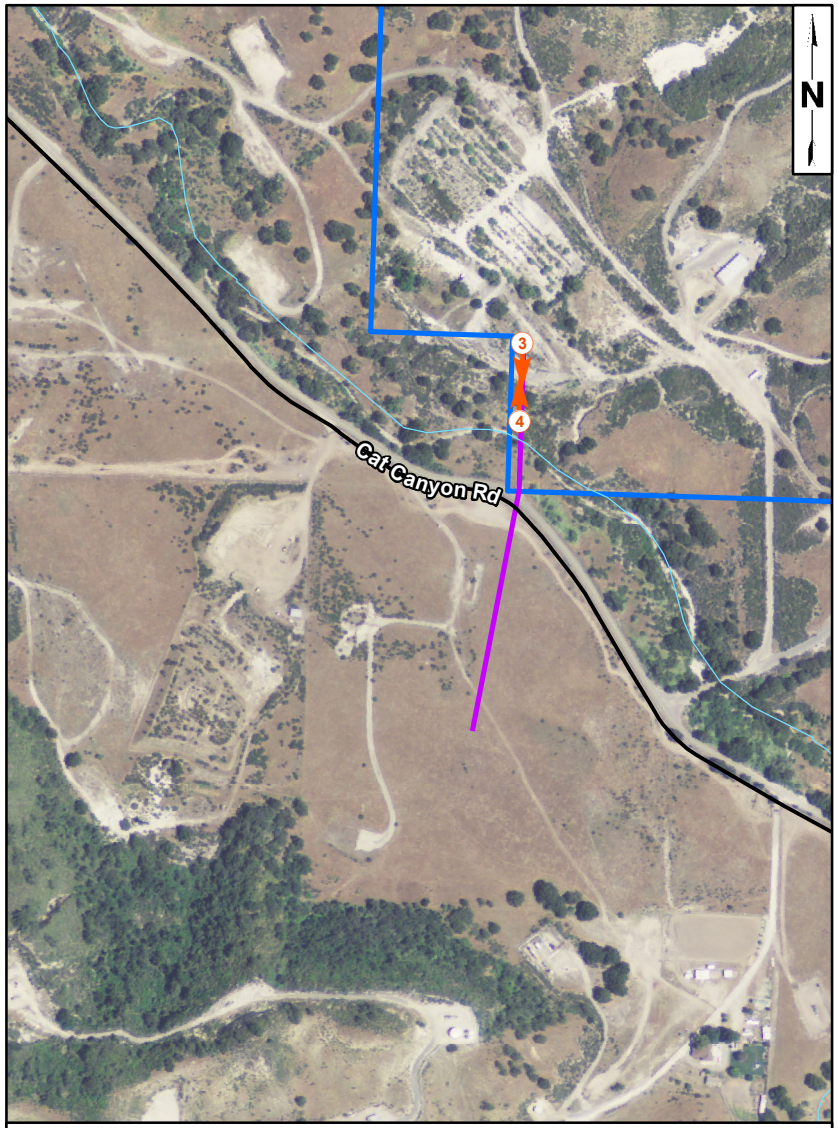



Photo Location
Proposed Power Line Route
Aera Property Boundary
Existing Road
Existing Channel

0 300 600 Feet

*Source: Santa Barbara County, NAIP 2012 Image, DPSI 2013*
*Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet*
*Notes: This map was created for informational and display purposes only.*

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: AERA - EAST CAT CANYON SANTA BARBARA COUNTY, CA
PROJECT NUMBER: 1002-0458
DATE: March 2014

APPENDIX A
SITE PHOTOGRAPHS

PLATE 2

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Photo Figure 2 OHTL.mxd

**Photo 5**
**Latitude:** 34.821564
**Longitude:** 120.289071
**Aspect:** NW
**Date:** 02/05/2014
**Description:** Proposed Transmission line channel crossing at Cat Canyon Creek.

**Photo 6**
**Latitude:** 34.821493
**Longitude:**120.289615
**Aspect:** E
**Date:** 2/05/2014
**Description:** Sparse Coyote Brush Scrub within the BSA.

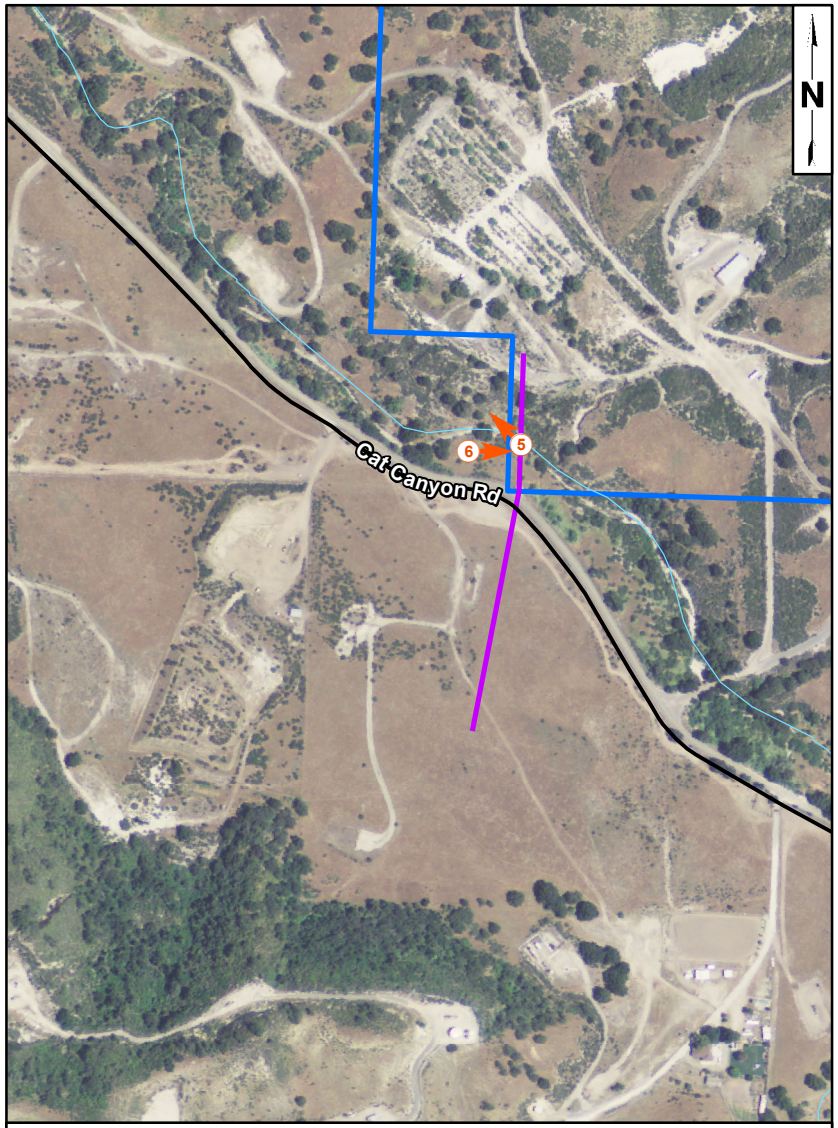



Photo Location
Proposed Power Line Route
Aera Property Boundary
Existing Road
Existing Channel

0 300 600 Feet

*Source: Santa Barbara County, NAIP 2012 Image, DPSI 2013*
*Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet*
*Notes: This map was created for informational and display purposes only.*

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: AERA - EAST CAT CANYON SANTA BARBARA COUNTY, CA
PROJECT NUMBER: 1002-0458
DATE: March 2014

APPENDIX A
SITE PHOTOGRAPHS

PLATE 3

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Photo Figure 3 OHTL.mxd

**Photo 7**
**Latitude:** 34.820341
**Longitude:** 120.289579
**Aspect:** S
**Date:** 02/05/2014
**Description:** Proposed transmission line corridor through Annual Brome Grassland; heavily grazed.

**Photo 8**
**Latitude:** 34.818454
**Longitude:**120.289846
**Aspect:** N
**Date:** 2/05/2014
**Description:** Southern terminus area of proposed transmission line.

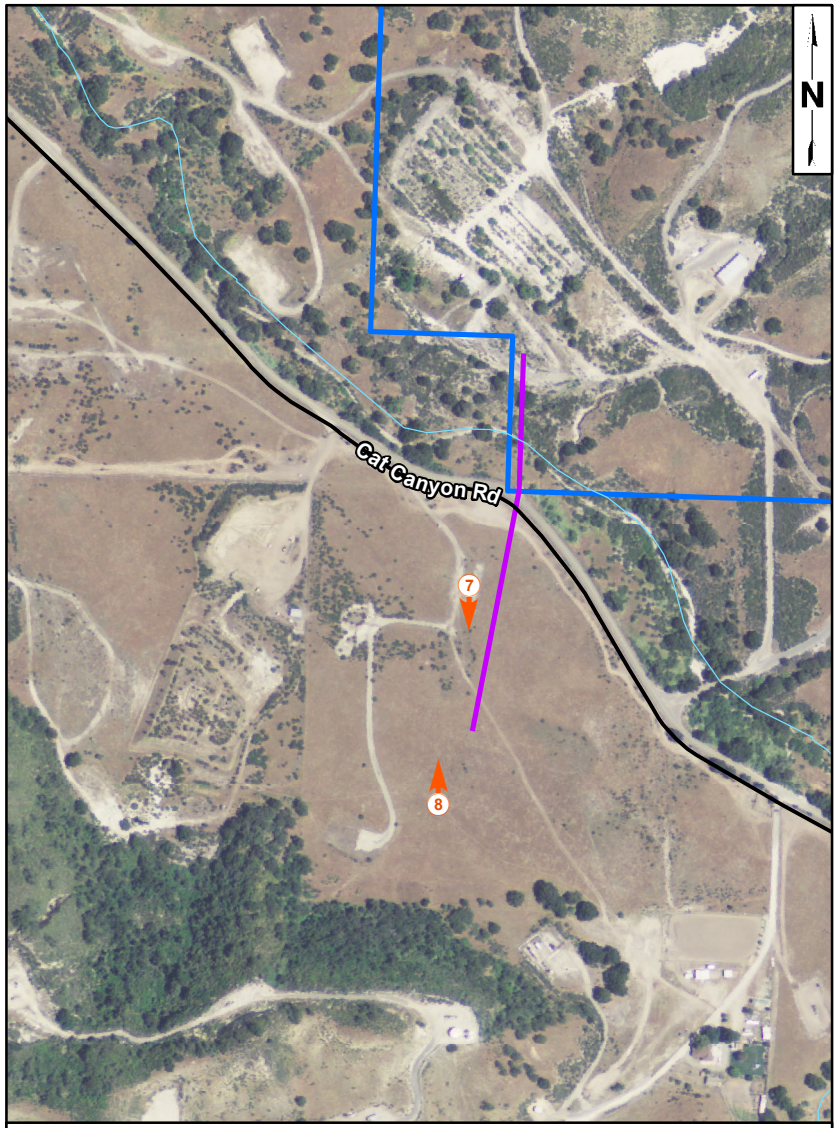



Photo Location
Proposed Power Line Route
Existing Road
Aera Property Boundary
Existing Channel

0 300 600 Feet

*Source: Santa Barbara County, NAIP 2012 Image, DPSI 2013*
*Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet*
*Notes: This map was created for informational and display purposes only.*

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: AERA - EAST CAT CANYON SANTA BARBARA COUNTY, CA
PROJECT NUMBER: 1002-0458
DATE: March 2014

APPENDIX A
SITE PHOTOGRAPHS

PLATE 4

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Photo Figure 4 OHTL.mxd

# APPENDIX B

## VASCULAR PLANT INVENTORY

**Vascular Plant List for the East Cat Canyon Oil Field Redevelopment Project - Electrical Transmission Line**
**Santa Barbara County, California**

| Scientific Name | Common Name | Habit | Wetland Indicator Status | Family |
|---|---|---|---|---|
| *Acmispon glaber* [*Lotus scoparius*] | Deerweed/California broom | PH | . | Fabaceae |
| *Ambrosia artemisiifolia** | Common ragweed | AH | FACU | Asteraceae |
| *Anagallis arvensis** | Scarlet pimpernel | BH | FAC | Myrsinaceae |
| *Artemisia californica* | California sagebrush | S | . | Asteraceae |
| *Artemisia douglasiana* | California mugwort | PH | FAC | Asteraceae |
| *Avena sp** | Slender wildoat | AG | . | Poaceae |
| *Baccharis pilularis* | Coyote brush | S | . | Asteraceae |
| *Baccharis salicifolia* ssp. *salicifolia* | Mule fat | S | FAC | Asteraceae |
| *Brassica nigra** | Black mustard | AH | . | Brassicaceae |
| *Bromus diandrus** | Ripgut grass | AG | . | Poaceae |
| *Bromus sp** | Soft chess brome | AG | FACU | Poaceae |
| *Carduus pycnocephalus** | Italian thistle | AH | . | Asteraceae |
| *Centaurea melitensis** | Tocalote | A/BH | . | Asteraceae |
| *Cirsium vulgare** | Bull thistle | PH | FACU | Asteraceae |
| *Conium maculatum** | Poison hemlock | PH | FACW | Apiaceae |
| *Croton californicus* | California croton | PH | . | Euphorbiaceae |
| *Croton setigerus* [*Eremocarpus setigerus*] | Turkey mullein | A/PH | . | Euphorbiaceae |
| *Cynodon dactylon** | Bermuda grass | PG | FAC | Poaceae |
| *Cyperus eragrostis* | Tall flatsedge | PH | FACW | Cyperaceae |
| *Distichlis spicata* | Saltgrass | PG | FACW | Poaceae |
| *Elymus condensatus* [*Leymus condensatus*] | Giant wild rye | PG | FACU | Poaceae |
| *Erigeron canadensis* | Horseweed | AH | FACU | Asteraceae |
| *Erodium botrys** | Storksbill, filaree | AH | . | Geraniaceae |
| *Erodium cicutarium** | Red-stemmed filaree | AH | . | Geraniaceae |
| *Eucalyptus globulus** | Blue gum | T | . | Myrtaceae |
| *Festuca perennis** *[ Lolium perenne ssp. multiflorum]* | Italian ryegrass | A/BG | FAC | Poaceae |
| *Foeniculum vulgare** | Fennel | PH | . | Apiaceae |
| *Frangula californica* [*Rhamnus californica*] | California coffeeberry | S | . | Rhamnaceae |
| *Helminthotheca echioides** [*Picris echioides*] | Bristly ox-tongue | A/BH | FACU | Asteraceae |
| *Heteromeles arbutifolia* | Toyon | S | . | Rosaceae |
| *Heterotheca grandiflora* | Telegraph weed | AH | . | Asteraceae |
| *Hordeum sp.* | Foxtail barley | AG | . | Poaceae |
| *Juglans californica* | California walnut | T | . | Juglandaceae |
| *Malva parviflora** | Cheeseweed | AH | . | Malvaceae |
| *Medicago polymorpha** | Bur clover | AH | . | Fabaceae |
| *Nicotiana glauca** | Tobacco tree | S/T | FAC | Solanaceae |
| *Oxalis corniculata** | Creeping wood sorrel | PH | FACU | Oxalidaceae |
| *Opuntia* sp. | Prickly pear | P/S | . | Cactaceae |
| *Plantago lanceolata** | English plantain | PH | FAC | Plantaginaceae |
| *Plantago major** | Common plantain | A/PH | FAC | Plantaginaceae |
| *Pseudognaphalium luteoalbum** | Jersey cudweed | AH | FAC | Asteraceae |
| *Quercus agrifolia* | Coast live oak | T | . | Fagaceae |
| *Raphanus sativus** | Radish | A/BH | . | Brassicaceae |
| *Rubus ursinus* | California blackberry | S | FACU | Rosaceae |
| *Rumex crispus** | Curly dock | B/PH | FACU | Polygonaceae |
| *Salix lasiolepis* | Arroyo willow | S | FACW | Salicaceae |
| *Salvia mellifera* | Black sage | S | . | Lamiaceae |
| *Salvia spathacea* | California hummingbird sage | PH | . | Lamiaceae |
| *Sambucus nigra* ssp. *caerulea [Sambucus mexicana]* | Blue elderberry | S | FAC | Adoxaceae [Caprifoliaceae] |

| Scientific Name | Common Name | Habit | Wetland Indicator Status | Family |
|---|---|---|---|---|
| *Schinus molle** | Pepper tree | T | . | Anacardiaceae |
| *Toxicodendron diversilobum* | Western poison oak | S | . | Anacardiaceae |
| *Verbena lasiostachys* | Western vervain | PH | . | Verbenaceae |

Notes: Scientific nomenclature follows Second Edition of the Jepson Manual (Baldwin, et.al., 2012)
"*" indicates non-native species which have become naturalized or persist without cultivation.

Habit definitions:

| | | |
|---|---|---|
| AF: annual fern or fern ally | AV: annual vine | S: shrub |
| AG: annual grass | PG: perennial grass | T: tree |
| AH: annual herb | PH: perennial herb | |
| BH: biennial herb | PF: perennial fern or fern ally | |

Wetland indicator status California - Arid West Region, U.S. Army Corps of Engineers (CRREL 2012):
OBL: obligate wetland species, occurs almost always in wetlands (>99% probability)
FACW: facultative wetland species, usually found in wetlands (67-99% probability).
FAC: facultative species, equally likely to occur in wetlands or non-wetlands (34-66% probability).
FACU: facultative upland species, usually occur in nonwetlands (1-33% probability).
UPL: upland species, almost always occurs in non-wetlands in the region specified (<1% probability).
A period (.) indicates that no wetland indicator status has been given.

# APPENDIX C

## WILDLIFE SPECIES LIST

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

**WILDLIFE SPECIES OBSERVED OR LIKELY TO OCCUR IN THE VICINITY OF THE EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT - ELECTRICAL TRANSMISSION LINE, SANTA BARBARA COUNTY, CALIFORNIA**

| Common Name | *Scientific Name* | Observed During Field Surveys | Residence Status | Protected Status | Habitat |
|---|---|---|---|---|---|
| **Amphibians** | | | | | |
| Arboreal salamander | *Aneides lugubris* | | R | - | W |
| Black-bellied slender salamander | *Batrachoseps nigriventris* | | R | - | W |
| California toad | *Bufo boreas halophilus* | | R | -- | M |
| Monterey ensatina | *Ensatina eschscholtzii eschscholtzii* | | R | -- | R,G,P |
| California tiger salamander | *Ambystoma californiense* | | R | FT, ST, CSC | |
| Pacific treefrog | *Pseudacris regilla* | | R | -- | A,R |
| **Reptiles** | | | | | |
| California whiptail | *Aspidoscelis tigris munda* | | R | -- | G,D,P,M |
| Western yellow-bellied racer | *Coluber constrictor mormon* | | R | | M |
| Northern Pacific rattlesnake | *Crotalus oreganus oreganus* | | R | -- | R,G,P |
| Ringneck snake | *Diadophis punctatus* | | R | -- | R,G,P |
| Skilton's skink | *Eumeces skiltonianus skiltonianus* | | R | -- | M |
| Southern alligator lizard | *Gerrhonotus multicarinatus* | | R | -- | A,R,G |
| California kingsnake | *Lampropeltis getula californiae* | | R | -- | A,R,P,M |
| Red coachwhip | *Masticophis flagellum piceus* | | R | | M |
| California striped racer | *Masticophis lateralis* | | R | -- | M |
| Coast horned lizard | *Phrynosoma coronatum frontale* | | R | CSC | G,P |
| Pacific gopher snake | *Pituophis catenifer* | | R | -- | R,G,P |
| Western fence lizard | *Sceloporus occidentalis* | | R | -- | G,D,P,M |
| Skilton's skink | *Plestiodon skiltonianus siltonianus* | | R | - | G,D,P,M |
| Coast garter snake | *Thamnophis elegans terrestris* | | R | -- | R,G,P |
| Western side-blotched lizard | *Uta stanburiana elegans* | | R | -- | G,D,P,M |
| **Birds** | | | | | |
| Acorn woodpecker | *Melanerpes formicivorous* | | R | M | P |
| Allen's hummingbird | *Selasphorus sasin* | | B | M | R,G,P |
| American crow | *Corvus brachyrhynchos* | | R | M | M |
| American goldfinch | *Carduelis tristis* | | R | M | R,P |
| American kestrel | *Falco sparverius* | | R | M | R,G,P |
| American robin | *Turdus migratorius* | x | R | M | P,G |
| Anna's hummingbird | *Calypte anna* | x | R | M | R,G,P |
| Ash-throated flycatcher | *Myiarchus cinerascens* | | B | M | R,G,P |
| Band-tailed pigeon | *Columba fasciata* | | R | M | R |
| Barn owl | *Tyto alba* | | R | M | R,G,P |
| Barn swallow | *Hirundo rustica* | | B | M | R,G |
| Bewick's wren | *Thryomanes bewickii* | | R | M | R,G |
| Black phoebe | *Sayornis nigricans* | | R | M | R,G,P |
| Black-chinned hummingbird | *Archilochus alexandri* | | B | M | R,G,P |
| Black-headed grosbeak | *Pheucticus melanocephalus* | | B | M | R,P |
| Black-throated gray warbler | *Dendroica nigrescens* | | B | M | G,P |

| Common Name | *Scientific Name* | Observed During Field Surveys | Residence Status | Protected Status | Habitat |
|---|---|---|---|---|---|
| Blue grosbeak | *Guiraca caerulea* | | B | M | R,W,G |
| Blue-gray gnatcatcher | *Polioptila caerulea* | x | B | M | R,G |
| Brewer's blackbird | *Euphagus cyanocephalus* | x | R | M | R,W,G |
| Brown creeper | *Certhia americana* | | R | M | W,R,P |
| Brown-headed cowbird | *Molothrus ater* | | R | M | R,W,G |
| Bullock's oriole | *Icterus bullockii* | | B | M | R,P |
| Bushtit | *Psaltriparus minimus* | x | R | M | P |
| California quail | *Cillipepla californica* | | R | -- | R,P |
| California thrasher | *Toxostoma redivivum* | x | R | M | W,G |
| California towhee | *Pipilo crissalis* | x | R | M | W, G |
| Canyon wren | *Catherpes mexicanus* | | R | M | M |
| Cassin's finch | *Carpodacus cassinii* | | R | M | M |
| Cassin's kingbird | *Tyrannus vociferans* | | B | M | G |
| Cassin's vireo | *Vireo cassinii* | | B | M | W,R |
| Cedar waxwing | *Bombycilla cedrorum* | | W | M | G,W |
| Chestnut-backed chickadee | *Parus rufescens* | | R | M | R,P |
| Cliff swallow | *Hirundo pyrrhonota* | | B | M | R,G |
| Common raven | *Corvus corax* | x | R | M | M |
| Common yellowthroat | *Geothlypis trichas* | | R | M | W,R |
| Cooper's hawk | *Accipiter cooperii* | | R | M, CSC | R,G |
| Costa's hummingbird | *Calypte costae* | | B | M | R,G,P |
| Dark-eyed junco | *Junco hyemalis* | | R | M | R,W,G |
| Downy woodpecker | *Picoides pubescens* | | R | M | R,P |
| European starling | *Sturnus vulgaris* | | R | -- | R,P |
| Fox sparrow | *Passerella iliaca* | | W | M | G,W |
| Golden eagle | *Aquila chrysaetos* | | R | M | R,G,P |
| Golden-crowned sparrow | *Zonotrichia atricapilla* | x | W | M | W,R |
| Great horned owl | *Bubo virginianus* | | R | M | R,G,P |
| Great-tailed grackle | *Quiscalus mexicanus* | | R | M | M |
| Greater roadrunner | *Geococcyx californianus* | | | | |
| Hairy woodpecker | *Picoides villosus* | | R | M | W, R |
| Hermit thrush | *Catharus guttatus* | x | W | M | R,G |
| Hermit warbler | *Dendroica occidentalis* | | W | M | P |
| Hooded oriole | *Icterus cucullatus* | | B | M | M |
| House finch | *Carpodacus mexicanus* | | R | M | R,G,P |
| House sparrow | *Passer domesticus* | | R | -- | D |
| House wren | *Troglodytes aedon* | x | R | M | R,G |
| Hutton's vireo | *Vireo huttoni* | | R | M | W,R |
| Killdeer | *Charadrius vociferus* | x | R | M | W,G |
| Lark sparrow | *Chondestes grammacus* | | B | M | G |
| Lawrence's goldfinch | *Carduelis lawrencei* | | R | M | R,P |
| Lazuli bunting | *Passerina amoena* | | B | M | R,W,G |
| Lesser goldfinch | *Carduelis psaltria* | | B | M | R,P |
| Lewis's woodpecker | *Melanerpes lewis* | | W | M | P |
| Lincoln's sparrow | *Melospiza lincolnii* | | W | M | W,R |
| Long-eared owl | *Asio otus* | | R | M | R,P,W |
| MacGillivray's warbler | *Oporonis tolmiei* | | B | M | W,R |
| Merlin | *Falco columbarius* | | W | M | R,G,P |
| Mountain quail | *Oreotyx pictus* | | R | M | P |
| Mourning dove | *Zenaida macroura* | x | R | M | R,G |

| Common Name | *Scientific Name* | Observed During Field Surveys | Residence Status | Protected Status | Habitat |
|---|---|---|---|---|---|
| Nashville warbler | *Vermivora ruficapilla* | | B | M | R, W |
| Northern flicker | *Colaptes auratus* | x | R | M | R,P |
| Northern mockingbird | *Mimus polyglottos* | | R | M | R |
| Northern pygmy-owl | *Glaucidium gnoma* | | R | M | R |
| Northern rough-winged swallow | *Stelgidopteryx serripennis* | | B | M | R,G |
| Northern saw-whet owl | *Aegolius acadicus* | | R | M | R,G,P |
| Nuttall's woodpecker | *Picoides nuttallii* | | R | M | R,P |
| Oak titmouse | *Baeolophus inornatus* | x | R | M | R,P |
| Olive-sided flycatcher | *Contopus cooperi* | | B | M | R,P |
| Orange-crowned warbler | *Vermivora celata* | | R | M | G,P |
| Pacific-slope flycatcher | *Empidonax difficilis* | | B | M | R,G,P |
| Purple finch | *Carpodacus purpureus* | | R | M | R,G,P |
| Red-breasted nuthatch | *Sitta canadensis* | | W | M | P |
| Red-breasted sapsucker | *Sphyrapicus ruber* | | B | M | R,P |
| Red-shouldered hawk | *Buteo lineatus* | | R | M | R,G |
| Red-tailed hawk | *Buteo jamaicensis* | x | R | M | R,G |
| Rock dove | *Columba livia* | | R | -- | D |
| Rock wren | *Salpinctes obsoletus* | | R | M | M |
| Ruby-crowned kinglet | *Regulus calendula* | | W | M | P |
| Rufous-crowned sparrow | *Aimophila ruficeps* | | R | M | G |
| Savannah sparrow | *Passerculus sandwichensis* | | R | M | G |
| Say's phoebe | *Sayornis saya* | x | R | M | G |
| Sharp-shinned hawk | *Accipiter striatus* | | W | M | P,R,G |
| Song sparrow | *Melospiza melodia* | x | R | M | G,W |
| Spotted towhee | *Pipilo maculatus* | | R | M | R,P |
| Steller's jay | *Cyanocitta stelleri* | | R | M | R,G |
| Swainson's thrush | *Catharus ustulatus* | | B | M | P |
| Townsend's warbler | *Dendroica townsendi* | | W | M | P |
| Tree swallow | *Tachycineta bicolor* | | R | M | R,G |
| Turkey vulture | *Cathartes aura* | | R | M | R,G,P |
| Varied thrush | *Ixoreus naevius* | | W | M | P |
| Violet-green swallow | *Tachycineta thalassina* | | R | M | R,G |
| Warbling vireo | *Vireo gilvus* | | R | M | W,R |
| Western bluebird | *Sialia mexicana* | | R | M | R |
| Western kingbird | *Tyrannus verticalis* | | B | M | G |
| Western meadowlark | *Sturnella neglecta* | | R | M | G |
| Western screech-owl | *Otus kennicottii* | | R | M | R,G,P |
| Western scrub-jay | *Aphelocoma c. californica* | x | R | M | R,G,P |
| Western wood-pewee | *Contopus sordidulus* | | B | M | R,P |
| White throated swift | *Aeronautes saxatalis* | | R | M | R,G,P |
| White-breasted nuthatch | *Sitta carolinensis* | | R | M | P |
| White-crowned sparrow | *Zonotrichia leucophrys* | x | R | M | R,W,G |
| White-tailed kite | *Elanus leucurus* | | R | M, FP | G,P |
| Wild turkey | *Meleagris gallopavo* | | R | -- | P |
| Wilson's warbler | *Wilsonia pusilla* | | B | M | W,R |
| Wrentit | *Chamaea fasciata* | x | R | -- | R |
| Yellow-bellied sapsucker | *Sphyrapicus varius* | | R | M | R, W |
| Yellow-billed magpie | *Pica nuttalli* | x | R | M | W,G |
| Yellow-rumped warbler | *Dendroica coronata* | | B | M | G,P |

| Common Name | *Scientific Name* | Observed During Field Surveys | Residence Status | Protected Status | Habitat |
|---|---|---|---|---|---|
| **Mammals** | | | | | |
| Pallid bat | *Antrozous pallidus* | | R | CSC | M |
| Ringtail | *Bassariscus astutus* | | R | FP | R |
| Domestic dog | *Canis familiaris* | | R | -- | D |
| Coyote | *Canis latrans* | x | R | -- | M |
| California pocket mouse | *Chaetodipus californicus* | | R | -- | M |
| Townsend's Big-eared Bat | *Corynorhinus townsendii* | | R | CSC | G, M |
| Virginia opossum | *Didelphis virginiana* | | R | -- | R,P |
| Big brown bat | *Episticus fuscus* | | R | -- | M |
| Common Porcupine | *Erethizon dorsatum* | | R | | G, M |
| Domestic cat | *Felis catus* | | R | -- | M |
| Mountain lion | *Felis concolor* | | R | -- | R,P |
| Red bat | *Lasiurus borealis* | | R | -- | M |
| Hoary bat | *Lasiurus cinereus* | | R | -- | M |
| Western yellow bat | *Lasiurus xanthinus* | | R | -- | M |
| Black-tailed jackrabbit | *Lepus californicus* | x | R | -- | P,G |
| Bobcat | *Lynx rufus* | | R | -- | R |
| Striped skunk | *Mephitis mephitis* | | R | -- | R,G |
| California vole | *Microtus californicus* | | R | -- | R,G,W |
| House mouse | *Mus musculus* | | R | -- | D |
| Long-tailed weasel | *Mustela frenata* | | R | -- | M |
| California myotis | *Myotis californicus* | | R | -- | P |
| Western small-footed myotis | *Myotis ciliolabrum* | | R | -- | M |
| Long-eared myotis bat | *Myotis evotis* | | R | -- | R,P |
| Fringed myotis | *Myotis thysanodes* | | R | -- | P |
| Long-legged myotis | *Myotis volans* | | R | -- | P |
| Yuma myotis | *Myotis yumanensis* | | R | -- | P, G, R |
| San Diego desert woodrat | *Neotoma lepida intermedia* | | R | CSC | R,P |
| Dusky footed woodrat | *Neotoma fuscipes* | | R | | M |
| Mule deer | *Odocoileus hemionus* | x | R | -- | R,G |
| White-eared pocket mouse | *Perognathus alticolus* | | R | -- | M |
| San Joaquin pocket mouse | *Perognathus inornatus inornatus* | | R | -- | M |
| Little pocket mouse | *Perognathus longimembris* | | R | -- | M |
| Pacific pocket mouse | *Perognathus longimembris pacificus* | | R | -- | M |
| Brush mouse | *Peromyscus boylii* | | R | -- | G |
| California mouse | *Peromyscus californicus* | | R | -- | G |
| Deer mouse | *Peromyscus maniculatus* | | R | -- | M |
| Pinyon Mouse | *Peromyscus truei* | | R | -- | M |
| Western pipistrelle | *Pipestrellus hesperus* | | R | -- | M |
| Townsend's big-eared bat | *Plecotus townsendii* | | R | CSC | M |
| Raccoon | *Procyon lotor* | | R | -- | M |
| Mountain Lion | *Puma concolor* | | R | | P, R, B |
| Norway rat | *Rattus norvegicus* | | R | -- | D |
| Black rat | *Rattus rattus* | | R | -- | M |
| Western harvest mouse | *Reithrodontomys megalotis* | | R | -- | G |
| Broad-footed Mole | *Scapanus latimanus* | | R | | M |
| Western gray squirrel | *Sciurus griseus* | | R | -- | R,P |
| Ornate Shrew | *Sorex ornatus* | | R | | M |

| Common Name | *Scientific Name* | Observed During Field Surveys | Residence Status | Protected Status | Habitat |
|---|---|---|---|---|---|
| California ground squirrel | *Spermophilus beecheyi* | | R | -- | G |
| Western spotted skunk | *Spilogale gracilis* | | R | -- | R |
| Wild pig | *Sus scrofa* | x | R | -- | M |
| Audubon's cottontail | *Sylvilagus audubonii* | | R | | M |
| Brush rabbit | *Sylvilagus bachmani* | | R | -- | R |
| Brazilian free-tailed bat | *Tadarida brasiliensis* | | R | -- | R,P,G |
| American badger | *Taxidea taxus* | x | R | SSC | M |
| Botta's pocket gopher | *Thomomys bottae* | x | R | -- | R,G,P |
| Gray fox | *Urocyon cinereoargenteus* | | R | -- | M |
| Domestic Horse | *Equus ferus caballus* | x | R | -- | M |
| Domestic Cow | *Bos taurus* | x | R | -- | M |
| Black bear | *Ursus americanus* | | R | -- | R,P,G |

*Observed and/or signs (e.g., scat, tracks, vocalization, etc.) detected during field surveys conducted by Padre

**Residence Status**

R = Permanent resident

W- Winter resident

B = Summer resident

**Protected Status**

FE – Federal endangered species

FT -- Federal threatened species

FC – Federal candidate species

M – Migratory Bird Treaty Act

SE – State endangered species

ST – State threatened species

CSC – California Species of Special Concern

FP – California Fully Protected Species

MMPA - Marine Mammal Protection Act

**Typical Habitat**

A – Aquatic

D – Developed areas

G – Grassland

M – Multiple habitats

P – Woodland

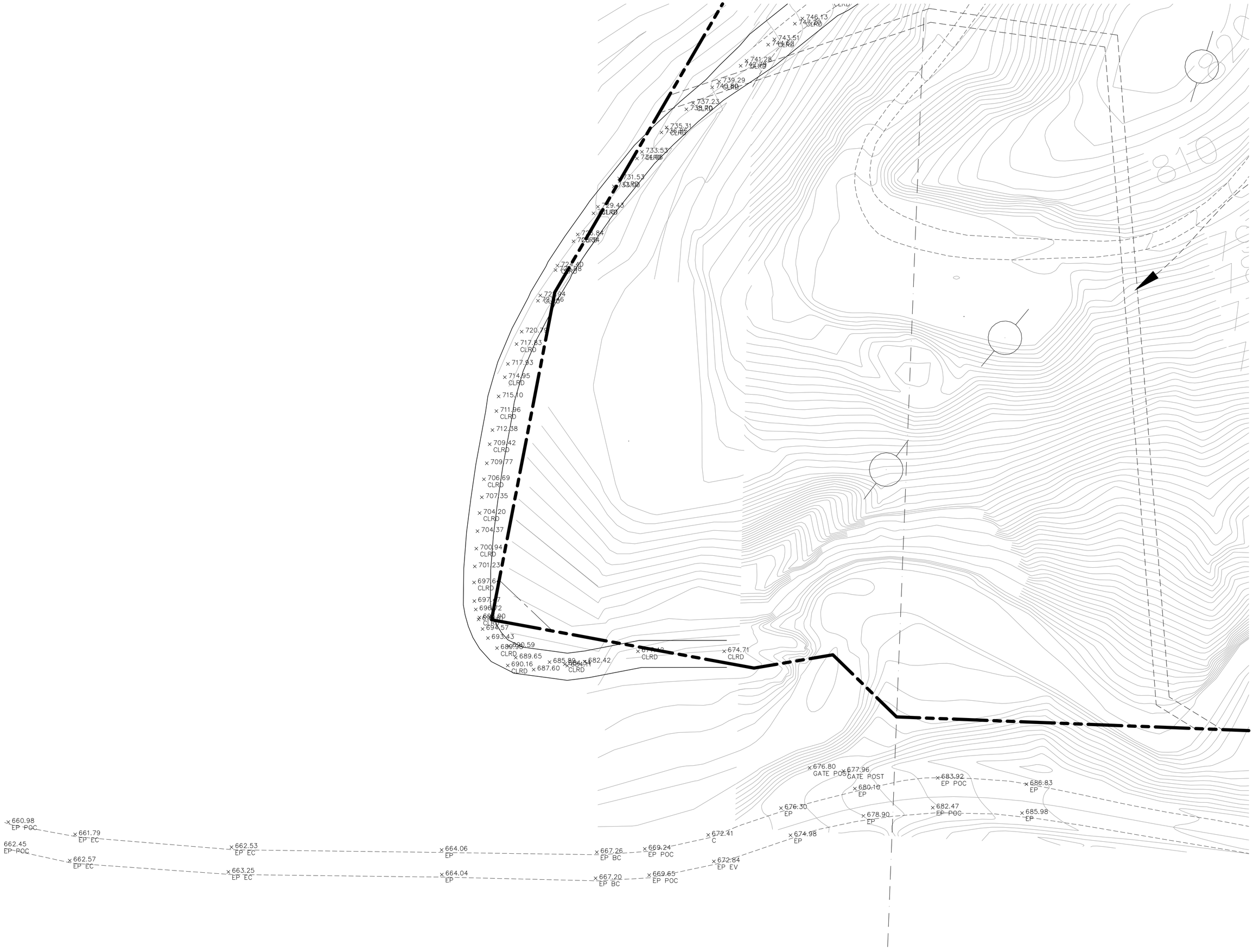
R – Riparian

W - Wetland

C - Coastal lagoons, shorelines and oceans

Last updated: February 28, 2011

108'
41'
680
690
700
710
720
730
740
750
760
770
780


746.13
743.51
741.28
739.29
737.23
735.31
733.53
731.53
729.43
720.79
717.83
CLRD
717.93
714.95
715.10
711.96
712.38
709.42
709.77
706.69
707.35
704.20
704.37
700.94
701.23
697.61
697.77
696.72
694.57
693.43
689.65
690.16
687.60
682.42
674.71
676.80
GATE POST
677.96
GATE POST
680.10
EP
683.92
EP POC
686.83
EP
676.30
EP
678.90
EP
682.47
EP POC
685.98
EP
660.98
EP POC
661.79
EP EC
662.45
EP POC
662.57
EP EC
662.53
EP EC
663.25
EP EC
664.06
EP
664.04
EP
667.26
EP BC
667.20
EP BC
669.24
EP POC
669.65
EP POC
672.41
C
672.84
EP EV
674.98
EP

# CONCEPTUAL WETLAND RESTORATION PLAN

## EAST CAT CANYON OILFIELD REDEVELOPMENT PROJECT
## SANTA BARBARA COUNTY, CALIFORNIA

**Project No. 1002-0455**

**Prepared for:**

Aera Energy LLC
10000 Ming Avenue
Bakersfield, California 93311

**Prepared by:**

Padre Associates, Inc.
369 Pacific Street
San Luis Obispo, California 93401

**JULY 2017**

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

## TABLE OF CONTENTS

**1.0 INTRODUCTION ..... 1-1**

1.1 RESTORATION SITE LOCATION ..... 1-1
1.2 GOALS AND OBJECTIVES ..... 1-1

**2.0 CONCEPTUAL WETLAND RESTORATION PLAN ..... 2-1**

2.1 TYPES OF HABITAT TO BE RESTORED ..... 2-1
2.2 IMPLEMENTATION ..... 2-5
2.2.1 Channel Area ..... 2-5
2.2.2 Bank Area ..... 2-5
2.2.3 Willow Wall Revetment ..... 2-5
2.3 IRRIGATION ..... 2-6
2.4 MAINTENANCE AND MONITORING ..... 2-6
2.5 PERFORMANCE CRITERIA ..... 2-7

**3.0 REFERENCES ..... 3-1**

## LIST OF FIGURES

Figure 1. Restoration Site Location ..... 2-2
Figure 2. Conceptual Restoration Plan ..... 2-3

## LIST OF TABLES

Table 2-1. Conceptual Restoration Site Summary ..... 2-4

# 1.0 INTRODUCTION

This Conceptual Wetland Restoration Plan (Plan) was prepared for Aera Energy LLC (Aera) by Padre Associates, Inc. (Padre) to serve as mitigation for project impacts to Cat Canyon Creek within the proposed East Cat Canyon Oil Field Redevelopment Project (Project) site in Santa Barbara County, California. The Project will impact water resources and riparian habitat that is provided protection by the United States Clean Water Act (CWA) and regulated by the United States Army Corps of Engineers (ACOE), California Department of Fish and Wildlife (CDFW), and the Regional Water Quality Control Board (RWQCB). As proposed, a new crossing constructed over Cat Canyon Creek and two crossings at Long Canyon Creek will temporarily and permanently impact approximately 0.43 acres of wetland and riparian habitat. The mitigation ratios for habitat disturbed to habitat restored is expected to be 1:1 for temporary impacts and 3:1 for permanent impacts to jurisdictional wetlands and waters within the Project site. These impacts will require wetland restoration as part of the ACOE, CDFW, and RWQCB permits.

Padre conducted a site visit in April 2017 to assess conditions of the reach of Cat Canyon Creek between the existing bridge and the proposed bridge site. As observed, the riparian corridor and creek channel have been disturbed by past land use practices and high water flows, as evidenced by visible deposits of asphalt/petroleum solids, erosion damage on the banks, and sedimentation within the creek channel. It was determined that restoration and bank stabilization of this reach of Cat Canyon Creek would improve the function and quality of riparian habitat at this location. The proposed restoration site could be expanded downstream to accommodate an increase in required mitigation. This Plan includes goals and objectives of restoration, types of habitat to be restored, implementation, maintenance and monitoring, proposed performance criteria, and associated figures and photographs.

## 1.1 RESTORATION SITE LOCATION

The proposed restoration site is located along Cat Canyon Road, approximately ten miles south east of the city of Santa Maria, Santa Barbara County, California. Site coordinates are Location: 34.819531° / -120.287024°. The current site entrance streambed crossing, including this proposed restoration location, is not located on Aera property and would require permission from the current landowner for use as a restoration site. The restoration site extends from the existing Cat Canyon Creek bridge and culvert downstream to the new bridge location (Figure 1 – Restoration Site Location).

## 1.2 GOALS AND OBJECTIVES

The goal of this Plan is to mitigate impacts of the proposed new crossings by restoring riparian habitat and improving the function of a reach of Cat Canyon Creek that has been impacted by past land use activities. The objectives of this Plan include:

- Remove exposed petroleum solids from creek channel;
- Stabilize banks with a willow wall revetment;
- Enhance riparian vegetation; and

- Install root wads/log structures in channel to reduce scour and erosion, and create habitat.

# 2.0 CONCEPTUAL WETLAND RESTORATION PLAN

## 2.1 TYPES OF HABITAT TO BE RESTORED

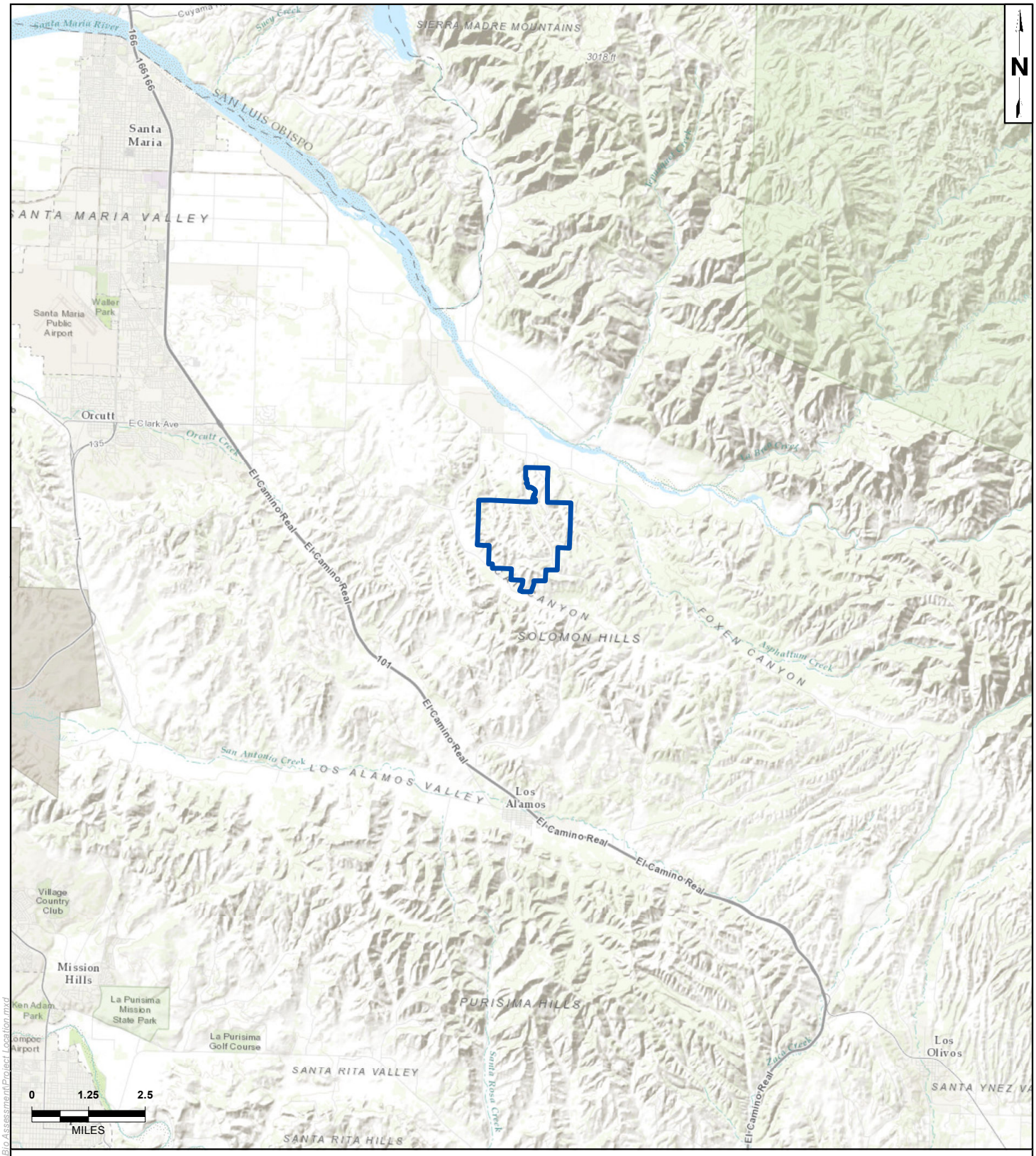
The Cat Canyon Creek corridor contains a mosaic of riparian scrub, coastal sage scrub, oak woodland, and grassland habitats. Within the proposed restoration site, the primary habitat type to restored is riparian scrub, and is comprised of arroyo willow (*Salix lasiolepis*), mule-fat (*Baccharis salicifolia*), black elderberry (*Sambucus nigra*), poison oak (*Toxicodendron diversilobum*), coyote brush (*Baccharis pilularis*), and intermittent coast live oak (*Quercus agrifolia*). The proposed restoration site consists of an incised ephemeral stream channel bordered by vegetated banks. The restoration site has been divided into three distinct areas (Figure 2 – Conceptual Restoration Plan):

- Channel;
- Bank; and
- Willow Wall Revetment.

The channel bottom is distinct and generally consists of sandy soils, scattered cobble and boulders, woody debris, patchy riparian vegetation, and naturally created mounds and islands, and will be designated as the Channel area. The Channel area will be re-contoured and root wads/log structures will be placed appropriately along the reach. The Channel area immediately downstream of the existing culvert also contains exposed petroleum solids, which will be addressed separately by Shell Exploration and Production Company as part of an active voluntary site assessment activity (SWRCB Geotracker Case T10000001110). As such, the scope of petroleum solids remediation is not included within this Plan.

The creek banks (east and west) are moderately to steeply sloped, and are vegetated with riparian scrub species, and will be designated as the Bank area. Portions of the Bank area will be disturbed during excavation and re-contouring. Following excavation, the disturbed Bank area will be planted with mulefat and willow cuttings, and if needed, a native seed mix will be applied. There may be portions of the Bank area that will not be disturbed during excavation. As such, the primary restoration within these portions will focus on removal of upland and non-native shrubs and forbs to enhance the overall riparian habitat along the creek corridor.

On the north side of the existing culvert at the existing bridge, higher energy water flow exiting the culvert eroded sediments from the lower bank, causing the upper bank to collapse into the creek bed. The higher energy water flow has also created a large depression in the channel, subsequently exposing a deposit of petroleum solids. This area will be designated as the Willow Wall Revetment area. Repair and restoration of this area will consist of excavation and removal of the solids, re-contour of the channel, installation of willow wall revetment on the east and west banks. Table 2-1 summarizes the restoration areas.

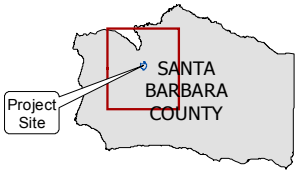



LEGEND:

Area ECC Oil Field Property

East Cat Canyon Creek Restoration Site

MAP EXTENT:

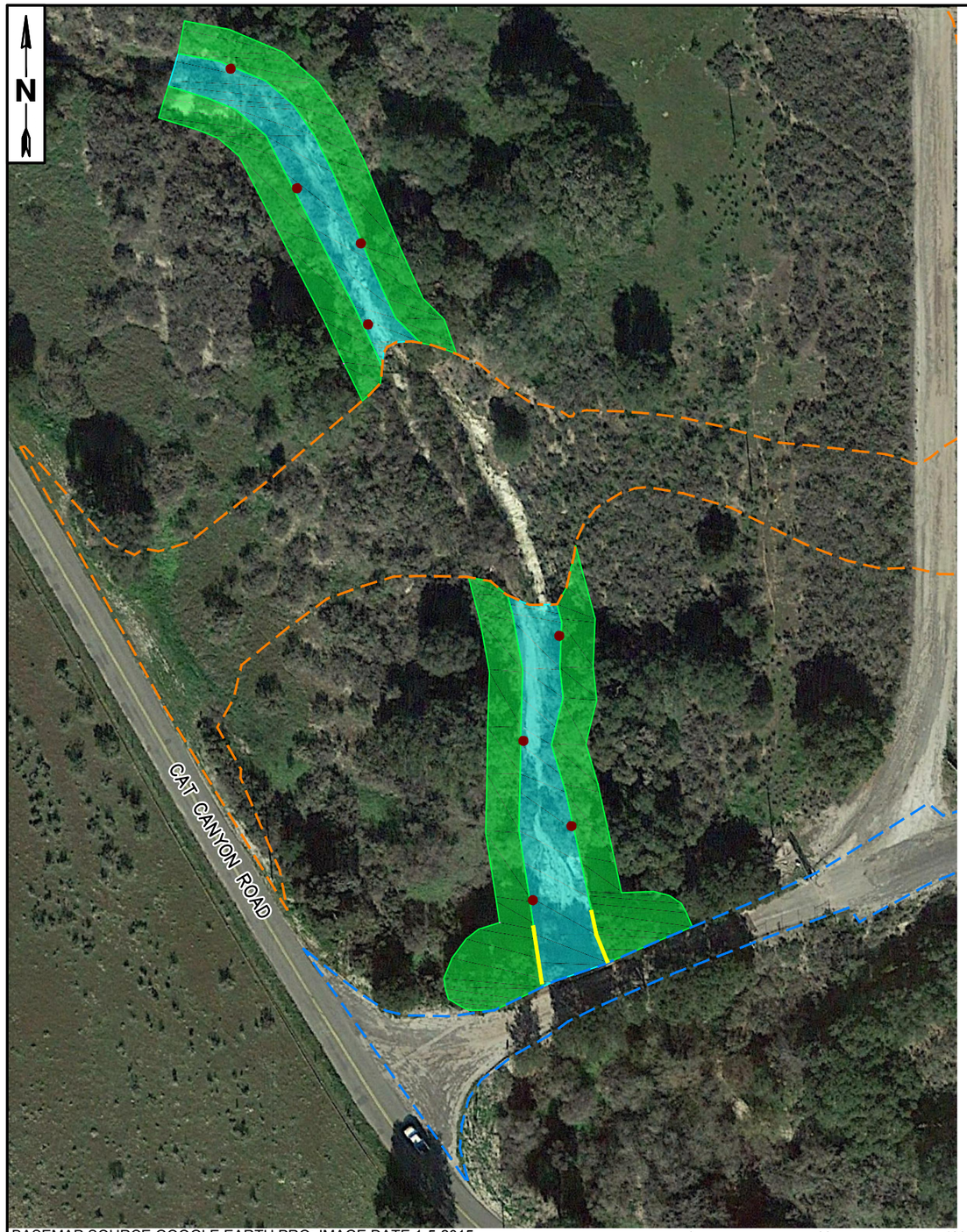



*Source: Esri Online Basemap, DPSI 2013*
*Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet*
*Notes: This map was created for informational and display purposes only*

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

| PROJECT NAME: | | | |
|---|---|---|---|
| EAST CAT CANYON SANTA BARBARA COUNTY, CA | | Restoration Site Location | FIGURE 1 |
| PROJECT NUMBER: 1002-0455 | DATE: July 2016 | | |

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Bio Assessment\Project Location.mxd

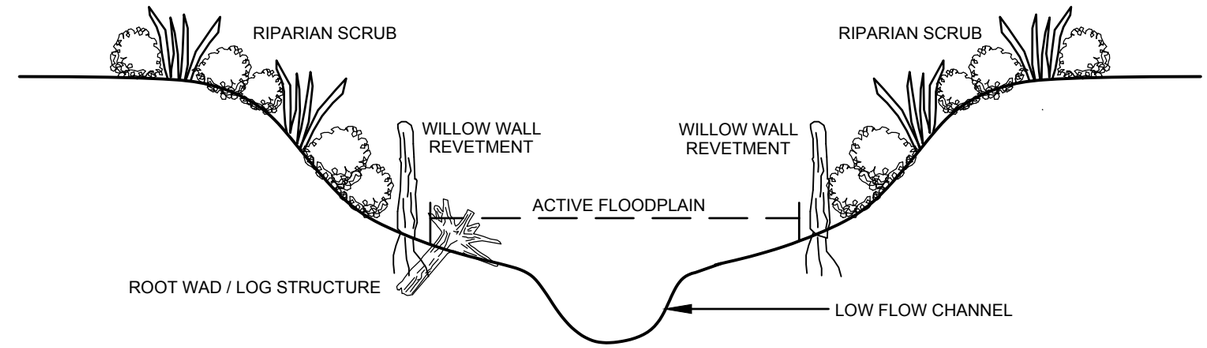



BASEMAP SOURCE GOOGLE EARTH PRO; IMAGE DATE 1-5-2015

0 80 120

SCALE IN FEET

CAT CANYON CREEK RESTORATION SITE




SECTION: CHANNEL AND BANK

NOT TO SCALE

LEGEND

- EXISTING BRIDGE AND CULVERT LIMITS
- NEW BRIDGE WORK LIMITS
- CHANNEL AREA (0.27 Acres)
- BANK AREA (0.50 Acres)
- WILLOW WALL REVETMENT
- DEFLECTION FEATURE (ROOT WAD / LOG STRUCTURE)

PHOTO : WILLOW WALL INSTALLATION

PHOTO : WILLOW WALL 3 YEARS AFTER INSTALLATION

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: East Cat Canyon Oil Field Redevelopment Project Santa Barbara County, CA

PROJECT NUMBER: 1002-0455

DATE: April 2017

CONCEPTUAL RESTORATION PLAN

FIGURE 2

Z:\Current Projects\0000-0000 CAD MASTER DRAWINGS\AERA EAST CAT CANYON\DRAWINGS\DRAWINGS\Restoration Plans East Cat Canyon\Aera Ecc Creek Crossing Restoration Plan.dwg, 5/9/2017 2:10:15 PM

## Table 2-1. Conceptual Wetland Restoration Acreage Summary

| Jurisdictional Agency | Habitat Area | Impact | Acres[1] | Ratio | Mitigation Acreage | Jurisdictional Mitigation Acreage |
|---|---|---|---|---|---|---|
| ACOE | Channel | Temporary | 0.09 | 1:1 | 0.09 | 0.27 |
| | | Permanent | 0.06 | 3:1 | 0.18 | |
| CDFW / RWQCB* | Channel and Bank | Temporary | 0.26 | 1:1 | 0.26 | 0.77** |
| | | Permanent | 0.17 | 3:1 | 0.51 | |

1 Values obtained from surveys of proposed impact areas at Cat Canyon and Long Canyon Crossings #1, #2, #3 (Cannon and Associates, April 13, 2017).

* Includes ACOE jurisdictional area.

** Includes ACOE jurisdictional mitigation acreage; total mitigation acreage is 0.77 acres of restored channel and bank habitat.

## 2.2 IMPLEMENTATION

The focus of this conceptual Plan is to restore areas disturbed by past land use practices as mitigation for Project impacts to jurisdictional features within Aera East Cat Canyon property. Restoration activities will include minor grading of the creek channel and banks, willow wall construction, planting, and seeding. The restoration site will be regularly monitored and maintained to achieve the goals and objectives of the Plan.

It is anticipated that excavation and grading will be conducted between April 15 and November 1 to avoid the rainy season when the stream may be active. Planting will occur during the winter months, to take full advantage of rainfall and to facilitate obtaining willow and mulefat cuttings when donor plants are dormant. To meet agency expectations for mitigation requirements and ensure success of the restoration site, it is expected that three years will be required for vegetation to reach the appropriate size and maturity to provide substantial wildlife habitat functions and assist in erosion control. Implementation details for each restoration area are described in detail below.

### 2.2.1 Channel Area

The Channel area is approximately 0.27 acres (ac) and 360 feet (ft) in length. The Channel area contains patches of exposed petroleum solids within sandy and rocky soils. The impacted area is located on the north side of the culvert under the existing bridge and consists of a relatively deep depression formed by heavy water flow, erosion damaged banks, and exposed petroleum solids. Petroleum solids on the channel bank in an area immediately north of the culvert are to be addressed as part of an ongoing voluntary site assessment activity by Shell. Aera will coordinate their activities with Shell for this area. Restoration activities will commence with installation of root wads and or log structures. Methods include the use of a mechanized heavy equipment working within or adjacent to the Channel area. Mulefat and willow cuttings will be planted in patches throughout the Channel area, and root wads/log structures will be placed appropriately. Vegetation and woody debris help to minimize scouring, and erosion, and provides suitable habitat for aquatic and terrestrial wildlife.

### 2.2.2 Bank Area

The Bank area is approximately 0.50 ac and 360 ft in length along both sides of the channel. The Bank area consists of dense vegetation cover consisting of native and non-native riparian and upland plant species. Some portions of the bank area will be disturbed during excavation activities and will be revegetated with mulefat and willow cuttings, and application of a native riparian seed mix. Restoration activities within the undisturbed portions of the Bank area will consist of removing non-native and or upland plant species to reduce competition and promote establishment of native riparian species.

### 2.2.3 Willow Wall Revetment

The Willow Wall Revetment will consist of two “living wall” structures each approximately 64 ft in length, and will be constructed within a portion of the most heavily impacted portion of the Channel and Bank areas. This area consists of a relatively deep depression formed by heavy water flow, and erosion damaged banks. Following excavation and grading during the Channel restoration, the willow walls will be installed. The structures themselves will provide immediate slope stabilization, then root establishment will provide increased stabilization in the future. The

benefit of willow wall construction is two-fold; it acts as a slope stabilizer and as a stand of native riparian vegetation.

To construct the proposed willow wall revetments, a series of willow cuttings will be obtained from nearby segments of Cat Canyon Creek. Specifically, four to five foot-long cuttings will be obtained between September and February when plants are dormant. Cuttings will consist of straight, vigorously growing stalks and/or branches, between 0.5- and 1.5-inch in diameter. Larger sized cuttings and/or willow poles of 3- to 4-inch diameter will be used as the post and primary support of the willow wall revetments.

Following final grading in the Channel and Bank areas, the 3- to 4-inch diameter poles will be installed approximately every three feet and approximately one-foot from the toe of the slope. Pole planting holes will be excavated using an auger. Care shall be taken during this process to install the poles at a minimum 10-degree angle toward the bank. Subsequent to installation, the holes will be backfilled, lightly tamped and thoroughly watered to saturate the planting zone. The collected 0.5- to 1.5-inch willow cuttings will then be woven through the poles to create a solid wall structure. The woven willow cuttings also referred to as “weavers” will be secured with waterproof twine and/or an equivalent. Mulefat can also be used as weavers. Once in place, jute netting will be keyed-in along the slope side of the willow wall revetments to allow for manual re-contouring of the of the slope face. Loosened soil materials will be collected and manually compacted behind the willow wall revetment with a layer of densely packed willow brush from the pole trimmings. The final slope face will be manually raked to reduce uneven surfaces. Lastly, the jute netting will be anchored over the finished slope face using manufacturer recommended staples and/or an equivalent.

## 2.3 IRRIGATION

Depending on weather conditions and the timing of restoration, supplemental irrigation may be necessary to promote vegetation germination and establishment. If needed, temporary irrigation systems will be designed and installed prior to seeding or planting. The irrigation system may consist of water tanks located in adjacent upland areas, with gravity-fed drip lines (i.e., ½ inch tubing and emitters and/or sprayers). Supplemental irrigation will be limited to the first two years, unless adverse weather conditions threaten the survival of plantings or seedlings. Irrigation will be systematically cut back toward the fall and winter of the second year to wean the plants off irrigation.

## 2.4 MAINTENANCE AND MONITORING

The following maintenance activities will be implemented as needed:

- Installation and periodic replacement of erosion control materials (straw wattles, sand bags, silt fencing);
- Repair to irrigation system;
- Periodic evaluation for implementation of adaptive management measures; and
- Annual performance criteria monitoring.

## 2.5 PERFORMANCE CRITERIA

Performance criteria will be developed during preparation of the final restoration plan and will be finalized upon approval by the permitting agencies. The goal of restoration is to repair and restore a reach of Cat Canyon Creek to improve function and habitat within the surrounding watershed. Following completion of grading and installation of plant materials, monitoring will ensure that the restoration site is progressing towards achievement of goals. Successful restoration is dependent on evaluating attributes that characterize the goals and objectives of restoration. This Plan proposes to develop performance criteria that will capture key attributes of an ephemeral stream system within the context of the surrounding watershed.

In California, the California Rapid Assessment Method for Wetlands and Riparian Areas (CRAM), administered by the State Water Boards, was developed to assess the conditions and stressors of wetland and riparian sites. Monitoring methodologies within CRAM focus on ecological and hydrological attributes of wetland and riparian systems, and the associated metrics can be applied during restoration monitoring. Examples of potential performance criteria include (California Wetland Monitoring Workgroup, 2015):

- Stream Corridor Continuity – The results generally reflect a measure of the overall health of the stream system over time, with a loss of stream function expected to accompany the anticipated channel adjustments. This metric is measured through mapping and field verification;
- Structural Patch Richness – Physical complexity promotes ecological complexity, which in turn increases ecological functions, beneficial uses, and the overall condition of the stream. This metric is measured through field surveys focused on indicators such as organic debris, animal mounds and burrows, biotic crusts, sand ripples, etc.; and
- Plant Community – Vegetation influences the quantity, quality, and spatial distribution of water and sediment within streams. Vascular plants associated with streams entrap suspended sediment, decrease the velocity of water flowing through the channel, and function as habitat for stream associated wildlife.

# 3.0 REFERENCES

California Wetland Monitoring Workgroup, 2015. California Rapid Assessment Method, Episodic Riverine User's Manual and Field Book, ver. 1.0. December 2015. Accessed website April 26, 2017. www.cramwetlands.org.

*DRAFT*

# LONG TERM MANAGEMENT AND CONSERVATION STRATEGY

# EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT

# SANTA BARBARA COUNTY, CALIFORNIA

**Prepared for:**

Aera Energy LLC
PO Box 11164
Bakersfield, California 93389-1164

**Prepared by:**

Padre Associates, Inc.
369 Pacific Street
San Luis Obispo, California 93401

September 2015

DRAFT

## TABLE OF CONTENTS

**Page**

**1.0 INTRODUCTION ..... 1**

1.1 LOCATION ..... 1
1.2 STATEMENT OF PURPOSE ..... 2
1.3 LAND MANAGEMENT RESPONSIBILITIES ..... 2
1.4 RELATIONSHIP TO OTHER PLANS ..... 2
1.4.1 Oak Tree Replacement Plan ..... 2
1.4.2 Oak Tree Protection Plan ..... 3
1.4.3 Draft Revegetation Plan ..... 3
1.4.4 Fuel Management Plan ..... 4

**2.0 CONSERVATION AREA RESOURCES ..... 5**

2.1 HISTORY AND LAND USE ..... 5
2.1.1 Historical Site Uses ..... 5
2.1.2 Existing Land Uses ..... 5
2.1.3 Adjacent Land Uses ..... 5
2.2 TOPOGRAPHY ..... 5
2.3 HYDROLOGY AND SOILS ..... 6
2.4 BIOLOGICAL RESOURCES ..... 7
2.4.1 Biological Resources Surveys ..... 7
2.4.2 Aquatic Features ..... 7
2.4.3 Vegetation Types ..... 8
2.4.4 Special-status Plant Species ..... 10
2.4.5 Special-status Wildlife Species ..... 10
2.5 EXISTING AND FUTURE EASEMENTS ..... 19

**3.0 MANAGEMENT GOALS AND OBJECTIVES ..... 20**

3.1 MANAGEMENT GOALS ..... 20
3.2 MANAGEMENT AND OPERATIONAL OBJECTIVES ..... 20
3.2.1 Wetlands and Riparian Habitat ..... 20
3.2.2 Special-status Species ..... 20
3.2.3 Special-status Species Habitat ..... 20
3.2.4 Rare Plant Species Monitoring ..... 20
3.2.5 Native Animal Species Monitoring ..... 21
3.2.6 Non-Native Species ..... 21
3.2.7 Vegetation Management ..... 21
3.2.8 Hydrology ..... 21
3.2.9 Storm Water Management ..... 21
3.2.10 Agricultural Resources ..... 21
3.2.11 Access and Trespass ..... 21
3.2.12 Lighting ..... 21
3.2.13 Routine Maintenance ..... 21
3.2.14 Fragmentation and Future Development ..... 21

DRAFT

3.2.15 Reporting ..... 22

**4.0 REFERENCES ..... 23**

## LIST OF TABLES

Table 2-1. Regional Special-Status Wildlife Species ..... 11

## LIST OF FIGURES

Figure 1. Conservation Area Vicinity Map

Figure 2. Conservation Area Location Map

Figure 3. Conservation Area Site Plan

Figure 4. County Land Use Designations

Figure 5. Conservation Area Soil Survey

Figure 6. Existing Easements

DRAFT

# 1.0 INTRODUCTION

Aera Energy LLC (Aera) has submitted an application package to the Santa Barbara County Planning and Development Department (County) to request approval of an Oil and Gas Drilling/Production Plan at the East Cat Canyon Oil Field Redevelopment Project site (Project site). Aera has also submitted a separate Tentative Tract Map application for the Project site and is requesting the County's approval to divide and/or reconfigure the Project site parcels consist with the Subdivision Map Act regulations. This Draft Long Term Management and Conservation Strategy (Draft Strategy) was developed in response to a request by the County in their Determination of Application Incompleteness letter, dated May 15, 2015.

As part of the Redevelopment Project, which includes up to 305.1 acres of grading and development, Aera proposes to establish a permanent Conservation Area of up to 686 acres to provide habitat mitigation for Project impacts to biological resources and habitat conservation for special status species. As identified within the Project permit application, submitted April 17, 2015 and updated July 22, 2015 and August 17, 2015, the Project will remove up to 1,504 coast live oak trees six inches or greater in DBH (1,005 trees in Phase I and 499 trees in Phase II), permanently impact up to 135.9 acres of potential California tiger salamander (*Ambystoma californiense;* CTS) habitat, and permanently remove up to 53.6 acres of annual grassland habitat and up to 184.5 acres of California coastal scrub habitat which may be considered significant by substantially fragmenting, eliminating, or otherwise disrupting foraging areas and/or access to food sources, and/or substantially limit or fragment range and movement of wildlife. Aera is proposing to mitigate these impacts by establishing a Conservation Area to preserve in-kind habitat that will be managed, monitored, and maintained in perpetuity under the guidance of this Draft Strategy. Building upon this Draft Strategy, a final Conservation Strategy will be developed in the future based on agency permit conditions of approval and the final approved Project design, including the proposed phasing of the development.

The final Conservation Strategy will incorporate additional elements such as: the recordation of a Final Tract Map to establish the final boundaries of the Conservation Area, recordation of a Conservation Easement over the Conservation Area that will be executed once each phase of the Redevelopment Project has obtained the required regulatory permits, the identification of a Land Manager and Conservation Easement Holder, the Conservation Area funding mechanism, and the finalization of regulatory agency permits which may have bearing on the long-term responsibilities of the parties involved. It will also describe Conservation Area operations and administrative processes.

## 1.1 LOCATION

The Conservation Area is located within the Solomon Hills northeast of the Gato Ridge mountain ranges within Cat Canyon, approximately 10 miles southeast of the City of Santa Maria and the community of Orcutt located in northern Santa Barbara County, California, designated as portions of Assessor Parcel Numbers 129-210-017, 101-050-042, 101-050-013, and 101-050-014. The Conservation Area is accessed via private roads located off of Long Canyon Road, south of the community of Sisquoc, California. The Conservation Area is shown on Figure 1 – Conservation Area Vicinity Map and Figure 2 – Conservation Area Location Map. The vicinity map shows the Conservation Area location in relation to the Project site, surrounding cities, towns,

major roads, and other distinguishable landmarks. The location map shows the Conservation Area property boundaries on a topographic map.

## 1.2 STATEMENT OF PURPOSE

The Conservation Area is being established by Aera to provide mitigation for unavoidable impacts from the East Cat Canyon Oil Field Redevelopment Project (Project), to conserve and protect special-status species and their habitats, and to honor the existing agricultural preserve uses of the site.

The purpose of the Draft Strategy is to provide a roadmap for how conserved species and habitat will be managed, monitored, and maintained in perpetuity in the Conservation Area. Establishment of the Conservation Area will include up to 686 acres of preserved potential CTS habitat, 127.7 acres of preserved oak woodland habitat, 276 acres of preserved California coastal scrub habitat, 215.4 acres of created oak woodland habitat (which includes the planting of up to 15,040 mitigation oak trees), and preservation of three blue-line drainage corridors, including Long Canyon Creek (Figure 3 – Conservation Area Site Plan).

## 1.3 LAND MANAGEMENT RESPONSIBILITIES

The Conservation Area will be managed by a designated Conservation Area Land Manager. Aera and the County will identify the process by which the Land Manager is to be selected. The Land Manager will implement the Conservation Area Strategy, managing and monitoring the Conservation Area in perpetuity to preserve its habitat and conservation values in accordance with the following:

- Permit conditions of the County of Santa Barbara and other applicable regulatory agencies;
- Requirements of the recorded Conservation Easement; and,
- Measures identified in the Project Oak Tree Replacement Plan, Oak Tree Protection Plan, Fuel Management Plan, and Revegetation Plan.

Some specific management objectives and implementing tasks are outlined in Section 3.0 of the Strategy. Long-term management tasks will be funded through a mechanism yet to be determined.

## 1.4 RELATIONSHIP TO OTHER PLANS

Management of the Conservation Area will be guided by the goals, objectives, and measures outlined in this Strategy, along with the applicable measures included within the Project Oak Tree Replacement Plan, Oak Tree Protection Plan, Fuel Management Plan, and Draft Revegetation Plan. The following paragraphs provide a summary of these other plans that have been prepared by Aera as part of the planning and implementation of the Project.

### 1.4.1 Oak Tree Replacement Plan

The Oak Tree Replacement Plan (Padre, 2014f) describes the Project's mitigation strategy for the removal of up to 1,504 mature oak trees (i.e., oak trees with a DBH of six inches or greater).

Replacement ratios are based on County of Santa Barbara ordinance requirements and include the following:

- For every mature live oak tree removed, ten acorns or ten one gallon saplings or smaller containers that support a longer taproot, will be planted within the Potential Oak Planting Area. Saplings may include those salvaged from the Project disturbance areas (10:1 - acorns or young saplings), and/or
- For every mature live oak tree removed, three 15 gallon saplings will be planted within the Potential Oak Planting Area (3:1 – 15 gallon saplings), and/or
- For every mature live oak tree removed, ten naturally occurring oak tree saplings between six inches and six feet tall will be protected and nurtured within Potential Oak Planting Area or in the Project site (10:1 – sapling/nurture trees), and/or
- Mature oak trees identified within the Project disturbance area and proposed for removal, will be transplanted to the Potential Oak Planting Area in order to salvage the tree (1:1 – transplanted mature oak trees); and/or
- Some amount of off-site planting and nurturing, in other conservation or restoration areas, such as La Purisima, or in burn areas of public lands, as agreed to by the County, may also be considered as a portion of the mitigation for on-site removals.

The primary approach for oak tree mitigation will be the on-site planting of replacement acorns, saplings, or trees within the Conservation Area. The Oak Tree Replacement Plan provides guidelines for the selection of Potential Oak Planting Areas within the Conservation Area, planting methods, and maintenance and monitoring practices. The Land Manager will be responsible for implementation and oversight of the Oak Tree Replacement Plan within the Conservation Area.

### 1.4.2 Oak Tree Protection Plan

The Oak Tree Protection Plan (Padre, 2014e) provides tree protection guidelines for Project activities, including grading, trenching, ground disturbance, and construction activities in an effort to minimize impacts to native oak trees occurring throughout the Project site. This Plan is focused on the protection of oak trees within the Project footprint that are not proposed to be removed as part of the Project activities. The goal of this Plan is to minimize impacts to oaks, to the extent feasible, through implementation of protection guidelines.

### 1.4.3 Draft Revegetation Plan

The proposed Project will include temporary and permanent impacts to annual grassland, California coastal scrub, oak woodland, and straight-awned spineflower habitats. A Draft Revegetation Plan (Padre, 2015b) has been developed that discusses the regulatory background, areas to be revegetated, mitigation acreages, revegetation implementation, maintenance and monitoring, performance criteria, and reporting requirements. The goal of the Revegetation Plan is to stabilize, restore, and preserve hydrologic, plant community, and faunal habitat function of upland habitats impacted by proposed Project activities to the extent feasible. The Draft Revegetation Plan provides a high-level management framework that will be refined and finalized following the finalization of regulatory agency permits.

### 1.4.4 Fuel Management Plan

A Fuel Management Plan was prepared to provide guidelines for fuel reduction activities to be implemented throughout the life of the Project, consistent with applicable State and County defensible space standards to prevent fire hazards and regulations, while providing protection for sensitive biological resources. Provided in the Plan is a summary of these applicable standards, regulations, and guidelines for all fuel reduction activities associated with the Project to ensure compliance with agencies, creation of defensible spaces, and avoidance and/or minimization of impacts to sensitive biological resources.

DRAFT

# 2.0 CONSERVATION AREA RESOURCES

## 2.1 HISTORY AND LAND USE

### 2.1.1 Historical Site Uses

The Conservation Area is located within the East Area of the Cat Canyon Oil Field in the Santa Maria Basin, where oil operations have been conducted since 1888. Historically, oil production activities at the Project site were operated by independent operators starting around 1910 and were later taken over by Husky Oil Company. In 1984, the Project site was transferred to Shell Oil Company. In 1997, Shell and Mobil combined their California exploration and production operations to form Aera. Intermittent production activities at the East Area of the Cat Canyon Oil Field were conducted until 1989, when the oilfield was shut down due to economics at that time. Twenty-two oil/gas wells were located within the Conservation Area. Aera or its predecessors implemented an oil well abandonment and decommissioning program between the late 1980s and 2003 under the supervision of the California Department of Conservation Division of Oil, Gas and Geothermal Resources. All of the oil/gas wells at the Conservation Area (that are attributed to Aera or its predecessor companies) are currently listed as plugged and abandoned (Department of Conservation Division of Oil, Gas and Geothermal Resources, 2014). Access roads and well pads remain intact.

### 2.1.2 Existing Land Uses

The Conservation Area land use designations (as depicted on the County of Santa Barbara Land Use Designation Maps) are Agriculture (Ag-II-100) and Agricultural Commercial (AC) (Figure 4 – County Land Use Designations). In addition, the Conservation Area is designated Agriculture on the County of Santa Barbara Unincorporated Zoning Maps, which are part of the County of Santa Barbara Land Use and Development Code (2014). There are two parcels (APNs 129-210-017 and 101-050-042) that are currently under Agricultural Preserve Contract (No. 77AP019). These parcels are not designated as “Prime” farmland under the County Important Farmland Series Maps (California Department of Conservation, 2012), prepared pursuant to Govt. Code Section 65570. Agricultural uses within the Conservation Area are have historically been limited to cattle grazing.

### 2.1.3 Adjacent Land Uses

Parcels surrounding the Project site have land use designations of Agriculture (Ag-II-100; A-1-10; and A-II) and Agricultural Commercial (AC), as depicted on the County of Santa Barbara Land Use Designation Maps (Figure 4). There are single family residences, wineries, and commercial offices located within a mile of the Conservation Area.

## 2.2 TOPOGRAPHY

The topography of the area consists of a series of north-south aligned subdued hills with elevations ranging from approximately 500 to 1,000 feet above mean sea level. The geomorphology of the area consists of ridges and valleys with some steep drainages and canyons. Long Canyon Creek runs northerly through Long Canyon to the west of the Conservation Area (Figure 2).

DRAFT

## 2.3 HYDROLOGY AND SOILS

**Surface Water Hydrology and Soils.** The Conservation Area is located within the Santa Maria Valley. According to the Santa Barbara County Water Agency within their Water Supply and Demand, Current Uses and Future Estimates Report (GEI Consultants, 2013), the Santa Maria Valley covers 260 square miles and is crossed by the Santa Maria River which is formed by the confluence of the Cuyama and Sisquoc rivers near Fugler Point about 20 miles from the Pacific Ocean. The Santa Maria River is ephemeral, with no surface-through flows about 83 percent of the time. Much of the valley consists of a broad alluvial plain underlain by an extensive deposit of water bearing alluvium and semi consolidated sedimentary deposits. Surface drainage is primarily from the Sisquoc and Santa Maria Rivers that traverse the north side of the basin from east to west. Orcutt Creek, Bradley Canyon, Cat Canyon, and Foxen Canyon are the primary drainages on the south side of the basin.

Within the Conservation Area, the topography consists of a series of north-south aligned subdued hills with elevations ranging from about +500 to +1,000 feet above mean sea level. Cat Canyon Creek, the principal stream of the area, flows intermittently north toward the community of Sisquoc. This creek, as well as those in Long Canyon and Olivera Canyon, is well-entrenched along most of its course. Evidence of rising water in the creek system is not apparent. Soils in the drainage areas are relatively thin, heavily developed with clay residuals, and of poor permeability. As such, the area is not considered a groundwater recharge area.

The Conservation Area is contained within three watersheds which ultimately discharge into the Sisquoc River to the north (TJ Cross, 2014). The watersheds consist of Long Canyon (893 acres), Olivera Canyon (1,414 acres), and an unnamed blue line (Unnamed #3, 218 acres). All watersheds are intermittent and flow to the north toward the community of Sisquoc. All three creeks are well-entrenched along most of their courses.

The Hydrological Soils Groups for areas within the Conservation Area were obtained from the United States Department of Agriculture, National Resource Conservation Services, Web Soil Survey (Figure 5 – Soil Survey). Conservation Area soils appear to be predominantly Group C with some Group A and D dispersed within the watersheds, as defined in the list below:

- Group C Soils have a slow infiltration rate when thoroughly wet. These soils also have a slow rate of water transmission;
- Group A soils have a high infiltration rate and low runoff potential when thoroughly wet. These soils also have a high rate of water transmission; and
- Group D soils have a very slow infiltration rate and high potential for water runoff. These soils have a very slow rate of water transmission.

Average rainfall in the area varies from about 12 to 16 inches per year (County of Santa Barbara, Public Works Department, Water Resources Division, 2011). Precipitation as measured at the Sisquoc Fire Station No. 23 averages about 15 inches per year. Almost 95 percent of the rainfall occurs between the months of November through April.

**Flood Hazard Zones.** In 1979, the County of Santa Barbara became a participating community in the National Flood Insurance Program. The National Flood Insurance Program makes federally backed flood insurance available in communities that agree to adopt and enforce

floodplain management ordinances to reduce the potential for future flood damage. As part of the National Flood Insurance Program, the Federal Emergency Management Agency prepares flooding studies. These flooding studies include the delineation of flood hazard boundaries based on existing hydrologic, geologic, and topographic data. From these studies, Federal Emergency Management Agency prepares maps that show areas at risk from 100-year and 500-year floods. The entire Conservation Area is located within Zone X, or within an area that has a 1 percent or less annual chance of flood.

## 2.4 BIOLOGICAL RESOURCES

### 2.4.1 Biological Resources Surveys

The biological resources of the Conservation Area are discussed in detail in the following reports:

- Padre Associates, Inc. 2014. Biological Resources Survey Report for the Aera Energy LLC East Cat Canyon Oil Field, Santa Barbara County, California. Prepared for Aera Energy LLC.
- Padre Associates, Inc. 2014. 90-Day Report on Wet Season Vernal Pool Branchiopod Surveys for the Aera Energy LLC East Cat Canyon Oil Field, Santa Barbara County, California. Prepared for Aera Energy LLC.
- Padre Associates, Inc. 2014. Least Bell's Vireo Survey Results. Prepared for Aera Energy LLC.
- Padre Associates, Inc. 2014. Oak Tree Replacement Plan for the East Cat Canyon Oil Field Redevelopment Project, Santa Barbara County, California. Prepared for Aera Energy LLC.
- LSA Associates, Inc. 2014 Results of 2014 Dry Season Fairy Shrimp Surveys for the Aera Energy LLC's East Cat Canyon Oil Field Site, Santa Barbara County. Prepared for Padre Associates, San Luis Obispo, California.
- Storrer Environmental. 2013. Habitat Assessment for California Tiger Salamander (*Ambystoma californiense*), Aera East Cat Canyon Production Plan, Santa Barbara County, California. Prepared for Padre Associates, San Luis Obispo, California.

The following sections provide a description of the biological resources of the Conservation Area.

### 2.4.2 Aquatic Features

**Drainages.** As shown on Figure 3, the Conservation Area contains three "blue-line" drainages identified by U.S. Geological Survey (USGS) topographical imagery. These drainages include Long Canyon Creek, Olivera Canyon Creek, and one unnamed drainage. These drainages are ephemeral and remain dry for the majority of the year except during and immediately following rainfall. After seasonal rains, the drainages may hold water long enough to provide suitable breeding habitat for some amphibious species or aquatic invertebrates that rely on ephemeral water sources. They do not provide a perennial water source for aquatic wildlife that rely on a continual water source for survival and/or breeding, such as fish.

Long Canyon Creek flows north through the Conservation Area and ultimately drains to the Sisquoc River. In the upper portions of the drainage, in the southeast portion of the Conservation Area, it is a swale in grassland habitat grazed by cattle. It begins to narrow into the canyon along Long Canyon Road, supporting some scattered riparian vegetation occurring in the northern reaches of the Conservation Area. It then flows north of the Conservation Area where it is channelized by agricultural activities before draining into the Sisquoc River. To the east of the Conservation Area, Olivera Canyon Creek is an ephemeral drainage that gathers water flow from rills in the hillsides following rainfall. This drainage is steep and flows through oak woodland and grassland habitats before also draining to the Sisquoc River. There is one other unnamed blue-line drainage that supports water from the north facing slopes of the Conservation Area and drains north eventually to the Sisquoc River. In addition, there are several other ephemeral drainages not identified as USGS “blue-line” drainages but were observed during field surveys throughout the Conservation Area. These channels drain the steep hillsides within the Conservation Area into the lower floodplain during periods of rainfall and remain dry for the remainder of the year. They are sandy with existing erosional features. Riparian vegetation or other hydrophytic plant species were not identified in these drainages.

**Ephemeral Pools.** Ephemeral pools are formed in closed depressions lacking a surface outlet and are wet only seasonally or in wet years. These closed depressions become inundated following rainfall and may sometimes remain inundated until spring or early summer, or sometimes fill and empty numerous times during the wet season. They may support endemic plant and wildlife species that rely on short duration inundation and specific soil elements. Some ephemeral ponds, depending on their specific wetland characteristics (i.e., hydric soils, hydrology duration, and/or hydrophytic vegetation), may be afforded protection under statutory or regulatory guidelines. The only ephemeral pool identified within the Conservation Area is Olivera Canyon Pond (referred to by the United States Fish and Wildlife Service as potential CTS breeding pond SISQ-20).

SISQ-20 is a man-made impoundment. It was created by damming the intermittent drainage that flows through Olivera Canyon. SISQ-20 is approximately 0.17 acre in size. The berm at the downstream end of the pond is approximately 10 feet in height. Historic aerial photographs confirm that the pond was not present in 1938. A photo taken in July of 1972 was inconclusive, but the pond was clearly evident in a photo taken in March of 1977 (Storrer, 2013).

SISQ-20 has been monitored during the rainy season throughout the past three years (Fall 2012 through Spring 2015) and has not been documented to sustain surface water for periods longer than one week. The pond supports no emergent aquatic vegetation. Plant species within the area formerly inundated included cocklebur (*Xanthium* sp.) and dove weed (*Eremocarpus setigerus*). There is evidence of use by cattle.

### 2.4.3 Vegetation Types

Based on species composition, life form, and community membership rules, the vegetation identified within the Conservation Area can be classified into distinct vegetation types (i.e., alliances, associations) as described in Sawyer et al., 2009. The *Biological Resources Survey Report* (Padre, 2014c) identifies three primary vegetation types within the Conservation Area, as summarized below. Refer to the *Biological Resources Survey Report* for site photographs, a

comprehensive list of plants observed within the Conservation Area during field surveys, and the Rapid Assessment Data Sheets.

**Annual Grasslands.** Establishment of the Conservation Area will preserve 44.9 acres of annual grassland habitat. The grasslands within the Conservation Area consist of several native and non-native grass species that transition in dominance in relation to distinct topographical areas (e.g., valleys, flat ridge tops, moderately sloping hillsides, etc.). Field surveys, identified two distinct grassland vegetation types (i.e., MCVII alliances) within the Conservation Area, including annual brome grasslands (*Bromus* (*diandrus, hordeaceus*) *– Brachypodium distachyon*, Semi-Natural Herbaceous Stands) and wild oats grasslands (*Avena barbata* and *fatua* Semi-Natural Herbaceous Stands). Note that in order to best represent the general vegetation types within the Conservation Area, these two grassland alliances are mapped as components of annual grassland (Figure 3). Additionally, purple needlegrass (*Stipa pulchra*) was observed intermittently throughout the Conservation Area during field surveys. A quantitative vegetation assessment (Padre, 2014c) identified purple needlegrass as a component species of wild oats grassland at eight percent cover, which is less than the County threshold requiring protection (10 percent).

**California Coastal Scrub.** Establishment of the Conservation Area will preserve 276 acres of California coastal scrub habitat. The coastal scrub habitat within the Conservation Area consists of several perennial shrub species that transition in dominance in relation to distinct topographical areas (e.g., west facing hillsides, steep slopes, etc.). Field surveys identified four distinct coastal scrub vegetation types (MCVII alliances) within the Conservation Area, including black sage scrub (*Salvia mellifera* Shrubland Alliance), California sagebrush scrub (*Artemisia californica* Shrubland Alliance), mock heather stand (*Ericameria ericoides*), and coyote brush scrub (*Baccharis pilularis* Shrubland Alliance). Note that in order to best represent the general vegetation types within the Conservation Area, these four coastal scrub alliances are mapped as components of California coastal scrub (Figure 3).

**Coast Live Oak Woodland.** Establishment of the Conservation Area will preserve 127.7 acres of existing oak woodland habitat and up to an expected 215.4 acres of created oak woodland habitat. Coast live oak woodland (*Quercus agrifolia* Woodland Alliance) occurs on alluvial terraces, canyon bottoms, stream banks, slopes, or flats, with soils that are deep, sandy or loamy with high organic matter. This alliance is characterized by coast live oak as dominant or co-dominant in the tree canopy; canopy is open to continuous, shrub layer is sparse to intermittent, and herbaceous layer is sparse (Sawyer et al., 2009). Coast live oak woodland is particularly important for its ability to support a wide variety of wildlife species due to its high value as foraging habitat and protective cover (e.g., acorn production, forest canopy, etc.). Further, oak woodland is considered to be an environmentally sensitive habitat area (ESHA) by Santa Barbara County.

Coast live oak woodland was identified during field surveys throughout the Conservation Area on all topographic settings, ranging in cover from dense to intermittent. Surveys identified native and non-native shrubs, forbs and grasses, with coast live oak as the dominant species within this vegetation type. Component species include Italian thistle, ripgut grass, slender wild oat, Italian ryegrass (*Festuca perennis*), geranium (*Geranium m*olle), miner's lettuce (*Claytonia*

*perfoliata*), woodmint (*Stachys bullata*), poison oak, and California hummingbird sage (*Salvia spathacea*).

### 2.4.4 Special-status Plant Species

Special-status plant species that were documented during field surveys were limited to straight-awned spineflower (*Chorizanthe rectispina*), a species of conservation concern listed with the CNPS (Rank 1B.3) (Figure 3). Straight-awned spineflower is an annual herb in the Buckwheat (Polygonaceae) Family that occurs at elevations of approximately 280 to 3,400 feet, and is generally associated with sandy or gravel soils. The April 2013 survey was conducted during the expected blooming period for this species and suitable habitat occurs in coastal scrub habitat and associated soils within the Conservation Area. Two distinct populations of straight-awned spineflower were observed within the Conservation Area (Figure 3), primarily on rocky substrate and/or rocky outcrops.

No other special-status species were observed during field surveys. The following special-status plant species have the potential to occur within the Conservation Area, based on presence of suitable habitat and/or documented occurrence within five miles of the Project site: Hoover's bent grass. Santa Ynez groundstar, Miles' milkvetch, dwarf calycadenia, La Graciosa thistle, seaside bird's beak, Gaviota tarplant, umbrella larkspur, Blochman's leafy daisy, mesa horkelia, pale-yellow layia, Santa Barbara honeysuckle, Vandenberg monkey flower, black-flowered figwort, and chaparral ragwort.

### 2.4.5 Special-status Wildlife Species

Special-status wildlife species are either listed as Endangered or Threatened under the federal Endangered Species Act (FESA) or the California Endangered Species Act (CESA), or considered rare by resources agencies, professional organizations, and the scientific community. Table 2-1 – Regional Special-Status Wildlife Species provides a listing of special-status wildlife species that have the potential to occur within the Conservation Area region, based on desktop research and field surveys conducted for the Biological Resources Survey Report (Padre, 2014c). Additional detailed descriptions are included in the paragraphs below.

DRAFT

## Table 2-1. Regional Special-Status Wildlife Species

| Common Name *Scientific Name* | Status | General Habitat Description | Nearest Documented Occurrence | Conservation Area | | | |
|---|---|---|---|---|---|---|---|
| | | | | Habitat Present | Occurrence < five-miles | Observed During Field Surveys | Potential for Occurrence |
| **Invertebrates** | | | | | | | |
| Monarch butterfly *Danaus plexippus* | G5, S3 | Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, cypress) with nectar and water sources nearby. | Nearest documented location: Santa Maria Country Club, greater than five miles from Project site (CDFW, 2014). Observed within the Project site during 2013 field surveys by Padre Biologists. | X | X | X | X |
| **Amphibians** | | | | | | | |
| California tiger salamander *Ambystoma californiense* | FE, ST, CSC | Need underground refuges, especially ground squirrel burrows and vernal pools or other seasonal water sources for breeding. | Nearest known location: east round pond located east of Highway 101, approximately 4.2 miles southwest of Project site (CDFW, 2014). | X | X | | X |
| California red-legged frog *Rana draytonii* | FT, CSC | Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. | Nearest known location: along the Sisquoc River, approximately 2.5 miles north and northeast of the Project site (CDFW, 2014). | | X | | X |
| Western spadefoot *Spea hammondii* | CSC | Grassland habitats, valley-foothill hardwood woodlands, vernal pools are essential for egg laying and breeding. | Nearest documented occurrence located to the west of the Project site along Cat Canyon Road (Sage, 2012). | X | X | | X |
| **Reptiles** | | | | | | | |
| Blainville's (Coast) horned lizard *Phrynosoma blainvillii* | CSC | Wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. | Observed within the Project site by Padre Biologists in 2012 and 2013. | X | X | X | X |
| Coast patch-nosed snake *Salvadora hexalepis virgultea* | CSC | Brushy or shrubby vegetation in Southern California. Require small mammal burrows for refuge and overwintering sites. | Nearest known location: Avena Road, 2.19 miles NE of La Purisima Mission State Historical Park, greater than five miles from Project site (CDFW, 2014). | X | | | X |
| California legless lizard *Anniella pulchra* | CSC | Sandy or loose loamy soils, under sparse vegetation. Soil moisture is essential. | Nearest known location: South side of Sisquoc River, approximately 3.7 miles west-northwest of Project site (CDFW, 2014). | X | X | | X |

DRAFT

## Table 2-1. Regional Special-Status Wildlife Species

| Common Name *Scientific Name* | Status | General Habitat Description | Nearest Documented Occurrence | Conservation Area | | | |
|---|---|---|---|---|---|---|---|
| | | | | Habitat Present | Occurrence < five-miles | Observed During Field Surveys | Potential for Occurrence |
| Southern western pond turtle *Actinemys pallida* | CSC | Permanent or nearly permanent bodies of water in many habitat types (<6000 ft elevation). | Nearest documented location: south side of the Sisquoc River, approximately 2.0 miles north of Project site (CDFW, 2014). | X | X | | X |
| **Birds** | | | | | | | |
| Tricolored blackbird *Agelaius tricolor* | CSC, M | Requires open water and protected nesting substrate and foraging area with insect prey within a few km of the colony. | Documented along Cat Canyon Road by Padre Biologists, immediately adjacent from the Project site. | X | X | | X |
| Burrowing owl *Athene cunicularia* | CSC, M | Open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. | Nearest sighting in 2003, northwest of junction of Betteravia Road and Black Road, greater than five miles from Project site (CDFW, 2014). | X | X | | X |
| Yellow warbler *Dendroica petechia* | CSC, M | Riparian plant association; prefers willows, cottonwoods, aspens, sycamores and alders for nesting and foraging. | Nearest known location: Sisquoc River, approximately 2.3 miles north-northeast of Project site (CDFW, 2014). | X | X | | X |
| Southern California rufous-crowned sparrow *Aimophila ruficeps canescens* | M, WL | Coastal scrub. | Observed within Project site during April 2013 field survey by Padre Biologists. | X | X | X | X |
| California horned lark *Eremophila alpestris actia* | M, WL | Grasslands with low-lying vegetation. | Observed within Project site during April 2013 field survey by Padre Biologists. | X | X | X | X |
| Loggerhead shrike *Lanius ludovicianus* | CSC, BCC, M | Open pastures and prairies with scattered bushes, hedgerows and trees. | No observations for this species were noted in the desktop review; however, suitable habitat is present within the Project site and Project site occurs within the current range of the species. | X | | | X |
| Purple martin *Progne subis* | M, CSC | Oak woodland, conifer forests | No observations for this species were noted in the desktop review; however, suitable habitat is present within the Project site and Project site occurs within the current range of the species. | X | | | X |
| Oak titmouse *Baeolophus inornatus* | M, BCC | Oak woodland | Observed within Project site during April 2013 field surveys by Padre Biologists. | X | X | X | X |
| Golden eagle *Aquila chrysaetos* | FP, M, WL, BCC | Open grasslands, foothills, prairies, open forests. | No observations for this species were noted in the desktop review. Suitable habitat present within the Project site. | X | X | | X |

DRAFT

## Table 2-1. Regional Special-Status Wildlife Species

| **Common Name** ***Scientific Name*** | **Status** | **General Habitat Description** | **Nearest Documented Occurrence** | **Conservation Area** | | | |
|---|---|---|---|---|---|---|---|
| | | | | Habitat Present | Occurrence < five-miles | Observed During Field Surveys | Potential for Occurrence |
| **Mammals** | | | | | | | |
| American badger *Taxidea taxus* | CSC | Shrub, forest, and herbaceous habitats, with friable soils. | Observed within Project site during 2012, 2013, and 2014 field surveys by Padre Biologists. | X | X | X | X |
| San Diego desert woodrat *Neotoma lepida intermedia* | CSC | Coastal scrub habitat and forest associated with rocky outcrops. | Lompoc Oil Fields, south of Purisima Hills (CDFW, 2014) | X | | | X |

Status Codes:

| | | | |
|---|---|---|---|
| FE | Federal Endangered (USFWS/NMFS) | SE | State Endangered (CDFW) |
| FT | Federal Threatened (USFWS/NMFS) | ST | State Threatened (CDFW) |
| CSC | California Species of Special Concern (CDFW) | BCC | Bird of Conservation Concern (USFWS) |
| M | Migratory Bird Treaty Act (USFWS) | WL | Watch List (CDFW) |
| FP | Fully Protected (CDFW) | | |
| CNDDB | Conservation Status Element Ranks (CDFW) | | |

G1/S1 Global/State Rank, less than 6 viable element occurrences (EOs) OR less than 1,000 individuals OR less than 2,000 acres. Critically Imperiled– At very high risk of extinction or elimination due to extreme rarity, very steep declines, or other factors.

G2/S2 Global/State Rank, 6-20 EOs OR 1,000-3,000 individuals OR 2,000-10,000 acres. Imperiled – At high risk of extinction or elimination due to very restricted range, very few populations or occurrences, steep declines, or other factors.

G3/S3 Global/State Rank, 21-80 EOs or 3,000-10,000 individuals OR 10,000-50,000. Vulnerable – At moderate risk of extinction or elimination due to a restricted range, relatively few populations or occurrences, recent and widespread declines, or other factors.

G4/S4 Global/State Rank. Apparently secure - this rank is clearly lower than S3 but factors exist to cause some concern; i.e. there is some threat, or somewhat narrow habitat

S5/G5 Global/State Rank. Common, widespread, and abundant. Population or stand demonstrably secure to ineradicable due to being commonly found in the world

SH/GH Global/State Rank. Possibly Extinct – Known from only historical occurrences but still some hope of rediscovery.

DRAFT

**Monarch Butterfly (*Danaus plexippus*).** This species is not formally listed as an Endangered or Threatened species; however, over-wintering monarch butterflies are considered to be a "special animal" by the CDFW. Monarch butterfly wintering sites are classified as "demonstrably secure" worldwide but within California they are considered of "restricted range; rare." Wintering aggregations of monarch butterflies in California can primarily be found on Monterey pines (*Pinus radiata*) and in eucalyptus groves (Sakai and Calvert, 1991). Wintering habitat components frequently include sources of moisture such as streams, ponds, or abundant morning dew. Other habitat preferences include little direct sunlight, minimal wind, and moist ambient conditions. Monarch butterflies have been observed intermittently within the Conservation Area, but not in large numbers, and no roosts have been observed within the Conservation Area.

**Vernal Pool Fairy Shrimp (*Branchinecta lynchi*).** The habitat communities mapped at the Conservation Area are generally inconsistent with natural vernal pool systems typically occurring in valley and foothill grasslands. The majority of the Conservation Area consists of steep topography, which supports scrub and woodland vegetative communities, and flatter, highly disturbed lands associated with past land use activities. Potential aquatic habitat is limited to man-made habitat, consisting of cattle watering stock ponds and ponded areas on highly compacted abandoned well pads or degraded paved areas. Vernal pool fairy shrimp, however, are known to occur in areas degraded by past land use activities.

Field surveys at the Conservation Area included USFWS protocol-level surveys during the 2013-2014 and 2015-2015 wet seasons. The surveys were completed in accordance with USFWS Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the *Endangered Species Act for the Listed Vernal Pool Brachiopods* (USFWS, 1996). Results of the wet season surveys produced negative findings (Padre, 2014a, 2015a); no observations of listed brachiopods. In addition, dry season surveys were completed by LSA Associates, Inc. on July 8 and 9, 2014, and the results also produced negative findings (LSA, 2014). Results of the dry and wet protocol-level surveys in 2013, 2014, and 2015 indicate an absence of vernal pool fairy shrimp within the Conservation Area.

**California Tiger Salamander (*Ambystoma californiense*).** The Santa Barbara County population of the CTS is federally listed as Endangered and recently listed with the State of California as Threatened. The Conservation Area is located approximately five miles from USFWS designated Critical Habitat for this species (USFWS, 2014b) and documented CTS breeding pools (Storrer, 2013). The USFWS has also identified several pools within Santa Barbara County with aerial imagery (that have not necessarily been surveyed) that may or may not contain suitable breeding or upland habitat; however, the USFWS is interested in their protection. Two of these ponds are located within CTS dispersal distance of the Conservation Area and are referred to as Olivera Canyon Pond (SISQ-20) and Long Canyon Pond (SISQ-19). Olivera Canyon Pond (SISQ-20) is located within the Conservation Area but does not hold water for long durations and has not been subject to aquatic sampling. Long Canyon Pond is located outside of the Conservation Area on private property, and there is limited access and information available to confirm or preclude the pond's potential as a breeding pond. However, based on historic aerial photo review, this feature appears to hold water for a significant period of time following rainfall. No aquatic surveys have been performed.

Without conducting protocol-level surveys for this species, it is unknown if CTS are present or absent within the Conservation Area. Upon discussions with the United States Fish and Wildlife Service and the California Department of Fish and Wildlife, an upland drift fence array was designed to capture the most plausible CTS movements through the Project site. This 'most plausible pathways' drift fence survey approach was chosen over the standard USFWS protocol, due to the infeasibility of covering 95 percent of the property boundary. These surveys were completed in April of 2015 and no CTS were observed; however, The USFWS's Ventura Fish and Wildlife Office determined that due to below normal precipitation during the winter and spring in 2014 and 2015, surveys conducted to determine the presence or absence of listed aquatic species in certain areas during that time period have an increased likelihood of producing false negative results. Additional surveys are planned for the 2015-2016 breeding season.

Preliminary meetings with the United States Fish and Wildlife Service and the California Department of Fish and Wildlife have included discussions regarding utilization of the Conservation Area for conserving existing potential CTS habitat in order to partially offset temporary and permanent impacts to existing, comparable potential CTS habitat from the Redevelopment Project.

**California Red-legged Frog (*Rana draytonii*).** California red-legged frog are generally found along marshes, streams, ponds, and other permanent sources of water where dense scrubby vegetation such as willows, cattails, and bulrushes dominate. Breeding sites occur along watercourses with pools that remain inundated long enough for breeding and the development of larvae. Critical Habitat for the California red-legged frog does not occur within the Conservation Area; however, there are several documented occurrences within a five mile radius (CDFW, 2014). These occurrences are primarily located within pools/ponds along the Sisquoc River to the north of the Conservation Area. No California red-legged frog have been documented within the Project site during field surveys, including aquatic vernal pool fairy shrimp surveys. Suitable breeding habitat does not occur within the Conservation Area, however, California red-legged frog may utilize portions of the Conservation Area for migratory routes to suitable breeding ponds.

**Western Spadefoot Toad (*Spea hammondii*).** Western spadefoot toad is not seen during most of the year, as it resides in burrows up to nine months with infrequent nocturnal sojourns. The species is typically associated with sandy, friable soils. Suitable habitat occurs within drainage features that are capable of providing pooled areas that hold water at least 30 days following a rain event. These pooled areas may vary from year to year and are temporary in nature; therefore, it may be impossible to locate all potential breeding pool areas. Determining presence/absence is difficult due to this temporary nature of the ponds and also due to the specific requirements, such as temperature and rain events, which trigger spadefoot toads to emerge from their underground burrows. This species has been documented within the Cat Canyon valley (CDFW, 2014), and there is the potential for western spadefoot toad to occur within the Conservation Area.

**Blainville's Horned Lizard (*Phrynosoma blainvillii*).** Blainville's horned lizard inhabit open areas of sandy soil and low vegetation in valleys and foothills throughout northern California to Baja California. They are found in grasslands, coniferous forests, woodlands, and chaparral, with open areas and patches of loose soil, including sandy washes and along unpaved roads.

This species was observed within the Conservation Area during field surveys and is expected to occur throughout the Conservation Area.

**Coast Patch-Nose Snake (*Salvadora hexalepis virgultea*).** Coast patch-nosed snake occur in California from the northern Carrizo Plains in San Luis Obispo County, south through the coastal zone, south and west of the deserts, into coastal northern Baja California. They inhabit semi-arid brushy areas and chaparral in canyons, rocky hillsides, and plains. This snake is considered uncommon along the southern coast area due to land changes from heavy grazing, development, and loss of former habitat, though its natural history and abundance have never been well-known or extensively studied. Coast patch-nose snake were not observed during surveys, however, suitable habitat occurs within the Conservation Area.

**California Legless Lizard (*Anniella pulchra*).** California legless lizards occur in moist warm loose soil found in sparsely vegetated areas of beach dunes, chaparral, sandy washes, and stream terraces with oaks and is often found under surface objects such as rocks, boards, and logs (Stebbins, 2003). The range for this species is from the southern edge of San Joaquin River in northern Contra Costa County south to northwestern Baja California. This species was identified within the Sisquoc River within five miles from the Project site. This river is dry for most of the year and provides a sandy river bed that support suitable habitat for legless lizards. California legless lizards have not been identified within the Project site, however, suitable loose sandy soils occur within Cat Canyon Creek (which exhibit similar conditions to the Sisquoc River bed, when dry), which is within proximity to the Conservation Area.

**Southern Western Pond Turtle (*Actinemys pallida*).** The southern western pond turtle is an aquatic turtle inhabiting streams, marshes, ponds, and irrigation ditches within woodland, grassland, and open forest communities. This species requires upland sites, usually along stream or pond margins, for nesting and over-wintering. Stream habitat must contain large, deep pool areas with moderate-to-good plant and debris cover, and rock and cobble substrates for escape retreats. Females dig upland nests between April and August and hatchlings emerge in early fall or over winter (Stebbins, 2003; Behler and King, 1992). Near the Conservation Area, the Cat Canyon Creek corridor may provide habitat for turtles during periods following rainfall where aquatic pools are present and basking habitat is available. The upland oak woodland and scrub habitats within the Conservation Area may provide habitat for overwintering; however, they do not provide optimum nesting habitat.

**Birds of Prey.** Red-tailed hawk, American kestrel (*Falco sparverius*), Cooper's hawk, (*Accipiter cooperii*), merlin (*Falco columbarius*), turkey vulture (*Cathartes aura*), and golden eagle (*Aquila chrysaetos*) are wide ranging birds of prey that could use the Conservation Area for the purposes of foraging during migration and/or movement through the region. Birds of prey may also utilize the Conservation Area for nest sites, which are protected by federal and/or state agencies. Nests are often used year after year and the CDFW and USFWS provide protection of these nest sites. Several birds of prey were observed within the Conservation Area and it is expected that birds of prey nests will occur within the Conservation Area.

**Tricolored Blackbird (*Agelaius tricolor*).** Tricolored blackbirds are a colonial nesting species breeding from mid-March through early August (Beedy and Hamilton, 1999). They nest at colony sites near freshwater marshes (Neff, 1937), in canopies of willows and other riparian

trees. They require open areas accessible to water, a protected nesting substrate within flooded areas or thorny or spiny vegetation, and a suitable foraging space providing adequate insect prey near the colony (Beedy and Hamilton, 1999). Wintering tricolored blackbirds congregate in flocks with mixed-species of blackbirds that forage in grasslands and agricultural fields with low-growing vegetation and at dairies and feedlots (Shuford and Gardali, 2008). Preferred foraging habitats include agriculture fields (e.g., rice, alfalfa, oats, and wheat). Degradation of habitat from human activities, such as converting grassland and pastures to vineyards or developed lots, is the greatest threat to the sustainability of this species (Beedy and Hamilton, 1999). Tricolored blackbirds have been observed foraging along Cat Canyon Road within proximity to the Conservation Area in open non-native grassland communities. It is expected that tricolored blackbirds will occur within the Conservation Area.

**Burrowing Owl (*Athene cunicularia*).** Burrowing owls are year-round residents in annual and perennial grasslands or other vegetation communities that support little to no tree or shrub cover. In California, the species is typically found in close association with California ground squirrels, which create burrows that are used by burrowing owls for year-round shelter and seasonal nesting habitat. They may also utilize badger, coyote and fox dens, or holes (Ronan, 2002), as well as human-made structures such as culverts, corrugated metal pipes, debris piles, or openings beneath pavement as shelter and nesting habitat (CDFW, 2012). Typical burrowing owl breeding season in California is from March to August, but can begin as early as February and extend into December (Rosenberg and Haley, 2004). Burrowing owls have not been identified within the Conservation Area; however, suitable habitat does occur within grassland habitats within the Conservation Area. There is potential for burrowing owl to occur within the Conservation Area.

**Yellow Warbler (*Dendroica petechia*).** Yellow warbler generally occupy riparian vegetation in close proximity to water (Lowther et al., 1999) and are a common nesting species in riparian habitats in San Luis Obispo and Santa Barbara counties. This species occurs in California as a migrant and summer resident from late March through early October, and during breeding from April through late July. There is potential for this species to occur within the willow thickets within proximity of the Conservation Area during the breeding season and/or as a migratory stop-over.

**Purple Martin (*Progne subis*).** Purple martins are distributed throughout California in central and northern coastal conifer forests, interior foothills, and southern California forests. They occur primarily from mid-March to late September in California and breeds from May to mid-August (Williams, 1998). Purple martins rely on cavities in trees, bridges, utility poles, lava tubes, and buildings. Most tree nest sites in San Luis Obispo and Santa Barbara counties occur in large oaks and sycamores. Purple martin populations have been threatened primarily by removal of large snags, specifically from post-fire salvage logging, and competition from European starlings. Purple martins were not observed within the Conservation Area; however, large oak trees with snags and/or many abandoned woodpecker holes that occur within the oak woodland habitats in the Conservation Area may provide suitable habitat for martin nesting colonies. There is potential for purple martin to occur within the Conservation Area.

DRAFT

**Southern California Rufous-Crowned Sparrow (*Aimophila ruficeps canescens*).** Southern California rufous-crowned sparrow are resident within southwest California on the slopes of the Transverse and Coastal ranges from northern Santa Barbara and Ventura counties south to Baja California Norte. The CNDDB does not document this bird in the region; however, Southern California rufous-crowned sparrows were identified by Padre Biologists during the April 2013 field survey within the Project site among hillsides consisting of sage scrub, specifically along Foxen Canyon. This sparrow nests on the ground, often wedged in hollows among rocks or under clumps of grass, low bushes, or shrubs on open brush or grass-covered rocky hillsides from mid-March through mid-July (Cogswell and Phillips, 1968; Wolf, 1977; Harrison, 1978; Shuford, 1993; and Rising, 1996). It appears to prefer coastal sage scrub dominated by California sagebrush (*Artemisia californica*) (Grinnell and Miller, 1944), but they can also be found breeding in coastal bluff scrub, low-growing serpentine chaparral, and along the edges of tall chaparral habitats (Thorngate and Parsons, 2005). Southern California rufous-crowned sparrows are expected to occur in the Conservation Area.

**California Horned Lark (*Eremophila alpestris actia*).** California horned lark commonly occur in grasslands and other open habitats with low, sparse vegetation, often flocking together in small groups. They nest in low lying vegetation during the spring months. California horned larks commonly occur in grasslands and other open habitats with low, sparse vegetation, often flocking together in small groups. Their breeding season begins in late February and they will build nests on the ground in small areas at the base of small shrubs or in crevices in rock clusters. Horned larks were observed by Padre Biologists during April 2013 field surveys within the Conservation Area. California horned larks are expected to occur in the Conservation Area.

**Oak Titmouse (*Baeolophus inornatus*).** Oak titmouse are a USFWS Bird of Conservation Concern species. Oak titmouse occur in oak woodland and mixed riparian habitats. They nest in natural cavities in tree trunks in mid-March. This species mates for life and defend their nesting territories year-round. Oak titmouse was identified in the oak woodland habitats within the Conservation Area during field surveys. It is expected that oak titmouse will occur in the Conservation Area.

**San Diego Desert Woodrat (*Neotoma lepida intermedia*).** San Diego desert woodrat is not formally listed as Endangered or Threatened by either USFWS or CDFW; however, it is a Species of Special Concern protected by the CDFW. San Diego desert woodrat has not been documented within five miles from the Project site. Desert woodrats are typically associated with rocky outcroppings and coastal sage scrub habitats along the coast, dominated by California sagebrush and coyote brush, as well as coast sunflower (*Encelia californica)*, black sage (*Salvia mellifera*), and giant ryegrass (*Leymus condensatus*). This species typically constructs a nest structure with twigs, sticks, cactus parts, and various other materials.

Similar to the San Diego desert woodrat, the big-eared woodrat (*N. macrotis*) is not protected by the CDFW. Big-eared woodrats are common to Santa Barbara County and are morphologically and genetically differentiated from San Diego desert woodrats. Woodrat nests were observed throughout the Redevelopment Project site, and are likely located within the Conservation Area. No focused biological surveys were completed (i.e., trapping) to determine which species occurs in the Conservation Area; however, the larger-sized nests, which were

observed at the base of trees or up in tree branches in the Conservation Area, are more typical of big-eared woodrat and other dusky-footed woodrat species. Therefore, it is likely that big-eared woodrat occurs in the Conservation Area.

**American Badger (*Taxidea taxus*).** American badger is a California Species of Special Concern, which typically inhabits grasslands, farmland, and forest edges within friable soils (CDFW, 1986). Badgers dig elliptical burrows with 8 to 12-inch openings, which they utilize for cover, sleeping, hunting, caching food, and breeding (Williams, 1986). They breed in the months of July and August (National Audubon Society, 1996). Badgers do not hibernate; however, they will occupy their burrows during torpor in the coldest part of the winter, remaining in the burrow for several days per week (National Audubon Society, 1996). This species typically preys on small burrowing mammals, such as ground squirrels, rats, and mice, and will also feed on birds, snakes, and other reptiles. Badgers are nocturnal; however, they are well known to be active during the day as well. A badger's home range varies from 590 to 4,200 acres. Badger activity has been identified within grassland habitats within the Conservation Area. It is expected that American badgers will occur in the Conservation Area.

## 2.5 EXISTING AND FUTURE EASEMENTS

Existing easements at the Conservation Area include right-of-way granted to the County of Santa Barbara for Long Canyon Road and a 20-foot wide easement and right-of-way granted to Texaco for pipeline purposes, as shown in Figure 6 – Existing Easements. As part of the proposed development activities at the East Cat Canyon Oil Field Redevelopment Project site, additional utilities and/or pipelines may be constructed within the Conservation Area. This may include a water pipeline, which Aera plans to construct, which will cross Long Canyon Road and require a County road encroachment permit. Revisions to Figure 6 will be made in the Final Conservation Strategy to illustrate any future utility easements granted or reserved rights on the Conservation Area.

DRAFT

# 3.0 MANAGEMENT GOALS AND OBJECTIVES

## 3.1 MANAGEMENT GOALS

The overall goal of long-term management is to foster the long term viability of the Conservation Area's habitat, including waters of the U.S., special-status species habitat, and sensitive vegetation communities. Routine monitoring and minor maintenance tasks are intended to assure the viability of the conserved vegetation and species within the Conservation Area in perpetuity.

The approach to the long-term management of the Conservation Area's biological resources is to conduct annual site examinations and monitoring of selected characteristics to determine stability and ongoing trends of the preserved, created, and restored (re-established and rehabilitated) species habitat, native plant communities, and rare plant populations. Annual monitoring will assess the Conservation Area's condition, degree of erosion, invasion of exotic or deleterious (e.g., thatch producing) species, water quality, fire hazard, and/or other aspects that may warrant management actions. While it is not anticipated that major management actions will be needed, an objective of this long-term management strategy is to conduct monitoring to identify any issues that arise, and using adaptive management, to determine what actions might be appropriate. Monitors will be selected with the appropriate level of knowledge, training, and experience needed to accomplish monitoring responsibilities.

Adaptive management means an approach to natural resource management which incorporates changes to management practices, including corrective actions as determined to be appropriate by the County in discussion with the Land Manager. Adaptive management includes those activities necessary to address the effects of climate change, fire, flood, or other natural events, force majeure, etc. to ensure the long term viability of Conservation Area's biological resources.

## 3.2 MANAGEMENT AND OPERATIONAL OBJECTIVES

The Land Manager will manage and operate the Conservation Area with the aim of achieving the following objectives:

### 3.2.1 Wetlands and Riparian Habitat

Maintain preserved, restored, or created riparian and wetland areas, if any.

### 3.2.2 Special-status Species

Protect and enhance threatened/endangered species and species of conservation concern within the Conservation Area.

### 3.2.3 Special-status Species Habitat

Protect and enhance special status species habitat, including riparian and aquatic habitats, if any, protected by the Conservation Area.

### 3.2.4 Rare Plant Species Monitoring

Conserve and monitor rare plant species within the Conservation Area.

DRAFT

### 3.2.5 Native Animal Species Monitoring

Conserve and monitor native fish, amphibians, invertebrates, birds, and mammal populations and their habitats within the Conservation Area.

### 3.2.6 Non-Native Species

Control non-native invasive plant species that would significantly affect the ecological health of the Conservation Area through the use of Integrated Pest Management (IPM) methods.

Control Non-native invasive wildlife, if needed, to reduce significant impacts on native and listed species. Impacts could include derailing restoration efforts, impairing infrastructure, or causing disturbance to the Conservation Area. Wildlife control methods will be sensitive to native burrowing wildlife that support protected species occurring within the Conservation Area.

### 3.2.7 Vegetation Management

Maintain the Conservation Area in a healthy and productive condition.

### 3.2.8 Hydrology

Manage on-site waters to maintain sustainable wetland and riparian habitats (if any) and to supply agricultural water.

### 3.2.9 Storm Water Management

Provide for long-term operation of storm water management.

### 3.2.10 Agricultural Resources

Use grazing as a resource management tool to maintain and enhance plant and animal diversity, preserve the open space character of the landscape, and to manage wildland fire hazards.

### 3.2.11 Access and Trespass

Ensure that potential public access or trespass does not significantly impair conservation goals and efforts.

### 3.2.12 Lighting

Limit lighting within the Conservation Area to protect wildlife and night sky visibility.

### 3.2.13 Routine Maintenance

Maintain facilities within the Conservation Area in good repair in order to protect public safety and the environment. Existing facilities include fences, pathways, signs, gates, drainage structures and erosional features.

### 3.2.14 Fragmentation and Future Development

Work to prevent future fragmentation or future development within the Conservation Area.

DRAFT

### 3.2.15 Reporting

Prepare reports as needed to demonstrate work performed, priorities set, decisions made, level of success in achieving goals, objectives, and budget, species monitoring results, and recommendations for future work.

DRAFT

## 4.0 REFERENCES

Beedy, E.C., and Hamilton, W. J., III. 1999. Tricolored blackbird (*Agelaius tricolor*), in The Birds of North America (A. Poole and F. Gill, eds.), No. 423. Birds North America, Philadelphia.

Behler, John L., & F. Wayne King. 1992. The Audubon Society Field Guide to North American Reptiles and Amphibians. Alfred A. Knopf.

California Department of Conservation, Division of Oil, Gas and Geothermal Resources. 2014. Website: http://www.conservation.ca.gov/dog/maps/Pages/GISMapping2.aspx

California Department of Conservation, Farmland Mapping and Monitoring Program. 2012. Santa Barbara County Important Farmland Map. Website: ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/2012/sba12.pdf

California Department of Fish and Wildlife. 2012. Staff Report on Burrowing Owl Mitigation. May 7, 2012.

California Department of Fish and Wildlife. 2014. California Natural Diversity Database (CNDDB) Rare Find. Twitchell Dam, Tepusquet Canyon, Sisquoc, Orcutt, Lompoc, Los Alamos, Zaca Creek, Foxen Canyon, and Santa Maria Quadrangles.

Cogswell, H. L. and A.R, Phillips. 1968. Life Histories of North American Cardinals, Grosbeaks, Buntings, Towhees, Finches, Sparrows, and Allies. U.S. Natl. Mus. Bull., 237: 919-956.

County of Santa Barbara. 2008. Environmental Thresholds and Guidelines Manual. Website: http://www.sbcountyplanning.org/pdf/manualsreports/manuals/environmental%20thresholds%20october%202008%20corrected%206-1-2009.pdf

County of Santa Barbara. 2011. Land Use and Development Code (Chapter 35). Update October 2014.

County of Santa Barbara (Public Works Department, Water Resources Division). 2011. Santa Barbara County Groundwater Report.

County of Santa Barbara. 2014. Uniform Rules for Agricultural Preserves and Farmland Security Zones.

GEI Consultants. 2013. Santa Barbara County Water Supply and Demand Current Uses and Future Estimates. Submitted to Santa Barbara County Water Agency.

Grinnell, J., and A. H. Miller. 1944. The distribution of the birds of California. Pac. Coast Avifauna no. 27. Cooper Ornith. Society. 608pp.

Harrison, C. 1978. A Field Guide to the Nests, Eggs, and Nestlings of North American Birds. W. Collins and Sons and Co., Cleveland, OH.

LSA Associates, Inc. 2014. Results of 2014 Dry Season Fairy Shrimp Surveys for the Aera Energy LLC's East Cat Canyon Oil Field Site, Santa Barbara County. Prepared for Padre Associates, San Luis Obispo, California.

DRAFT

Lowther, P.E., C. Celada, N.K. Klein, C.C. Rimmer, and D.A. Spector. 1999. Yellow Warbler (Dendroica petechia). In The Birds of North America, No. 454 (A. Poole and F. Gill, Eds.). Academy of Natural Sciences, Philadelphia, and American Ornithologists' Union, Washington, D.C.

National Audubon Society. 1996. Field Guide to North American Mammals. New York, New York.

Neff, J.A. 1937. Nesting distribution of the tricolored red-wing. Condor 39:61-81.

Padre Associates, Inc. 2014a. 90-Day Report on Wet Season Vernal Pool Branchiopod Surveys for the Aera Energy LLC East Cat Canyon Oil Field, Santa Barbara County, California. Prepared for Aera Energy LLC

Padre Associates, Inc. 2014b. Least Bell's Vireo Survey Results. Prepared by Padre Associates, Inc. Prepared for Aera Energy LLC.

Padre Associates, Inc. 2014c. Biological Resources Survey Report for the Aera Energy LLC East Cat Canyon Oil Field, Santa Barbara County, California. Prepared for Aera Energy LLC.

Padre Associates, Inc. 2014d. Fuel Management Plan for the East Cat Canyon Oil Field Redevelopment Project, Santa Barbara County, California. Prepared for Aera Energy LLC.

Padre Associates, Inc. 2014e. Oak Tree Protection Plan for the East Cat Canyon Oil Field Redevelopment Project, Santa Barbara County, California. Prepared for Aera Energy LLC.

Padre Associates, Inc. 2014f. Oak Tree Replacement Plan for the East Cat Canyon Oil Field Redevelopment Project, Santa Barbara County, California. Prepared for Aera Energy LLC.

Padre Associates, Inc. 2015a. 90-Day Report on Wet Season Vernal Pool Branchiopod Surveys for the Aera Energy LLC East Cat Canyon Oil Field, Santa Barbara County, California. Prepared for Aera Energy LLC

Padre Associates, Inc. 2015b. Draft Revegetation Plan for the East Cat Canyon Oil Field Redevelopment Project, Santa Barbara County, California. Prepared for Aera Energy LLC.

Rising, J. and D. Beadle. 1996. A guide to the Identification and Natural History of the Sparrows of the United States and Canada. San Diego: Academic Press.

Ronan, N. A. 2002. Habitat selection, reproductive success, and site fidelity of burrowing owls in a grassland ecosystem. M.S. Thesis, Oregon State University, Corvallis, OR.

Rosenberg, D. K., and K.L. Haley. 2004. The ecology of Burrowing Owls in the agroecosystem of the Imperial Valley, California. Studies Avian Biol. 27:120–135.Sakai, W., and W. Calvert. 1991. Statewide Monarch Butterfly Management Plant for the State of California Department of Parks and Recreation – Final Report. Life Sciences Department, Santa Monica College, 1900 Pico Blvd., Santa Monica, CA 90405.Sawyer, John O., Keeler-

Wolf, Todd, Evans, Julie M. 2009. A Manual of California Vegetation Second Edition. California Native Plant Society. Berkeley, CA.

Shuford, W. D. 1993. The Marin County Breeding Bird Atlas: A Distributional and Natural History of Coastal California Birds. California Avifauna Series 1. Bushtit Books, Bolinas, CA.

Shuford, W. Davis and Thomas Gardali, Editors. 2008. California Bird Species of Special Concern. Western Field Ornithologists and California Department of Fish and Game. Sacramento, CA.

Stebbins, Robert C. 2003. A Field Guide to Western Reptiles and Amphibians. 3rd Edition. Houghton Mifflin Company.

Storrer Environmental. 2013. Habitat Assessment for California Tiger Salamander (*Ambystoma californiense*), Aera East Cat Canyon Production Plan, Santa Barbara County, California. Prepared for Padre Associates, San Luis Obispo, California. September 19.GEI C

Thorngate, N. and M. Parsons. 2005. Rufous-crowned Sparrow (*Aimophila ruficeps*). In The Coastal Scrub and Chaparral Bird Conservation Plan: a strategy for protecting and managing coastal scrub and chaparral habitats and associated birds in California. California Partners in Flight.

TJ Cross Engineers. 2014. Aera East Cat Canyon Hydrology Study.

United States Fish and Wildlife Service. 1996. Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods. U.S. Department of the Interior, April 19, 1996.

United States Fish and Wildlife Service. 2014a. National Wetland Inventory. Last modified on May 1, 2014. Available on-line at: http://www.fws.gov/wetlands/Data/Mapper.html

United States Fish and Wildlife Service. 2014b. Critical Habitat Portal. http://criticalhabitat.fws.gov/crithab/

United States Fish and Wildlife Service. 2015. Draft Recovery Plan for the Santa Barbara County Distinct Population Segment of the California Tiger Salamander.

Williams, B.D.C. 1998. Distribution, habitat associations, and conservation of Purple Martins breeding in California. M.S. Thesis, Calif. St. Univ., Sacramento.

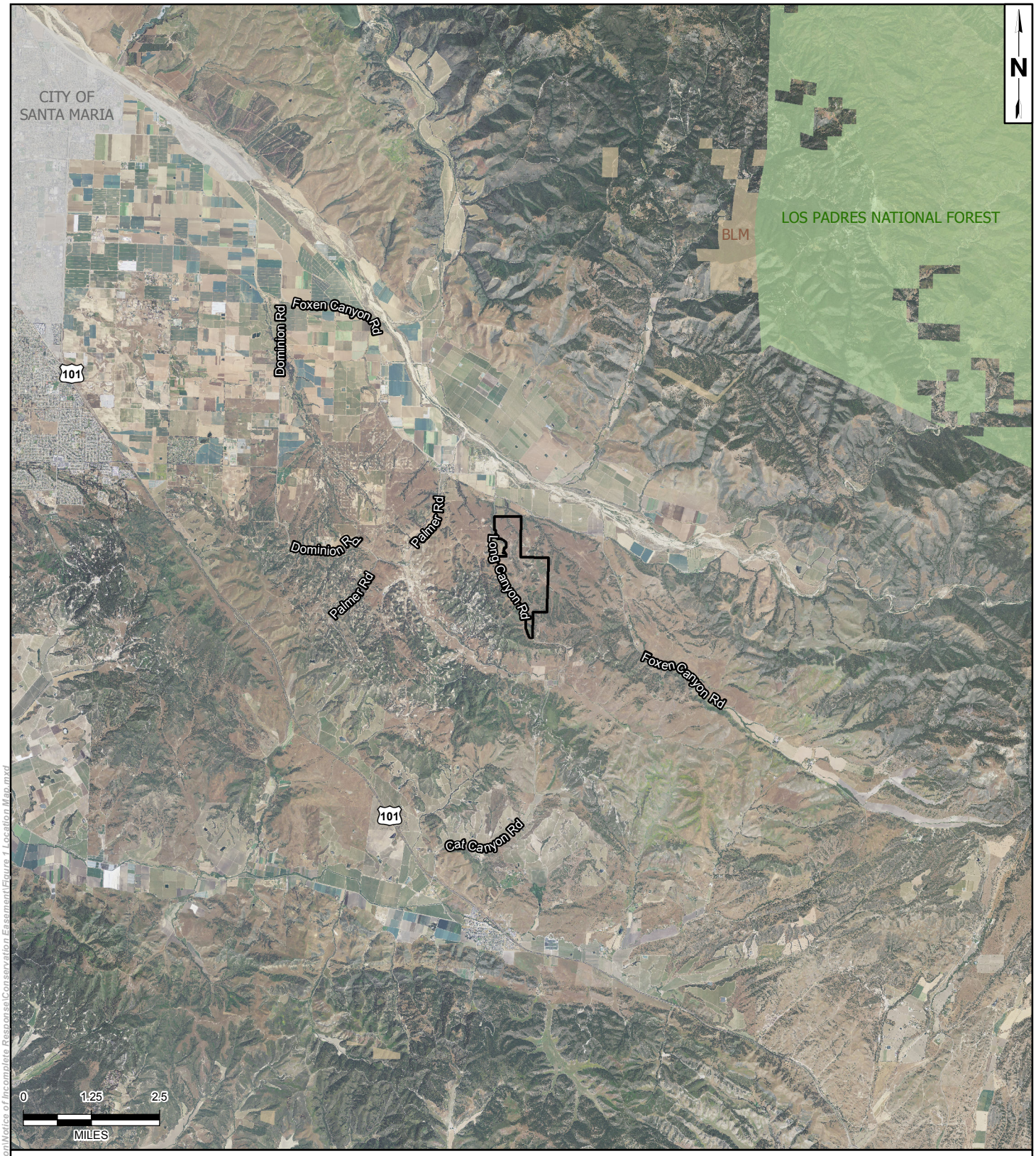
Williams, D. F. 1986. Mammalian Species of Special Concern in California. Prepared for the State of California: Resource Agency, Department of Fish and Game.

Wolf, L.L. 1977. Species relationships in the avian genus *Aimophila*. Ornithological Monographs No. 23. American Ornithologists' Union.

DRAFT

# FIGURES

DRAFT



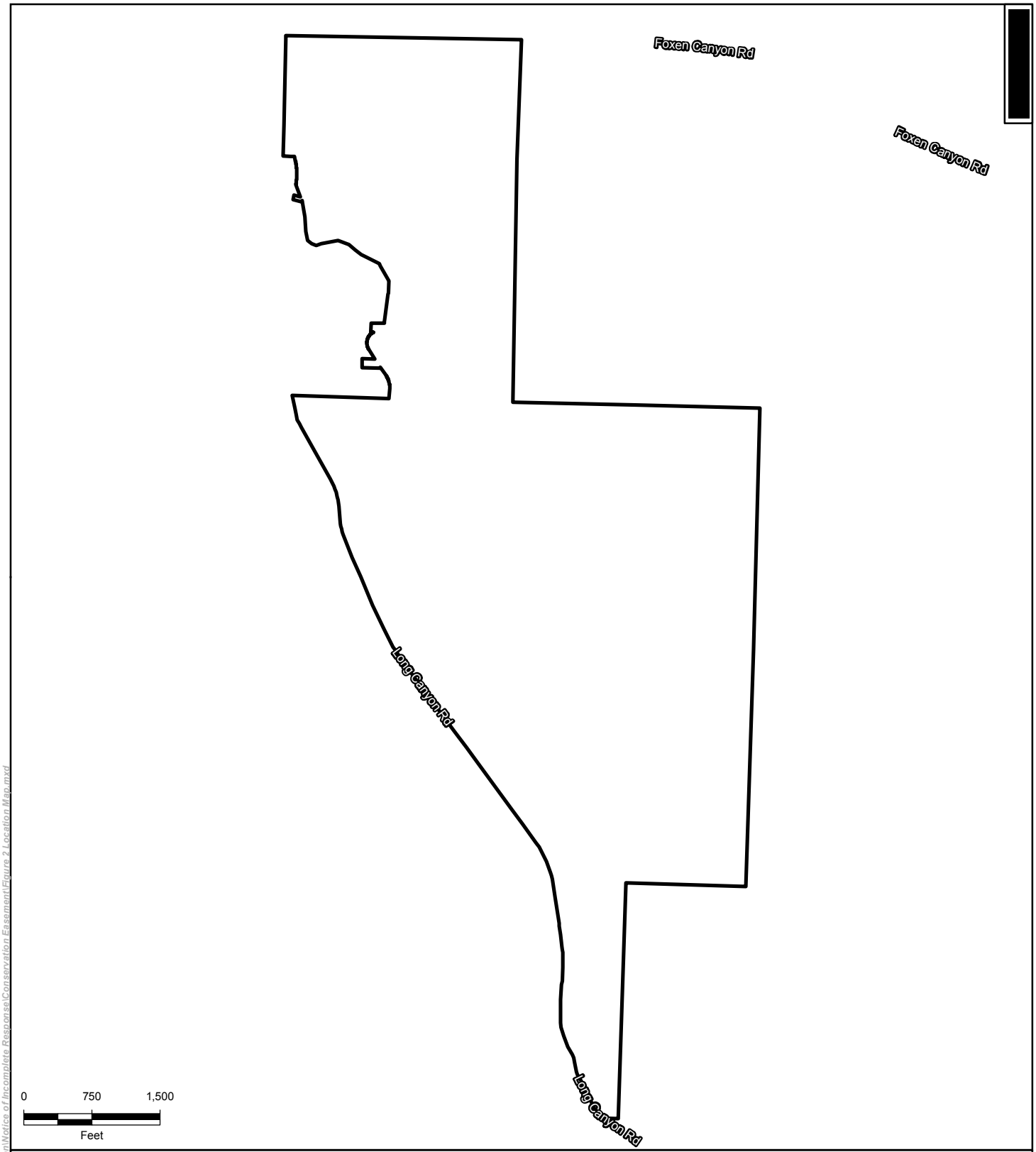

LEGEND:

Conservation Area

*Source: NAIP 2012 Image, DPSI 2013, Santa Barbara County, BLM, TIGER*
*Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet*
*Notes: This map was created for informational and display purposed only*

| PROJECT NAME: EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT | CONSERVATION AREA VICINITY MAP | FIGURE 1 |
|---|---|---|
| PROJECT NUMBER: 1002-0455 / DATE: July 2015 | | |

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Notice of Incomplete Response\Conservation Easement\Figure 1 Location Map.mxd



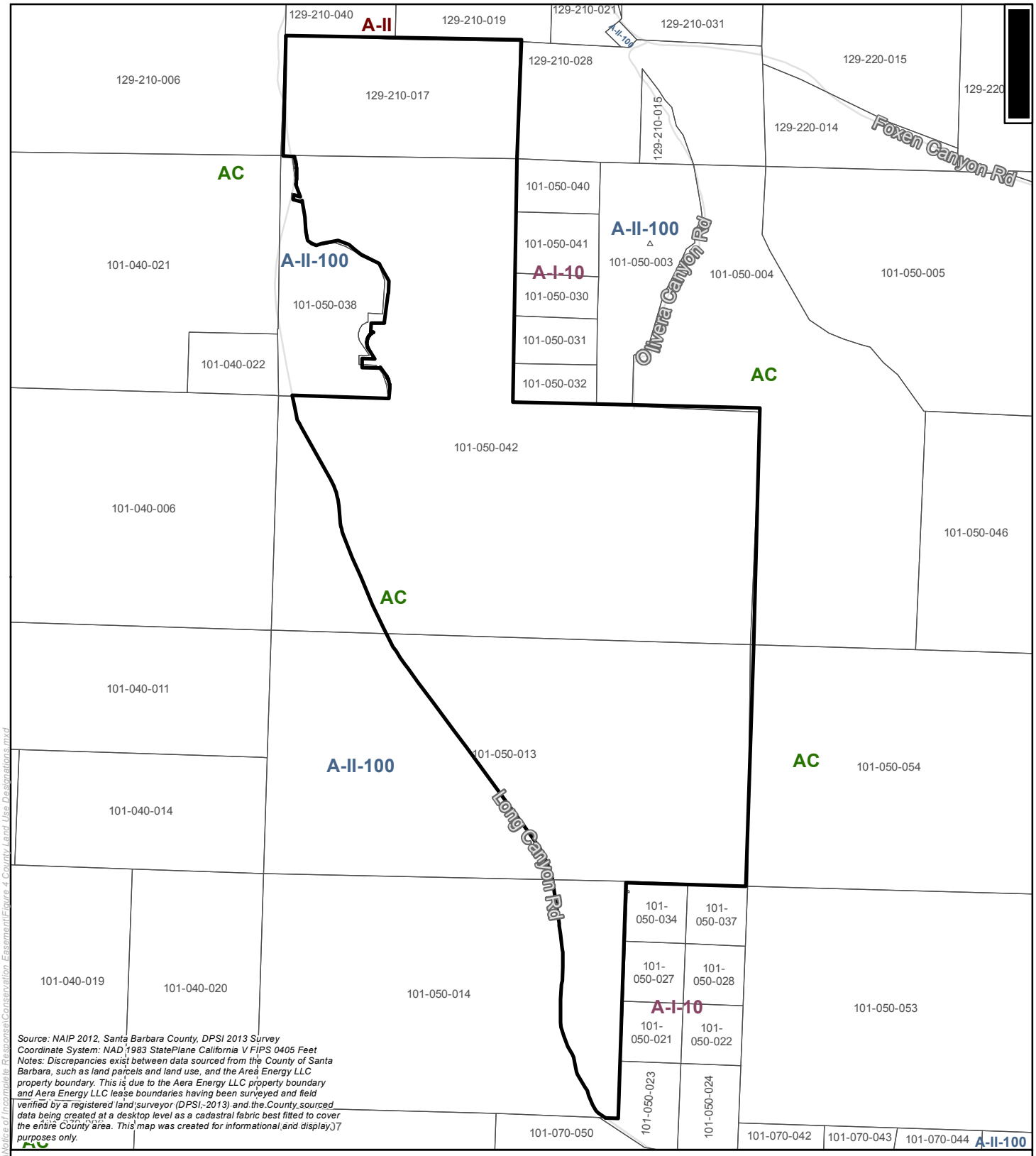

LEGEND:

Conservation Area

*Source: USGS Topo Quad, DPSI 2013 Survey, Santa Barbara County, TIGER*
*Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet*
*Notes: This map was created for informational and display purposed only*

| PROJECT NAME: EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT | | CONSERVATION AREA LOCATION MAP | FIGURE |
|---|---|---|---|
| PROJECT NUMBER: 1002-0455 | DATE: July 2015 | | 2 |

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Notice of Incomplete Response\Conservation Easement\Figure 2 Location Map.mxd




*Source: NAIP 2012, Santa Barbara County, DPSI 2013 Survey*
*Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet*
*Notes: Discrepancies exist between data sourced from the County of Santa Barbara, such as land parcels and land use, and the Area Energy LLC property boundary. This is due to the Aera Energy LLC property boundary and Aera Energy LLC lease boundaries having been surveyed and field verified by a registered land surveyor (DPSI, 2013) and the County sourced data being created at a desktop level as a cadastral fabric best fitted to cover the entire County area. This map was created for informational and display purposes only.*

Conservation Area

Assessor Parcel Boundary

**County Land Use Designations**

A-I-10 - Agriculture I/Minimum parcel size- 10 acres

A-II - Agriculture II/Minimum parcel size- 40 acres

A-II-100 - Agriculture II/Minimum parcel size- 100 acres

AC - Agricultural Commercial/Minimum parcel size- 40 acres

0 750 1,500
FEET

| PROJECT NAME: EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT | COUNTY LAND USE DESIGNATIONS | FIGURE 4 |
|---|---|---|
| PROJECT NUMBER: 1002-0455 / DATE: July 2015 | | |

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Notice of Incomplete Response\Conservation Easement\Figure 4 County Land Use Designations.mxd

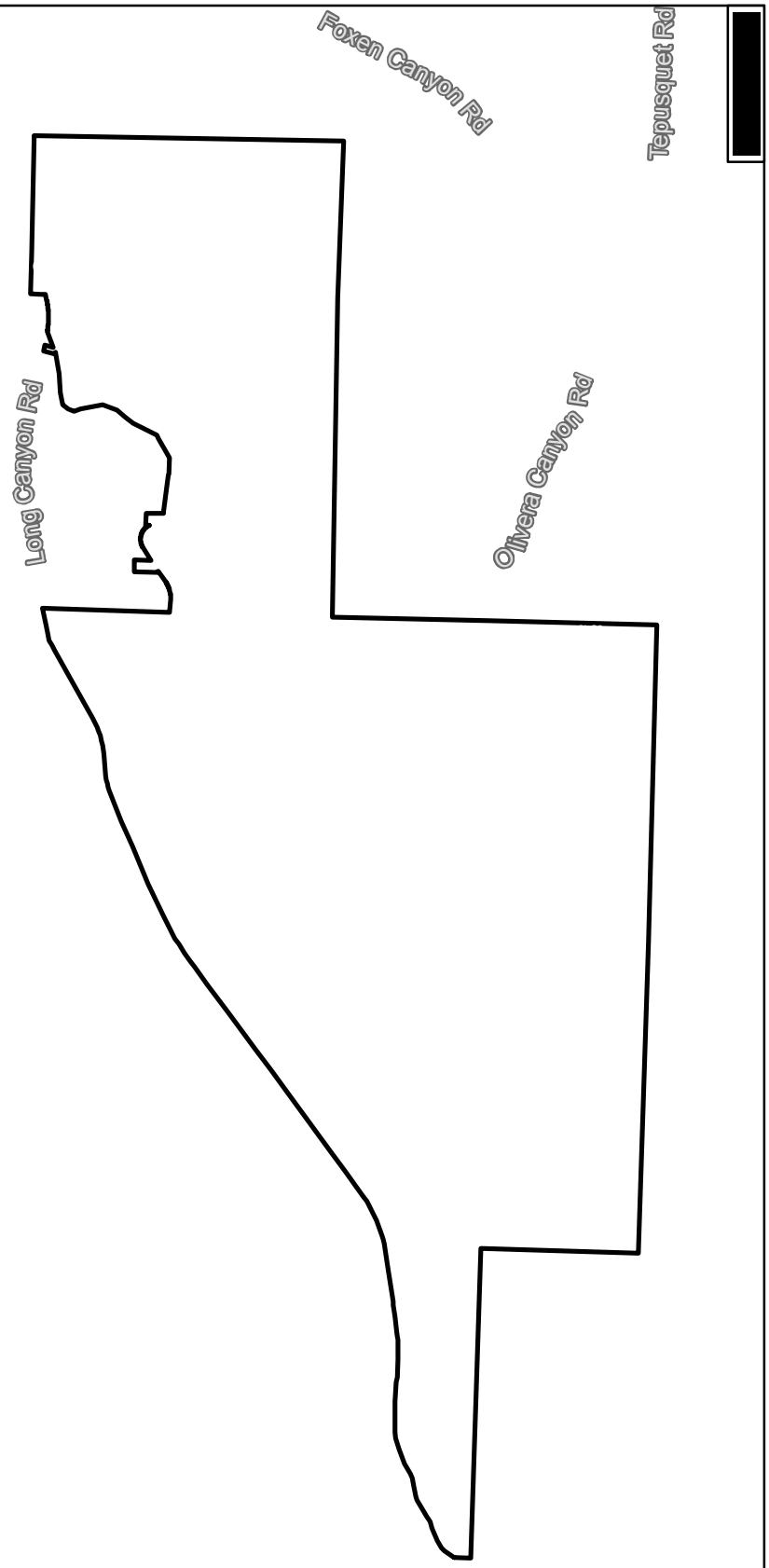
## LEGEND:

Conservation

**Soil Type**

- ArF - Arnold sand, 15 to 45 percent slopes
- CeE2 - Chamise sandy loam, 5 to 30 percent slopes, eroded
- ChD - Chamise shaly loam, 9 to 15 percent slopes
- ChF - Chamise shaly loam, 15 to 45 percent slopes
- ChG - Chamise shaly loam, 45 to 75 percent slopes
- ChG2 - Chamise shaly loam, 30 to 75 percent slopes, eroded
- CtD2 - Corralitos sand, 2 to 15 percent slopes, eroded
- CuC - Corralitos loamy sand, 2 to 9 percent slopes
- CuD - Corralitos loamy sand, 9 to 15 percent slopes
- EdC2 - Elder sandy loam, 2 to 9 percent slopes, eroded
- EdD2 - Elder sandy loam, 9 to 15 percent slopes, eroded
- PtD - Positas fine sandy loam, 9 to 15 percent slopes
- SfG - San Andreas-Tierra complex, 30 to 75 percent slopes

0 750 1,500
FEET




*Source: NAIP 2012, Santa Barbara County, USDA NRCS DPSI 2013 Survey*
*Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet*
*Notes: Discrepancies exist between data sourced from the County of Santa Barbara, such as land parcels and land use, and the Area Energy LLC property boundary. This is due to the Aera Energy LLC property boundary and Aera Energy LLC lease boundaries having been surveyed and field verified by a registered land surveyor (DPSI, 2013) and the County sourced data being created at a desktop level as a cadastral fabric best fitted to cover the entire County area. This map was created for informational and display purposes only.*

PROJECT NAME:
EAST CAT CANYON
OIL FIELD REDEVELOPMENT PROJECT

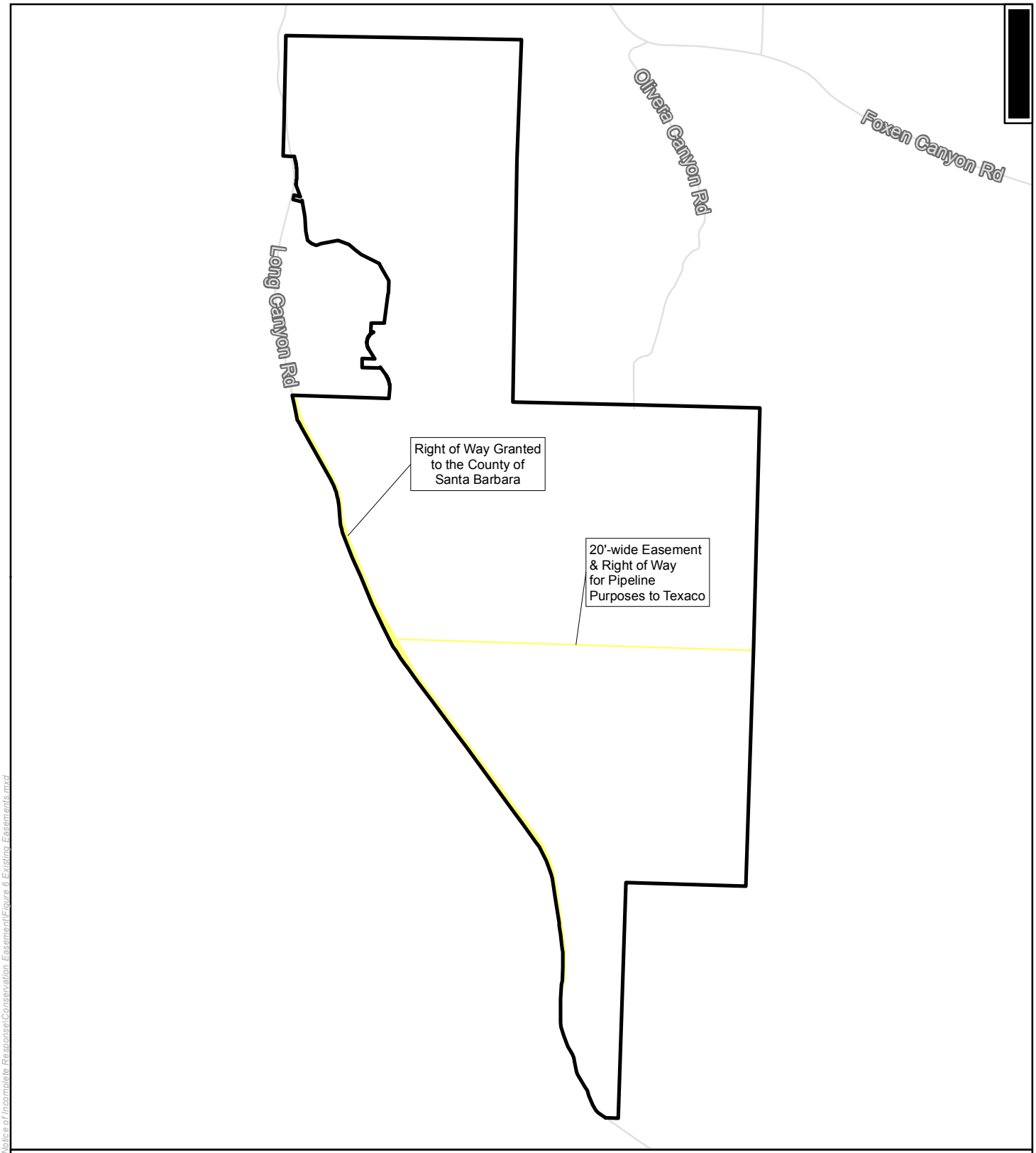
PROJECT NUMBER: 1002-0455

DATE: July 2015

# CONSERVATION AREA SOIL SURVEY

FIGURE
5

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Notice of Incomplete Response\Conservation Easement\Figure 5 Conservation Area Soil Survey.mxd




LEGEND:

Conservation Area

Existing Easements within the Conservation Area

0 750 1,500
FEET

*Source: NAIP 2012, Santa Barbara County, DPSI 2013 Survey, RRM*
*Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet*
*Notes: This map was created for informational and display purposes only.*

| PROJECT NAME: EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT | EXISTING EASEMENTS | FIGURE 6 |
|---|---|---|
| PROJECT NUMBER: 1002-0455 / DATE: July 2015 | | |

Z:\Kristin\GIS Maps\Map Project\East Cat Canyon\Notice of Incomplete Response\Conservation Easement\Figure 6 Existing Easements.mxd