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FINAL
Environmental Impact Report

Lompoc Wind Energy Project

Prepared for

County of Santa Barbara
Planning and Development Department

Prepared by

Aspen Environmental Group

August 2008

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Lompoc Wind Energy Project

County of Santa Barbara
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Acronyms

AC	Agricultural Commercial
ACOE	Army Corps of Engineers
ADT	Average Daily Traffic
ALUC	Airport Land Use Commission
ALUP	Airport Land Use Plan
ANSI	American National Standards Institute
APE	area of potential effect
APLIC	Avian Power Line Interaction Committee
ARB	California Air Resources Board
ARM	American Medical Response
B.P.	years before present
BLM	Bureau of Land Management
BMPs	Best Management Practices
B-P	Business Park
°C	degrees Celsius
CAA	Clean Air Act
CAAQS	California ambient air quality standards
Cadna/A	Cadna/A Noise Prediction Model
CalEPA	California Environmental Protection Agency
Cal-OSHA	California Office of Safety and Health and Administration
Caltrans	California Department of Transportation
CBC	California Building Code
CCA	Federal Clean Air Act
CCC	California Coastal Commission
CDFG	California Department of Fish and Game
CEC	California Energy Commission

CEQA	California Environmental Quality Act
CFC	California Fire Code
CFR	Code of Federal Regulations
CGS	California Geological Survey
CHRIS	California Historical Resources Information System
CMP	Congestion Management Program
CNDDB	California Department of Fish and Game Natural Diversity Data Base
CNEL	community noise equivalent level
CNPS	California Native Plant Society
CO	carbon monoxide
CO	Carbon Monoxide
County	County of Santa Barbara
CPUC	California Public Utilities Commission
CREF	Coastal Resource Enhancement Fund
CRHR	California Register of Historical Resources
CRZ	Critical Root Zone
CUP	Conditional Use Permit
CWA	Clean Water Act
dB	decibel(s)
dBA	A-weighted sound level measurement
DBE	Design Basis Earthquake
DOC	California Department of Conservation
EIR	Environmental Impact Report
EMF	electromagnetic field
EPA	United States Environmental Protection Agency
EPC	Engineering, Procurement, and Construction
ERME	Environmental Resource Management Element
ESA	Endangered Species Act (federal)
ESCP	Erosion and Sediment Control Plan

EU	excavation units
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulations
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FMMP	Farmland Mapping and Monitoring Program
g	acceleration due to gravity
GHGs	greenhouse gas
GPS	global positioning system
Hz	hertz
KOPs	key observation points
kV	kilovolt(s)
kV/m	kilovolts per meter
kVA	kilovolt amperes
kWh	kilowatt hour(s)
L_{dn}	day-night sound level
L_{eq}	equivalent sound level
L_{max}	maximum sound level
L_n	percentile noise level
LOS	level of service
LUDC	Land Use and Development Code
LWEF	Lompoc Wind Energy Facility
LWEF	Lompoc Wind Energy Facility
MBTA	Migratory Bird Treaty Act
MCE	Maximum Credible Earthquake
$\mu g/m^3$	micrograms per cubic meter
mg/L	milligrams per liter
MHz	megahertz
MMRP	Mitigation Monitoring and Report Plan

mph	miles per hour (mph)
MW	megawatt(s)
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NEC	National Electric Code
NEMA	National Electrical Manufacturers Association
NESC	National Electric Safety Code
NFPA	National Fire Protection Agency
NO_2	Nitrogen Dioxide
NOP	Notice of Preparation
NO_X	Nitrogen Oxides
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
O&M	operations and maintenance
O_3	Ozone
O-S	Open Space
OSHA	Occupational Health and Safety Administration
P&H	Patrick and Henderson Inc.
PBA	Peak bedrock acceleration
P-F	Public Facilities
PG&E	Pacific Gas and Electric Company
PM_{10}	Particulate matter less than 10-microns
$PM_{2.5}$	Particulate matter less than 2.5-microns
PPA	Power Purchase Agreement
ppm	parts per million
psi	per square inch
R-A	Residential Agriculture
RCNM	Roadway Construction Noise Model

ROC	Reactive Organic Compounds
ROG	Reactive Organic Gases
RPM	revolutions per minute
RPS	Renewable Portfolio Standard
RR	Residential Ranchette
RWQCB	Regional Water Quality Control Board(s)
S&HC	California Street and Highways Code
SB	Senate Bill
SBBG	Santa Barbara Botanical Garden
SBC OES	Santa Barbara County Office of Emergency Services
SBCAG	Santa Barbara County Association of Governments
SBCAPCD	Santa Barbara County Air Pollution Control District
SBCFD	Santa Barbara County Fire Department
SCADA	Supervisory Control and Data Acquisition
SCCAB	South Central Coast Air Basin
SCE	Southern California Edison
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
SO_X	Sulfur Oxides
SPCC	Spill Prevention, Control, and Countermeasures Plan
SR	State Route
SSSE	Seismic Safety and Safety Element
STU	shovel test units
SVP	Society of Vertebrate Paleontology
SWPPP	Stormwater Pollution Prevention Plan
SWQMP	Storm Water Quality Management Plan
SWRCB	State Water Resources Control Board
TDM	Transportation Demand Management
TDS	total dissolved solids

TMP	Traffic Management Plan
U.S.	United States
UBC	Uniform Building Code
UCMP	University of California, Museum of Paleontology at Berkeley
UCSB	University of California at Santa Barbara
UCSC SCPBRG	University of California at Santa Cruz, Santa Cruz Predatory Bird Research Group
USACE	United States Army Corps of Engineers
USC	United States Code
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
V/C	volume to capacity
VAFB	Vandenberg Air Force Base
VOCs	Volatile Organic Compounds
VRAP	visual resources assessment procedure
VTRS	Vandenberg Telemetry Receiving Station
WEAP	worker education and awareness program
WTG	Wind Turbine Generator
ZVI	Zone of Visual Impact

Executive Summary

ES-1 Overview

The purpose of the Executive Summary and impact summary tables is to provide the reader with a brief overview of the proposed Project, project alternatives, the anticipated environmental effects, and the potential mitigation measures that could reduce the severity of the impacts associated with the Project. The County of Santa Barbara (County), as lead agency under the California Environmental Quality Act (CEQA), has prepared this Environmental Impact Report (EIR) in accordance with CEQA, Public Resources Code Sections 21000 et seq., the State CEQA Guidelines, 14 CCR Sections 15000 et seq. and the County Guidelines for the Implementation of CEQA. It addresses the potential environmental impacts of the proposed Lompoc Wind Energy Project (Project). The majority of the Project falls within the ~~4th~~ 3rd Supervisorial District of the County.[1]

This EIR is an informational document that is being used by the general public, utility providers, and governmental agencies to review and evaluate the Project. The reader should not rely exclusively on the Executive Summary as the sole basis for judgment of the Project and alternatives. The complete EIR should be consulted for specific information about the environmental effects and the implementation of associated mitigation measures.

The Lompoc Wind Energy Facility (LWEF), the wind turbine generator (WTG) component of the Project, would be located on approximately 2,950 acres of rural, agriculturally zoned land on coastal ridges southwest of Lompoc, entirely within the inland area of the County. The LWEF would have a maximum electrical generating capacity of ~~120~~ 97.5 megawatts (MW), which could potentially supply up to 5~~6~~0,000 homes with electricity. The Applicant has initially contracted with Pacific Gas and Electric Company (PG&E) to deliver 82.5 MW of renewable energy and capacity under a long-term power purchase agreement via a direct interconnection with the PG&E transmission grid. The remainder of the planned capacity would be developed in up to two subsequent phases and installed upon securing additional long-term power purchase agreements with PG&E or others. ~~According to the Project application, t~~ The proposed wind farm could generate up to ~~350~~ 285 million kilowatt hours (kWh) of electricity annually. The target date for commercial operations is ~~October 1, 2008~~ the end of 2009. The anticipated operational life of the Project is approximately 30 years.

Following are the major Project components:

- ~~60 to 80~~ 65 1.5 MW WTGs
- New onsite access roads and road improvements

[1] The Project, including its power line, are mostly in the 3rd Supervisorial District, except for the northern portion of the power line that enters into the 4th District as it traverses southern Lompoc.

- A communication system
- Meteorological towers
- An operations and maintenance (O&M) facility
- Onsite electrical collection and distribution lines
- An onsite Project Substation
- A new ~~7.85~~ 8.7-mile, 115-kilovolt (kV) PG&E power line to the Lompoc area to interconnect with the PG&E electric grid
- Upgrades to existing PG&E facilities

Environmental Impact Report Scope

This EIR examines potential short-term and long-term impacts of the Project. These impacts were determined through a rigorous process mandated by CEQA in which existing conditions are compared and contrasted with conditions that would exist once the Project was implemented. The significance of each identified impact was determined using either County Thresholds of Significance (County, 2006) or CEQA thresholds where there is no County threshold. The following categories are used for classifying Project related impacts:

- *Class I* – Significant adverse impacts that cannot be feasibly mitigated or avoided. If the Project is approved, decision-makers are required to adopt a statement of overriding considerations, pursuant to CEQA Section 15093, explaining why Project benefits outweigh the unavoidable, adverse environmental effects.
- *Class II* – Significant adverse Impacts that can be feasibly mitigated or avoided. If the Project is approved, decision-makers are required to make findings pursuant to CEQA Section 15091, that impacts have been mitigated to the maximum extent feasible by implementing the recommended mitigations.
- *Class III* – Adverse impacts that are less than significant. These impacts do not require mitigation, nor do they require that CEQA findings be made.
- *Class IV* – Beneficial impacts; effects that are beneficial to the environment.

For each significant impact identified, mitigation measures that are designed to reduce impacts to less than significant levels are presented. The Applicant has proposed many mitigation measures as part of the Project application (see Section 2.8.4). In addition, Avoidance and Protection measures were identified to minimize impacts from construction and operation of the project power line by PG&E (see Section 2.8.5) ~~, and the County has supplemented them by refining the Applicant's measures and adding new measures as needed.~~ These measures were considered in the assessment of Project impacts to determine whether they would be mitigated and in the development of additional mitigation measures. In those instances in which mitigation measures cannot reduce such impacts to less than significant levels, the impacts are identified as *Class I*. In many cases, these mitigation measures would also further reduce adverse, but less than significant impacts (*Class III*).

The EIR also presents alternatives to the Project, including the "No Project" alternative, and a qualitative assessment of the impacts that would be associated with the implementation of each. Finally, the cumulative impacts of the Project when added to other local proposed or approved projects were also evaluated.

Notice of Preparation

On June 30, 2006, the County distributed a Notice of Preparation (NOP) describing the Project for review by affected state, county, and city agencies, utility providers, interested organizations, and the general public. In addition to obtaining written comments on the NOP, a public scoping meeting was held on July 17, 2006. The meeting provided an opportunity for affected public agencies and the public to express concerns about the project and issues that should be addressed in the project EIR. All comments (written, e-mail, and verbal) were considered as part of preparation of this EIR.

Summary of Project Impacts

The significance of each impact resulting from implementation of the Project has been determined according to either the County Thresholds and Guidelines Manual or CEQA thresholds. As discussed in the EIR, there are only three significant and unavoidable impacts associated with implementation of the Project:

1. Construction and operation of WTGs in the westernmost arrays of the Project area would create a significant visual impact during both daytime and nighttime periods to users of Jalama Beach County Park, which is approximately 4.5 miles distant. Based upon the generalized reasonable worst-case analysis (80 WTGs), three WTGs would be visible near the base of Tranquillon Mountain, and an estimated 10 would be visible in the southernmost WTG array along the ridgeline. In addition, up to four WTGs on the Larsen property would be visible to southbound travelers and recreationists along San Miguelito Road for a half mile as it approaches Miguelito County Park and one WTG would be visible from within the Park. Finally, several WTGs, the O&M facility, and substation would be visible from San Miguelito Road in the vicinity of the Project site.

2. Placement of a series of new power poles and associated power line in the area of State Route 1 (SR-1) would introduce a significant new visual impact along the ridgeline, which would silhouette against the skyline. However, implementation of Applicant proposed Power Line Alternative 1 (reroute power line to minimize visibility from SR-1) and Avoidance and Protection Measure Pl-5 (longer spans, shorter poles, etc.) would reduce this impact to a less than significant level of impact.

3. An unknown number of protected birds and bats may be killed through collisions with the WTGs over the duration of the Project.

The rest of the Project impacts have been found to be mitigatable to acceptable levels, adverse but less than significant, or they have been identified as beneficial impacts. Tables ES-1 through ES-4 (Summary of Impacts and Mitigation Measures), provided at the end of this section, present a summary of the environmental impacts that would result from the proposed Project. It is organized to correspond with the environmental

issues discussed in Section 3.0 Environmental Setting, Impacts, and Mitigation Measures.

Tables ES-1 through ES-4 are arranged in five columns: the identified impact under each EIR issue area; the project phase; the level of significance prior to mitigation; mitigation measures that would avoid or reduce the level of impacts; and the level of significance after implementation mitigation measures, as applicable. Where no mitigation is required, it is noted in the table.

Summary of Project Alternatives

Section 5.0 Alternatives provides an analysis of the Project alternatives ranging from alternative technologies, alternative sites, the No Project Alternative, and alternative LWEF layouts and power line routes. The alternatives analysis includes a discussion of alternatives that were dismissed from further consideration, as well as a comparative analysis of a reasonable range of potentially feasible Project alternatives.

The alternatives included in the comparative analysis include the following:

LWEF Alternative 1 (Limit WTGs on South/West Corridors)

This alternative (Figure 5.3-1) would be implemented on the same site as the Project and follow Project construction practices and regulatory requirements. Project components would be unchanged as well, with one exception—the number of WTGs would be reduced, or microsited in portions of the LWEF, in order to reduce significant impacts to views from Jalama Beach County Park and from within Miguelito County Park.

LWEF Alternative 2 (Phase I Only)

This alternative would limit the Project to the portion that would be completed under Phase I of the Project as proposed, consisting of construction and production of 82.5 MW of wind energy, which would fulfill the existing Power Purchase Agreement between the Applicant and PG&E. Additionally, this alternative would eliminate those WTGs that are visible from Jalama Beach County Park and from within Miguelito County Park, consistent with LWEF Alternative 1.

Power Line Alternative 1 (Re-routing to Minimize Visual Impacts)

This Applicant-proposed alternative power line route (Figure 5.3-2) was developed to minimize the significant and unavoidable visual impacts along SR-1 associated with the proposed power line route.

No Project Alternative

Under this alternative, the LWEF and associated power line would not be constructed and the underlying land uses at the Project sites would remain unchanged.

Environmentally Superior Alternative

As discussed in Section 5.0, the analysis contained in this EIR concluded that the proposed Project and all the alternatives considered, except the No Project Alternative, would result in significant and unavoidable (*Class I*) impacts from avian mortality

resulting from collisions with WTGs. The proposed Project would also result in significant and unavoidable (*Class I*) visual impacts from the degradation of scenic resources from the WTGs visible from Jalama Beach County Park and within Miguelito County Park, and southbound travelers and recreationists along San Miguelito Road for a half mile as it approaches Miguelito County Park and the southern end of San Miguelito Road as it approaches the project site. ~~and from~~ Finally, the power line route would be visible to travelers along SR-1.

In addition, the proposed Project and all the alternatives considered, except the No Project Alternative, would also result in significant, but mitigable (*Class II*) impacts on various resource areas including: aesthetics/visual resources, air quality, biological resources, cultural resources, fire protection and emergency services, geology/soils, land use, noise, paleontological resources, risk of accidents/hazardous materials/safety, transportation/circulation, and water resources.

Based upon the comparative analysis, the No Project Alternative would have the least significant impacts. However, the No Project Alternative would not meet the Project objectives presented in Section 1.3. Therefore, it was determined that the environmentally superior alternative that meets the Project objectives and minimizes or eliminates the environmental impacts of the Project is a combination of LWEF Alternative 2 (Phase I Only) and Power Line Route Alternative 1. LWEF Alternative 2 would be expected to result in the least short-term and long-term environmental effects due to the minimization of visual impacts to Jalama Beach County Park and from within Miguelito County Park, and reduction of impacts to most other resources, including reducing avian fatalities along the southwestern border of the LWEF. Power Line Route Alternative 1, with application of required Avoidance and Protection Measures (see Section 2.8.5), would be expected to result in the least short-term and long-term environmental effects due to the minimization of visual impacts to travelers along SR-1.

Note to reader: Table ES-1 presents a summary only of the Class I impacts (significant and unmitigable to a level of insignificance), identified for the Lompoc Wind Energy Project. For a detailed discussion of the impacts and the entirety of the mitigation measures, please refer to Sections 3.2 through 3.15. The entire mitigation measures are also available for review in Appendix D, Mitigation Monitoring Plan. Due to the substantial edits to and reordering of the biological resources impacts and mitigation measures, deletions are not shown in the table below.

TABLE ES-1
Summary of Class I Impacts and Mitigation Measures

Resource Area	Phase/Project Component[2]	Impact Summary	Mitigation Measure Summary	Residual Impact
BIO-10	Operations	Unknown numbers of special status and non-sensitive birds and bats are at risk of dying through collisions with the WTGs over the duration of the Project.	**BIO-15a: Siting**. The turbines shall be sited so that each tower is located at least 500 feet away from critical biological resources identified in preconstruction surveys, specifically: active raptor nest sites, active state or federally listed species' nests, open water which would attract birds or bats (including stock-ponds), thicker riparian habitat in Canada Honda and Miguelito creeks, eucalyptus tree groves, or vernal pools, if present. The turbines shall be sited so that each tower is located at least 250 feet from the un-named intermittent tributaries containing Central Coast Riparian Scrub habitat located up-gradient of major streams. Preconstruction surveys (described in MM Bio-11a) shall identify existing raptor nests and other sensitive resources. The Applicant shall, in consultation with the CDFG, attempt to dissuade raptors from building new nests within 500 feet of any turbine. **BIO-15b: Appropriate WTG and Project-Element Design**. To minimize the likelihood of collisions of birds with WTGs and onsite power poles and collection lines[3], the design features of all WTGs and project related facilities shall include the following: a) Underground (rather than overhead) collection lines shall be used to minimize perching locations and electrocution hazards to birds, except where undergrounding would create potential for serious erosion (e.g., crossing steep canyons) or other serious impacts that could be avoided with overhead lines. b) All overhead collection lines shall be spaced to minimize the potential for raptor electrocution using the latest APLIC (2006) guidelines for line spacing. Further, construction and work procedures shall be consistent with the APLIC guidelines "*Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006*." c) WTGs with low rotational speed (approximately 10 to 23 revolutions per	Significant

2 Where this table attributes impacts to the power line, it should be understood that power line related impacts would be less than significant with application of the Avoidance and Protection Measures (see Section 2.8.5).

3 Note: These provisions are applicable only to 34.5 KV collection lines at the project site. Avoidance and Protection Measures for the proposed 115 KV PG&E power line arecovered separately in Section 2.8.5.

TABLE ES-1
Summary of Class I Impacts and Mitigation Measures

Resource Area	Phase/Project Component[2]	Impact Summary	Mitigation Measure Summary	Residual Impact
			minute [RPM]) and tubular towers shall be used. WTG blades shall not rotate when the WTG is not in operation. d) All permanent meteorological towers shall be unguyed. **BIO-16a: Before-After/Control-impact (BACI) Study.** Conduct BACI surveys under direction of a County-approved biologist. The purpose of the BACI surveys is to compare pre- and post-construction bird use on the site; to assess the effects of the project on avian species; to assist in determining whether additional mitigation elements are necessary; and to collect research data to better understand wind power industry impacts and provide regulatory agencies with data for future projects. Study reports shall include estimates of average bird usage on the site and information on the location of species within the site, flight elevations and patterns of activity, and WTG avoidance behavior. The study data and reports shall be provided to the County for review. The surveys shall be conducted from the time of project approval through each project construction phase and for two years following first delivery of power for that phase. **BIO-16b: Bird/Bat Mortality Study.** Conduct a bird and bat mortality study under direction of a County-approved biologist. The purpose of mortality surveys is to estimate mortality rates for different species on the site attributable to collisions with WTGs and to identify individual WTGs or groups/strings of WTGs that cause unanticipated levels of mortality. The information will be used to determine whether the mortality thresholds of the Adaptive Management Plan (see AMP, below) have been reached. In addition, the collected data will add to the body of knowledge to provide regulatory agencies with data for future projects. Brief quarterly reports including tabulated search data and annual reports including analysis of the year's data shall be prepared. The study data and reports shall be provided to the County for review. Monitoring shall be conducted for the first full 2 years after all WTGs are in operation for each project construction phase. Additional years of monitoring could be required if the mortality of special status bird and bat species exceeded thresholds (see AMP, below). **BIO-16c:. Reduce Prey Base Near Turbines.** Conduct a program under direction of a County-approved biologist to reduce the densities of California ground squirrels, rabbits, and other small mammals in the Project area. Limiting the number of burrowing mammals is intended to reduce the attraction of raptors to the Project area, and thus lower the potential for mortality resulting from collisions with WTGs and power lines on the project site. The program plan should emphasize, but not be limited to existing, mapped small mammal colonies. The plan shall be subject to	

TABLE ES-1
Summary of Class I Impacts and Mitigation Measures

Resource Area	Phase/Project Component[2]	Impact Summary	Mitigation Measure Summary	Residual Impact
			County approval. Brief quarterly reports including the study data shall be provided to the County for review. The reports may be provided electronically. The program shall begin during the construction phase and continue for 2 years of Project operation. The County could modify or discontinue the program if new information indicates it is ineffective or harmful. **BIO-16d: Adaptive Management Plan (AMP).** Develop an Adaptive Management Plan (AMP) to be activated in the event that bird or bat mortality exceeds specified threshold levels. The AMP provides a structured framework to guide response, in case project operations result in excessive mortality that was unforeseeable at the time of EIR certification and project approval.	
VIS-1	Construction and Operations/ LWEF, Power Line[4]	WTGs and related structures have the potential to be visible in the vicinity of the Project.	**VIS-1: Materials Storage.** All construction materials and excavated materials shall be stored away from San Miguelito Road, whenever possible, to reduce impacts on mountain views. **VIS-2: Location of Construction Activities.** Construction activities and materials storage shall be confined to within the WTG corridors, staging areas, and the Project Substation and operations and maintenance (O&M) facility areas. **VIS-4: Landscape and Lighting Plan**: In accordance with the Santa Barbara County Land Use Element, Visual Resources Policies, Policy 1, the Applicant shall be required to submit a landscaping plan to the County for review and approval. In addition, any facility lighting shall be included. Measures to minimize the attraction of birds to facility lighting shall be developed and presented in the plan. See also **Mitigation Measure LU-1.**.	Significant
VIS-2	Construction and Operations/ LWEF	Westernmost WTGs would be visible to users of Jalama Beach County Park. Northeastern –most WTGs would be visible to users of Miguelito County Park.	VIS-3 Contribution to County Parks Fund. *T*he Applicant shall make a one-time $100,000 payment to the County. This money shall be used by the County Parks Department exclusively to preserve and enhance the natural beauty of Miguelito County Park and Jalama Beach County Park. See **Mitigation Measure LU-1.**	Significant

[4] Visual impacts of the 115 kV power line in the vicinity of the project would be less than significant.

TABLE ES-1
Summary of Class I Impacts and Mitigation Measures

Resource Area	Phase/Project Component[2]	Impact Summary	Mitigation Measure Summary	Residual Impact
VIS-4	Operations/ Power Line[3, 5]	Placement of the power line in the area of SR-1 introduces a significant new series of power poles that would silhouette against the skyline.	See Avoidance and Protection Measure PL-5, Section 2.8.5 ~~A-VIS-4: Power Line Relocation/Pole Height. At the southeast corner of the City of Lompoc, where the power line route would be visible from SR-1, the following measures shall be used, where technically feasible, to minimize visual impacts: longer spans between the poles; shorter poles; straddle ridgeline with two poles instead of a single pole on the ridge line.~~	Significant

5 Power Line Route Alternative 1 (see Section 5.3.2) would reduce visual impacts of the power line to less than significant.

Note to reader: Table ES-2 presents a summary only of the Class II impacts (significant but mitigable) identified for the Lompoc Wind Energy Project. For a detailed discussion of the impacts and the entirety of the mitigation measures, please refer to Sections 3.2 through 3.15. The entire mitigation measures are also available for review in Appendix D, Mitigation Monitoring Plan. Due to the substantial edits to and reordering of the biological resources impacts and mitigation measures, deletions are not shown in the table below.

TABLE ES-2
Summary of Class II Impacts and Mitigation Measures

Resource Area	Phase/Project Component[6]	Impact Summary	Mitigation Measure Summary	Residual Impact
AQ-2	Construction/ LWEF, Power Line	Particulate matter emissions during construction would result from soil disturbance, travel on unpaved roads, mobile source exhaust emissions, and concrete batch plants.	~~A~~ **AQ-2: Dust Control Plan.** A Dust Control Plan shall be prepared by the Applicant.	Less than Significant
BIO-1	Construction	Approximately 127 acres of vegetation and wildlife habitat will be temporarily impacted by construction, with an additional 43 acres being permanently disturbed (e.g., by construction of roads, pads, facilities sites).	**BIO-1: Worker Education and Awareness Program.** The Applicant shall fund a County-approved biologist to develop and implement a worker education and awareness program (WEAP) specific to the Project. The program shall be presented to all individuals involved in the construction and O&M phases of the Project. The program shall include information focused on sensitive habitats and species. **BIO-2: Ground Disturbance**. The Applicant shall minimize the amount of disturbance to the extent feasible including areas devoted to WTGs; power line poles; temporary and permanent access roads; stockpiles; staging, parking and lay down areas; areas where spoil shall be used to control erosion; and areas for associated facilities. Construction activities shall avoid sensitive areas, such as riparian zones, forests, etc., where feasible. Construction shall avoid all wetlands regulated by Santa Barbara County, CDFG, and USACE (see Mitigation Measure BIO-9) where feasible. Parking, lay down, storage areas, and other sites of superficial disturbance shall be located in previously disturbed areas or in annual grassland (except in Gaviota tarplant habitat) and will be mowed, versus graded, where feasible to keep root structures in place; thereby, facilitating future revegetation. Permanent access roads shall follow routes used for construction access to reduce the amount of new road construction. Vehicles and equipment access shall follow marked routes. Indiscriminant cross-country vehicle travel shall not be allowed.	Less than Significant

6 Where this table attributes impacts to the power line, it should be understood that power line related impacts would be less than significant with application of the Avoidance and Protection Measures (see Section 2.8.5).

TABLE ES-2
Summary of Class II Impacts and Mitigation Measures

Resource Area	Phase/Project Component[6]	Impact Summary	Mitigation Measure Summary	Residual Impact
			BIO-3: Site Restoration and Revegetation Plan. The Applicant shall retain a County-approved botanist to prepare and implement a site restoration and revegetation plan. **BIO-8: Native Perennial Bunchgrass**. The Applicant shall retain a County-approved botanist to resurvey the potentially affected area during the appropriate season and determine the total area with at least 10 percent cover by native grassland species on the site (=native grassland habitat). If the total area of native grassland habitat that would be permanently removed is less than 10 percent of the total area of native grassland habitat within the Project area, loss of native grasses shall be mitigated by seedbank salvage and replacement as described for Horkelia. **BIO-11b: Fencing.** To minimize the amount of disturbance to wildlife habitat, the Applicant shall clearly define in the field: the project construction areas, including areas devoted to WTGs; power line poles; temporary and permanent access roads; stockpiles; staging, parking and lay down areas; areas where spoil shall be used to control erosion; and areas for associated facilities. Project boundaries shall be clearly marked with fencing or staking that shall be replaced as needed. **BIO-11c: Biological monitoring.** The Applicant shall fund a County-approved, Environmental Monitor during Project construction to monitor construction activities and to ensure compliance with all mitigation measures. The Environmental Monitor shall be present onsite during all vegetation removal and during all of the initial ground disturbance activities for all aspects of the project, and shall regularly inspect the project site as needed after the initial ground disturbances to ensure that all mitigation measures are being implemented. The biologist shall ensure that wildlife do not become entrapped in the excavations during installation of the WTGs and associated underground collection system from the WTGs to the substation (i.e., open trenches). Safeguards shall be implemented during daytime periods of non-activity and overnight, such as a placing a platform over the entire excavation site, flush with the ground surface, or exclusionary fencing. A form of egress (such as a ramp) shall be placed within the excavated area to provide an exit to accidentally trapped wildlife. The biologist shall be responsible for ensuring these safeguards are in place on a daily basis. **BIO-11d: Monitoring Report.** On a bi-weekly basis, the County-approved, Environmental Monitor shall provide the County a Construction Monitoring and Biological Resources Mitigation Report. This report shall include a description of the activities that have occurred onsite, wildlife species encountered, relocation efforts, wildlife mortalities and injuries, violations or issues with construction activities, and	

TABLE ES-2
Summary of Class II Impacts and Mitigation Measures

Resource Area	Phase/Project Component[6]	Impact Summary	Mitigation Measure Summary	Residual Impact
			any project-related resolutions.	
BIO-2	Construction	Tree trimming or removal may be required during transport of WTGs or power line installation. A small portion of the proposed roadway network would affect tree-dominated vegetation; power line construction would occur close to wooded areas.	**BIO-4: Tree Protection and Replacement Plan**. The Applicant shall retain a County-approved botanist or arborist to design and implement a tree protection and replacement plan in order to protect existing native trees and minimize adverse effects of grading and construction. No ground disturbance, including grading for buildings, access ways, easements, and subsurface grading, shall occur within the critical root zone of any native tree unless specifically authorized by the approved tree protection and replacement plan. See also **Mitigation Measures BIO-1, BIO-2, BIO-3, and BIO-11c, d** above.	Less than Significant
BIO-3	Construction	Direct loss of wetlands and seeps would occur at creek crossings and the proposed O&M facility. Direct loss of wetlands and seeps within the WTG corridor are not expected; however, there is potential for loss should the project configuration change. Additionally, soil erosion or spills could reduce water quality during construction.	**BIO-9: Protection of Creeks, Springs, and Wetlands.** The Applicant shall make every effort to minimize the area and degree of impact to State and Federal wetlands and other Waters of the U.S. associated with placement of bridges, siting of the O&M facility, and other construction-related tasks. Additionally, all potential jurisdictional areas that may be disturbed by construction shall be delineated following all applicable standards associated with features regulated by the State of California, Santa Barbara County, and USACE for regulated wetlands, including documentation of specific surveys for presence of listed plant, invertebrate, or wildlife species that may occur there. A wetland avoidance and restoration shall be prepared to ensure protection to wetland areas, restoration of temporarily disturbed wetland areas, and 2:1 replacement of any wetlands permanently lost. See also **Mitigation Measures BIO-1, BIO-2, BIO-3, BIO-10, BIO-11c, d, GEO-2, WAT-1, AND WAT-2.**	Less than Significant

TABLE ES-2
Summary of Class II Impacts and Mitigation Measures

Resource Area	Phase/Project Component[6]	Impact Summary	Mitigation Measure Summary	Residual Impact
BIO-5	Construction	Construction would result in 10.3 acres (8.1 % of site total) of permanent and 22.3 acres (17.4% of site total) of temporary loss or disturbance to Gaviota tarplant and its habitat.	**BIO-5: Pre-construction Plant Surveys.** The Applicant shall retain a County-approved botanist to conduct appropriately timed pre-construction surveys for sensitive native plant species, including lichens, in all areas to be disturbed, including power line pole locations and access roads. In the unlikely event that a federally listed plant species is found on or near an area to be disturbed by the project, the FWS will be notified and the project will be adjusted to avoid impact and other species protection measures recommended by the Service will be implemented. If a substantial portion of a "stand" of CNPS-listed or locally rare species would be removed for the Project and adjustment of the disturbance area boundaries to avoid the impact is not feasible, the loss will be mitigated by collection of seeds or other propagules from the plants during the appropriate time of the year. **BIO-6: Gaviota Tarplant Disturbance.** The Applicant shall retain a qualified botanist approved by CDFG and the County to address impacts to Gaviota tarplant and oversee flagging of the perimeter of all approved work areas in Gaviota tarplant habitat. Gaviota tarplant habitat will include all areas of previously identified habitat plus any additional areas that are discovered during preconstruction surveys prior to ground disturbance. Gaviota tarplant will be assumed to be present within all areas where it had been previously mapped even if it is not evident during preconstruction surveys (because seedbank may be present that could germinate and establish under different environmental conditions). The Project design shall continue to be refined to minimize Gaviota tarplant habitat disturbance, the size of temporary excavation areas, and the size of areas where permanent loss shall occur. A Gaviota tarplant restoration plan shall be prepared detailing measures for restoration of temporarily disturbed tarplant sites and measures to compensate for permanent losses. See also **Mitigation Measures BIO-1, BIO-2, BIO-3, and BIO-11c, d** above.	Less than Significant
	Operations	Occasional disturbance to small areas of Gaviota tarplant habitat may occur as a result of operations or maintenance activities involving clearing or vehicle operation in occupied habitat.		Less than Significant
BIO-6	Construction	A number of other special-status plant species may be present onsite or in the power line corridor and could be lost during construction.	**BIO-7: Kellogg's and Mesa Horkelia Habitats.** For Kellog's and Mesa Horkelia habitats identified during pre-construction surveys (see Mitigation Measure BIO-5, above), the Applicant shall track over Kellogg's and Mesa Horkelia habitat, where the terrain shall safely allow it, rather than widening roads beyond the permanent road width to minimize plant removal. The seedbank shall be salvaged and stockpiled separately from other spoil along roads and adjacent to other facilities constructed in Kellogg's and Mesa Horkelia habitat as described for Gaviota tarplant. Salvaged stockpiles shall be covered or sprayed with hydromulch and binder to crust the surface to minimize soil loss to wind erosion. Salvaged seedbank shall be spread over restored areas as described for Gaviota tarplant except that a normal mixture of mulch and binder shall be used. If the area is within	Less than Significant

TABLE ES-2
Summary of Class II Impacts and Mitigation Measures

Resource Area	Phase/Project Component[6]	Impact Summary	Mitigation Measure Summary	Residual Impact
			Gaviota tarplant habitat, methods for the latter shall be used. See also **Mitigation Measures BIO-1, BIO-2, BIO-3, BIO-5, and BIO-11c, d** above.	
BIO-8	Construction and Operations	Nesting birds could potentially lose nests through destruction or abandonment.	**BIO-11a: Pre-construction Wildlife Surveys.** The Applicant shall retain a County-approved biologist to perform a wildlife survey prior to the excavation of the WTG sites. The biologist shall survey the surrounding area out to a 300-foot radius from the WTG site, the WTG footings, access roads, and staging, parking, and lay down areas prior to grading or the use of any explosives. Surveys shall be completed within 3 days before the start of initial vegetation clearance or ground disturbance in any affected area. If any wildlife species are found, they shall be relocated to similar habitat at least 300 feet away from construction activity. **BIO-11b: Fencing.** To minimize the amount of disturbance to wildlife habitat, the Applicant shall clearly define in the field: the project construction areas, including areas devoted to WTGs; power line poles; temporary and permanent access roads; stockpiles; staging, parking and lay down areas; areas where spoil shall be used to control erosion; and areas for associated facilities. Project boundaries shall be clearly marked with fencing or staking that shall be replaced as needed. **BIO-12a. Schedule ground disturbance to avoid nesting season.** All construction-related activities that include vegetation removal and initial ground disturbances in habitats where biological monitor does not have a clear view of the ground, shall be scheduled, as feasible, to avoid the bird nesting season (February 1 through August 31) to reduce impacts to nesting birds in the project vicinity. If construction activities are scheduled to begin during the nesting season, the applicant shall still attempt to remove or mow vegetation before the onset of nesting season to reduce the threat of violating the Migratory Bird Treaty Act. **BIO-12b. Buffer Zones.** If ground disturbance or vegetation removal is scheduled to occur during the avian nesting or bat roosting season (from February 1 through August 31) the Applicant shall fund a County-approved biologist to survey for active avian nests and roosting bats immediately prior to the start of construction in a given area (including removal or trimming of trees and shrubs). The survey shall occur at the sites of construction activity, as well as up to 500 feet away. If an active raptor nest is found, no construction activity shall occur within 500 feet of the nest unless otherwise directed by CDFG. The County-approved biologist shall conduct a study to collect more detailed information on nesting raptors in the Project area. Areas of dense vegetation, including the riparian corridors along Miguelito Creek, the eucalyptus groves onsite, and mixed evergreen forest within 500 feet of	Less than Significant

TABLE ES-2
Summary of Class II Impacts and Mitigation Measures

Resource Area	Phase/Project Component[6]	Impact Summary	Mitigation Measure Summary	Residual Impact
			Project facilities shall be surveyed at weekly intervals to collect data on nesting activities. If any other active avian species nest or roosting bats are found, construction activity shall be limited to within 150 feet of the area or as directed by the County-approved biologist unless otherwise directed by CDFG. **BIO-14e: Sensitive Avian Species.** The County-approved biologist shall conduct a study in the spring season prior to the onset of construction activities to assess the density of special status passerines and other ground-nesting birds in areas of the project site potentially subject to disturbance. Plots shall be established in various habitats and checked at weekly intervals to monitor for new nests of ground-nesting birds that are sensitive species, including California horned lark, California rufous-crowned sparrow, grasshopper sparrow, and burrowing owls. The surveys shall be conducted as long as birds are nesting in the Project area between February 1 and August 31. The surveys shall be discontinued when it is apparent that nesting has ceased for the season. Surveys for burrowing owls shall be conducted prior to construction in the Project area, including areas within 300 feet of all Project facilities, WTG sites, and access roads. The survey shall be performed regardless of season of the year due to this species' being present in the winter. If construction is to occur between February 1 and August 31, all sites to be disturbed shall be surveyed for ground-nesting and shrub-nesting birds immediately prior to construction in a given area. If an active nest is found, no construction activity shall occur within 300 feet of the nest or as determined by the biological monitor and updated maps showing active nesting locations shall be distributed to the biological monitors, EQAP inspector, and crew foreman on a weekly basis. See also **Mitigation Measures BIO-1, BIO-2, and BIO-11c, d** above.	
BIO-9	Construction and Operations	Direct and indirect impacts may occur to special-status wildlife species. Those with higher potential for injury or fatalities by vehicles or equipment, loss of habitat, or disturbance of burrows and nests include reptiles, raptors, and passerines.	**BIO-13: Pre-construction Surveys and Conservation of El Segundo Blue Butterfly (ESBB).** The applicant shall retain a qualified, County-approved entomologist to conduct directed surveys for the ESBB during the flight season (approximately mid-June to August) within all areas of coast buckwheat known on the LWEP site, including areas that would be affected by construction, operation, or maintenance of the project. The surveys shall be documented including a description of methodology, description and maps of the surveyed areas, and identification of locations of any ESBB observed within the proposed Project area (including maps and GPS coordinates). Conditions the sites where ESBB are located shall be described by the entomologist including vegetation, soils, exposure, and other factors that may influence the occurrence of ESBB at that site.	Less than Significant

TABLE ES-2
Summary of Class II Impacts and Mitigation Measures

Resource Area	Phase/Project Component[6]	Impact Summary	Mitigation Measure Summary	Residual Impact
			A plan to restore and/or enhance ESBB habitat shall be prepared by a County-approved botanist with input from a County-approved entomologist. **BIO-14a: California Horned Lizard.** The Applicant shall fund a County-approved biologist to survey construction areas, including the sites of footings for WTGs and power poles, access roads, and staging, parking, and lay down areas, for California horned lizards. Surveys shall be completed within 3 days before the start of initial vegetation clearance or ground disturbance in any affected area. The survey may be done in conjunction with surveys for ground-nesting birds. However, the survey for horned lizards shall be performed regardless of season of the year. If horned lizards are found, they shall be relocated to similar habitat at least 300 feet away from construction activity. **BIO-14b: Silvery Legless Lizard**. The Applicant shall retain a County-approved biologist to survey for silvery legless lizards that could potentially occur in areas with Central Coast scrub and annual grassland with a shrub component. The biologist shall work with the equipment operator during initial vegetation clearance to identify those areas that would require legless lizard mitigation, and then to salvage and relocate exposed animals. **BIO-14c: San Diego Desert Woodrat**. The Applicant shall retain a County-approved biologist to survey the locations of WTGs and access routes prior to construction, as well as for a distance of 50 feet away for signs of the San Diego desert woodrat. If disturbance to a nest is likely to occur, the animal shall be live-trapped and relocated to a distance of 300 feet from Project activities and within similar habitat **BIO-14d: American Badger**. The Applicant shall retain a County-approved biologist to survey, prior to construction, for badger dens in the Project area, including areas within 250 feet of all Project facilities, WTG sites, and access roads. The survey shall be performed regardless of season of the year. If badger dens are found, each den shall be classified as inactive, potentially active, or definitely active. Measures shall be taken to discourage continued use of active dens, and the dens shall be excavated and backfilled aster confirming no badgers are trapped inside. See also **Mitigation Measures BIO-1, BIO-2, BIO-11a, b, c, d and BIO-14e** above.	
BIO-11	Operations	Birds and bats may collide with power poles and meteorological towers.	See **Mitigation Measures BIO-15a, b and BIO-16a, b, c, d** above.	Less than Significant

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Summary of Class II Impacts and Mitigation Measures

Resource Area	Phase/Project Component[6]	Impact Summary	Mitigation Measure Summary	Residual Impact
BIO-14	Construction and Operations	Invasive species carried from other work sites may establish on site and displace native plant species or interfere with revegetation; and topsoil removal and equipment operation may reduce the ability of soils to support vegetation.	**BIO-10: Riparian Habitat Restoration.** During consultation with the USACE and CDFG for impacts to Honda Creek (and other crossings, if applicable), a determination shall be made regarding whether a riparian habitat restoration plan will be required. If so, the Applicant shall retain a qualified ecologist to prepare and implement a site-specific creek restoration plan. See also **Mitigation Measures BIO-1, BIO-2, BIO-6 and BIO-11c, d** above.	Less than Significant
CULT-1	Construction and (potentially) Operations / LWEF, Power Line	Construction activities could result in significant impacts to ~~18~~ 20 prehistoric archaeological sites.	~~**A-**~~**CULT-1: Additional Archaeological~~~~Surveys~~ **Investigations.** If it is determined that a Project element requiring ground disturbance cannot be located at least ~~100~~ 500 feet from the mapped boundaries of an archaeological site, ~~a new Phase 1 survey of that specific location shall be conducted. If this survey confirms that ground disturbance would occur within 100 feet of a site boundary,~~ then an Extended Phase 1 investigation shall be conducted by employing a small number of shovel test units (STU). These STUs would be used to determine the actual subsurface boundary of the archaeological site relative to the proposed disturbance, and therefore verify whether or not the site would be affected by the disturbance. The STUs should be 20 inches in diameter and excavated in arbitrary 8-inch levels. If the presence of cultural materials is confirmed in areas that would be disturbed by Project construction, then Project construction activities should be reviewed and redesigned, to the greatest extent feasible, to avoid impacts on confirmed cultural resource sites (see Mitigation Measure CULT-7). If a recorded archaeological site can not be avoided through Project redesign, then Phase 2 subsurface testing shall be conducted to evaluate the nature, extent, and significance of the cultural resources. This evaluation program shall be designed to assess each archaeological site consistent with County Archaeological Guidelines. Should this program determine that the affected archaeological sites are significant, Phase 3 mitigation in the form of data recovery excavation shall be implemented consistent with County Archaeological Guidelines. ~~**A-**~~**CULT-2: Archaeological Isolates.** In the case where ground disturbance is proposed within ~~30~~ 100 feet of Archaeological Isolates LWF Iso-1, Iso-8, Iso-9, Iso-10, and Iso-11, a single STU should be excavated within 3 feet of the isolate in order to determine if there are subsurface deposits present. If the isolate cannot be	Less than Significant

TABLE ES-2
Summary of Class II Impacts and Mitigation Measures

Resource Area	Phase/Project Component[6]	Impact Summary	Mitigation Measure Summary	Residual Impact
			relocated, the STU should be placed in the general vicinity of its mapped location. If subsurface cultural deposits are identified, they should be assessed and characterized in accordance with Mitigation Measure A-CULT-1. ~~**A-CULT-3: Road Preparation.** Where existing graded ranch roads pass through an archaeological site, such roads may be utilized and widened through the site area by surfacing them with a 6-inch layer of imported gravel or soil that is free of cultural materials and recognizably different from the site soils. Surfacing the road with gravel should also occur for a distance of 100 feet beyond the mapped boundary of a site, except in cases where the boundary has been established through subsurface testing. Gravel from site LWF-111 should not be used for this purpose because it contains cultural material.~~ ~~**A-CULT-5**~~**CULT-4: Archaeological and Native American Monitors.** A County-approved archaeologist and Native American monitor shall monitor all ground disturbances ~~in all areas containing known archaeological materials~~ to ensure that any previously unidentified cultural resources are recorded. **CULT-~~1~~6: Avoidance of Cultural Resources.** Avoidance of cultural resource sites is the preferred measure, and all impacts to CRHR eligible sites shall be avoided to the greatest extent feasible ~~possible~~. **CULT-7~~2~~: Final Plan Notification.** The Applicant shall include a note on a separate informational sheet to be recorded with the final plans for each construction phase designating the known archaeological sites as unbuildable areas, unless the archaeological site is formally evaluated by a County- approved archaeologist as ineligible for the CRHR or a Phase 3 data recovery program has been implemented. The areas shall not be identified as archaeological sites on the informational sheet. **CULT-8~~3~~: Temporary Fencing.** Known unevaluated or determined significant archaeological sites and 50-foot buffer areas shall be temporarily fenced with chain link flagged with color or other material authorized by the County where ground disturbance is proposed within ~~100~~500 feet of the site and a buffer.	

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Resource Area	Phase/Project Component[6]	Impact Summary	Mitigation Measure Summary	Residual Impact
CULT-2	Construction/ LWEF, Power Line	Impacts to unidentified subsurface archaeological resources may occur as a result of earth-disturbing activities	~~A-CULT-4~~CULT-3: **Unanticipated Discoveries.** Should human remains, historic or prehistoric artifacts, or other potentially important cultural materials be unearthed or otherwise discovered at any time during activities associated with the development of the Project area, work in the immediate vicinity of the discovery shall be suspended until a County- approved archaeologist and Native American representative are retained by the Applicant to evaluate the significance of the find pursuant to Phase 2 investigations as specified in the County Guidelines (County, 1993). If the cultural resources are found to be significant, they shall be subject to a Phase 3 mitigation program consistent with County Cultural Resource Guidelines and funded by the Applicant. In the event that suspected human remains are discovered, the County Coroner shall be contacted in accordance with state law. See **Mitigation Measure ~~A-CULT-5~~ CULT-4** above.	Less than Significant
CULT-3	Construction/ LWEF, Power Line	Impacts to known and unidentified archaeological resources may occur as a result of increased public access via new or improved roads.	~~A-CULT-6~~CULT-5: **Pre-construction Workshop.** The County shall conduct a pre-construction workshop with cultural resource specialists, Native American monitors, and construction workers and personnel, stressing the importance of cultural resources and discussing penalties for their illicit disturbance.	Less than Significant
FPES-1	Construction and Operations/ LWEF, Power Line	The Project could result in an increased risk of wildland fires that could spread to more developed areas. Fire risks include vehicle exhaust, sparks, welding, parking on dry grass, and fuel tanks.	~~A-~~FPES-1: **Fire Protection Plan.** The Applicant shall prepare a Fire Protection Plan that meets SBCFD requirements. The plan shall contain (but not be limited to) the following provisions: a. All construction equipment shall be equipped with appropriate spark arrestors and carry fire extinguishers. b. A fire watch with appropriate fire fighting equipment shall be available at the Project site at all times when welding activities are taking place. Welding shall not occur when sustained winds exceed that set forth by the SBCFD unless a SBCFD-approved wind shield is onsite. c. A vegetation management plan shall be prepared to address vegetation clearance around all WTGs and a regularly scheduled brush clearance of vegetation on and adjacent to all access roads and other facilities. d. Operational fire water tanks shall be installed prior to construction. e. Provisions for fire/emergency services access if roadway blockage occurs due to large loads during construction and operation.	Less than Significant

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Summary of Class II Impacts and Mitigation Measures

Resource Area	Phase/Project Component[6]	Impact Summary	Mitigation Measure Summary	Residual Impact
			f. Cleared, maintained parking areas shall be designated; no parking shall be allowed in non-designated areas. g. The need for and/or use of dedicated repeaters for emergency services. ~~A-~~**FPES-2: Smoking and Open Fires.** Smoking and open fires shall be prohibited at the Project site during construction and operations.	
FPES-2	Construction and Operations/ LWEF	Although the Project contains many elements that would reduce potential for severe fires, fire risks would be increased through operation of the WTGs, Project Substation, power lines, and access roads. The O&M facility would include fire suppression infrastructure.	**FPES-~~1~~4: Access Roads.** Access roads shall remain passable by emergency vehicles for the duration of the Project. ~~To the extent practicable, no access roads shall exceed a 12 percent grade. In the event an access road is unable to meet this requirement, the access road shall be constructed such that the portion of the roadway segment that exceeds the 12 percent grade is as short as possible. All roadways exceeding a 10 percent grade shall be paved or covered with aggregate acceptable to SBCFD.~~ Turn-around requirements at the terminus of access roads shall be included in roadway designs. The final design shall be approved by the SBCFD, and the final access road map (including topographic map) shall be provided to both the SBCFD and the City of Lompoc Fire Department. ~~A-~~**FPES-3: Install Gravel around Substation.** Gravel shall be placed around the perimeter of the Project Substation as a fire prevention measure. **FPES-5: Water Supply.** The Applicant shall demonstrate to the County that sufficient water can be obtained from the new shallow well or existing spring on the property and/or by trucking in from offsite supplies to adequately supply the O&M facility needs while maintaining 5,000 gallons of stored water for fire-fighting purposes. See **Mitigation Measures ~~A-~~FPES-1 and ~~A-~~FPES-2** above.	Less than Significant
FPES-3	Construction and Operations/ LWEF, Power Line	The Project would have the potential to increase demand for fire protection services.	See **Mitigation Measures ~~A-~~FPES-1 and ~~A-~~FPES-2** above.	Less than Significant
FPES-5	Construction and Operations/ LWEF, Power Line	The Project would introduce tall towers and a new power line into an Extreme Fire Hazard Area. In the event that controlled burns are required in	See **Mitigation Measure FPES-~~1~~4** above.	Less than Significant

TABLE ES-2
Summary of Class II Impacts and Mitigation Measures

Resource Area	Phase/Project Component[6]	Impact Summary	Mitigation Measure Summary	Residual Impact
		the Project area, fire fighters would need to take the new structures into consideration.		
GEO-3	Construction/ LWEF, Power Line	Construction activities could increase the potential for landslides and cause or reactivate existing landslides.	~~A.~~**GEO-2: Grading and Drainage Plan.** The Applicant shall prepare a final Grading and Drainage Plan, designed to minimize erosion and landslides.	Less than Significant
LU-5	Operations/ LWEF	~~The Project would result in increased noise levels during construction.~~ Noise from WTG operation would impact quality of life of certain residences near the turbine corridors.	See **Mitigation Measure NOI-7** below.	Less than Significant
NOI-1	Construction/ LWEF	Some types of construction equipment would generate short-term noise impacts (Class II) to nonparticipating residences less than 2,000 feet from a construction area.	~~A.~~**NOI-1: WTG Maintenance**. The Applicant shall maintain all WTGs in excellent working order to minimize operational noise impacts. **NOI-2: Construction Hours.** All Project construction activities, including those that involve use of heavy equipment (i.e., greater than 2-axle vehicles) along San Miguelito Road, shall be limited to between the hours of 7:00 a.m. to 10:00 p.m., Monday through Friday, unless otherwise approved by the County, except that construction at the project site within 1,600 feet of non-participating residences shall be limited to 7:00 a.m. to 6:00 p.m. Work may occur within the WTG sites after hours or on weekend and holidays, subject to at least 48 hours written authorization from the County, and shall be limited to 8:00 a.m. to 5:00 p.m. Requests for weekend and holiday work shall be submitted to the County for approval in advance and shall include a description of the activity to occur, including equipment usage and duration. All complaints received regarding weekend and holiday work shall be immediately submitted to the County.~~All Project construction activities shall be limited to between the hours of 7:00 a.m. to 6:00 p.m., Monday through Friday, unless otherwise approved by the County. No construction activities are allowed on state holidays.~~	Less than Significant

TABLE ES-2
Summary of Class II Impacts and Mitigation Measures

Resource Area	Phase/Project Component[6]	Impact Summary	Mitigation Measure Summary	Residual Impact
			NOI-~~2~~3: Telephone Number for Noise Complaints. The Applicant shall establish a telephone number for use by the public to report any significant undesirable noise conditions associated with the construction and operation of the Project. If the telephone is not staffed 24 hours per day, the Applicant shall include an automatic answering feature, with date and time stamp recording, to answer calls when the phone is unattended. This telephone number shall be posted at the Project site during construction in a manner visible to passersby and the number shall be maintained until the Project has been operational for at least 1 year. **NOI-~~4~~3: Noise Complaint Resolution Plan.** Throughout the construction and operation of the Project, the Applicant shall document, investigate, and evaluate all complaints and attempt to resolve all legitimate Project-related noise complaints **NOI-~~4~~5: Maintenance of Construction Equipment.** Construction contractors shall be required to ensure that construction equipment is well tuned and maintained according to the manufacturer's specifications, and that the standard noise reduction devices on the equipment are in good working order. **NOI-~~6~~5: Resident Notification.** In coordination with the County, the Applicant shall hold a pre-construction meeting for residents of Miguelito Canyon Road to review upcoming construction activities and associated noise and traffic. The Applicant shall notify residences within 1 mile of any unusually loud construction activities, including the use of helicopters, blasting or pile driving, at least 1 week prior to their scheduled occurrence. In addition, the Miguelito Canyon residents shall be notified at least one week prior of any anticipated road/lane closures and property owner ingress/egress restrictions. Such activities shall be limited to between the hours of 8:00 a.m. to 5:00 p.m., Monday through Friday, unless otherwise approved by the County.	
NOI-2	Operations/ LWEF	Adjacent nonparticipating residences could be exposed to noise levels greater than ~~44~~43.3 dBA L_{eq} (~~50~~ dBA ~~L_{dn}~~CNEL); and four of the nine participating residences could be exposed to noise levels at or greater	**NOI-~~7~~6: Acoustical Analysis.** The LWEF will be designed and operated to ensure the noise level attributable to the Project does not exceed ~~44~~43.3 dBA L_{eq} (1 hour) under normal operating conditions at any existing nonparticipating residences, or ~~50~~58.3 dBA L_{eq} at participating residences. The Applicant shall submit to the County a detailed acoustical analysis of the final site layout and selected WTGs. All calculations or modeling input and output files shall be made available to the County. The analysis shall include all available vendor sound-level data (specified as either guaranteed or expected), including a site-specific analysis of how sound power levels increase with wind speed. If a stall-controlled WTG is selected, sound power level data must be sufficient to estimate maximum sound levels under any stall condition because this could fall	Less than Significant

TABLE ES-2
Summary of Class II Impacts and Mitigation Measures

Resource Area	Phase/Project Component[6]	Impact Summary	Mitigation Measure Summary	Residual Impact
		than 59 dBA L_{eq} (65 dBA ~~L_{dn}~~CNEL).	outside the range reported by IEC 61400-11 (IEC, 2006). Control strategies, if available, to reduce Project noise levels also shall be discussed and evaluated. **NOI-~~7~~8: Noise Monitoring and Control Plan.** The Applicant shall prepare and submit a "Noise Monitoring and Control Plan" prior to zoning clearance. **NOI-~~8~~9: Maintenance Hours.** Maintenance or other routine noise-generating activities within 1,600 feet of nonparticipating residences shall be limited to weekdays between the hours of 8:00 a.m. to 5:00 p.m. only, unless activities are for emergency repairs or as otherwise approved by the County. See **Mitigation Measures NOI-1, NOI-2, ~~and~~ NOI-3, and NOI-4** above.	
PALEO-1	Construction/ LWEF, Power Line	Ground-disturbing activities such as mechanical excavation, drilling, or trenching could affect paleontological resources.	**Mitigation PALEO-1: Pre-construction Workshop.** The County shall conduct a pre-construction workshop with a County-qualified paleontologist or individual qualified to identify paleontological resources and construction workers and other personnel. The workshop shall inform personnel what fossil resources are and what they look like, what to do and who to notify in case of a paleontological discovery, and penalties for the illicit disturbance of fossils. **Mitigation PALEO-2: Implement Monitoring Program.** Paleontological resources monitoring of mechanical disturbance only in Project areas known to have moderate to high sensitivity sediments will occur concurrently with those construction activities. Monitoring will be performed by an individual determined by the County to be qualified to identify paleontological resources. Based on field data, a decrease or increase in the monitoring of specific activities and areas may be identified. **Mitigation PALEO-3: Discovery of Fossils.** If fossils are found by the monitor or by construction personnel, the following actions will be taken: a. Follow appropriate notification procedures b. Assessment of the find, usually in the field by the Project paleontologist and determination of recovery procedures c. Provisions for construction avoidance until a find is assessed and, if recovery is called for, scientifically recovered; construction-related excavations would continue in other areas away from the discovery d. Provisions for continued monitoring of construction in all appropriate areas while the find is being recovered e. Post-field initial study and curation preparation and subsequent curation.	Less than Significant

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Resource Area	Phase/Project Component[6]	Impact Summary	Mitigation Measure Summary	Residual Impact
PALEO-2	Construction/ LWEF, Power Line	Unauthorized collection of fossils by construction workers or operational personal may occur.	See **Mitigation Measure PALEO-1** above.	Less than Significant
RISK-1	Operations/ LWEF	Risk to the public from WTG collapse would be limited, though ~~one or two~~several WTGs could be located ~~within 500 feet of a short segment of road with light traffic~~close to lightly-traveled County roads. The Project is expected to present a low risk of blade throw; nonetheless, a risk exists.	**RISK-5~~1~~: Tower Failure and Blade Throw.** ~~WTGs shall not be sited within 500 feet of a public road.~~All WTGs along public roadways shall adhere to the public road setback of the combined WTG tower and blade height.	Less than Significant
TC-2	Construction/ LWEF, Power Line	Long, heavy trucks used to deliver equipment during construction could present safety concerns, and physical modifications to the roadway or nearby trees and power lines may be required.	~~A~~ **TC-1: Traffic Management Plan (TMP).** The Applicant shall prepare a TMP for submittal to the County of Santa Barbara, City of Lompoc, and Caltrans. The purpose of the TMP is to address potential hazards associated with Project truck traffic. The plan will require measures such as informational signs, flagmen when equipment may result in blockages of throughways, and traffic control to implement any necessary changes in temporary lane configuration. ~~A~~ **TC-2: Traffic Mitigation Fees.** The Applicant shall pay the appropriate traffic mitigation fees to the County of Santa Barbara. TC-4: Oversize Loads. Oversize loads require the implementation of special traffic control measures and require permits from affected jurisdictions. Since loads will be delivered to the site using state, city, and County roads, permits shall be required from Caltrans, the City of Lompoc, and the County of Santa Barbara. The Applicant shall obtain permits from the County of Santa Barbara to trim or remove trees, or both, on San Miguelito Road for the safe movement of oversized trucks. Longer trucks may have to be restricted to specific routes if turning radii are not sufficient on current truck routes.	Less than Significant

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Summary of Class II Impacts and Mitigation Measures

Resource Area	Phase/Project Component[6]	Impact Summary	Mitigation Measure Summary	Residual Impact
TC-5	Construction/ LWEF, Power Line	Trucks carrying heavy equipment could damage existing streets.	TC-3: Roadway Repairs. The Applicant shall enter into an agreement with affected jurisdictions to ensure that any damage to roadways attributable to Project traffic is mitigated through repair or reconstruction to original conditions. Roads will be photographed or videotaped prior to construction to ensure that final repairs are sufficient to return the road to pre-construction conditions. The Applicant shall also comply with the requirements of the hauling permits from affected jurisdictions prior to the construction of the Project. See also **Mitigation Measures ~~A-~~TC-1 and ~~A-~~TC-2** above.	Less than Significant
WAT-5	Construction and Operations/ LWEF, Power Line	The Project could result in the removal or reduction of vegetation from the buffer zone of streams, creeks, or wetlands, which could affect water quality.	WAT-1: Erosion Control Plan. An Erosion Control Plan for Project construction (the County acknowledges that a SWPPP that incorporates all of the RWQCB requirements/ BMPs and the measures listed below would be acceptable to comply with this requirement) shall be developed by a registered engineer to minimize potential impacts to surface water quality during construction activities. Best available erosion and sediment control measures shall be implemented during grading and construction. WAT-2: Minimize watercourse encroachment in road widening. Prior to final approval of the Project, a road widening plan showing all watercourse encroachments shall be submitted to Santa Barbara County for review and approval. The plan shall demonstrate that any roadway widening within or adjacent to a watercourse is the minimum practicable, and that the widening does not adversely affect the creek channel or flow pattern. The road widening plan shall also demonstrate that access to the City of Lompoc Frick Springs Water Treatment Facility, and its operations and delivery systems, will not be compromised. ~~**A-RISK-1.** The Applicant shall prepare a Hazardous Materials Management Plan that meets SBCFD requirements.~~ ~~**A-RISK-2.** Refueling vehicles shall have a sign listing pertinent contacts to notify in the event of a spill.~~ ~~**A-RISK-3.** All equipment shall be adequately maintained to minimize operational losses of hazardous materials and to reduce the risk of accidental spillage.~~ ~~**A-RISK-4.** Construction fueling shall be designated such that sensitive areas are avoided.~~ See also **Mitigation Measures BIO-1, BIO-2, BIO-2, BIO-9, BIO-10, GEO-2, RISK-1, RISK-2, RISK-3, AND RISK-4 ABOVE.~~A-BIO-16, A-BIO-18, A-BIO-19, A-BIO-20, BIO-2, AND A-GEO-2~~** above.	Less than Significant

Note to reader: Table ES-3 presents a summary only of the Class III impacts (adverse but less than significant) identified for the Lompoc Wind Energy Project. For a detailed discussion of the impacts and the entirety of the mitigation measures, please refer to Sections 3.2 through 3.15. The entire mitigation measures are also available for review in Appendix D, Mitigation Monitoring Plan. Due to the substantial edits to and reordering of the biological resources impacts and mitigation measures, deletions are not shown in the table below.

TABLE ES-3
Summary of Class III Impacts and Mitigation Measures

Resource Area	Phase/Project Component	Impact Summary	Mitigation Measure Summary	Residual Impact
AG-1	Construction and Operations/ LWEF, Power Line	Development of the LWEF and power line installation would result in the temporary and permanent disturbance of farmland.		Not Applicable
AQ-1	Construction/ LWEF, Power Line	Exhaust emissions from construction equipment would result in short-term emissions of NO_x and ROC.	~~A~~ **AQ-1: Construction Equipment Emission Reduction Plan.** A Construction Equipment Emission Reduction Plan shall be prepared by the Applicant based on the construction impact mitigation measures for equipment exhaust summarized in the Santa Barbara Air Pollution Control District guide.	Not Applicable
AQ-3	Operations/ LWEF, Power Line	Exhaust emissions from workers driving onsite and a forklift would result in long-term emissions of NO_x and ROC. Fugitive dust emissions from workers driving on unpaved roads would result in long-term emissions of PM_{10}.		Not Applicable
BIO-1	Operations	Minor disturbances to common vegetation are expected during O&M.	See **Mitigation Measure BIO-1** above.	Not Applicable

TABLE ES-3
Summary of Class III Impacts and Mitigation Measures

Resource Area	Phase/Project Component	Impact Summary	Mitigation Measure Summary	Residual Impact
BIO-2	Operations	Only minor disturbances to common vegetation are expected from ongoing vegetation clearances for fire management and safety.	See **Mitigation Measures BIO-1, BIO-2, BIO-3. BIO-4 and BIO-11c, d** above.	Not Applicable
BIO-4	Construction	A minor amount of riparian vegetation (several square feet) would be removed during bridge construction at Honda Creek; soil erosion would result in minor impacts on water quality.	See **Mitigation Measures BIO-1 thru BIO-4, BIO-9, BIO-10 and BIO-11c, d** above.	Not Applicable
BIO-7	Construction	Individual animals could be injured or killed by vehicles, equipment, explosives, or large holes during construction.	See **Mitigation Measures BIO-1, BIO-2, and BIO-11a, b, c, d** above.	Not Applicable
BIO-9	Construction and Operations	Direct and indirect impacts may occur to special-status wildlife species. Those with higher potential for injury or fatalities by vehicles or equipment, loss of habitat, or disturbance of burrows and nests including mammals.	See **Mitigation Measures BIO-1, BIO-2, BIO-11a, b, c, d and BIO-14c, d** above.	Not Applicable

TABLE ES-3
Summary of Class III Impacts and Mitigation Measures

Resource Area	Phase/Project Component	Impact Summary	Mitigation Measure Summary	Residual Impact
BIO-12	Operations	Birds with habitat within 200 feet of WTG towers may be displaced.	See **Mitigation Measures BIO-16a, b, c, d** above.	Not Applicable
BIO-13	Construction and Operations	Indirect impacts to wildlife during construction would result from a variety of sources, which could result in temporary displacement. During operations, increases to impacts compared to pre-Project levels would be minor.	See **Mitigation Measures BIO-11a, b** above.	Not Applicable
EEU-2	Construction and Operations/ LWEF, Power Line	Construction and operation of the Project would result in consumption of diesel fuel and gasoline.		Not Applicable
EEU-3	Construction and Operations/ Power Line	Temporary and long-term modifications to the PG&E system would be required to implement the Project, including ~~a temporary power line and~~ upgrades to PG&E's existing electrical system.		Not Applicable
FPES-4	Construction and Operations/ LWEF, Power Line	The influx of workers may temporarily increase the need for paramedic services during construction, although only about		Not Applicable

TABLE ES-3
Summary of Class III Impacts and Mitigation Measures

Resource Area	Phase/Project Component	Impact Summary	Mitigation Measure Summary	Residual Impact
		10 staff would be required during operations.		
FPES-6	Construction and Operations/ LWEF	For security and safety reasons, the Applicant may request that Sudden Road and upper Miguelito Canyon Road become a private road, which would be required to have a lock that could be opened by fire and other emergency service providers.		Not Applicable
GEO-1	Construction and Operations/ LWEF, Power Line	Risk of damage to structures by fault rupture is very low.		Not Applicable
GEO-2	Construction and Operations/ LWEF, Power Line	A major earthquake could result in ground shaking and liquefaction.	~~A-~~**GEO-1: Seismicity.** Project facilities shall be designed to Uniform Building Code Seismic Zone 4 standards.	Not Applicable
GEO-4	Construction/ LWEF, Power Line	Construction could accelerate or increase the potential for erosion from water and wind.	See **Mitigation Measure ~~A-~~GEO-2** above.	Not Applicable
GEO-5	Construction and Operations/	Structures would be designed to appropriate engineering	~~A-~~**GEO-3: Expansive Soils.** Soil analyses shall be completed for expansion potential. Once Project design has been developed and the criteria for the facility performance have been established, the soils engineer shall review these and modify them as appropriate. If further measures are considered necessary to	Not Applicable

TABLE ES-3
Summary of Class III Impacts and Mitigation Measures

Resource Area	Phase/Project Component	Impact Summary	Mitigation Measure Summary	Residual Impact
	LWEF, Power Line	standards and would not be susceptible to significant damage produced by expansive soils.	mitigate problems posed by expansive soils, the following alternatives shall be considered: a. Over-excavation of expansive soils and replacement with non-expansive fill. b. Support of structures on drilled shaft foundations. c. Lime treatment of expansive subgrades. See **Mitigation Measure ~~A-~~GEO-1** above.	
GEO-6	Construction and Operations/ LWEF	Testing has determined that leach lines would be a suitable method of sewage effluent disposal.		Not Applicable
GEO-7	Construction and Operations/ LWEF, Power Line	Compressible soil and subsidence potential is considered low. Collapsible soil may be present within alluvial valleys and could cause settlement damage to structures and roadways.	**~~A-~~GEO-4: Project Support Facilities.** Project support facilities such as bridge foundations shall be sited on cut pads to provide relatively uniform foundation support and reduce differential settlement. Alternatively, structure foundations shall be designed to tolerate potential differential settlement. See **Mitigation Measure ~~A-~~GEO-1** above.	Not Applicable
LU-1	Construction and Operations/ LWEF, Power Line	The Project would comply with development standards, ~~because~~including impacts to aesthetic/visual resources that would be mitigated to the extent feasible through the implementation of mitigation measures identified in Section	**LU-2: Staking of Coastal Zone.** The Applicant shall install exclusion fencing or stake the coastal zone boundary to ensure that no construction activities enter the coastal zone area. **LU-3: Decommission & Reclamation Plan:** The Applicant shall develop a Decommission and Reclamation Plan that addresses facility decommission, abandonment, and post-abandonment reclamation efforts.	Not Applicable

TABLE ES-3
Summary of Class III Impacts and Mitigation Measures

Resource Area	Phase/Project Component	Impact Summary	Mitigation Measure Summary	Residual Impact
		3.2.5.8.		
LU-2	Construction and Operations/ LWEF, Power Line	The Project would affect air navigation ~~through the use of~~ if helicopters were used during construction and the installation of WTGs and meteorological towers.	**Mitigation Measure ~~A-~~LU-1: Compliance with FAA Regulations**. The WTG lighting plan shall comply with FAA requirements.	Not Applicable
LU-3	Operations/ LWEF	The Project would be designed to avoid interference with VAFB operations, such as radar, telemetry antennas, and microwave links, specifically VTRS located on Sudden Peak. The Project footprint is within existing space launch hazard corridors that need to be evacuated periodically to ensure public safety and evacuation agreements would be pursued.	~~**Mitigation A-LU-2: Compliance with VAFB Requirements.** The final WTG layout and Project operations shall not conflict with VAFB operations.~~	Not Applicable
LU-4	Construction/ LWEF, Power Line	Construction activities would result in increased traffic in relatively quiet neighborhoods.	See **Mitigation Measure TC-1** above.	Not Applicable

TABLE ES-3
Summary of Class III Impacts and Mitigation Measures

Resource Area	Phase/Project Component	Impact Summary	Mitigation Measure Summary	Residual Impact
LU-5	Construction/ LWEF	The Project would result in increased noise levels during construction. ~~Noise from WTG operation would impact quality of life of certain residences near the turbine corridors.~~	See **Mitigation Measures NOI-2, NOI-3. NOI-4 and NOI-6** above.	Not Applicable
RISK-2	Operations/ LWEF	Blade icing and ice throw would not be expected to occur; additionally, there would be limited human activity in the Project area.		Not Applicable
RISK-3	Operations/ LWEF, Power Line	Electromagnetic fields are a possible issue when associated with the siting of high voltage overhead power lines or cables less than 200-feet from residences.	~~**Mitigation Measure RISK-2: Electromagnetic Field Effect Reduction.** The 115-kV power line shall be constructed with low-cost EMF reduction measures incorporated where the line is located less than 200 feet (ground distance) from residences or other occupied structures. These measures may include siting the power lines 200 feet or more from residences or employing phasing between the conductors to minimize or eliminate EMF. The measure shall conform to those described in California Public Utilities guidelines.~~See Avoidance and Protection Measure PL-7, Section 2.8.5.	Not Applicable
RISK-4	Construction and Operations/ LWEF, Power Line	~~Utility and turbine~~ Construction workers would be exposed to a number of risks, including electrical shock and falls. There is also risk to members of public who incidentally or intentionally enter the Project site.		Not Applicable

TABLE ES-3
Summary of Class III Impacts and Mitigation Measures

Resource Area	Phase/Project Component	Impact Summary	Mitigation Measure Summary	Residual Impact
RISK-5	Construction and Operations/ LWEF, Power Line	Accidental spills or leakage of hazardous materials could occur, including fuels (gasoline and diesel), lubricants, motor oil, and paints.	See **Mitigation Measures ~~A-~~RISK-1, ~~A-~~RISK-2, ~~A-~~RISK-3, and ~~A-~~RISK-4** above.	Not Applicable
TC-1	Construction/ LWEF, Power Line	Project-related construction traffic would temporarily affect traffic levels and LOS on Project area roadways.	See **Mitigation Measures ~~A-~~TC-1 and ~~A-~~TC-2** above.	Not Applicable
TC-3	Construction/ LWEF, Power Line	Heavy-haul trucks would be required to transport large and heavy equipment subject to weight, height, and load limitations.	**TC-~~4~~2: Oversize Loads.** Oversize loads require the implementation of special traffic control measures and require permits from affected jurisdictions. Since loads will be delivered to the site using state, city, and County roads, permits shall be required from Caltrans, the City of Lompoc, and the County of Santa Barbara. The Applicant shall obtain permits from the County of Santa Barbara to trim or remove trees, or both, on San Miguelito Road for the safe movement of oversized trucks. Longer trucks may have to be restricted to specific routes if turning radii are not sufficient on current truck routes. See **Mitigation ~~A-~~Measures TC-1 and ~~A-~~TC-2** above.	Not Applicable
TC-4	Construction/ LWEF, Power Line	During peak construction, several oversized trucks per day could slow traffic and necessitate temporary blockages of intersections.	~~**Mitigation Measure TC-13: Roadway Repairs.** The Applicant shall enter into an agreement with affected jurisdictions to ensure that any damage to roadways attributable to Project traffic is mitigated through repair or reconstruction to original conditions. Roads will be photographed or videotaped prior to construction to ensure that final repairs are sufficient to return the road to pre-construction conditions. The Applicant shall also comply with the requirements of the hauling permits from affected jurisdictions prior to the construction of the Project.~~ See **Mitigation Measure TC-1 and ~~A-~~TC-2** above.	Not Applicable
TC-5	Construction and Operations/ LWEF, Power Line	Project vehicles could track dust and soil onto public roads.	See **Mitigation Measures ~~A-~~TC-2** ~~above~~ and WAT-1.	Not Applicable

TABLE ES-3
Summary of Class III Impacts and Mitigation Measures

Resource Area	Phase/Project Component	Impact Summary	Mitigation Measure Summary	Residual Impact
~~VIS-1~~	~~Construction and Operations/ LWEF, Power Line~~	~~WTGs and related structures have the potential to be visible in the vicinity of the Project.~~	~~**A-VIS-1: Materials Storage.** All construction materials and excavated materials shall be stored away from San Miguelito Road, whenever possible, to reduce impacts on mountain views.~~ ~~**A-VIS-2: Location of Construction Activities.** Construction activities and materials storage shall be confined to within the WTG right-of-way, staging areas, and the Project Substation and operations and maintenance (O&M) facility areas.~~	~~Less than Significant~~
VIS-2	Construction and Operations/ LWEF	WTGs would be visible from La Purisima Mission.	See **Mitigation Measure LU-1** above.	
VIS-3	Operations/ LWEF	WTGs would be visible throughout the SR-1 corridor and the Lompoc Valley	See **Mitigation Measure LU-1** above.	Not Applicable
VIS-5	Construction and Operations/ LWEF, Power Line	Construction and operation of the power line would be visible from public roadways.	~~**Mitigation Measure A-VIS-3: Power Line.** Where possible, particularly on nonparticipating ranches, the power line shall follow the existing distribution lines. Where possible, existing distribution and power lines shall be built below the proposed power line to consolidate facilities.~~ See Avoidance and Protection Measure PL-4, Section 2.8.5.	Not Applicable
WAT-1	Construction/ LWEF, Power Line	The proper implementation of erosion and sedimentation control would reduce erosion rates during and after construction to essentially natural rates.	~~A-~~**WAT-1. Erosion Control Plan**. An Erosion Control Plan for Project construction shall be developed by a registered engineer to minimize potential impacts to surface water quality during construction activities. Best available erosion and sediment control measures shall be implemented during grading and construction. If grading needs to be done outside of the dry season, the Applicant shall coordinate grading work with the County and shall follow all applicable guidelines. Rainy season erosion control measures shall be utilized to control runoff and erosion in the event that revegetation is not completed prior to the rainy season. Sediment control measures shall be maintained for the duration of the grading period and until graded areas have been stabilized by structures, long-term erosion control measures or landscaping. Construction entrances and exits shall be stabilized using gravel beds, rumble plates, or other measures to prevent sediment from being tracked onto adjacent	Not Applicable

TABLE ES-3
Summary of Class III Impacts and Mitigation Measures

Resource Area	Phase/Project Component	Impact Summary	Mitigation Measure Summary	Residual Impact
			roadways. Any sediment or other materials tracked off site shall be removed the same day as they are tracked using dry cleaning methods. See **Mitigation Measures ~~A-BIO-19~~ ~~and A-~~GEO-2** above.	
WAT-2	Construction/ LWEF, Power Line	Water quality could be affected by small fuel or oil spills, concrete, and trash and litter during construction.	See **Mitigation Measures Risk-1 to Risk-4.**	Not Applicable
WAT-3	Construction and Operations/ LWEF, Power Line	Although some acres will be temporarily and permanently disturbed by changes to stormwater runoff/flooding, hydrologic conditions would remain about the same as current conditions.	**WAT-2: Minimize watercourse encroachment in road widening**. Prior to final approval of the Project, a road widening plan showing all watercourse encroachments shall be submitted to Santa Barbara County for review and approval. The plan shall demonstrate that any roadway widening within or adjacent to a watercourse is the minimum practicable, and that the widening does not adversely affect the creek channel or flow pattern. The road widening plan shall also demonstrate that access to the City of Lompoc Frick Springs Water Treatment Facility, and its operations and delivery systems, will not be compromised.	Not Applicable
WAT-4	Construction and Operations/ LWEF	The Project would not substantially deplete groundwater supplies or interfere with groundwater recharge. Effluent from facility drains would be disposed of through a proposed leach line system.	See **Mitigation Measure FPES-4**.	Not Applicable

TABLE ES-4
Summary of Class IV Impacts and Mitigation Measures

Resource Area	Phase/Project Component	Impact Summary	Mitigation Measure Summary	Residual Impact
AG-1	Construction and Operations/ LWEF, Power Line	Development of the LWEF and power line installation would provide financial support to property owners.		Beneficial
EEU-1	Operations/ LWEF, Power Line	The Project could generate up to ~~350~~285 million kWh of electricity annually.		Beneficial

1.0 Introduction

1.1 Introduction

This Environmental Impact Report (EIR) assesses the environmental impacts associated with the Lompoc Wind Energy Project (Project). Pacific Renewable Energy Generation LLC (Pacific Renewable Energy Generation) is the Applicant and proposes to develop, construct, and operate the Project. Pacific Renewable Energy Generation is the Project Company of Acciona Wind Energy USA LLC (Acciona Wind Energy USA), hereby referred to as the Applicant. Acciona Wind Energy USA is a wholly owned, indirect subsidiary of Acciona, S.A. (Acciona), a large Spanish conglomerate involved in the development and operation of renewable energy projects.

As the lead agency under the California Environmental Quality Act (CEQA), Santa Barbara County (County), prepared a Notice of Preparation (NOP) for the Project on June 30, 2006, and determined that an EIR would be required as part of the permitting process. In compliance with CEQA guidelines, the County solicited public and agency comments through the distribution of the NOP. An EIR scoping meeting was held on July 17, 2006, at Lompoc City Council Chambers. Following a presentation by County staff, members of the public spoke about a number of potentially adverse impacts of the Project, including bird mortality from turbine operation and visual impacts from turbines and power lines. Several speakers described beneficial impacts. These comments were used to help direct the scope of the analysis in this EIR.

1.2 Project Overview

The Lompoc Wind Energy Facility (LWEF), the wind turbine generator (WTG) component of the Project, would be located on approximately 2,950 acres of rural, agriculturally zoned land on coastal ridges southwest of Lompoc. The LWEF would have a maximum electrical generating capacity of ~~120~~ 97.5 megawatts (MW), which could potentially supply up to ~~6~~ 50,000 homes with electricity. The Applicant has contracted with Pacific Gas and Electric Company (PG&E) to deliver 82.5 MW of renewable energy and capacity under a long-term power purchase agreement via a direct interconnection with the PG&E transmission grid. The remainder of the planned capacity would be developed in up to two subsequent phases and installed upon securing additional long-term power purchase agreements with PG&E or others. ~~According to the Project application,~~ The proposed wind farm could generate up to ~~350~~ 285 million kilowatt hours (kWh) of electricity annually. The target date for commercial operations is the end of 2009. ~~October 1, 2008.~~ The anticipated operational life of the Project is approximately 30 years.

Following are the major Project components:

- 65~~0 to 80~~ 1.5 MW WTGs;
- New access roads and road improvements;

- A communication system;
- Meteorological towers ;
- An operations and maintenance (O&M) facility;
- Onsite electrical collection and distribution lines;
- An onsite Project Substation;
- A new ~~7.85~~ 8.7-mile, 115-kilovolt (kV) PG&E power line to the Lompoc area to interconnect with the PG&E electric grid; and
- Upgrades to existing PG&E facilities.

1.3 Project Objectives

The Applicant has proposed to develop an economically viable wind energy project in Santa Barbara County to generate and deliver renewable energy to the power grid. As a private project, the most basic objectives are as follows:

1. To develop a wind energy project that will produce from 80 up to ~~120~~ 97.5 MW in an area where the wind resources are known to be sufficient to do so;
2. To develop an economically viable wind energy project that will support commercially available financing;
3. To provide Project property owners with a stable, secondary source of income to supplement income from ranching and farming operations to support ranch maintenance and improvements;
4. To help PG&E meet its Renewable Energy Portfolio requirements by adding significantly to its portfolio of wind-generated power; and
5. To begin operating the wind project in time to meet milestones of an existing power purchase agreement and to qualify for certain tax credits.

In addition, the Project meets the following public objectives:

1. To meet regional energy needs in an efficient, sustainable, and environmentally sound manner, as provided in the Energy Element of the Santa Barbara County Comprehensive Plan, which encourages use of alternative energy for environmental and economic benefits, and encourages opportunities for businesses that develop or market alternative energy technologies;
2. To assist California in meeting its legislated Renewable Energy Portfolio standards for the generation of renewable energy in the state, which require investor-owned utilities to purchase 20 percent of their power from renewable sources by the year 2010;
3. To offset the need for additional electricity generated from fossil fuels and thereby assist the state in meeting its air quality goals and reducing greenhouse gas emissions;

4. To promote the long-term economic viability of agricultural uses in the Santa Barbara County, including grazing and dry land farming, by developing an agriculturally compatible land use to supplement income from traditional agricultural activities; and

5. To provide Santa Barbara County, school districts, and special districts, including the Lompoc Hospital with additional tax revenues

1.4 Project Approvals

The Project would require various approvals prior to implementation. Several local, state, and federal authorizations/approvals would be required, as follows:

County of Santa Barbara

The County of Santa Barbara would need to authorize or approve the following quasi-adjudicative items:

- Conditional Use Permit (CUP), pursuant to Land Use & Development Code (LUDC) Section 35.82.060. It is anticipated that the County would issue separate zoning clearances for each phase of the Project.

- Approve the variance from the setback requirement, as specified in LUDC Section 35.57.050, to allow the WTGs to be located as close as 126 ~~150~~ feet from the Vandenberg Air Force Base property lines along the south and west LWEF boundaries and from internal property lines within the LWEF site.

The County Planning Commission would consider each of these actions. Approval would not be required by the Board of Supervisors unless the CUP or variance were appealed. After approval of the CUP and variance, the County would issue a zoning clearance for each development phase after the necessary permit conditions were satisfied.

Other County agencies requiring permits or approvals include the following. (For an itemized list of required permits or approvals, refer to Section 2.9.)

- Planning and Development Department
- Public Works Department
- Flood Control District
- Environmental Health Services
- Air Pollution Control District
- Public Works Department, Roads Division
- Santa Barbara County Fire Department
- Building and Safety Division

Additional permits and approvals may be needed from the following agencies. (For an itemized list of required permits or approvals, refer to Section 2.9.)

- City of Lompoc
- Central Coast Regional Water Quality Control Board
- California Public Utilities Commission
- California Department of Fish and Game

- California Department of Transportation
- United States Army Corps of Engineers
- United States Fish and Wildlife Service
- Federal Aviation Administration

1.5 Environmental Impact Report Scope

This EIR examines potential short-term and long-term impacts of the Project. These impacts were determined through a rigorous process mandated by CEQA in which existing conditions are compared and contrasted with conditions that would exist once the Project was implemented. The significance of each identified impact was determined using County Thresholds of Significance (County, 2006). The following categories are used for classifying Project related impacts:

- *Class I* – Significant adverse impacts that cannot be feasibly mitigated or avoided. If the Project is approved, decision-makers are required to adopt a statement of overriding considerations, pursuant to CEQA Section 15093, explaining why Project benefits outweigh the unavoidable, adverse environmental effects.
- *Class II* – Significant adverse Impacts that can be feasibly mitigated or avoided. If the Project is approved, decision-makers are required to make findings pursuant to CEQA Section 15091, that impacts have been mitigated to the maximum extent feasible by implementing the recommended mitigations.
- *Class III* – Adverse impacts that are less than significant. These impacts do not require that CEQA findings be made.
- *Class IV* – Beneficial impacts.

For each significant impact identified, mitigation measures that are designed to reduce impacts to less than significant levels are presented. The Applicant has proposed many mitigation measures as part of the Project application (see Section 2.8.4), and the County has supplemented them by refining the Applicant's measures and adding new measures as needed. In addition, Avoidance and Protection Measures to be implemented by PG&E during the design, construction, and operation of the 115 kV power line are provided in Section 2.8.5. In those instances where mitigation measures cannot reduce such impacts to less than significant levels, the impacts are identified as Class I. Where appropriate, mitigation measures also have been developed that reduce adverse, but less than significant (*Class III*) impacts to the maximum extent feasible.

The EIR also presents alternatives to the Project, including the "No Project" alternative, and a qualitative assessment of the impacts that would be associated with the implementation of each. Finally, the cumulative impacts of the Project when added to other local proposed or approved projects are evaluated.

Mitigation Monitoring

CEQA requires that a public agency adopt a Mitigation Monitoring and Report Plan (MMRP) for mitigation measures that have been incorporated into the project to reduce or

avoid significant impacts on the environment. The MMRP is designed to ensure compliance during project implementation, as required by Public Resources code Section 21081.6.

As written, the mitigation measures contained in this EIR comprise the MMRP for the Project and will obligate the County to continue to implement them as conditions of approval. The County will review the MMRP in conjunction with certification of the Final EIR.

1.6 Environmental Impact Report Organization

This EIR contains an Executive Summary, which presents an overview of the Project and its impacts. This is followed by:

Section 1.0: Introduction contains a summary of the purpose and scope of the EIR.

Section 2.0: Project Description provides details on the Project components.

Section 3.0: Environmental Setting, Impacts, and Mitigation details environmental setting information, Project impacts, and proposed mitigation measures for a wide range of resources. It includes Section 3.1, which provides an overview of the environmental setting, impacts, and mitigation, as well as the assumptions considered as part of the environmental impact analyses. Resource-specific analyses are included in the following sections:

3.2 – Aesthetics/Visual Resources
3.3 – Agricultural Resources
3.4 – Air Quality
3.5 – Biological Resources
3.6 – Cultural Resources
3.7 – Energy/Electric Utilities
3.8 – Fire Protection and Emergency Services
3.9 – Geology/Soils
3.10 – Land Use
3.11 – Noise
3.12 – Paleontological Resources
3.13 – Risk of Accidents/Hazardous Materials/Safety
3.14 – Transportation/Circulation
3.15 – Water Resources
3.16 – Other Issue Areas

Section 4.0: Cumulative Impacts provides a description of the reasonably foreseeable projects located in the vicinity of the Project and the cumulative impacts of these projects in combination with the Project.

Section 5.0: Alternatives Analysis provides a comparison of the Project impacts with those of Project alternatives developed by the County.

Section 6.0: Other CEQA Considerations identifies the Project's compliance with other applicable CEQA requirements.

Section 7.0: Comments and Responses to Comments provides the comment letters and hearing transcript on the Draft EIR and re-circulated Aesthetics/Visual Resources.

Section 8 ~~7~~.0: List of Persons, Agencies, and Organizations Consulted lists all of the persons, agencies, and organizations consulted relevant to preparation of this EIR.

Section 9~~8~~.0: List of Preparers identifies the individuals and their roles in preparing this EIR.

Section 10~~9~~.0: References lists all of the references relevant to preparation of this EIR.

2.0 Project Description

This section provides a description of the Lompoc Wind Energy Project (Project), including its location and setting, components, construction, and operational practices; quality assurance (QA), quality control (QC), and environmental and health and safety compliance practices; and environmental protection measures. Applicant-proposed mitigation measures, which are intended to reduce or avoid environmental impacts resulting from Project implementation, are also provided. Likewise, PG&E Avoidance and Protection Measures for power line construction and operation are presented. This section also includes a discussion of local, state, and federal permits and approvals that could be required prior to implementation of the Project.

2.1 Project Overview

The Project is a commercial wind farm, the first such project in Santa Barbara County. The Applicant is Pacific Renewable Energy Generation LLC (Applicant), a project subsidiary of Acciona Wind Energy USA LLC, formed specifically to develop, construct, and operate the Project.

The Lompoc Wind Energy Facility (LWEF) would be located on approximately 2,950 acres of rural, agriculturally zoned land on coastal ridges southwest of Lompoc. The Applicant has entered into long-term leases with the seven ~~six~~ property owners of the 2,950 acres. The LWEF would have a maximum electrical generating capacity of 97.5 ~~120~~ megawatts (MW), which would supply approximately 5~~6~~0,000 homes with electricity. The Applicant has contracted with Pacific Gas and Electric Company (PG&E) to deliver 82.5 MW of renewable energy and capacity under a long-term power purchase agreement via a direct interconnection with PG&E's transmission grid. The remainder of the planned capacity would be developed under as many as two subsequent phase~~s~~ and installed upon securing additional long-term power purchase agreements with PG&E or others. ~~According to the Project application,~~ The proposed wind farm could generate up to 285 ~~350~~ million kilowatt hours (kWh) of electricity annually. The target date for commercial operations is the end of 2009. ~~October 1, 2008.~~

Following are the major Project components:

- 65 1.5 MW ~~60 to 80~~ wind turbine generators (WTG)
- New access roads and road improvements
- A communication system
- Meteorological towers
- An Operations and Maintenance (O&M) facility
- Onsite electrical collection and distribution lines

- An onsite Project Substation
- A new 8.7 ~~7.85~~-mile, 115-kilovolt (kV) PG&E power line to the Lompoc area to interconnect with the PG&E electric grid
- Upgrades to existing PG&E facilities

The Project requires a Conditional Use Permit (CUP), pursuant to the Santa Barbara County Land Use & Development Code (LUDC) Section 35.82.060 and a variance for reduced setbacks from property lines.

The Project would occur in as many as two ~~three~~ phases. Phase I is proposed for construction starting in the Spring of 2009 ~~from 2007 to 2008~~ and would take approximately 6 to 10 months to complete. Commercial operation of the 82.5 MW of Phase I is estimated to commence at the end of 2009. ~~in the fourth quarter of 2008.~~ Construction of Phase~~s~~ II and III would commence after the completion of Phase I, but no later than 7 years after the approvals for Phase I. Phases II and III would each have a 6-month construction schedule. The anticipated operational life of the Project is approximately 30 years. Future scenarios could include lease renewals and possible repowering of the wind farm with advanced WTGs or decommissioning the Project and restoring the land.

2.2 Location and Setting

This section describes the location and setting for the LWEF, power line, and PG&E interconnection and upgrades necessary to integrate the generation output into the electric grid.

2.2.1 Lompoc Wind Energy Facility

The LWEF would be located in a rural portion of Santa Barbara County on ridges of the Santa Ynez Mountains, approximately 5 miles southwest of the City of Lompoc and 3 miles north of the coast (Figure 2-1). The Project is located entirely within the inland zone of the County, although the southern Project boundary abuts the coastal zone. The LWEF site is bounded by Vandenberg Air Force Base (VAFB) on the south and west sides and private property on the north and east sides. The Project site is accessed via San Miguelito Road, a public road that winds through the Project area and terminates at the VAFB property line at the northwest edge of the Project (Figure 2-2).

The LWEF site comprises 10 privately owned parcels covering approximately 2,950 acres (4.6 square miles). A 0.05-acre undeveloped area within the LWEF site is owned by the federal government, but it is not part of the Project, and no development would occur in this location. The landowners and assessor parcel numbers for property are shown in Table 2-1. The properties are zoned for agriculture (AG-100), and all are under Williamson Act agricultural preserve contracts. Historically, rock quarrying occurred in the area. The principal use of the land is cattle grazing. Single-family residences or mobile homes and agricultural accessory structures are located on 7 of the 10 parcels. The adjacent private properties are also agriculturally zoned.

The nearest private residences on non-Project properties are located more than 1,000 feet outside the Project area perimeter and more than 1,700 feet from the closest WTG. Other structures and uses in the Project vicinity include VAFB's Sudden Peak Tracking Station near the southern perimeter and Frick Springs, a City of Lompoc water facility on San Miguelito Road, adjacent to the west side of the Larsen property.

TABLE 2-1
Project Landowners

Property Owners	Assessor Parcel Numbers
Signorelli Family Trust/Joe and Sylvia Signorelli, Trustees	083-100-008, 083-250-011, and 083-250-019
Gerald and Sandra Scolari Revocable Trust; Rosabel Scolari Cameron; LeRoy Scolari	083-090-001 and 083-090-002
Adam Signorelli Trust/Adam Signorelli, Trustee	083-090-003
Alphonso Scolari Revocable Trust/LeRoy and Gerald Scolari, Trustees	083-080-004
Peter and Etelvina Signorelli Family Trust/Joanna and Larry Signorelli, Trustees	~~083-090-004 and~~ 083-100-007
Larsen Family Trust/John and Marlene Larsen, Trustees	083-100-004
Joseph A. Signorelli and Gus Tom Signorelli	083-090-004

The Project area terrain includes rolling hills and rugged, steep slopes. The site's southern boundary with VAFB follows the ridgeline for much of its length. Prevailing winds from the northwest regularly flow over the ridges. Some of the prime wind sites in the southern Project area are near the VAFB property line. Figure 2-3 presents the prevailing wind speeds within Santa Barbara County, including the project area.

2.2.2 Lompoc Wind Energy Power Line

A new, approximately 8.7 ~~7.85~~-mile-long, 115-kV power line would be constructed by PG&E to interconnect the LWEF with the PG&E transmission grid (Figure 2-~~13~~). Most of the land area along the proposed route is agricultural. However, there are 10 to 20 residences near the route along San Miguelito Road, and the route runs behind a residential subdivision as it enters the City of Lompoc. The power line would also cross the Celite diatomaceous earth mining property. Additional details regarding the power line are included in Sections 2.3.7 and 2.5.

The proposed route would start at the Project Substation, located west of ~~at the intersection of~~ San Miguelito Road ~~and Sudden Road~~ at the upper (southern) end of Miguelito Canyon. Figure 2-~~13~~ shows global positioning system (GPS) points (sequential numbers 1 through 39 ~~30~~) along the route. These points are expected angle points along the power line route. These points are referenced in the power line description and shown on Figure 2-~~13~~. Since the publication of the Draft EIR, the Applicant has submitted an optional power line alignment for the southern portion of the line. As illustrated on Figure 2-4, the GPS points

denoted by an"R-#" depict the optional power line alignment. GPS points not depicted by "R-#" represent the original alignment of the northern portion of the power line.

The power line would exit the substation (GPS Location R-1) and travel approximately 300 feet northeast to San Miguelito Road (GPS Location R-3). The line would then follow San Miguelito Road in a southeasterly direction for 500 feet to GPS Location R-3/R-4 and then turn to a slight northeasterly direction for 900 feet to GPS Location R-6. Still following San Miguelito Road, the line would proceed due northeast to GPS Location R-8, at which point the power line would travel approximately 1.5 miles in a general easterly direction to GPS Location R-16 at all times staying south of San Miguelito Road and within the participating property site boundaries. Just east of GPS Location 15, the power line would leave the Signorelli property and enter the Larsen property. From GPS Location R-16 the power line travels in a general northerly direction for one mile to GPS Location R-20 at which time the power line would turn due east to GPS Location 12. Just east of GPS Location R-20, the line leaves the Larsen property and enters lands of non-participating property owners for the remainder of its alignment to the City of Lompoc.

From ~~GPS Location 11, the power line would continue 1,250 feet in an easterly direction to~~ GPS Location 12, just below San Miguelito Road, the line would then turn back northeast for 3,800 feet to GPS Location 13, traversing two ridges behind Miguelito Canyon Park to avoid causing visual impacts to the park. At GPS Location 13, the line would turn east to travel 1,900 feet back to San Miguelito Road at GPS Location 14. The power line then would follow the west side of San Miguelito Road 1,500 feet to GPS Location 15. It would continue 4,300 feet along the west side of San Miguelito Road to GPS Location 16, which is at the entrance to the Celite mining facilities. Between GPS Locations 14 and 17, the power line would be constructed by overbuilding the existing distribution line either on the west or east side of San Miguelito Road. This portion of San Miguelito Road would not contain three separate power lines. For the 2,300 feet between GPS Locations 16, 17, and 18, the power line may be located on either side of San Miguelito Road, depending on final design.

From GPS Location 18, the power line would follow the existing PG&E distribution line for 1,300 feet to GPS Location 19. The line would then run 8,500 feet northeast and east across the Celite property toward State Route 1 (SR-1), through GPS Locations 20, 21, 22, 23, 24, and 25 to GPS Location 26, located 800 feet west of SR-1. The power line then would turn north-northwest for 2,300 feet to GPS Location 27, which is on top of the ridge, 1,500 feet from the southeast corner of the City of Lompoc. The power line would follow the ridgeline northeast for 700 feet to GPS Location 28, and then descend the ridge 1,000 feet, in a long span crossing SR-1, to an existing power pole at GPS Location 29, on the east side of the highway. It would then run northward 900 feet to its terminus at GPS Location 30, which would be a tie-in to the existing 115-kV line that feeds the Celite facilities.

2.2.3 Pacific Gas and Electric Company System

Upgrades to PG&E's electrical system would be needed to accommodate the proposed LWEF electrical generation. The upgrades would modify existing facilities located in previously disturbed areas, require no new ground disturbance, and not result in environmental impacts; therefore, the impacts of these upgrades are not evaluated further.

PG&E proposes to reconductor (replace wires and possibly poles) ~~the existing Divide~~ along the ~~Cabrillo No. 2~~ Celite 115-kV power line ~~(Celite line)~~ for a distance of 2,000 feet north from the southern terminus of the existing Divide-Cabrillo Number 2 115-kV line located on a pole adjacent to the Cabrillo substation on San Julian Street ~~of the tie-in~~ (Figure 2-~~43~~). This reconductoring would run to an existing pole located along San Julian Street. Any structures that would be replaced would be similar to the existing 115-kV poles which are approximately 65 feet in height; however, the new poles could be 10 to 15 feet taller than the existing structures (new structures would be 75 to 80 feet total height). In addition, reconductoring the portion of the line within the City of Lompoc will not involve relocation of the poles. ~~the existing structures may be replaced.~~

At the Atascadero Substation, located at the corner of Santa Rosa Road and Highway 41 in Atascadero, PG&E would install relays and appropriate communication equipment to trip the circuit breaker. All work at this location would be conducted within the confines of the existing fenced substation area.

At the Divide Substation, located at 6700 Graciosa Canyon Road near Orcutt, PG&E would replace existing protective relays and install a new relay protection scheme that would include transfer trips, reclosing relays, and reclose blocking equipment. All work at this location would be within the confines of the existing fenced substation area.

2.3 Project Components

2.3.1 Wind Turbine Generators

2.3.1.1 Layout and Design

The Project proposes 65 ~~60 to 80~~ WTGs located in designated construction corridors as shown on Figure 2-2, each with a capacity to generate 1.5 ~~to 3.0~~ MW of electricity. The range in number of WTGs proposed for each corridor is listed in Table 2-2.

TABLE 2-2
Estimated Number of WTGs to be Installed in Each Construction Envelope

Construction Envelope	Range of WTGs
West Ridge	7-12
Scolari Ridge	3-5
Signorelli Ridge	4-6
South Ridge	9-18
Middle Ridge	9-15
North Ridge	12-15
Sudden Ridge	12-18
Larsen Ridge	3-7

The WTGs would be ~~315 to 492~~ 389 or 397 feet in total height from foundation to blade tip. Examples of WTGs being considered for the Project are shown on Figure 2-5~~4~~. The Applicant currently plans to install Acciona AW-1500 WTGs. A brochure on this model is posted on the following website: http://www.acciona-energia.com/secciones/0002020601/

En/NEW_AW1500_ENG.pdf. Foundations for WTGs in the Sudden, South, and West Ridge construction envelopes would not be built above 1,800 feet mean sea level to avoid conflicts with VAFB communication systems. WTG spacing would be no less than 1.5 rotor diameters (~~350 to 495~~ 379 to 404 feet); in most cases, the WTGs would be located farther apart for environmental considerations and to prevent wind shadowing (wind blockage by WTG structures). WTGs in a construction envelope would typically be spaced evenly within that envelope, although minor adjustments might be made to account for topography or road access, or to avoid environmental impacts. The final locations of individual WTGs in each corridor would be subject to adjustment in the corridor until the time of construction. This flexibility in WTG layout is needed in the event that the environmental review, pre-construction field surveys (geotechnical, biological, or cultural), or further wind studies indicate that a modified layout is preferable. If future information necessitated the need to place Project components outside of these corridors, these changes would be subject to subsequent environmental review.

The WTG towers would be 80 meters ~~200 to 330~~ (262 feet) tall; be constructed of heavy-duty, epoxy-coated, welded steel; and would form a conical shell. The towers would taper from approximately ~~18~~ 15 feet in diameter at the base to 7 feet at the nacelle (the portion of the WTG where mechanical components are housed), as shown on Figure 2-6~~5~~. No guy wires would be required to hold the towers upright. The fully assembled towers would weigh 80 to 285 tons, for each 1.5 MW WTG depending on model. ~~depending on the size of each WTG (1.5 to 3.0 MW).~~

The WTGs would be of the three-bladed, horizontal axis design, which is the type installed in most modern, commercial wind farms (Figure 2-4). The blades would be approximately ~~115 to 165~~ 126 to 135 feet long and constructed of laminated fiberglass. A rotor hub, to which the blades would be bolted, would be covered by a composite nose-cone structure to streamline the airflow and protect the equipment. The ~~compartment~~ nacelle ~~that houses the mechanical workings of the WTGs~~ would include the drive train, gearbox, generator, and electrical and hydraulic components, as shown on Figure 2-6~~5~~. A transformer would be located either at the base of each tower (Figure 2-7~~6~~, Inset B), or inside the tower or nacelle, depending on the WTG manufacturer and model used, to increase the generation voltage from either 600 volts to ~~or~~ 12 kV up to 34.5 kV.

The WTGs would be set back from private property lines at the Project area perimeter by a distance equal to the total system height, as required by LUDC Section 35.57.050, except as follows. The Project application requests a variance from the setback requirement to allow the WTGs to be located as close as one WTG blade length ~~150~~ (126 or 135 feet) from the VAFB property lines along the south and west Project boundaries and from internal property lines within the Project. The intent is to position the WTGs close to the ridgelines to best capture the wind, avoid placement on steeper slopes to minimize grading, and optimize WTG layout. In some locations this would result in placing the WTGs within the setback area. In no case would any WTG component, including blades, intrude onto VAFB property.

The Applicant is currently planning on using turbines with a noise rating of less than 106 dBA. However, WTGs with a maximum noise level of 112 decibels (dBA) ~~w~~ could be used, except in the Larsen corridor and in a portion of the North Corridor, where a WTG with a maximum noise level of 106 dBA would be used to reduce noise impacts to residences

outside the 2,950-acre Applicant-leased property. In the North Corridor, these WTGs would be located in the eastern portion of the corridor along North East Road, east of the intersection of North East Road and North Ridge Central, to reduce the noise level to the nearest houses on the Bedford and Beattie properties. At present, the WTG in the Larsen corridor would remain isolated from the other WTGs in that corridor.

2.3.1.2 Foundations

The WTG foundations would have one of three designs, depending on geotechnical constraints and other factors, including wind patterns at the site, site access, material availability, and the ~~type of~~ WTG manufacturer selected prior to Project installation. The three possible types of WTG foundations are (1) Patrick and Henderson Inc. (P&H) patented post-tensioned foundation, (2) rock anchor, or (3) a modified spread-footing method of construction.

The P&H foundation would be drilled or dug to approximately 15 to 35 feet deep, depending on geotechnical conditions and loadings, and would be approximately ~~18~~ 15 feet in diameter. The foundation would be in the configuration of an annulus—two concentric steel cylinders. The central core of the smaller, inner cylinder would be filled with soil removed during excavation. In the cavity between the rings, bolts would be used to anchor the tower to the foundation, and the cavity would be filled with concrete. Bolting the tower to the foundation would provide post-tensioning to the concrete.

A rock anchor-type foundation is an alternative to the P&H foundation. Six to 20 holes, depending on geotechnical data, would be drilled approximately 35 feet into the bedrock, and steel anchors would be epoxy-grouted in place. A reinforced concrete cap containing the anchor bolts would be poured on the top of the steel anchors to support the tower structure.

A spread footing type of foundation also may be used. This foundation may be square or octagonal and formed with reinforcing steel and concrete. Depending on geotechnical data, this type of foundation may be as large as 35 by 35 feet and 6 to 10 feet thick.

Total combined cut and fill volumes for the WTG foundations are estimated at 68,000 cubic yards. For all designs, the exposed concrete pad would be approximately ~~18~~ 15 feet in diameter and extend less than 1 foot above grade.

2.3.1.3 Operation

The WTGs would be equipped with sensors and yaw and pitch controls to adapt to different wind speeds and directions to maximize power output. The yaw drive ensures that the WTG is producing the maximum amount of electrical energy at all times by keeping the turbine blade facing into the wind as the wind direction changes. The pitch is the angle of the turbine blade. The WTGs would be microprocessor controlled and operating data would be transmitted to the O&M facility for system monitoring and control. This control system would measure and automatically control operations, including the following functions:

- Power regulation over a wide range of wind speeds, including startup, shutdown, and generator-grid connection

- Yaw control, including protection against damage due to abnormal operating conditions or extreme environmental conditions
- Safety monitoring, enabling automatic shutdown of the WTGs independent of all other controls, thereby protecting them from unsafe conditions
- Monitoring sensor data for rotor speed, generator current, electrical load, nacelle vibration, yaw error, pitch control, system-hydraulic pressure, temperature, and more

The controller would adjust the blade pitch approximately every minute, using a hydraulic or electric actuator. The actuator would regulate blade pitch to achieve smooth and consistent power curves as air density changes. The actuator would adjust the blades' angle-of-attack with the prevailing wind and air density to optimize performance. The rotor would normally be stopped by either yawing the blades out of the wind or by rotating the blades to increase their aerodynamic drag. A fail-safe hydraulic brake would also be installed on the high-speed shaft, which would be used primarily to prevent rotation during maintenance.

If a control parameter deviated from its normal operating range, the controller would automatically shut down the WTG and notify the operating technician(s) of the fault. In many situations, the controller would analyze the data and restart the WTG if the fault were corrected or the operating conditions returned to normal. If the fault reoccurred, the controller might require a manual start, for which a technician would have to be present to restart the WTG.

Each WTG controller would communicate via fiber-optic cables to the LWEF O&M facility. This configuration would enable the facility to be controlled to maximize output, minimize maintenance costs and downtime, produce operations reports, and ensure compliance under the Project's performance warranties.

In accordance with good utility practice, routine inspections would be performed on all electrical connections periodically, and any faulty cables or damaged insulators would be replaced as needed for the underground/overhead collection system within the Project area.

A possibility exists that severe storms might result in occasional downed power lines or poles. In this case, procedures outlined in the emergency response plan and the standard operating procedures developed for the Project would address problems such as power outages, lightning storms, excessive rains, landslides or mudslides, ice storms, and other weather-related incidents.

2.3.1.4 Additional Safety Features

The WTGs would be equipped with two fully independent braking systems that could stop the rotor by either acting together or independently. The braking system is designed to be fail-safe, allowing the rotor to be brought to a halt under all foreseeable conditions. The system consists of aerodynamic braking by the rotor blades and by a separate hydraulic disc brake system. Both braking systems would operate independently so that if there were a fault with one, the other could still bring the WTG to a halt. Brake pads on the disc brake system would be spring-loaded against the disc, and power would be required to keep the pads away from the disc. If power were lost, the brakes would immediately be mechanically activated. The aerodynamic braking system would also be configured so that if power were

lost, it would be immediately activated. If an emergency stop were executed, remote restarting would not be possible. The WTG would need to be inspected in person and the stop-fault reset manually before automatic reactivation. Each WTG also would be equipped with a brake that generally would be used to keep the rotor from moving while maintenance routines or inspections that require a stationary rotor are performed.

The safety systems of all WTGs would comply with the codes set forth by European standards as well as those of the Occupational Health and Safety Administration (OSHA) and the American National Standards Institute (ANSI).

Each WTG also would be equipped with vibration, temperature, and fire detection systems in the nacelle and tower. The fire detection system would be connected to the main controller and the central Supervisory Control and Data Acquisition (SCADA) system. In the event of a fire fault or excess vibration or temperature, the WTG would be halted immediately, and an alarm condition would be activated in the control system that could send a page or message to a cell phone of the on-call operators or the local fire district (first responders), as required.

The nacelle would be accessed using a ladder located inside the tower. Internal ladders and maintenance areas inside the tower and nacelle would be equipped with safety provisions for securing lifelines and safety belts and conform to or exceed ANSI 14.3-1974 (Safety Requirements for Ladders).

The WTGs would be equipped with an engineered lightning protection system that connects the blades, nacelle, and tower to the earthing (grounding) system at the base of the tower. Because the rotor blades would be nonmetallic, they normally would not act as a discharge path for lightning; however, as the highest point of the WTG, the blades sometimes would provide the path of least resistance for a lightning strike. To protect the blades, they would be constructed with an internal copper conductor extending from the blade tip down to the rotor hub, which would be connected to the main shaft and establish a path through the gearbox and nacelle bed frame to the tower base, down to the grounding system embedded underground. An additional lightning rod would extend above the wind vane and anemometer at the rear of the nacelle. Both the rear lightning rod and blades would have conductive paths to the nacelle bed frame, which connects to the tower. The tower base would be connected to the earthing system at diametrically opposed points. The earthing system would consist of a copper ring conductor connected to earthing rods driven into the ground at diametrically opposed points outside of the foundation. The earthing system, with an acceptable resistance (less than 2 ohms), would provide a firm-grounding path to divert harmful stray surge voltages away from the WTG. The controllers and communication interfaces to the LWEF central control system would use fiber-optic cables and optical signal conversion systems, to protect these systems from stray surges.

The Federal Aviation Administration (FAA) may require lights on the WTGs. This analysis assumes that a synchronized, flashing, red light would be mounted on the top of the nacelle of the WTG located at the end of each WTG string; additional WTGs within the string would also have such a light so that the maximum distance between lit WTGs would be no greater than 2,640 feet. If required, these lights would be placed in compliance with FAA guidelines.

The Project is located within VAFB restricted airspace and would conform to VAFB-related aviation requirements; it is not anticipated that additional lighting would be required beyond that identified by the FAA.

The Project site is located entirely within the County's High Fire Hazard Area. Because personnel are onsite during daylight working hours and in frequent communication with central operations, any fires would be noticed immediately and reported to local authorities. Some firefighting equipment would be located at the Project Substation site, maintenance yard, and in vehicles. Fire deterrents within the LWEF would include service and access roads, which could serve as firebreaks, and regular clearing of vegetation from areas around transformers, riser poles, and buildings.

Safety signing would be posted where necessary around WTGs, transformers, and other high-voltage facilities, and along roads, in conformance with applicable state and federal regulations. A safety policy would be developed and would be included as part of the mitigation plan requirements.

2.3.1.5 Wind Turbine Generator Certification

The Project would use only WTGs that have achieved type certification by a reputable and experienced third-party verification institute, such as Germanischer Lloyd, Det Norske Veritas, WindTest, or Risø, and demonstrate a design life of at least 30 years. The factors involved in certifying WTG design include safety and control system concepts, addressing rotating and still turbine states, and foundation weight-bearing confirmation. When approved, specific components, such as blades, drive trains (hubs, gearing, bearings, and generators), safety systems, towers, yaw systems, foundations, and electrical installations, would be reviewed and approved according to minimum standards established by third-party verification institutes. In addition to operating characteristics and design features, the testing groups review construction supervision procedures, including materials testing, quality assurance reports and procedures, corrosion protection, and others. The groups also review and set standards for supervision during the transportation, erection, and commissioning of the WTGs.

Operational testing performed by the laboratories includes measurement of power curves, noise emissions, and loads and stresses, including wind loads imposed on the tower, foundation, drive train, blades, nacelle frame, and power quality. Test data are evaluated for plausibility, and compared with the original calculations and mathematical models used for the design. Neither Germanischer Lloyd, Risø, nor DNV would issue its certification unless the WTG design had met minimum design standards and performance levels, both calculated and measured. The approval process also applies to the manufacturers' processes and procedures through International Organization for Standardization 9001.

2.3.2 Onsite Access Roads

Numerous dirt roads are present throughout the Project area and maintained by the property owners for agricultural operations. To provide access during construction and operations, 8.3 miles of the existing roads would be improved and widened from their existing widths of ~~12~~ 10 to 14 feet, ~~to 16~~ to 24 feet. Some road sections would need to be widened to 40 feet to provide access for the large cranes required for WTG installation. For purposes of disturbance calculations, a 40 foot wide temporary roadway width was used.

~~Because the greatest road width was used to calculate the access road disturbance area, the additional disturbance area to accommodate widening, as much as 40 feet in some areas, has not been added because the road disturbance calculation is considered conservative.~~ The improved existing ~~wider stretches of~~ roadways would be restored to a 24-foot or less width upon completion of WTG installation.

In addition, ~~5.23~~ 5.5 miles of new roads would be constructed. Most of the new roads would be built to access the North Corridor (Figure 2-2). Short sections of roadway would also be built in other parts of the Project area. The road work would include trenching and installing underground electrical distribution lines and communication cables.

The access road serving the Scolari and North corridors would cross Hondo Creek, requiring construction of a bridge to minimize impacts to the stream. The proposed bridge over Hondo Creek would be an engineered steel structure designed by a registered engineer. The bridge would likely consist of three rail cars installed side by side. The bridge would be 16 to 24 feet wide and 60 to 80 feet long, depending on final design work. The footing for the bridge would measure 4 by 16 feet or 4 by 24 feet, depending on the width of the bridge. Headwalls are proposed to be built outside of the stream bed so that there would be no grading in the stream. The area of construction disturbance, which would be outside the riparian area of the creek, would measure 50 by 50 feet on each side of the stream crossing. However, until the exact load weights of the equipment needed to cross this creek are known, only an estimate of the dimensions and type of bridge can be assumed.

Crossings of minor drainage channels would be accomplished with culverts. Portions of the proposed access roads are on relatively steep slopes (greater than 30 percent). According to the preliminary grading plan, total combined cut and fill volumes for the road work are estimated at 401,000 cubic yards. A 20 percent shrinkage factor generally is used in calculating cut versus fill because of shrinkage of the fill and the initial blading of the topsoil prior to the cut. Therefore, of the 401,000 cubic yards of total cut and fill, 219,000 cubic yards are estimated as cut. The total area disturbed by roads is estimated to be ~~27~~ 57 acres, of which ~~23~~ 30 acres would be permanently disturbed. All grading would be subject to a final, approved grading and erosion control plan to minimize erosion and ensure adequate slope stabilization. Disturbed areas would be revegetated following the roadwork.

During construction and O&M, Project-related traffic would be routed to existing roads (subject to improvement) and new roads developed for the Project. The Applicant would instruct Project personnel and contractors to adhere to speed limits commensurate with road types, traffic volumes, vehicle types, and site-specific conditions, to assure safe and efficient traffic flow. Signs would be placed along public roads as directed by the County to identify speed limits, travel restrictions, and other standard traffic control information. In addition, signs will be placed within the Project site in accordance with the Project Safety Plan (Section 2.8.1) and EIR requirements.

For security reasons, the Applicant ~~might~~ may request that the County close either or both of Sudden Road and San Miguelito Canyon Road beyond their intersection to the public. ~~abandon Sudden Road in the O&M facility and Project Substation area in favor of a private road. The private road would serve~~ These roads would continue to provide access to VAFB and the property owners that have access rights off of Sudden Road, all of which are Project participants. This action is not part of the proposed Project and is not within the scope of

this environmental review. ~~considered to be an administrative process and would occur outside of this Environmental Impact Report (EIR) process.~~

2.3.3 Onsite Electrical Lines and Communication System

Each array of WTGs would be interconnected via 34.5-kV electrically insulated cables. These cables would typically run underground. However, if a collection line needed to cross a canyon, a spring, or an archaeological site, for example, or where a line runs down from a hill to the Project Substation, standard overhead line construction methods would be used.

The power collection lines would transmit the power from each array of WTGs to the Project Substation. The underground collector cables would follow roads, where feasible, ~~and in all cases be constructed within the WTG corridors~~ as shown on Figure 2-2. For the purposes of determining ground disturbance, aboveground collection lines would be supported by single wooden poles or H-frame structures. The overhead collection system would be constructed in conformance with good utility practice, the National Electric Safety Code (NESC), ANSI, the United States Fish and Wildlife Service (USFWS), and the Avian Power Line Interaction Committee (APLIC). At the Project Substation, the voltage would be increased to 115 kV for interconnection with the proposed PG&E power line.

Operation of the Project would be controlled by an integrated, automatic control system, SCADA, which would be capable of monitoring all operational parameters and starting and stopping each WTG. The system would also be connected to the fire detection system. The SCADA system would transmit operating parameters and other data from each WTG to the central computer. The system would allow remote control and monitoring of individual WTGs and the entire LWEF from the central host computer or a remote personal computer. The SCADA system could also send signals to a fax, pager, or cell phone to alert operations staff about an operational problem. SCADA cables would be buried in the same trenches used for the electrical collector lines. Overhead communications lines would be installed primarily on the structures used for overhead distribution lines. Either overhead or underground communications lines would be routed to the control room.

2.3.4 Meteorological Towers

As many as 10 meteorological towers would record weather data necessary to determine the most efficient operational strategy for the WTGs (Figure 2-7~~6~~, Inset G). The data collected would include wind speed and direction, temperature, humidity, barometric pressure, and rainfall. The towers are proposed to be free-standing lattice structures, up to 262 feet in height. No guy wires would be required for these types of towers. The estimated construction footprint would be approximately 1,500 square feet during construction, and approximately 900 square feet when constructed. The meteorological towers would be placed within the construction envelopes wherever possible; if a meteorological tower were proposed outside the construction corridors, further environmental and resource survey work might be required. The meteorological towers would not require road construction or foundation grading; they would be accessed by driving four-wheel drive equipment, such as a crane and back-hoe, across the Project-leased property.

Eight 50-60 meter (197 feet) temporary, guyed meteorological towers were installed on the project site for wind resource studies. The applicant plans to increase the height of two of

these existing towers to 80 meters (262 feet)for the interval following project approval to commencement of operations. FAA obstruction lighting would be required on the towers. The towers would be equipped with bird flight diverters. All meteorological towers, except the two 80 meter towers, would be removed within 90 days following final CUP approval. The 80 meter temporary towers would be removed prior to first delivery of power or one year after CUP approval, whichever comes first. Any permanent meteorological tower(s) would be unguyed.

2.3.5 Operations and Maintenance Building

An O&M facility is proposed near the corner of San Miguelito Road and Sudden Road, as shown on Figures 2-2 and 2-8~~7~~. The O&M facility would occupy approximately 2 acres, and would include the following:

- Main building with offices
- Spare parts storage room
- Restroom
- Shop area
- Outdoor storage for large parts (such as spare blade sets)
- Outdoor parking facilities
- Turnaround area for large vehicles
- Outdoor lighting
- Gated access with partial or full perimeter fencing

The O&M facility is proposed to be centrally located (in relation to travel distance along maintenance roads), to minimize the average response time of on-site crews to wind turbines and other appurtenant facilities. In addition, locating the O&M facility close to the project's substation will minimize response time and related down time to power delivery related operations. The O&M facility will also house fire fighting water and suppression equipment. By centrally locating fire fighting water and suppression equipment, fire response to the project site will be optimized.

The O&M facility would be a pre-engineered metal building with a foundation footprint of approximately 50 by 100 feet. During construction, the O&M facility area would be leveled and graded and would serve as a central base of construction operations with as many as eight temporary office trailers.

The proposed water system to support the Project would be installed on O&M facility grounds. Two 5,000-gallon water storage tanks would be installed: one 5,000-gallon tank for O&M facility operations and one for fire water. Water for the O&M facility operations ~~would~~ will be obtained either from a new shallow ~~an unused~~ well on the property or from an existing spring on the property. ~~trucked in from Lompoc.~~ Less than 500 gallons per day would be needed for the O&M facility.~~, and the water tank would be filled every 2 weeks using a 5,000-gallon water truck.~~ Effluent from the office drains would be disposed of through a proposed leach line system to be installed on the east side of the O&M facility.

The 5,000-gallon fire water tank would run on an electrical pump and would be connected to a fire hydrant and a sprinkler system in the O&M facility. The fire water tank would not be used for anything except for fire water storage. The fire water tank would be refilled only

to replace water used to fight fires. The water tank for O&M facility operations could also be used for fire water. The entire system would be subject to the approval of the Santa Barbara County Fire Department (SBCFD).

2.3.6 Project Substation

Power transmitted by the overhead and underground 34.5-kV collection system would be delivered to the Project Substation located northwest ~~east~~ of the O&M facility (Figure 2-~~7~~6, Inset D). The Project Substation would consist of ~~a main~~ step-up transformers and other facilities to increase the 34.5-kV power from the underground and overhead collection ~~distribution~~ lines to 115 kV ~~high voltage~~ for delivery to PG&E's 115-kV grid. The Project Substation would be approximately 2 acres in size, within a fenced enclosure, and would consist of four components: a low-voltage switchgear rack, two step-up transformers (34.5 kV to 115 kV), 115-kV switch rack, and control building. Electricity would be provided from the existing PG&E distribution lines in the Project area to support the power needs of these components. The main step-up transformers may be equipped with cooling fans to increase the thermal rating and efficiency of the transformers. Fans would be thermostatically controlled and would only run during periods of continuous high generator output. The 115-kV switch rack would consist of a single-line termination, disconnect switches, a power circuit breaker, and a 115-kV takeoff structure (the point at which PG&E would connect the new power line). The control building would house protective relaying, metering, and control equipment for the Project Substation and LWEF. The Project Substation area would be graded to provide for oil containment in the event of equipment failure.

2.3.7 Lompoc Wind Energy Power Line

The power line would be an overhead line designed, constructed, and operated by PG&E in accordance with the California Public Utilities Commission's (CPUC) General Order 95, State of California Rules for Overhead Electric Line Construction. These requirements include design, construction, maintenance, and inspection rules that apply to the various classes of overhead lines. Additional information regarding power line construction is provided in Section 2.5. The guidelines require that electrical supply systems be designed, constructed, and maintained in accordance with accepted good practice for the given local conditions known at the time by those responsible for the design, construction, or maintenance of the supply line and equipment. Section 2.8.5 presents additional, specific Avoidance and Protection Measures that would be implemented by PG&E during power line construction and operation. All work on public streets and highways would be performed in a manner that interferes as little as possible with the operations of other utilities and the convenience of the public, and causes no unusually dangerous conditions to workmen, pedestrians, or others at any time.

Operations and maintenance activities for the power line would include frequent inspections to ensure that the system is in good condition and would not create hazards. Ongoing fire management and safety would include maintaining a 10-foot radial clearance of flammable fuels (vegetation) around the base of each wood pole structure[1] during fire season, as required under Public Resources Code, Section 4292; a minimum 15-foot

[1] PRC, Section 4292, states that the 10-foot clearing applies only to poles or towers that support certain equipment (switches, fuses, transformers, lightning arresters, line junctions, or dead-end or corners).

clearance between vegetation and conductors is required for safety and to minimize tree-related outages. PG&E may remove fast-growing trees or trim back vegetation farther than the minimum required to achieve at least 3 to 4 years of clearance before the next trim. In addition, the maintenance program would also include removing dead, rotten, or diseased trees or vegetation that hang over or lean toward the system, creating a falling hazard.

General requirements for tree trimming include minimum radial clearances that should be established at time of trimming, between the vegetation and the energized conductors and associated live parts of the power line where practicable. The ~~typical~~ minimum vertical clearance for 115-kV lines is ~~5 to~~ 10 feet. In addition, the rules indicate that when a utility has actual knowledge of dead, rotten, or diseased trees or portions of tress that hang over or lean toward and might fall into a span, they would be removed. Exceptions to the rules include mature trees whose trunks and major limbs are located more than 6 inches, but less than 18 inches, from primary distribution conductors are exempt from the 18-inch minimum clearance requirement.

The power line would be constructed mostly of single wooden poles and a few double wooden poles. Single steel poles would be needed at a few engineered angle points; the number of steel poles would be determined as part of final power line design. The poles would be up to 75 feet in height and would be placed every 250 to 350 feet; assuming as a worst-case scenario that poles were placed every 250 feet, as many as ~~169~~ 184 poles would be required. In some locations, engineered structures with concrete foundations might be used to support the conductors. The exact number of poles and their sizes, types, and spacing would be determined as part of final design engineering. PG&E anticipates acquiring easements ranging from 50 to 80 feet wide, depending on design, span length, and terrain.

The power line route is described in Section 2.2.2 and shown on Figure 2-~~43~~. As proposed, where feasible, this new line would allow for the consolidation of the existing power line with the new line (both the proposed and existing power lines would be suspended from the new poles).

2.4 Lompoc Wind Energy Facility Construction

2.4.1 Construction Phasing

The Project may be constructed in as many as three phases. Construction would begin as soon as the requisite Project approvals, including land use, grading, building, and other permits were obtained from the County and other responsible agencies (Section 2.9). The last phase would start no later than 7 years after the issuance of the CUP to allow construction of the first phase. Phase I would be the construction and production of approximately 82.5 MW of wind generation, which would fulfill the Power Purchase Agreement (PPA) between the Applicant and PG&E. The power line, most of the meteorological towers (some towers might be constructed as part of subsequent Project phase~~s~~), the Project Substation, and the O&M facility would be built during this phase. Until the ~~type of~~ WTG manufacturer is selected, the wind regime analysis finalized, and a contractor selected, the Applicant cannot specify which portions of the Project would be developed first, with the exception of these components. Phase I construction would start in

spring 2009 ~~late 2007~~ and continue for 6 to 10 months. ~~into 2008.~~ The commercial operation date is estimated to be ~~the fall~~ late 2009. ~~of 2008.~~ Phase I construction might also include the installation of the additional 10 WTGs to achieve the maximum electrical generating capacity of 97.5 MW.

Construction of the first phase would last approximately 6 to 10 months, with most of the work occurring during a 6-month period. Power line construction would occur within this time frame assuming ~~If~~ no significant environmental issues were identified (see Section 2.5)., ~~PG&E would proceed with power line construction after a public notice period lasting approximately 90 days after certification of the final EIR. However, if the final EIR concludes that PG&E's power line portion of the Project (that is, the power line and grid system upgrades) would cause significant unavoidable environmental impacts, or if protests were filed with the CPUC concerning potential environmental impacts of the power line, PG&E might be required to apply to the CPUC for a Permit to Construct, which would delay construction of the power line and grid system upgrades.~~ Construction of each subsequent phase is estimated to last 6 months.

During any subsequent phase of construction, only the area needed for installation of the WTGs and access roads would be graded or disturbed; thus, Project phasing would likely not involve repeated grading, filling, or disturbance of any given areas, with the possible exception of reusing staging areas and San Miguelito Road. The staging areas at the Larsen property and opposite the O&M facility would be kept active until all Project construction was completed, although the staging area on the Adam Signorelli property would be restored after the WTGs on the western portion of the project were completed. Additional repair work on San Miguelito Road also might be required after each construction phase.

2.4.2 General Procedures

Grading would occur in the dry season to the extent practicable. Normally, construction would occur during daylight hours; however, some activities would require extended hours because of scheduling constraints or other time-sensitive matters, or to maintain structural integrity of concrete placement. Construction would be performed in stages, as follows:

- Grading of field construction office and Project Substation (also O&M facility)
- Construction of site roads, turnaround areas, and crane pads at each WTG location
- Construction of the WTG tower foundations and transformer pads
- Installation of the electrical collection system (underground and overhead lines)
- Assembly and erection of the WTGs
- Construction and installation of the Project Substation
- Commissioning and energizing the LWEF

2.4.3 Construction Traffic

All Project materials would be brought to the site via Highway 101 to Highway 246 from the north or via Highway 101 to SR-1 from the south. The Applicant evaluated San Miguelito Road in November 2006 to determine if the road would be passable by large trucks and concluded that road widening, grading, or tree removal would not be required if steerable trailers were used. Because this cannot be established with certainty until the specific characteristics of the transport vehicles have been determined, the analysis assumes that

some road widening, grading, tree removal, and tree trimming would be needed. Similarly, temporary raising of overhead power lines might be required. Entrances to the ranch properties off of San Miguelito Road would have to be widened to allow access by construction equipment. Details would be included in the final grading and other resource protection plans.

The Project would employ 50 to 100 workers at the site during the peak of construction. It is anticipated that a minimum of 80 percent of the workers would live or stay in the Lompoc area. Assuming 100 workers and 1.1 persons per vehicle, approximately 91 worker vehicles, or 182 one-way vehicle trips, would be required per day (standard carpool factor). Table 2-3 shows the estimated construction traffic for the Phase I construction period. The most significant construction activities are expected to occur over a 6-month period, with a few months expected for construction mobilization and demobilization, for an estimated 10-month total construction schedule.

TABLE 2-3
Estimated Phase I Construction Truck Trips

	Month						
Activity	**1**	**2**	**3**	**4**	**5**	**6**	**Total**
WTG Parts Delivery			320	320	320	320	1,280
WTG Foundation Installation	600	1,200	1,200	450			3,450
WTG Water Delivery	500	1,250	1,250				3,000
Access Road Construction	1,323	1,323					2,646
Pole Placement	203	203	203	203	202		1,014
Line Stringing			40	40	40	40	160
Meteorological Tower Installation				60	60		120
Project Substation and O&M Facility Construction				200	200	200	600
Total by Month	**2,926**	**3,976**	**3013**	**1,273**	**822**	**560**	**12,270**
Total by Day (22 Construction Days per Month)*	**119**	**181**	**137**	**58**	**37**	**25**	**93**

*Additional construction days/months may be added in accordance with Mitigation Measure NOI-1.

The estimated numbers and types of construction equipment that would be used during construction are summarized in Table 2-4.

TABLE 2-4
Equipment Requirements

Equipment	Fuel Type	No. of Units	Equipment	Fuel Type	No. of Units
Excavator	Diesel	2	Concrete truck	Diesel	4-6
D-9 bulldozer	Diesel	1	Dump truck	Diesel	2
D-8 bulldozer	Diesel	2	Fork/Manlift	Diesel	1
D-6 bulldozer	Diesel	1	Concrete pump truck	Diesel	1
980 Front-end loader	Diesel	1	Generator	Diesel	1
300-Ton crane	Diesel	1	Pick-up truck	Gasoline	8-14
120-Ton crane	Diesel	1	Welder	Electric	4
90-Ton crane	Diesel	2	Line truck	Diesel	2
14-H load grader/ Gradall	Diesel	1	Scraper	Diesel	2
Water Truck	Diesel	2-3	Trencher/Slurry Trencher	Diesel	1
Compactor	Diesel	2			

2.4.4 Field Survey and Construction Specifications

A civil engineering site survey would be performed to stake out the exact location of the WTGs, site roads, and electrical lines. This survey would be followed by detailed geotechnical studies at each WTG location and the O&M facility site. The studies would involve drilling boreholes (for example, 30 to 40 feet deep) and digging shallow trenches to identify soil and rock types and evaluate their properties. Using the acquired data, including geotechnical information, environmental and climatic conditions, and site topography, the Applicant's engineering group would establish a set of site-specific construction specifications for each WTG and other components of the Project.

2.4.5 Site Preparation and Road Construction

Site activities would begin with construction of site access entryways from San Miguelito Road, rough grading of access roads, leveling of the construction site office parking area, and installation of six to eight temporary site office trailers with temporary power at the intersection of San Miguelito Road and Sudden Road. All excavation and foundation construction work would be done in accordance to a formal Stormwater Pollution Prevention Plan (SWPPP) for the Project.

Access roads would be gravel surfaced unless extremely steep slopes necessitated paving. Road construction would be performed in multiple steps, starting with topsoil salvage and triple-lift soil salvage in areas known to support the endangered plant species, Gaviota tarplant. After the soil salvage, the rough grading and leveling of the roadway areas would occur. When rough grade was achieved, base rock would be trucked in, spread, and compacted to create a road base. Capping rock would then be spread over the road base and roll-compacted to finished grade. The width of construction access roads will vary between 24 to 40 feet to accommodate roadway cut and fill, and necessary equipment turning radius' and turn-outs. At completion of heavy construction, the road would be regraded to a width of ~~20 to~~ 24 feet or less for service as a maintenance road. A final pass would be made with the grading equipment to level the road surfaces, and more capping rock would be spread and compacted in areas where needed. In some very steep areas, the road might be paved. Water bars, similar to speed bumps, would be cut into the roads in areas where needed, to allow for natural drainage of water over the road surface and to prevent road washout. V-ditches and culverts would be installed, where necessary, to handle excess drainage water. All road work would be performed under final approved grading, erosion control, and stormwater quality management plans.

Excess excavated soil and rock would be disposed of onsite at approved disposal areas, such as eroded gullies and ravines. Larger excavated rocks also would be disposed of at approved sites or crushed and re-used onsite as backfill or roadway material. Project road construction would involve the use of several pieces of heavy machinery, including bulldozers, track-hoe excavators, front-end loaders, dump trucks, motor graders, water trucks, and rollers for compaction, as listed in Table 2-4. Stormwater measures, such as hay bales and diversion ditches, would control stormwater runoff during construction. Access points from public roads would have locked gates, as agreed upon with the landowners.

2.4.6 Equipment and Water Requirements

Heavy equipment would be needed to clear the sites, build roads and WTG foundations, haul and lift materials, and pull power line. After roads were opened and foundations built, cranes and trucks would move in to haul and lift the WTG parts into position for assembly. Approximately 320 truck trips per month (during Months 3 through 6 of the construction period as shown in Table 2-3) would haul WTG parts to the Project site, each with a gross weight ranging between 30,000 and 180,000 pounds. The trucks would have many axles to spread the load on streets and roads. The trucks would enter the area from Lompoc using established truck routes and proceed to designated areas for unloading. Road material, concrete, and water would be hauled from local sources.

Portable concrete batch plants (Figure 2-9~~8~~) would be set up to meet construction needs in the staging areas on the Larsen property, the Joe Signorelli property across from the O&M facility, and the Adam Signorelli property (Figure 2-2). Foundations for each WTG would require up to several hundred yards of concrete, which must generally be placed within 45 minutes of being made or "batched." The onsite batch plant(s) would reduce the travel time for the mixer trucks and the number of trips over public or non-site roads. It is unlikely that the simultaneous operation of two batch plants would be required; however, as a worst-case scenario, the environmental analysis assumes that two batch plants would be in operation at the same time for a short period.

Reclaimed water from the Lompoc Wastewater Plant would be trucked in as needed for dust control during construction. As many as 9,000 gallons of water (five to six truck trips) could be required on days when dust control is needed. Total water usage for dust control and foundation construction would be approximately 38 acre-feet. Additional water would be trucked in for the concrete batch plant(s) and would be obtained from the City of Lompoc just below its storage facility at the north end of San Miguelito Road.

2.4.7 Disturbed Areas

The estimated temporary and permanent land disturbance areas for the Project are shown in Table 2-5 (on the following page).

2.4.8 Foundation Construction

Foundations would be required for each WTG and pad transformer, as shown on Figure 2-7~~6~~, Insets A and B; the Project Substation equipment, as shown on Figure 2-7~~6~~, Insert D; and the O&M facility. When the roads are completed for a particular group of WTGs, construction of the foundations for these WTGs would commence. Depending on the foundation type used, each WTG foundation could require approximately 90 cubic yards of 4,000- to 6,000-pound-per-square-inch (psi) test concrete and 80 cubic yards of 1,000-psi slurry mix, totaling approximately 18 to 20 truckloads of concrete per WTG. Anchor bolts would be embedded in the concrete, and the foundation would be allowed to cure prior to tower erection. Foundation pads and crane pads would be left in their graded condition and revegetated after WTG installation.

TABLE 2-5
Estimated Temporary and Permanent Land Disturbance

Project Component	Area Disturbed per Project Component	Number of Components	Temporary ~~Total~~ Disturbance (acres)	Permanent Disturbance (acres)
WTGs	1.5 acres ~~5,000 square feet~~ (temp.) 3,000 sq.ft (perm.)	65 ~~80~~ (max.)	97.5 ~~9.18~~	4.48 ~~5.51~~
Meteorological Towers	1,500 sq.ft. (temp.) 900 sq.ft. (perm.) ~~0.02 acre~~	10	0.34 ~~0.20~~	0.21 ~~0.20~~
Access Roads – Existing Improved	8.3 ~~8.05~~ miles	N/A	30.0 ~~9.76~~	14.1 ~~9.76~~
Access Roads – New	5.5 ~~4.45~~ miles	N/A	26.6 ~~12.8~~	16.0 ~~12.8~~
Hondo Creek Bridge	0.11 acre	N/A	0.11	0.11
O&M Facility	2.0 acres	N/A	2.0	2.0
Project Substation	2.0 acres	N/A	2.0	2.0
Power Poles	7,850 ~~2,500~~ sq.ft.[1] (temp.) 314 sq.ft.[2] (perm.)	184 ~~169~~	33.16 ~~9.70~~	1.33 ~~1.22~~
Staging Areas:				
Sudden	1.42 ~~2.27~~	N/A ~~1~~	1.42 ~~2.27~~	0
Larsen Property	0[3] ~~2.95~~	N/A ~~1~~	0[3] ~~2.95~~	0
Signorelli Property	2.60	N/A ~~1~~	2.60	0
		Total	**195.7 ~~53.57~~**	**40.2 ~~33.6~~**

Note:
1 Based on 50 foot radius centered on pole (see Section 2.5.1).
2 Based on 10 foot radius vegetation clearance (see Section 2.3.7).
3 Larsen staging area would be located on an existing gravel pad that is part of the old rock quarry.
N/A – not applicable

Foundation construction would include the following stages: drilling, blasting (if required) and hole excavation; outer form setting; rebar and bolt cage assembly; concrete casting and finishing; removal of the forms; backfilling and compaction; construction of the pad transformer foundation; and foundation site area restoration. Excavation and foundation construction would be conducted in a manner that would minimize the size and duration of excavated areas required to install foundations. Portions of the work might require overexcavation or shoring.

Backfilling would be completed immediately after approval by the engineer's field inspectors. Onsite excavated materials would be used for backfill where possible. An estimated 125 cubic yards of excavated soil would remain from each WTG. The excess soil not used as backfill for the foundations would be used to level out low spots on the crane pads and roads to make them consistent with the surrounding grade, and exposed soil would be reseeded with a designated mix of grasses around the edges of the disturbed areas. Larger rocks would be disposed of offsite, or crushed into smaller rocks for use as backfill or road material. Excess soil not used around the WTG sites would be disposed of in eroded areas onsite.

2.4.9 Electrical Collection System

After the roads, WTG foundations, and transformer pads were completed for a particular row of WTGs, underground cables would be installed along that road section. Trenches would be cut to the required depth (Figure 2-7~~6~~, Inset C). Cables would be laid in the trenches, surrounded with a cushion of clean fill, inspected, and the trenches backfilled.

Shallower trenches might be required where solid rock is encountered. Cables would be protected with concrete slurry. The 34.5-kV cables would be connected to the WTG pad mounted transformers, and low-voltage wiring between the transformers and the bus cabinet inside the WTG towers would be completed, inspected, and tested.

As part of the final design engineering for the power line, a field survey would be conducted to determine the exact power pole locations for overhead collector lines. When exact pole locations have been determined, detailed biological and archaeological surveys would be conducted to confirm that Project impacts would be minimized. Holes would be drilled and the poles erected with a small crane or boom truck. The poles would be set in place using concrete or compacted clean fill, according to the engineer's specifications. The overhead lines would be connected to the underground cables at each end through a fused disconnect switch, which would ensure personnel safety by breaking the electrical connection in the event of a power surge.

2.4.10 Project Substation

The Project Substation and interconnection facilities construction would involve several stages of work, including grading of the Project Substation area; installation of a grounding mat; construction of several foundations for the transformers, power circuit breakers, and structures; erection and placement of the steel work and all outdoor equipment; and electrical work for all of the required terminations. The high- and low-voltage sides of the Project Substation may be separated by a fence and provided with separate control houses, because the high- and low-voltage sides would be under separate control by PG&E and the Project operator, respectively. The entire Project Substation would be enclosed with a chain link security fence. Following construction, an inspection and commissioning test plan would be executed prior to the Project Substation being energized.

2.4.11 Wind Turbine Generators

The WTG components would be delivered to the site via flatbed transport trucks in two to five sections; the main components would be off-loaded at the individual WTG sites or possibly staged at the site before transport to the final location. After setting the WTG electrical bus cabinet and ground control panels on the foundation, the tower would be erected by crane in sections (Figure 2-7~~6~~, Inset E). Tower construction would be followed by hoisting and installation of the nacelle; assembly, hoisting, and installation of the rotor; connection and termination of internal cables; and inspection and testing of the electrical system.

2.4.12 Hazardous Materials

Potential hazardous materials expected to be used or produced during implementation of the Project include fuels (gasoline and diesel), lubricants and motor oil, and combustion emissions (for example, nitrogen oxides [NO_x], carbon monoxide, and hydrocarbons).

Gearboxes would each contain approximately 70 gallons of oil that would not be routinely renewed. Yaw system bearings and control gears would be greased, and the hydraulic oil checked and renewed approximately every 5 years with 5 gallons of oil. The cooling system would contain water and ethylene glycol that would be tested annually. All testing or replacement would be performed uptower; therefore, all fluids, including those from

accidental spills, would be contained within the nacelle and the tower structures. Additionally, the WTG models that would be installed for the Project would be equipped with leak-proof gaskets.

However, these chemicals would need to be transported to the Project site and some quantities would be stored at the O&M facility. To minimize the potential for harmful effects to people or the environment, stored chemicals would be held in onsite tanks or drums equipped with secondary containment areas to prevent runoff. No extremely hazardous materials are currently anticipated to be produced, used, stored, transported, or disposed of as a result of the Project.

If cleaning chemicals or detergents were used, they would generally be biodegradable and stored in the O&M facility in sealed containers. Oils that might be needed for normal maintenance would be stored in drums or smaller sealed containers at the O&M facility and transported to the WTG when needed.

Construction equipment and O&M trucks would be properly maintained to minimize leaks of motor oils, hydraulic fluids, and fuels. Major vehicle maintenance would be performed offsite at an appropriate facility. Gasoline- and diesel-powered vehicles and equipment would be refueled onsite at designated locations by a mobile fuel service truck. Handling of hazardous liquids would be subject to a Hazardous Materials Management Plan and Fire Protection Plan approved by the SBCFD.

2.4.13 Startup

Each completed WTG would be inspected and checked for mechanical, electrical, and control functions in accordance with the manufacturer's specifications before being released for startup testing. A series of startup procedures would then be performed by the manufacturer's technicians; this process would require approximately 8 to 16 hours per WTG. Final testing would involve mechanical, electrical, control, and communications inspections and tests to ensure that all systems are working properly.

After the WTGs have been commissioned and are producing power, a period of acceptance testing would begin to ensure that the WTGs are performing according to the agreed-upon parameters, including the manufacturer's warranted power curve. During this time, the power produced would be fed into the utility grid. Electrical tests on the transformers, power lines, and Project Substation would be performed by qualified engineers, electricians, and test personnel to ensure that electrical equipment is operating within tolerances and that the equipment has been installed in accordance with design specifications. PG&E would perform inspections and tests on the power lines and interconnection facilities.

2.4.14 Site Restoration and Landscape Plan

Site restoration and cleanup would include reseeding of disturbed areas during the first suitable weather conditions after the heavy construction activities have been completed. The staging area on the Adam Signorelli property would be restored after the WTGs were completed on Tranquillion Ridge. No restoration would be needed for the Larsen staging area because it is a disturbed former rock quarry. The O&M facility staging area would be restored to agricultural grazing land at the end of construction of all phases of the Project. The WTG sites would be reseeded with native grasses to allow the current use of the

property to continue to the maximum extent practicable. The shoulder areas of access roads (new and improved) would also be reseeded. The 2-acre fenced area of the Project Substation would be covered with crushed rock; no landscaping is planned because of this area's interior location at the Project site. The O&M facility access area would be landscaped with decorative rockscape and drought-resistant plants suitable for the region and climate (Figure 2-8~~7~~). Other activities following the main construction phase would include interior finishing of the O&M facility, landscaping around the O&M facility, washing the WTGs, painting over scratches on the WTGs and exposed bolts, and normal construction cleanup.

2.5 Power Line Installation

Approximately 45,936 ~~41,450~~ feet (8.7~~7.85~~ miles) of new power line would be engineered, designed, and built by PG&E, as owner and operator, over a 6-month period. The poles would be installed using standard PG&E line trucks where possible, although helicopters could be used in some remote areas to install poles and conductors, in accordance with an FAA Lift Plan.

The power line route was designed to use existing roads, so that grading would be kept to a minimum; few, if any, new roads would be required. It is estimated that less than 0.5 mile of new road would need to be graded. Vegetation clearing would be kept to a minimum because the power line route could be shifted within the study corridor to avoid impacts to critical vegetation where feasible.

The staging areas at the O&M facility and at Larsen Ranch would be used, and the power line contractor would be able to store temporary construction trailers at the O&M facility staging area. It is anticipated that the lot owned by PG&E, next to the Cabrillo Substation, may be used for construction equipment and materials storage.

The procedures for bringing personnel, materials, and equipment to each power pole site; constructing the supporting structure foundations; erecting the supporting structures; and stringing the conductors would vary along the power line route alignment. It is expected that PG&E generally would construct the power line in the following order, using standard utility practices.

2.5.1 Step 1 – Installing the Supporting Structure Foundations

To install steel poles, PG&E would excavate a foundation hole; install forms, rebar, and anchor bolts; pour concrete; remove the forms; replace soil or gravel around the base; and install a pole at each of the new pole sites. Installation of wood poles would involve excavating, installing the pole, and backfilling the excavation; no foundation would be required for poles placed in straight spans. Wood poles may be embedded to a depth of approximately 7 to 12 feet below grade. Material removed during the process would be placed in a location specified by the landowner and/or disposed of according to applicable laws. Temporary disturbance around each structure site would typically be limited to approximately a 50-foot radius (100-foot diameter) centered on the pole. Areas of temporary disturbance from power line construction are listed in Table 2-5. Temporary disturbance would consist of soil compaction from placement of crane outrigger pads and from vehicle tracks, as well as movement of workers and equipment.

Placement of the pole structures would require the use of a large auger to dig the foundation hole. The foundation hole would be approximately 5 feet in diameter and from 10 to 20 feet deep. In some cases, a cage of reinforced steel and with anchor bolts would be installed and concrete would be placed in the hole. After the concrete curing period of 1 month, workers would remove the concrete forms and restore the ground around the foundations. Each pole would have approximately a 5-foot-diameter foundation (approximately 20 square feet of new foundation per structure); areas of temporary and permanent disturbance are shown in Table 2-5.

2.5.2 Step 2 – Erecting the Supporting Structures

The poles would be installed by conventional methods or by helicopter, as needed. The steel pole shafts may be delivered to the pole site in two or more sections depending on pole design. For safety and ease of construction, the steel poles would be assembled on the ground in the pole laydown area. The sections would be pulled together with a winch and the cross arms bolted to the pole. Insulators would be attached to the cross arms and secured. A crane may be used to ~~would~~ erect the poles and set them in the excavation ~~for wood poles~~, or on the anchor bolts embedded in the concrete foundation for certain ~~angle poles or~~ steel poles. Finally, the securing nuts on the foundation would be tightened.

2.5.3 Step 3 – Stringing the Conductors

Before beginning conductor installation, temporary clearance structures would be installed at road crossings and other locations where the new conductors could accidentally come into contact with electrical or communication facilities and or vehicular traffic during installation. PG&E would use a set of temporary clearance structures at all roads, railroad crossings, and other power line crossings. These temporary clearance structures would be of wood pole construction that resembles an "H" or "Y," depending on the design, and placed on each side of the roadway. These structures would be placed at the edge of the roadway and would not require grading; they would not interfere with traffic. These structures would prevent the conductor from being lowered or falling onto the traffic below.

The conductor stringing operation would begin with the installation of insulators and sheaves or stringing blocks. The sheaves are rollers attached to the lower end of the insulators that are, in turn, attached to the ends of each supporting structure cross arm. The sheaves would allow the individual conductors to be pulled through each structure until the conductors are ready to be pulled up to the final tension position.

When the pull and tension equipment are set in place, a sock line (a small cable used to pull the conductor) would be pulled from pole to pole ~~tower to tower~~, either using a helicopter to place the sock line into the sheaves or using a guide to shoot the sock line from one pole to another. After the sock line is installed, the conductors would be attached to the sock line and pulled in, or strung using the tension stringing method. This method would involve pulling the conductor through each pole ~~tower~~ under controlled tension to keep the conductors elevated above crossing guard structures, roads, and other facilities.

After the conductors are pulled into place, wire or conductor sags would be adjusted to a precalculated level. The conductors would then be clamped to the end of each insulator as the sheaves are removed. The final step of conductor installation would be to install

vibration dampers and other accessories. The temporary crossing guard structures would be removed after the final step.

Packing crates, spare bolts, and construction debris would be picked up and hauled away for recycling or disposal during construction. PG&E would conduct a final survey to ensure that cleanup activities have been completed as required.

2.6 Operation

During the operational phase of the LWEF, a staff of approximately 10 would be employed onsite. Staff would monitor WTG and system operation, perform routine maintenance, troubleshoot malfunctions, shut down and restart WTGs when necessary, and provide security. They would be headquartered at the O&M facility and travel around the site as needed. Normal operations could involve deployment of up to three crews of two technicians around the site and two to three personnel in the office. Staff might not be present at the site 24 hours per day. However, operations would be continuously monitored through the SCADA system from remote locations.

Equipment, supplies, and spare parts would be stored inside the O&M facility, with the exception of Project vehicles and WTG blades; the vehicles and blades would be stored outside the building but within the secured yard. Spare parts might include large components, such as a spare blade set or gearbox. The O&M facility would have equipment needed for routine operations and maintenance (for example, forklift for unloading parts); specialized equipment not needed routinely (for example, cranes) would be brought onsite as needed. Maintenance of some components of onsite infrastructure (for example, roads and electrical lines) may be subcontracted to qualified local firms.

2.6.1 Wind Turbine Generator Maintenance

After the initial startup period, the WTGs would be serviced at regular intervals, taking them offline for 1 day, one WTG at a time. Annual overhaul maintenance service would also be performed. The service program is expected to maintain the WTGs operationally available 98 percent of the time. Most servicing would be performed onsite without using a crane to remove the nacelle or rotor from the tower. Service access would be from inside the tower, via a door in the base. The regular routine would consist of inspecting and testing all safety systems; inspecting wear-and-tear on components, such as seals, bearings, and bushings; lubricating the mechanical systems; performing electronic diagnostics on the control systems; pre-tension verification of mechanical fasteners; and inspecting the overall structural components of the WTGs. Electrical equipment, such as breakers, relays, and transformers, would generally require weekly visual inspections, which would not affect overall availability, and testing or calibrations every 1 to 3 years, which might force outages. Blade cleaning would be required when the accumulation of debris on the lead edge reduced aerodynamic performance. The blades would be spray-washed with water, using a high-pressure sprayer with extension nozzles, from a standard boom manlift. Planned maintenance would be coordinated with PG&E and include a detailed schedule of planned outages.

2.6.2 Road Maintenance

Project access roads would be periodically graded and compacted to maintain the design, safety, and environmental requirements during the life of the Project. Maintenance on cut-and-fill slopes, culverts, grade separations, and drainage areas would be performed as necessary to minimize erosion problems and maintain functional drainage structures. The Applicant would be responsible for cleaning up all construction debris and maintaining the appearance of all Project roads and rights-of-way in cooperation with the Project landowners.

2.6.3 Emergency Situations

In the event that severe storms result in a downed collector line or power line, procedures outlined in the emergency response plan would be applied. Tensioning sites would be located within the overhead distribution line rights-of-way to facilitate line replacements. In the event of a high-voltage grid outage, the WTGs would have internal protective control mechanisms to safely shut them down. The WTGs would require the grid to be energized to generate power when the wind is blowing. A separate low-voltage distribution service feed may be connected to the low-voltage side of the Project Substation as a backup system to provide auxiliary power to Project facilities in case of outages.

Public access to public areas would not be impeded by the Project because the proposed facilities are located on private property (except the section of the power line that follows San Miguelito Road). For safety, the Project Substation would be fenced, locked, and properly signed to prevent access to high-voltage equipment. Safety signing would be posted around WTGs, transformers, other high-voltage facilities, and along roads, as required. The Project site is within the County's High Fire Hazard Area. Vegetation would be cleared and clearance maintained around the Project Substation, transformers, riser poles, and O&M facility.

2.6.4 Public Access

During the construction, and possibly during the operational phases of the Project, the Project operator and landowners using San Miguelito Road and Sudden Road beyond their intersection may request the County to close these roads to public travel. Only the landowners involved in the Project and VAFB would use these roads. A turnaround area would be provided at the end of the public road next to the O&M facility. This option could benefit Project safety and security.

2.6.5 Hazardous Materials Handling

Hazardous and potentially hazardous chemicals (for example, oil, grease, ethylene glycol) would be used to lubricate and cool the WTGs and ancillary facilities; a radiator would dissipate heat and would contain a water and ethylene mixture that would be tested annually. The gearbox would contain approximately 70 gallons of oil that would not be routinely renewed. The WTGs would be equipped with leak-proof gaskets. Possible leakage or spillage during WTG operation and maintenance would be confined within the towers. A supply of chemicals would be stored onsite at the maintenance yard. To minimize the potential for harmful releases through spills or contaminated runoff, chemicals would be stored in tanks or drums located within secondary containment areas. Use of extremely

hazardous materials is not anticipated. Storage and use of hazardous materials would be subject to a Hazardous Materials Management Plan approved by the SBCFD.

2.6.6 Safety Procedures

Standard operating procedures and employee training relating to safety, potential emergency situations, and potential malfunctions would address emergency evacuation, emergency response, safety, electrical equipment failures, fire prevention and control, mechanical malfunctions, notification procedures, maintenance activities, and schedules.

Standard operating procedures dictate that WTGs would not be operated at high wind speeds because of the high loads exerted on the equipment. The maximum operating wind speed would be in the range 45 to 60 miles per hour (mph), depending on the specific model chosen. In higher wind speeds, for equipment protection, the blades would feather and a brake would be applied to lock the blades and keep them from rotating.

2.7 Decommissioning

The anticipated life of the Project is 30 years. At the end of its useful life, the Project could be "repowered" (that is, WTGs would be replaced), renovated or upgraded, or decommissioned. The decision to decommission or repower would depend on energy economics at the time, technological options, the landowners' willingness to renew the leases with the Project owner, and other considerations.

If the Project were repowered, full or partial decommissioning would likely be required before repowering. Depending on the new WTG model selected, some of the Project components could be re-used. At the end of the projected life of the Project and expiration of leases, if any leases were not renewed, full decommissioning of that portion of the Project would be required. If a portion of the Project were to remain in operation and some new leases negotiated, some units would have to be decommissioned and collection lines rerouted if renewal of existing rights-of-way could not be negotiated. Any recommissioning beyond the 30-year life of the Project would be subject to additional environmental review to address potential new impacts and possible changes in the baseline conditions.

If or when the Project is decommissioned, all structures and equipment at the site would be dismantled and removed, and the land surface would be restored to as close to the original condition as practical. Reclamation would be conducted on all disturbed areas to comply with County reclamation policy. The short-term goal would be to stabilize disturbed areas as rapidly as possible, thereby protecting sites and adjacent undisturbed areas from degradation. The long-term goal would be to return the land to approximate pre-disturbance conditions.

The leases with local landowners require Pacific Renewable Energy Generation, LLC, to prepare a reclamation plan for the Project. The County would ~~may~~ also require a discretionary permit and a decommissioning and reclamation plan would need to be developed and implemented at the time of facility abandonment.~~reclamation plan.~~ The Applicant proposes that the decommissioning plan would, at a minimum, (1) identify and discuss the proposed decommissioning activities and how they would comply with the applicable regulatory requirements, and (2) describe alternative decommissioning activities.

Decommissioned underground buried cables would remain. The following components proposed would be removed:

- WTGs, including foundations, to a level 4 feet below the existing grade
- Overhead poles and electric lines within the Project area
- Project Substation, if Project-owned; if utility-owned, it could remain to be used as part of the utility service to supply other applications
- Project roads, unless the Project landowners wished to retain the improved roads for access throughout their property

If towers were sold for re-use, they would be dismantled at their bolted joints, removed by crane, and trucked off the site in the same way they were delivered. This might require the roads to be widened to the original construction width for crane access. Units sold as scrap would most likely not require widening of the roads for removal.

The impacts of decommissioning and repowering are not addressed in this EIR because it is speculative to project what might occur 30 years in the future given potential changes in technology, regulatory requirements, and the existing conditions in the Project area. The appropriate level of California Environmental Quality Act (CEQA) analysis would be required for actions to be taken at the end of the Project's 30-year lifespan. The environmental impacts that would occur would depend on the specific action taken, but likely would include temporary impacts to air quality, geology and soils (due to ground disturbance and the potential for erosion), noise, transportation and circulation, fire protection, and risk of accidents. The potential impacts, as well as possible changes in baseline environmental setting, would be subject to new environmental review and permitting.

2.8 Protection Measures

Several types of protection measures would be implemented during Project construction and operation. These measures include the following:

- A QA/QC Program would ensure that engineering, procurement, construction, and startup are completed.
- An environmental program would ensure compliance with County permit conditions and applicable environmental regulations.
- A safety program would ensure compliance with health and safety regulations.
- An Applicant-committed mitigation program would implement measures to minimize potential Project impacts to acceptable levels.

These protection measure programs are described in further detail in Section 2.8.4.

2.8.1 Quality Assurance and Quality Control, Environmental, and Health and Safety Compliance

A QA/QC Program would be implemented during all phases of the Project to ensure that the engineering, procurement, construction, and startup of the facility are completed as specified. The Engineering, Procurement, and Construction (EPC) contract would require that a Project construction procedures manual be submitted for review and approval prior to any site construction. The manual would describe how the contractors would implement and maintain QA/QC, environmental compliance programs, and health and safety compliance programs, and integrate their activities with the other contractors during all phases of the work. The EPC contractor and WTG supplier would be responsible for enforcing compliance with the construction procedures program of all of its subcontractors. In the QA/QC Program, the contractor would describe the activities and responsibilities within its organization and the measures to be taken to ensure quality work on the Project. Some topics that would be covered are design control, configuration management, and drawing control. Independent QA/QC personnel would review all documentation (for example, design, engineering, and procurement) and witness field activities as a parallel organization to that of the construction contractors to ensure compliance with the specifications. Field inspectors' acceptance would be required for installation, alignment and commissioning of all major equipment.

2.8.2 Environmental Compliance

An environmental compliance program would ensure that construction activities meet the conditions, limits, and specifications set in environmental standards established in the Project's CUP and other applicable environmental regulations. Copies of all applicable construction permits would be kept onsite. The lead Project construction personnel and construction project managers would be required to read, follow, and be responsible for required compliance activities. A County-designated Project Environmental Monitor would be responsible for ensuring that all construction permit requirements are adhered to, and that any deficiencies are promptly corrected. The EPC Environmental Monitor would ultimately report to the Project Manager and would provide weekly reports both on environmental problems reported or discovered and the corrective actions taken to resolve the problems. The environmental compliance program would cover avoidance of sensitive areas during construction, waste handling and storage, stormwater management, spill prevention and control, and other components required by state and County regulations. Upon identification of an environmental non-compliance issue, the EPC Environmental Monitor would work with the responsible subcontractor or hire workers to correct the violation. If the violation were not corrected in a reasonable time, a "stop work" order would be issued for the portion of the work not in compliance with the Project environmental requirements. The Project's monitors would work closely with the County's environmental compliance monitors.

To avoid potential damage to underground utilities, such as water lines and facilities (for example, in the City of Lompoc near the Frick Springs facilities), an Underground Service Alert survey would be completed before construction activities begin.

2.8.3 Safety Compliance

The EPC contractor and each subcontractor would be responsible for construction health and safety issues. The EPC contractor and each subcontractor would provide a Health and Safety Coordinator, who would ensure that all laws, ordinances, regulations, and standards concerning health and safety are followed and that any identified deficiencies are corrected as quickly as possible. The EPC Health and Safety Coordinator would conduct onsite orientation and safety training for all contract and subcontract employees and would report back to EPC corporate management. The EPC Health and Safety Coordinator would have the authority to stop work when health and safety regulations, including EPC subcontractor safety regulations, are violated and the health or safety of construction personnel are in danger. Under the EPC contract, the EPC Health and Safety Coordinator position would be full time; for the subcontractors, it is assumed that this would be a part-time responsibility. For health and safety stop work orders, the action might affect only the portion of the work that endangers a limited portion of the Project site or activities. The Project construction procedures would clearly define the stop work procedures, which would require a written action request with justification on the part of the EPC Health and Safety Coordinator. Upon identification of a health and safety issue, the EPC Health and Safety Coordinator would work with the responsible subcontractor or direct hire workers to correct the violation; if not corrected in a reasonable period of time, the stop work order could be issued. The stop work authority would also be given to the Project Construction Manager for commercial actions and health and safety issues.

2.8.4 Applicant-proposed Mitigation Measures for Lompoc Wind Energy Facility

A number of Applicant-proposed mitigation measures are included as part of the Project description. These mitigation measures, intended to reduce potential environmental impacts of the Project during construction and operation, are numbered and listed in this section. Each Applicant-proposed mitigation measure is preceded by "A" to distinguish it from other mitigation measures identified in the course of the environmental review, as discussed in Section 3.1.

2.8.4.1 Aesthetics/Visual Resources

Mitigation Measure A-A/VR-1. Store construction materials and excavated materials away from San Miguelito Road whenever possible to reduce impacts on mountain views.

Mitigation Measure A-A/VR-2. Confine construction activities and materials storage to within the WTG right-of-way, or at staging areas, and the Project Substation and O&M facility areas.

2.8.4.2 Air Quality

Mitigation Measure A-AQ-1. Apply water sprays to all disturbed active construction areas a minimum of two times per day, except when soil water content would exceed the level recommended by the soils engineers for compaction or when weather conditions warrant a reduction in water application. Additionally, use adequate dust control to keep fugitive dust from being transmitted outside of the right-of-way. Perform increased dust control watering when wind speeds exceed 15 mph. The amount of additional watering would depend upon soil moisture content.

Mitigation Measure A-AQ-2. Stabilize any disturbed area that would not be covered with base or paving within 14 days after completion of disturbing activities by use of soil-coating mulch, dust palliatives, compaction, reseeding, or other approved methods. Soil stockpiled for more than 2 days shall be covered, kept moist, or treated with soil binders to prevent dust generation. Trucked soil loads shall be covered in transit.

Mitigation Measure A-AQ-3. The contractor or builder shall designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust offsite. Their duties shall include holiday and weekend periods when work may not be in progress. The name and telephone number of such persons shall be provided to the Air Pollution Control District prior to land use clearance.

Mitigation Measure A-AQ-4. Reduce traffic speeds on all unpaved roads to 15 mph or less.

Mitigation Measure A-AQ-5. Ensure that catalytic converters are installed on all gasoline-powered equipment.

Mitigation Measure A-AQ-6. Use high-pressure injectors on Caterpillar engine types 3306 and 3406 DITA to reduce NO_x emissions.

Mitigation Measure A-AQ-7. Limit the sulfur content in diesel fuels to 0.05 percent.

Mitigation Measure A-AQ-8. Maintain engines and emission systems in proper operating condition.

2.8.4.3 Biological Resources

Project Design Features to Avoid and/or Minimize Impacts

Mitigation Measure A-BIO-1. Avoid construction in sensitive areas, such as riparian zones, wetlands, forests, etc., where feasible.

Mitigation Measure A-BIO-2. Minimize new road construction by improving and using existing roads and trails instead of constructing new roads.

Mitigation Measure A-BIO-3. Use underground (versus overhead) electrical lines wherever feasible to minimize perching locations and electrocution hazards to birds.

Mitigation Measure A-BIO-4. Use WTGs with low revolutions per minute (RPM) and tubular towers to minimize risk of bird collision with turbine blades and towers.

Mitigation Measure A-BIO-5. Use bird flight diverters on guyed permanent meteorological towers or use freestanding (unguyed) permanent meteorological towers to minimize potential for avian collisions with guy wires.

Mitigation Measure A-BIO-6. Equip all overhead power lines with raptor perch guards to minimize risks to raptors.

Mitigation Measure A-BIO-7. Space all overhead power line conductors to minimize potential for raptor electrocution.

Construction Techniques and General Mitigation Measures to Minimize Impacts

Mitigation Measure A-BIO-8. Minimize construction-related surface water runoff and soil erosion.

Mitigation Measure A-BIO-9. Use certified straw bales during construction to avoid introduction of noxious or invasive weeds.

Mitigation Measure A-BIO-10. Develop and implement a fire control plan, in coordination with the SBCFD, to minimize risk of accidental fire during construction and respond effectively to any fire that does occur.

Mitigation Measure A-BIO-11. Establish and enforce reasonable driving speed limits during construction to minimize potential for road kills.

Mitigation Measure A-BIO-12. Store and manage all wastes generated during construction.

Mitigation Measure A-BIO-13. Require construction personnel to avoid driving over or otherwise disturbing areas outside the designated construction areas.

Mitigation Measure A-BIO-14. Monitor any raptor nests onsite for activity prior to construction and modify construction timing and activities to avoid impacts to nesting raptors.

Mitigation Measure A-BIO-15. Designate an environmental monitor during construction to monitor construction activities and ensure compliance with mitigation measures.

Post-construction Restoration of Temporarily Disturbed Areas

Mitigation Measure A-BIO-16. Reseed all temporarily disturbed areas with an appropriate mix of native plant species as soon as possible after construction is completed to accelerate the revegetation of these areas and to prevent the spread of noxious weeds. Consult with the County of Santa Barbara and California Department of Fish and Game (CDFG) regarding the appropriate seed mixes for the Project area.

Operations

Mitigation Measure A-BIO-17. Implement a fire control plan, in coordination with the SBCFD, to avoid accidental wildfires, and respond to any fire that might occur.

Mitigation Measure A-BIO-18. Establish and enforce reasonable driving speed limits during construction to minimize potential for road kills.

Mitigation Measure A-BIO-19. Minimize stormwater runoff and soil erosion.

The following measures would be developed and implemented by a qualified biologist with previous experience in construction monitoring who is familiar with the sensitive resources of concern for this Project.

General Measures

Mitigation Measure A-BIO-20. The amount of habitat disturbed will be limited to the extent feasible. That will include areas devoted to WTGs; power poles; temporary and permanent

access roads; stockpiles, staging, parking, and laydown areas; areas where spoil is used to control erosion; and areas for associated facilities.

Mitigation Measure A-BIO-21. Vehicles and equipment access will follow marked routes. Indiscriminate cross-country vehicle travel will not be allowed.

Mitigation Measure A-BIO-22. Parking, laydown, storage areas, and other sites of superficial disturbance will be located preferentially in disturbed habitat, or in annual grassland (except in Gaviota tarplant habitat), rather than in other vegetation types.

Mitigation Measure A-BIO-23. Permanent access roads will follow routes used for construction access to reduce the amount of new road construction. That will, in turn, reduce the amount of disturbance to natural vegetation, and potential loss of birds due to collisions with vehicles.

Mitigation Measure A-BIO-24. A worker education program will be developed specific to this Project and will be presented to all individuals involved in the construction and operation and maintenance phases of the Project. The program will include information on sensitive habitats and species.

a. The current status of sensitive species will be described, as well as reasons for decline, and legal protections.

b. Contact points will be provided for workers to report sightings of sensitive biological resources, such as active bird nests, badger dens, and raptors roosting in the vicinity of Project facilities.

c. Workers will be provided with photographs of sensitive biological resources, including sensitive plant and wildlife species, den and burrow entrances, and nest structures.

d. Workers will be informed verbally and in writing of the various Project tasks that require monitoring for resource protection.

e. Workers will be provided with a photograph or description of the markers for salvaged topsoil piles and windrows, or other mitigation areas, so that they will know these are not to be disturbed without a monitor present.

f. Workers will be provided with photographs of invasive weeds and instructed to report to the contact point any new populations observed near Project facilities.

Mitigation Measure A-BIO-25. Appropriately timed surveys shall be conducted for special-status species on all areas added to the Project (including the power line corridor).

California Horned Lizard

Mitigation Measure A-BIO-26. Within 3 days of the start of initial vegetation clearance or ground disturbance, a biologist will survey construction sites, including the sites of footings for WTGs and poles, new access roads, and staging, parking, and laydown areas. The survey can be done in conjunction with surveys for ground-nesting birds. However, the survey for California horned lizards will be done regardless of season of the year.

Mitigation Measure A-BIO-27. If California horned lizards are found, they will be moved to similar habitat at least 300 feet away from the site of construction activity.

Silvery Legless Lizard

Mitigation Measure A-BIO-28. Silvery legless lizards could potentially occur in areas with Central Coast scrub, and annual grassland with a shrub component. A qualified monitor shall work with the equipment operator during initial vegetation clearance to salvage and relocate (when feasible) exposed animals.

a. Following initial vegetation clearance in such areas, grading will be done in two consecutive 6-inch layers.

b. With each lift, the biologist will check the areas for possible relocation of silvery legless lizards. If any are found, they will be moved to similar habitat near shrubs at least 100 feet from the construction sites.

c. Monitoring for legless lizards will be discontinued when grading reaches depths of greater than 12 inches.

San Diego Desert Woodrat

Mitigation Measure A-BIO-29. Prior to construction, the locations of WTGs and access routes, as well as for a distance of 50 feet away will be surveyed for sign of San Diego desert woodrat.

a. If sign of this species is found at or near the facilities (such as a small stick nest within a rock overhang), it will be evaluated for potential impact due to construction activities.

b. If disturbance to a nest will occur, live-trap and relocate the specific woodrat.

American Badger

Mitigation Measure A-BIO-30. The Project area, including areas within 250 feet of all Project facilities, will be surveyed prior to construction for badger dens. This will be done regardless of season of the year.

Mitigation Measure A-BIO-31. If badger dens are found, each will be classified as inactive, potentially active, or definitely active.

a. Inactive dens will be excavated by hand and backfilled to prevent re-use by badgers.

b. Potentially and definitely active dens will monitored for 3 consecutive nights using a tracking medium (such as diatomaceous earth or fire clay) at the entrance. If no tracks are observed in the tracking medium after 3 nights, the den will be excavated and backfilled by hand. If tracks are observed, the den will be progressively blocked with natural materials (dirt, sticks, and vegetation piled in front of the entrance) for the next 3 to 5 nights to discourage the badger from continued use. The den will then be excavated and backfilled by hand to ensure that no badgers are trapped in the den.

Passerines and Other Ground-nesting Birds

Mitigation Measure A-BIO-32. A biologist will conduct a study to assess the density of passerines and other ground-nesting birds in representative habitats in the Project area. Plots will be established in various habitats and checked at weekly intervals to collect data on nesting season length, species nesting in the area, density of nests, and success rates. The focus will be on ground-nesting birds that are sensitive species, including California horned lark, California rufous-crowned sparrow, and grasshopper sparrow. The surveys will be conducted as long as birds are nesting in the Project area between February 1 and August 31. The surveys will be discontinued when it is apparent that nesting has ceased for the season.

Mitigation Measure A-BIO-33. If construction is to occur between February 1 and August 31, all sites to be disturbed will be surveyed for ground-nesting and shrub-nesting birds. The emphasis will be on California horned lark, western burrowing owl, California rufous-crowned sparrow, and grasshopper sparrow. Based on survey results and literature review, burrowing owl nesting in the Project area is unlikely, but the other species are either known or likely.

Mitigation Measure A-BIO-34. Frequent (every few days) disturbance may be initiated in some Project areas just prior to the nesting season to discourage nesting in the construction corridor.

Mitigation Measure A-BIO-35. During both the construction and O&M phases, a reasonable driving speed limit will be established and enforced. The speed limit will reduce the potential for loss of bird species, including passerines, due to collisions with vehicles.

Raptors and Bats

Mitigation Measure A-BIO-36. To minimize the likelihood of collisions with WTGs, power lines, poles, and guy wires, design features should include the following:

a. Underground (rather than overhead) power lines should be used wherever feasible to minimize perching locations and electrocution hazards to birds.

b. WTGs with low RPM and tubular towers should be used.

c. Permanent meteorological towers should be either (1) guyed and equipped with bird flight diverters, or (2) unguyed.

d. All overhead power lines should be equipped with raptor perch guards.

e. All overhead power lines should be spaced to minimize the potential of raptor electrocution.

~~Mitigation Measure A-BIO-37. A biologist will conduct a study to collect more detailed information on nesting and foraging raptors in the Project area. Areas of mixed evergreen forest within 300 feet of Project facilities will be surveyed at weekly intervals to collect data on nesting season length, species nesting in the area, density of nests, and success rates. Information will also be collected on the use of perches and the relative amount of foraging by raptors in the Project area. Count locations will also be established in areas of representative habitat to characterize the prey base for raptors. Counts will be made of~~

~~California ground squirrels, brush rabbits, black-tailed jackrabbits, and other small mammals observed during each visit.~~

Mitigation Measure A-BIO-38. If construction activities (including removal or trimming of trees and shrubs) are to take place between February 1 and August 31, a biologist will survey for raptors nests prior to the start of construction. The survey will occur at the sites of construction activity, as well as up to 300 feet away. Those species most likely to nest in the Project area include red-tailed hawk, red-shouldered hawk, American kestrel, and golden eagle.

Mitigation Measure A-BIO-39. If an active raptor nest is found, no construction activity will occur within 300 feet of construction, and the nest will be monitored. Construction activities and timing may be modified to avoid impacts to nesting raptors.

Mitigation Measure A-BIO-40. An avian and bat mortality study will be prepared prior to the start of construction, and then continued for at least the first 2 years of operation. The study will primarily document mortality of raptors and bats, but will also generate data on mortality of all bird species in the Project area. It will generally follow the guidelines developed by the National Wind Coordinating Committee (Anderson et al., 1999). The study will include periodic searches for bird and bat carcasses at and near WTGs and poles. Information to be collected will include descriptions of bird carcasses found relative to Project facilities and ongoing monitoring of nearby perching/nesting sites, as well as prey availability. Bat carcasses found will also be described. Quarterly and annual reports will be prepared that include presentation of data and analysis of Project design characteristics that may affect avian and bat mortality.

Mitigation Measure A-BIO-41. A program to reduce the density of California ground squirrels in the Project area will be initiated during the construction phase and will continue into the operation and maintenance phase. Limiting the number of ground squirrels will reduce the attraction of raptors to the Project area, and thus lower the potential for loss due to collisions with WTGs and power lines. Additional measures to control ground squirrels may include:

a. Monitoring WTG and tower pad locations for ground squirrel activity. If ground squirrels construct burrows at the pads, those holes will be filled. Pad overhangs will be filled with soil. Gravel will be placed in a perimeter at least 5 feet out from the edges of the pad to discourage ground squirrels from burrowing.

b. Removal of accumulated material under and near WTGs and poles, such as piles of rocks from construction and extra equipment or parts. Such accumulated material may attract prey for raptors, such as California ground squirrels and brush rabbits.

c. Removal of meteorological towers that may not be necessary during the operation phase. If meteorological towers must remain, to the extent practicable, use a tower design that does not require guy wires.

d. Prevent turbine blades from moving when the WTG is not in operation.

e. Implementation of new protective measures that may be developed based on results of the post-construction study of raptor mortality.

Seep, Spring, and Creek Protection

Mitigation Measure A-BIO-42. Where Project facilities impact a wetland, every effort will be made to minimize the area and degree of impact to the wetland. A wetland hydrologist will be consulted to design construction so that the hydrological conditions supporting the wetland will be conserved and/or restored to minimize wetland loss.

Mitigation Measure A-BIO-43. Wetland (if any) that is permanently lost shall be mitigated by creation of the same type of wetland in the Project area at an areal ratio of 2:1. Site-specific wetland creation plans will be developed in consultation with the CDFG and County of Santa Barbara biologists.

Mitigation Measure A-BIO-44. Wetland (if any) that is temporarily disturbed shall be restored to its former condition at an areal ratio of 1:1. Specific goals and a timeline shall be developed in consultation with the CDFG and County of Santa Barbara biologists.

Mitigation Measure A-BIO-45. No fueling of vehicles or equipment shall occur within 50 feet of the top of any creek bank or within 50 feet of any seep or spring.

Mitigation Measure A-BIO-46. In the event that petroleum products escape into a creek, seep, or spring, every effort will be made to immediately remove the material using plastic sheets, absorbent blankets, or other materials, as necessary.

Mitigation Measure A-BIO-47. Runoff from concrete shall be directed away from the top of any creek bank and from any seep or spring into a plastic-lined hollow. Dried concrete scraps will be removed.

Mitigation Measure A-BIO-48. All trash and litter will be picked up and removed from the construction sites at the end of each day.

Gaviota Tarplant

Mitigation Measure A-BIO-49. A qualified botanist approved by CDFG and the County to work with Gaviota tarplant shall oversee flagging of the perimeter of all approved work areas in Gaviota tarplant habitat prior to ground disturbance.

Mitigation Measure A-BIO-50. Continue to refine Project design to minimize habitat disturbance, the size of temporary excavation areas, and the size of areas where permanent loss will occur. Determine the total areas of (1) permanent habitat loss, (2) temporary excavations, and (3) surface disturbance for construction Project.

Mitigation Measure A-BIO-51. Develop mitigation measures to minimize the extent of habitat disruption and to minimize potential "take" of individuals in consultation with the CDFG botanists. Measures and procedures will be developed that address potential future impacts during the operations phase of the Project. Areas of temporary disturbance will be mitigated at a 1:1 ratio using the measures described below.

Mitigation Measure A-BIO-52. Where construction may impact occupied habitat during the growing season (between the first rain and the middle of September), collect standing drying plants that still have ripening seeds during the late fall of the year preceding construction. Plants may be collected by hand or in a basket mounted behind a mower. The

collected material must be dried immediately and stored dry to preserve the seeds. The salvaged plant material shall be spread on restored habitat prior to final soil stabilization.

Mitigation Measure A-BIO-53. Employ "triple-lift topsoil salvage" procedures to conserve the soil profile and soil seed bank. All topsoil handling in Gaviota tarplant habitat shall be monitored by a qualified biologist approved by the County and CDFG to work with Gaviota tarplant.

a. Clear all woody vegetation and stockpile separately in a location where it will be out of the way during construction.

b. Scrape a 3- to 6-inch lift of soil from the area of Gaviota tarplant habitat where soil will be excavated. Stockpile this seedbank life in a location where it will be out of the way during construction. Clearly mark the seedbank stockpile for identification and avoidance.

c. Scrape off a second 6-to 8-inch lift of the sandy soil horizon (shallower if bedrock or other soil type is encountered, such as clay). Stockpile this topsoil lift in a location where it will not be disturbed during construction, and clearly mark it for identification and avoidance. Shape the piles to maximize water runoff.

d. Keep stockpiled seedbank dry and protected from wind erosion and disturbance per the measures for topsoil conservation throughout construction and until it will be replaced on the restored sites. Water should be sprayed on the stockpiles to crust the soil and reduce loss to wind erosion, but the spray should not be heavy enough to soak into the pile (to avoid soaking seeds and triggering seed germination).

e. Salvaged seedbank that is being eroded by the wind may be stabilized by spraying with an organic soil binder used for hydroseeding.

Mitigation Measure A-BIO-54. Following excavating and other types of temporary ground disturbance in Gaviota tarplant habitat, rebuild the soil profile using salvaged and stockpiled materials, replacing them in reverse order. Spread salvaged and dried Gaviota tarplants on top.

a. Layers beneath the final, seedbank layer should be well compacted.

b. The seedbank layer should be more loosely compacted by spreading it dry or with minimal water. Tracking, rather than spraying, should be used to pack the seedbank layer into place.

c. Soil stabilization should follow immediately.

d. Replacement of seedbank and topsoil stockpiles must be monitored by a biologist acceptable to CDFG and the County for work with Gaviota tarplant.

Mitigation Measure A-BIO-55. Stabilize restored sites with a hydraulically applied mixture of biodegradable soil binder and wood fiber. Minimize the mulch so that light will not be blocked from the tarplant seeds in the salvaged and replaced seed bank. No seed will be required because the top layer on the restored site will be composed of salvaged seed bank.

Mitigation Measure A-BIO-56. Mitigate for permanent habitat loss by continuing to contribute toward the understanding of the taxonomy and ecology of this species:

a. Contribute to the accumulation of additional data on range and size of subpopulations.

b. Contribute to taxonomic research to clarify limits and relationships of Gaviota tarplant populations versus close relatives.

c. Request CDFG review of the status of this species in light of recent discoveries of extensive populations.

d. Contribute to baseline ecological research, such as germination or pollinator studies, that will be useful for future management decisions.

Kellogg's and Mesa Horkelia

Mitigation Measure A-BIO-57. Where the terrain will safely allow it, track over habitat rather than widening roads beyond the permanent road width to minimize plant removal.

Mitigation Measure A-BIO-58. Salvage and stockpile seedbank separately from other spoil along roads and adjacent to other facilities constructed in Horkelia habitat as described for Gaviota tarplant (Mitigation Measure A-BIO-53). Salvaged stockpiles will be sprayed with water to crust the surface to minimize soil loss to wind erosion. Salvaged seedbank will be re-spread over restored areas as described for Gaviota tarplant (Mitigation Measure A-BIO-54), except that a normal mixture of mulch and binder may be used. (If the area also is within Gaviota tarplant habitat, methods for the latter shall be used).

Sensitive Native Plant Species Protection

Mitigation Measure A-BIO-59. Appropriately timed pre-construction surveys will be conducted by a qualified botanist after Project impact areas have been finalized.

Mitigation Measure A-BIO-60. A qualified native botanist shall survey planned locations for power line poles.

Mitigation Measure A-BIO-61. If a "stand" of California Native Plant Society-listed or locally rare species will be removed for the Project, the loss shall be mitigated by collection of seeds or other propagules from the plants, which will be utilized for restoration in the immediate area (if suitable habitat continues to be present) or on a nearby, suitable location.

Mitigation Measure A-BIO-62. The upper few (3 to 6) inches of soil (topsoil and seedbank) shall be salvaged in all areas where the terrain will allow it. Topsoil shall be windrowed and marked to keep it separated from other spoil. Topsoil piles shall be stabilized by crusting with sprayed water to protect the soil from wind erosion. Salvaged topsoil shall be respread over all restored areas as a top dressing.

Native Perennial Bunchgrass Grassland

Mitigation Measure A-BIO-63. Determine the total area with at least 10 percent cover by native perennial grasses that will be permanently removed for the Project and the total area of native perennial grasses within the Project area. If the total area of permanent removal of native grassland is less than 10 percent of the total area of native grassland within the

Project area, loss of native grasses shall be mitigated by seedbank salvage and replacement as described for Horkelia (Mitigation Measure A-BIO-58).

Mitigation Measure A-BIO-64. If the total area with at least 10 percent cover by native perennial grasses that will be permanently removed for the Project exceeds 10 percent of the total area of native grassland within the Project area, seeds will be collected from the populations of native grasses on the Project sites prior to the start of construction. The seed shall be stored dry and included in the seed mixture applied to the restored areas where this criterion was met. Drill seeding is recommended for mixtures that include native grass seed.

Coastal Scrub Restoration

Mitigation Measure A-BIO-65. Augment erosion control seed mixture with native shrub seed collected from the Project region. Species may include goldenbush, California sagebrush, black sage, coyote brush, small-leaved buckwheat, Lompoc monkey flower, and perennials Horkelia and Agoseris.

Topsoil Conservation

Mitigation Measure A-BIO-66. Topsoil and the seed bank it contains shall be conserved on areas where soil is excavated (WTG sites). Salvage shall be accomplished by:

a. Remove all woody material from the soil surface and pile it in an area that will be out of the way during construction. Scrape off the upper 6 to 8 inches of soil from the disturbance footprint and pile the scraped topsoil into a windrow in an area that will not be disturbed during construction.

b. Topsoil stockpiles shall be clearly marked for avoidance.

c. Immediately, spray the windrow with water to set up a crust that will protect the pile from wind erosion. Renew wind erosion protection as needed.

d. Respread salvaged topsoil on areas that will be revegetated following construction. Use salvaged topsoil instead of subsoil for this purpose unless the location was very weedy (for example, WTG Site 266, which was dominated by mustard and thistle).

Supplemental Measures for Erosion Control

These measures shall be implemented, where warranted, in addition to erosion control measures required by the Project engineers. None of these measures may be substituted for more stringent erosion control measures required or recommended by the Project engineers.

Mitigation Measure A-BIO-67. All wetland areas within 50 feet of ground disturbance will be protected from siltation by silt fence, straw bales (composed of certified, weed-free straw), or other barriers. Barriers will be in place prior to ground disturbance.

Mitigation Measure A-BIO-68. Seed application shall occur between October 1 and mid-November.

Mitigation Measure A-BIO-69. Appropriate seed mixtures for use on grassland and coastal scrub areas shall be developed in consultation with CDFG and County biologists using seeds native to the area between the Santa Ynez River and Hollister Ranch, and inland as far

as SR-1. Commercially grown seed may be used if sterile or previously introduced to the Project area by the landowners, the County of Santa Barbara, the California Department of Transportation (Caltrans), VAFB, or others.

Native Trees

Mitigation Measure A-BIO-70. All native trees within 25 feet of proposed ground disturbance will be fenced about 3 feet outside the edge of the canopy with plastic mesh fencing. Fencing shall be in place prior to ground disturbance, and shall remain until all ground disturbance is completed within 25 feet of the tree.

Mitigation Measure A-BIO-71. Access routes for equipment shall be checked for clearance prior to bringing any equipment onsite. All trees and shrubs that require limbing or pruning shall be prepared at least 2 days prior to the arrival of the equipment.

a. All limbing shall be done under the supervision of a licensed arborist or qualified biologist.

b. Any inadvertently broken limbs shall be cleanly cut under the direction of a licensed arborist or qualified biologist.

c. In the event that damage to a native tree is so severe that its survival in good health is compromised, the tree will be replaced in kind and from native stock at a ratio of 10:1 for upland trees and 5:1 for riparian trees, with 80 percent survival to establishment (6 feet in height and minimum 2-inch basal diameter) following at least 1 year with no supplemental water or other maintenance.

Mitigation Measure A-BIO-72. No equipment staging or materials storage shall be allowed beneath the canopy of any oak tree.

Mitigation Measure A-BIO-73. No parking shall be permitted beneath the canopy of any oak tree.

Mitigation Measure A-BIO-74. The area around oak tree trunks shall be kept clear. If any soil or other debris piles up against an oak tree trunk, it shall be removed within 24 hours using hand tools.

General Habitat Restoration Measures

Mitigation Measure A-BIO-75. Implement topsoil conservation measures described in Mitigation Measure A-BIO-66, unless the site was weed dominated.

Mitigation Measure A-BIO-76. Do not compact the final few inches when finishing grading to more than about 75 percent to facilitate penetration by plant roots.

Mitigation Measure A-BIO-77. Spread salvaged topsoil as a topdressing over finished site. Do not smooth completely; leave small ridges to provide wind protection for seedlings and hollows to collect moisture from rain and fog. Ensure that lines follow the contour to avoid initiating rilling.

Mitigation Measure A-BIO-78. Spray with water to crust soil and reduce loss to wind erosion.

Mitigation Measure A-BIO-79. Hydroseed with approved with soil-stabilization seed mixture between October 1 and mid-November. Native plant seeds may be added to the hydroseed mixture or may be hand broadcast onto the site just prior to hydroseeding.

Mitigation Measure A-BIO-80. Monitor all restoration areas for a minimum of 3 years. Weed control shall be started within 3 months of planting, or earlier if weeds have begun to flower. Weeding shall proceed as frequently as necessary to prevent weeds from spreading off the Project sites into the adjacent area, and to prevent seed set. Cut mustard shall be hauled off the site and disposed of where the toxins in the stems will not affect other plants.

Mitigation Measure A-BIO-81. Any new weed species not present in the Project area prior to construction of the Project shall be eradicated.

2.8.4.4 Cultural Resources

Mitigation Measure A-CULT-1. Conduct a Phase I Archaeological Survey in areas of construction impacts. Give special care to the areas previously identified as existing sites. If initial Phase I work discovers any cultural materials in areas that would be impacted by Project construction, conduct a Phase II survey. The Phase II Study will ascertain which sites have the potential to produce important archaeological information pursuant to California Historic Preservation Guidelines.

Mitigation Measure A-CULT-2. A County-approved archaeologist and Native American monitor shall monitor ground disturbances in all areas containing archaeological materials to ensure that any outstanding resources previously unidentified are recorded. If these types of resources are encountered, temporarily redirect construction until the find can be evaluated and recorded, pursuant to the Archaeological Element of the Santa Barbara County Heritage Management Plan Cultural Resource Guidelines (1993).

Mitigation Measure A-CULT-3. The County shall conduct a pre-construction workshop with cultural resource specialists, Native American monitors, and construction workers/personnel, stressing the importance of cultural resources and discussing penalties for their illicit disturbance.

Avoidance of Archaeological Sites and Isolates

Preferably, all access roads, power transmission poles, WTGs, and other facilities should be located at least 100 feet (30 meters) from the mapped boundaries of archaeological sites. If this is not possible or feasible, one or more of the following options should be pursued.

Mitigation Measure A-CULT-4. If ground disturbance is proposed within 100 feet of a site boundary, then an Extended Phase 1 investigation should be conducted by employing a small number of shovel test units (STU). These tests would be used to determine the actual subsurface boundary of archaeological site relative to the proposed disturbance, and therefore should indicate whether or not a site would be impacted by the disturbance. The STUs should be 50 centimeters in diameter and excavated in arbitrary 20-centimeter levels.

Mitigation Measure A-CULT-5. In the case of access roads, existing graded ranch roads passing through archaeological sites may be utilized and widened through the site area by simply surfacing them with a 6-inch layer of imported gravel or soil that is free of cultural materials and recognizably different from the site soils. Surfacing of the road with gravel

should also occur for a distance of 100 feet beyond the mapped boundary of a site, except in cases where the boundary has been established through subsurface testing. Gravel from LWF-11, the quarry site referred to in Section 3.6, should not be used, because it contains archaeological (cultural) material.

Phase 2 Testing of Sites where Avoidance of Resources Is Not Possible

In cases where WTGs, road realignment, road widening, or other Project-related ground disturbance are proposed inside the boundaries of archaeological sites, or within 30 feet (10 meters) of certain archaeological isolates, one or more of the following options should be pursued.

Mitigation Measure A-CULT-6. In the case where ground disturbance is proposed within 30 feet of Archaeological Isolates LWF Iso-1, Iso-8, Iso-9, Iso-10, and Iso-11, a single STU should be excavated within 3 feet of the isolate in order to determine if there are subsurface deposits present. If the isolate cannot be relocated, the STU should be placed in the general vicinity of its mapped location. If subsurface cultural deposits are identified, they should be assessed and characterized in accordance with Mitigation Measure A-CULT-7.

Mitigation Measure A-CULT-7. When ground-disturbing activities are proposed within the established boundaries of an archaeological site, a program of limited Phase 2 Archaeological Testing must be completed to assess the importance of the site by characterizing the cultural deposit. Site boundaries would be defined through surface observation and excavation of a limited number of STUs. Testing would focus on the areas of primary impact (for example, pads for the wind generators and access roads) and would employ a combination of standard 1- by 1-meter or 1- by 0.5-meter excavation units (EU) and 50-centimeter-diameter STUs. The information derived from such testing would then be used to determine the necessity and cost of conducting Phase 3 Data Recovery to mitigate Project impacts, if any, to an acceptable level. Phase 2 Investigation should be somewhat limited for the current Project because impacts to any given site are themselves likely to be mostly limited to the area of a 20- by 20-foot foundation for a single WTG, or in some cases, the road corridor.

Mitigation Measure A-CULT-8. Because Chumash Indians and later historic peoples appear to have intensively utilized the Project area, there is a high probability that undetected artifacts or features could be present within the Project boundaries. Therefore, should human remains, significant historic or prehistoric artifacts, or other potentially important cultural materials be unearthed or otherwise discovered at any time during activities associated with the proposed development of the Project area, work in the immediate vicinity of the discovery must be suspended until the find is investigated by a professional archaeologist and, as appropriate, a representative of the Santa Ynez Chumash Elders Council. In the event that suspected human remains are discovered, the County Coroner must be contacted in accordance with state law.

2.8.4.5 Geology/Soils

Mitigation Measure A-GEO-1. Submit a final Grading and Drainage Plan, designed to minimize erosion, to the County of Santa Barbara Planning and Development Department for review and approval.

Mitigation Measure A-GEO-2. Use diversion structures and spot grading to reduce siltation into adjacent streams during grading and construction activities.

Mitigation Measure A-GEO-3. Design grading on slopes steeper than 3:1 to minimize surface water runoff.

Mitigation Measure A-GEO-4. Designate a place for temporary storage of construction equipment.

Mitigation Measure A-GEO-5. Limit grading during construction to the dry season to the extent practicable. If grading needs to be done outside of the dry season, the Applicant will coordinate grading work with the County and will follow all applicable guidelines.

Mitigation Measure A-GEO-6. Soil shall be kept damp during grading activities to reduce the effects of dust generation.

Mitigation Measure A-GEO-7. All exposed graded surfaces shall be reseeded with native ground cover to minimize erosion.

Mitigation Measure A-GEO-8. Excess topsoil to be stockpiled onsite will be segregated from other soils to facilitate future land restoration.

Mitigation Measure A-GEO-9. Erosion control structures shall be installed where appropriate. Final grading plans, which include detailed plans for any proposed temporary or permanent erosion control structures, shall be submitted to Planning and Development and the Flood Control District. These plans shall be approved prior to issuance of permits for construction. Emphasis shall be given to consideration of temporary erosion control structures, such as trench plugs and water bars, on moderately steep slopes.

Mitigation Measure A-GEO-10. If slope stabilization impacts cannot be avoided, detailed plans of the excavation (with limits of cut and fill and the slope restoration method) shall be submitted prior to construction for review and approval.

Mitigation Measure A-GEO-11. All exposed graded surfaces shall be reseeded with native ground cover to minimize erosion. Graded surfaces shall be reseeded within 60 days of grading completion.

Mitigation Measure A-GEO-12. Soil elevation/topography shall be restored consistent with the approved grading and erosion control plans.

Mitigation Measure A-GEO-13. Cut slopes shall be constructed no steeper than 1.5:1 unless topographic constraints prevent this possibility; then, special design features shall be incorporated to prevent slope failure.

Mitigation Measure A-GEO-14. Fill slopes shall be constructed no steeper than 2:1 unless topographic constraints prevent this possibility; then, special design features shall be incorporated to prevent slope failure.

Mitigation Measure A-GEO-15. Areas to receive fill shall be stripped of vegetation, organic topsoil, debris, and other unsuitable material. Engineered fill shall be placed in layers not exceeding 12 inches in loose thickness, properly moistened and compacted, and tested for 90 percent compaction.

Mitigation Measure A-GEO-16. Where fill is placed upon a natural or excavated slope steeper than about 5:1 (20 percent), a base key shall be constructed at the toe of the fill and the fill shall be benched into the existing slopes. The base key shall be embedded at least 2 feet into competent inorganic soils. The fill shall then be benched horizontally into the existing slope at least 2 feet normal to the slope as the fill is brought up in layers.

Mitigation Measure A-GEO-17. Soil analyses shall be completed for expansion potential. Once Project design has been developed and the criteria for the facility performance have been established, the soils engineer shall review the mitigation measures and modify them as appropriate. If further measures are considered necessary to mitigate problems posed by expansive soils, the following alternatives shall be considered:

- Overexcavation of expansive soils and replacement with nonexpansive fill
- Support of structures on drilled shaft foundations
- Lime treatment of expansive subgrades

Mitigation Measure A-GEO-18. Project support facilities such as bridge foundations shall be sited on cut pads to provide relatively uniform foundation support and reduce differential settlement. Alternatively, structure foundations shall be designed to tolerate potential differential settlement.

Mitigation Measure A-GEO-19. Project grading and earthwork shall be observed and tested by a geotechnical engineer or his representative to verify compliance with these mitigation measures.

Mitigation Measure A-GEO-20. Project facilities shall be designed to Seismic Zone 4 standards.

2.8.4.6 Noise

Mitigation Measure A-NOI-1. The Applicant shall maintain all WTGs in excellent working order to minimize operational noise impacts.

2.8.4.7 Risk of Accidents/Hazardous Materials/Safety

Mitigation Measure A-RISK-1. The Applicant shall prepare a Hazardous Materials Management Plan for approval by the SBCFD prior to introducing any such materials onto the site.

Mitigation Measure A-RISK-2. The Applicant shall prepare a Fire Protection Plan for approval by the SBCFD prior to starting construction on the site.

Mitigation Measure A-RISK-3. Refueling vehicles will have a sign listing pertinent contacts to notify in the event of a spill.

Mitigation Measure A-RISK-4. Smoking and burning will be prohibited.

Mitigation Measure A-RISK-5. All equipment will be adequately maintained to minimize operational losses of hazardous materials and to reduce the risk of accidental spillage.

Mitigation Measure A-RISK-6. Construction fueling will be designated so that sensitive areas are avoided.

2.8.4.8 Transportation/Circulation

Mitigation Measure A-TRANS-1. The Applicant shall prepare a Traffic Management Plan (TMP) that addresses truck access to the Project site. The TMP shall be submitted to the California Highway Patrol, County of Santa Barbara, and City of Lompoc for review and approval. The TMP will incorporate measures such as the use of escort vehicles, informational signs, flagmen when equipment may result in blockages of throughways, and traffic cones to identify any necessary changes in temporary lane configuration.

Mitigation Measure A-TRANS-2. The Applicant shall pay the appropriate traffic mitigation fees to the County of Santa Barbara.

2.8.4.9 Water Resources

Mitigation Measure A-WAT-1. An erosion control plan for Project construction shall be developed by a registered engineer to minimize potential impacts to surface water quality during construction activities.

Mitigation Measure A-WAT-2. Identify all potential erosion causes and minimize the resultant soil loss. (See mitigation measures in Section 3.9 for further detail.)

Mitigation Measure A-WAT-3. Minimize the size of the disturbed area associated with grading and construction.

Mitigation Measure A-WAT-4. Stockpile all excavated soils and protect them from wind and water erosion.

Mitigation Measure A-WAT-5. Revegetate disturbed areas.

Mitigation Measure A-WAT-6. Grading during construction will be limited to the dry season to the extent practicable. If grading needs to be done outside of the dry season, the Applicant will coordinate grading work with the County and will follow all applicable guidelines. Rainy season erosion control measures shall be utilized to control runoff and erosion in the event that revegetation is not completed prior to the rainy season.

~~2.8.4.10 Potential Mitigation Measures for the Power Line~~

~~The following were identified as potential mitigation measures for the power line by the Applicant:~~

~~Mitigation Measure A-PL-1. Where possible, the power line will follow the existing distribution lines where the opportunity will exist to under build the distribution line below the power line, where feasible, thus consolidating facilities. On the George Bedford property, every attempt will be made to consolidate the existing distribution lines that cross the property.~~

~~Mitigation Measure A-PL-2. At the southeast corner of the City of Lompoc where the power line would traverse the ridge, design concepts are being evaluated that would lessen the visual impacts. These include moving the pole location down the hill to the east, and or using multiple poles that would reduce the overall height of the poles. A connection from GPS Location 27 to the existing Celite line immediately to the southwest may also reduce~~

~~visual impacts by eliminating the proposed power line location from GPS Location 27 to GPS Location 28 and beyond.~~

2.8.5 Avoidance and Protection Measures for the Lompoc Wind Energy Power Line

In order to avoid any significant impacts on the environment, the Lompoc Wind Energy Power Line Project incorporates the Avoidance and Protection Measures listed below as part of its project design and construction. PG&E will coordinate with the County and provide site access during preconstruction and construction activities to verify that the project is constructed in accordance with the Project Description, including the following measures. If the County monitor observes the construction to be out of compliance, the County shall contact PG&E as soon as possible to resolve the issue and ensure compliance. Enforcement of compliance with these measures is in the jurisdiction of CPUC.

GENERAL

PL-1: Construction Crew Training: Construction crews will be trained on avoidance and protection of environmentally sensitive resources along the power line right-of-way including biological, archaeological, and paleontological resources. Continuing tailgate environmental training sessions will be held as new crew members are added.

PL-2: Materials Storage. All construction materials and excavated materials will be stored away from San Miguelito Road, whenever possible, to reduce impacts on mountain views. Materials storage will be confined to within the power line right-of-way and staging areas.

PL-3: Location of Construction Activities. Construction activities will be confined to within the power line right-of-way and staging areas, where feasible. Lands adjacent to the power line right-of-way may be used if deemed necessary for construction.

PL-4: Power Line Alignment. In accordance with the California Public Utility Commission's standards set forth in General Order 95 (GO 95), and where feasible, particularly on nonparticipating ranches, the power line will follow the existing distribution lines. Also in accordance with GO 95, and where feasible, existing distribution and power lines will be built below the proposed power line to consolidate facilities.

PL-5: Power Line Relocation/Pole Height. Where the power line route would be visible from SR-1, the following measures will be used, where technically feasible, to minimize visual impacts: longer spans between the poles; shorter poles; and straddle ridgeline with two poles instead of a single pole on the ridge line.

PL-6: Road Construction / Water Quality. The grading, construction, and drainage of roads will be carried out to maintain any downstream water quality.

PL-7: Electromagnetic Field Effect Reduction. The design of the power line shall conform to EMF reduction measures described in the California Public Utilities Guidelines (2006a [EMF Design Guidelines for Electrical Facilities]).

PL-8: Minimize Grading. Grading and disturbance of vegetation will be minimized to the greatest extent feasible. Consistent with the Project Description, grading and disturbance for new access roads will be limited to approximately ½ mile of new roads. Grading and disturbance for installation of power poles will be in accordance with the Project Description, including Section 2.5 and Table 2-5.

EMISSIONS AND DUST REDUCTION

PL-9: Reduction of Construction Equipment Emissions. Construction impact mitigation measures for equipment exhaust will be implemented as summarized in the SBCAPCD guide (SBCAPCD, 2007).

PL-10: Dust Control. Dust control measures will be implemented including 1) Application of water sprays to all disturbed active construction areas to keep fugitive dust from being transmitted outside of the power line right-of-way. 2) Soil stockpiled for more than 2 days will be covered, kept moist, or treated with soil binders to prevent dust generation. 3) Trucks transporting soil will be covered in transit. 4) Traffic speeds on all unpaved roads will be 15 miles per hour or less. 5) The contractor or builder will designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust offsite.

BIOLOGICAL RESOURCES

PL-11. Avian Protection. Space all overhead power line conductors to minimize potential for raptor electrocution using the latest APLIC (2006) guidelines for line spacing. PG&E's construction and work procedures shall also be consistent with the APLIC guidelines *"Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006."* (http://www.aplic.org/ suggested practices2006(LR).pdf). Any raptor fatalities shall be reported to the County and additional protective measures identified and implemented in coordination with the County.

PL-12. Pre-project surveys. Pre-project surveys will be conducted for special status species at the appropriate season at all proposed power pole locations.

PL-13. Avoid Sensitive Resources. The power line design will avoid placement of poles or other construction within the dripline of oak trees and in sensitive species habitat (including habitat of Gaviota tarplant, CNPS List 1B Plant Species, and El Segundo blue butterfly). If such placement is unavoidable, mitigation and compensation measures will be implemented consistent with CPUC and Santa Barbara County standards.

PL-14. Minimize habitat disturbance. The power line design will minimize habitat disturbance by using existing access roads wherever possible and construction of new poles using helicopters if feasible where creation of new access roads would necessitate grading in steep terrain or removal of woodland vegetation.

ARCHAEOLOGICAL RESOURCES

PL-15: Archaeological Resources. The power line design will avoid placement of poles in any known recorded archaeological sites. If a recorded archaeological site can not be avoided through power line design, then regulatory mandated Phase 1 and 2 subsurface testing will be conducted to evaluate the nature, extent, and significance of the cultural resources, and appropriate monitoring by a qualified archaeologist and Native American monitor will be conducted during excavation activities.

PL-16: Temporary Fencing. Known unevaluated or determined significant archaeological sites and 50-foot buffer areas will be temporarily fenced.

PL-17: Unanticipated Discoveries. Should human remains, historic or prehistoric artifacts, or other potentially important cultural materials be unearthed or otherwise discovered at any time during activities associated with the development of the power line, work in the immediate vicinity of the discovery will be suspended until the find is evaluated by a qualified archaeologist in coordination with the County.

FIRE PREVENTION

PL-18: Fire Prevention during Construction. All construction equipment will be equipped with appropriate spark arrestors and carry fire extinguishers. Further, a fire watch with appropriate fire-fighting equipment will be available at the power line site at all times when welding activities are taking place. Welding will not occur when sustained winds exceed that set forth by the SBCFD unless a SBCFD-approved wind shield is onsite.

PL-19: Emergency Services Communications PG&E will coordinate with SBCFD and other local emergency responders regarding the use of dedicated repeaters for emergency services given the limited cell reception in San Miguelito Canyon.

PL-20: Fire Prevention during Operation. Vegetation clearance within the power line right-of-way will be conducted on a regularly scheduled basis in accordance with PG&E fire abatement procedures.

PL-21: Smoking and Open Fires. Smoking and open fires will be prohibited within the power line right-of-way during construction and operations.

GEOLOGY AND SOILS

PL-22: Seismicity. Power line facilities will be designed to the California Public Utility Commission's standards set forth in General Order 95. [PG&E NOTE: These standards are more stringent than the Uniform Building Code Seismic Zone 4 requirements.]

PL-23: Erosion Control. BMPs will be implemented for erosion control. Erosion control structures will be placed between disturbed soil and drainage structures or areas prior to the start of the rainy season.

PL-24: Soil Stability. Power line foundations will be designed to tolerate potential differential settlement and expansive soils.

NOISE AND RESIDENT NOTIFICATION

PL-25: Construction Hours / Noise. Work hours for all construction activities involving motorized equipment will be restricted to 7:00 a.m. to 6:00 p.m., Monday through Saturday to the greatest extent feasible. [PG&E NOTE: When existing lines must be taken out of service for construction, work must proceed during the clearance times provided by the California Independent Systems Operator (ISO), which may include a night or a Sunday when electric loads are generally lower. Also, there are certain construction activities that cannot safely be interrupted once begun.]

PL-26: Resident Notification. PG&E will issue a Notice of Construction to all residents within 300 feet of the power line right-of-way of construction related activities, including potential lane closures, prior to the commencement of construction activities. PG&E will post signs along San Miguelito Road in advance of specific lane closures or ingress/egress restrictions. Signs will be legible from bypassing cars.

PL-27: Noise Reduction. Construction equipment will be well tuned and maintained according to the manufacturer's specifications, and the standard noise reduction devices on the equipment will be in good working order. Stationary equipment such as compressors and welding machines will be located away from sensitive receptors to the extent practicable. An exhaust muffler will be installed on the compressed air exhaust of pneumatic tools to be used within 1,500 feet of a residence and this requirement will be included in the construction specifications.

PL-28: Noise Complaints. PG&E will provide a phone number for noise complaints on their Notice of Construction to be sent to residents within 300 feet of the power line right-of-way. PG&E will notify the County of all complaints received regarding power line construction.

PALEONTOLOGICAL RESOURCES

PL-29: Paleontological Monitoring. PG&E will provide a qualified paleontological monitor for excavation of power line facilities in areas with a "High" paleontological sensitivity. If fossils are discovered, PG&E will immediately notify the County and consult with the County on fossil assessment and curation activities.

HAZARDOUS MATERIALS

PL-30: Hazardous Materials. BMPs for the storage and handling of all hazardous materials and wastes will be implemented during power line construction.

PL-31: Refueling. Fueling of construction vehicles and equipment will be conducted in areas that are located a minimum of 100 feet from sensitive areas. Refueling vehicles will have a sign listing pertinent contacts to notify in the event of a spill.

PL-32: Equipment Leaks. All equipment will be adequately maintained to minimize operational losses of hazardous materials and to reduce the risk of accidental spillage.

TRAFFIC

PL-33: Traffic. Flaggers will be used when power line related construction vehicles ingress/egress San Miguelito Road and when lane closures are required.

2.9 Project Approvals

A variety of permits and approvals could be required for the Project, as described in this section.

2.9.1 County of Santa Barbara

The County of Santa Barbara would need to authorize or approve the following quasi-adjudicative items:

- Conditional Use Permit (CUP), pursuant to LUDC Section 35.82.060. It is anticipated that the County would issue separate zoning clearances for each phase of the Project.
- Approve the variance from the setback requirement, as specified in LUDC Section 35.57.050, to allow the WTGs to be located as close as 150 feet from the VAFB property lines along the south and west Project boundaries and from internal property lines within the Project.

The County Planning Commission would consider each of these actions. Approval would not be required by the Board of Supervisors unless the CUP or variance were appealed. After approval of the CUP and variance, the County would issue zoning clearances for each development phase after the necessary permit conditions were satisfied.

Other permits or approvals may that may be needed from individual County agencies are as follows:

- Planning and Development Department
  - Approval of all environmental mitigation plans and future review and approval of the Decommissioning and Site Restoration Plan
- Public Works Department
  - Stormwater Quality Management Plan incorporating Best Management Practices
- Flood Control District
  - Plan approval for any road or bridge crossings at creeks or grading for structures within 50 feet from the top of creek banks.
- Environmental Health Services
  - Septic and water system permits
- Air Pollution Control District
  - None required because the Project would use electric pumps and would be conditioned to require that all construction equipment use ultra-low-sulfur diesel fuel. No permanent stationary sources would occur. Portable or temporary equipment if present onsite for more than 12 months, including concrete batch plants and associated engines, and gasoline storage tanks of 250 gallons or more would require permits from the Air Pollution Control District.

- Public Works Department/Roads Division
  - Encroachment permits
  - Detailed traffic control plan
  - Fees for increases in peak hour trips, if required
  - Haul permits
  - Bonds
  - Photo documentation of pre- and post-construction road condition of San Miguelito Road beyond the Celite mine and payment for resulting road damage
- Santa Barbara County Fire Department (SBCFD)
  - Annual permits for the use and storage of hazardous and flammable materials/wastes
  - Hazardous Materials Business Plan
  - Fire Protection Plan
- Building and Safety Division
  - Grading and drainage plan and permit
  - Erosion control plan and permit
  - Building and electrical permits

2.9.2 Other Permits and Approvals

Additional permits, approvals, and consultations may be needed from the following:

- City of Lompoc
  - Encroachment permits for work within the City's right-of-way
  - Approval of the Traffic Control Plan
- Central Coast Regional Water Quality Control Board
  - Regional Water Quality Certification (401 permit)
  - Industrial National Pollutant Discharge Elimination System permit
  - General Construction Stormwater permit (requirements include preparation of an SWPPP)
- California Public Utilities Commission (CPUC)
  - Pursuant to General Order (GO) 131D, if the EIR concludes that the PG&E power line segment of the Project will result in significant unavoidable impacts to the environment, the CPUC would exercise its discretionary authority by requiring

PG&E to obtain a Permit to Construct the project. Alternatively, if the DEIR identifies a power line alternative that avoids significant unavoidable impacts, and that alternative is selected for construction, GO 131D exempts the project from CPUC certification and permitting requirements. ~~Permit to Construct (for PG&E) if the final EIR concludes that PG&E's part of the Project (that is, power line and grid system upgrades) would cause significant unavoidable environmental impacts, or if protests were filed with the CPUC concerning potential environmental impacts of the power line~~

- California Department of Fish and Game (CDFG)
  - Possible Streambed Alteration Agreement (pursuant to Section 1601 of the California Fish and Game Code)
  - Section 2081 permit (for impacts to state-listed endangered species)
- California Department of Transportation (Caltrans)
  - Encroachment permit (for any portions of the power line that extend into or across the SR-1 right-of-way)
  - Hauling truck and overload permits
  - Approve road closures
- United States Army Corps of Engineers (USACE)
  - Possible Section 404 permit (assess after wetland surveys)
- United States Fish and Wildlife Service (USFWS)
  - Consultation for impacts to federally listed species
- Federal Aviation Administration (FAA)
  - Review Notice of Proposed Construction or Alteration and make determination regarding the Project's impact to air navigation
  - Review and approve Lift Plan and WTG Lighting Plan

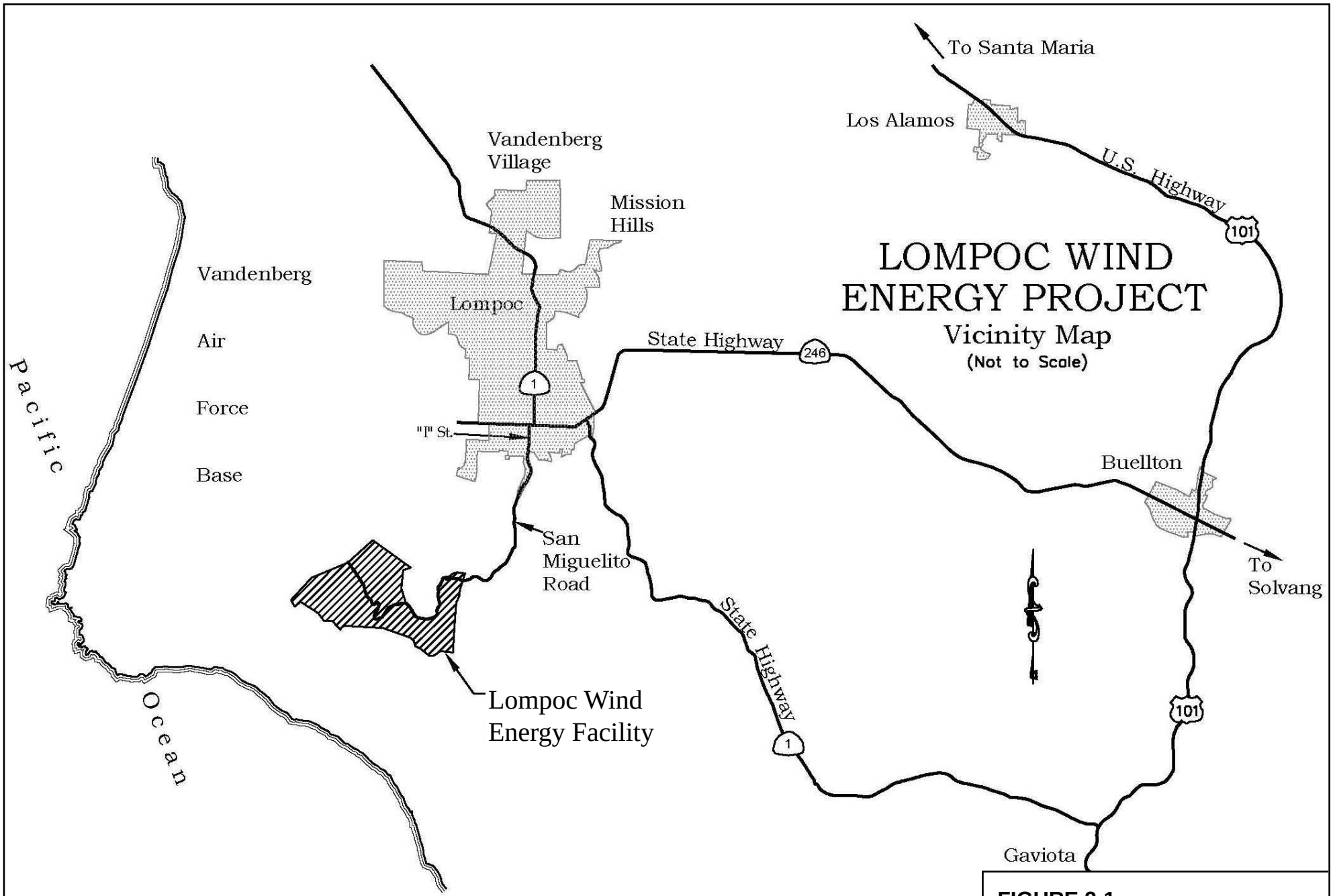


FIGURE 2-1
REGIONAL LOCATION
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

CH2MHILL

EY092006001SAC figure_2_1.ai 06/08/07 tdaus

WEST

SCOLARI

NORTH

MIDDLE

SIGNORELLI

SOUTH

LARSEN

SUDDEN

SAN MIGUELITO ROAD

SUBSTATION

STAGING AREA

STAGING AREA

PROPOSED O&M FACILITY

PROPOSED PG&E POWER LINE

STATE COASTAL ZONE BOUNDARY

LEGEND

- 1 Turbines
- Setbacks
- Proposed PG&E Power Line
- Roads (Proposed)
- Lot Boundary Lines
- State Coastal Zone Boundary
- O&M Facility (Proposed)
- Staging Areas (Proposed)
- Approximate Turbine Construction Corridors (Proposed)
- Substation (Proposed)
- Applicant Leased Project Boundary

0 3,000

Scale in Feet

FIGURE 2-2
LOMPOC WIND ENERGY FACILITY
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA
Source: Adapted from figure prepared by CH2MHill.

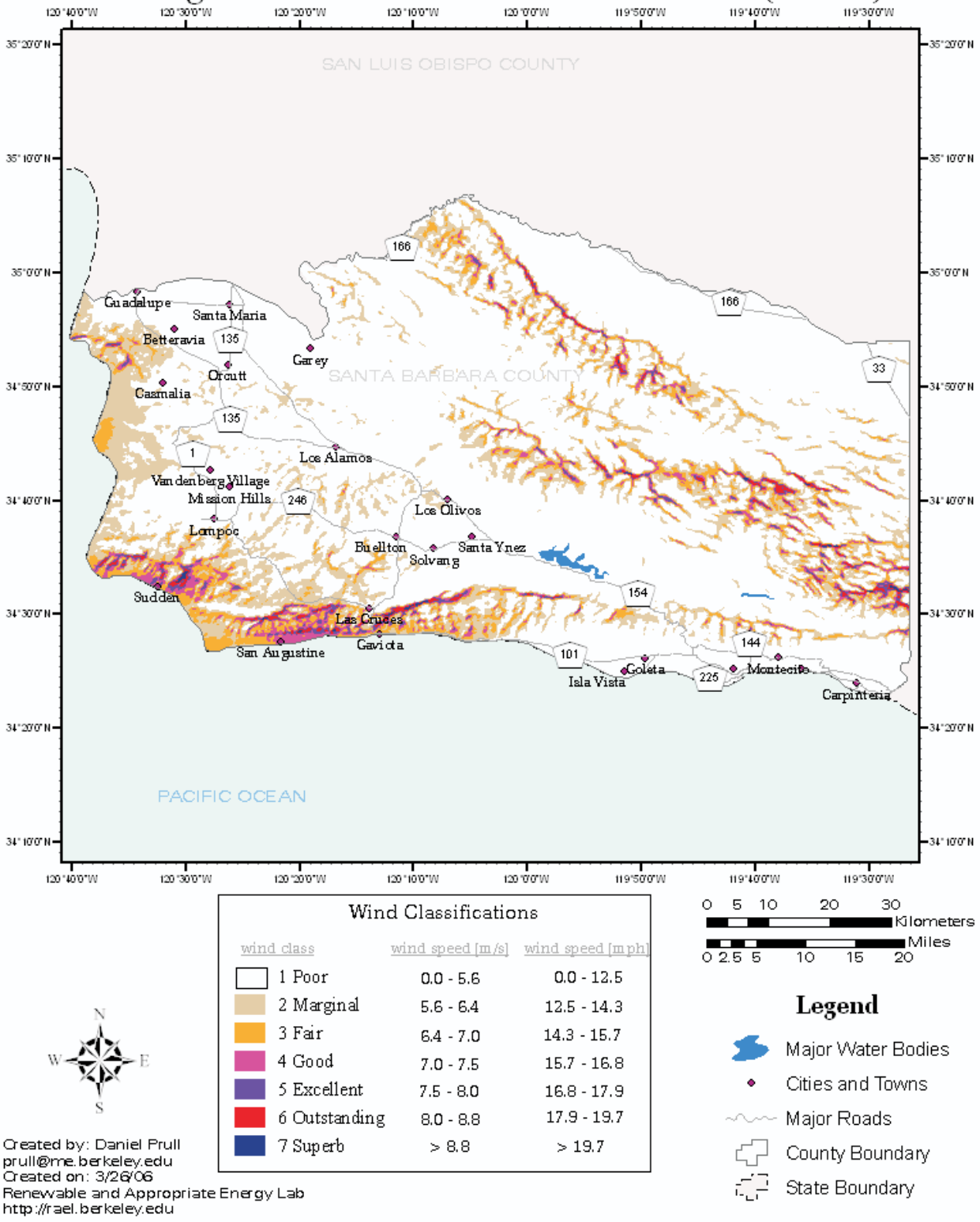


FIGURE 2-3
AVERAGE ANNUAL WIND RESOURCE AT 50M (164 FT)
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA
Source: CECSB.

LEGEND

- GPS Points
- Proposed PG&E Power Line
- Roads (Proposed)
- Lot Boundary Lines
- State Coastal Zone Boundary
- O&M Facility (Proposed)
- Staging Areas (Proposed)
- Approximate Turbine Construction Corridors (Proposed)
- Substation (Proposed)
- Applicant Leased Project Boundary

0 3,000 Feet

KEY MAP

PROJECT LOCATION

PROPOSED PG&E POWER LINE

STAGING AREA

SUBSTATION

STAGING AREA

STAGING AREA

PROPOSED O&M FACILITY

STATE COASTAL ZONE BOUNDARY

NORTH

SCOLARI

WEST

MIDDLE

SIGNORELLI

SOUTH

SUDDEN

LARSEN

SAN MIGUELITO ROAD

MIGUELITO COUNTY PARK

LOMPOC

WHITE HILLS

CAÑADA DE LA PURISIMA

LOMPOC HILLS

SANTA RITA (MALO)

SANTA YNEZ MOUNTAINS

SAN RAFAEL MOUNTAINS

FIGURE 2-4
POWER LINE ROUTE
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

Source: Adapted from figure prepared by CH2MHill.

Vestas V90 – 3.0 MW

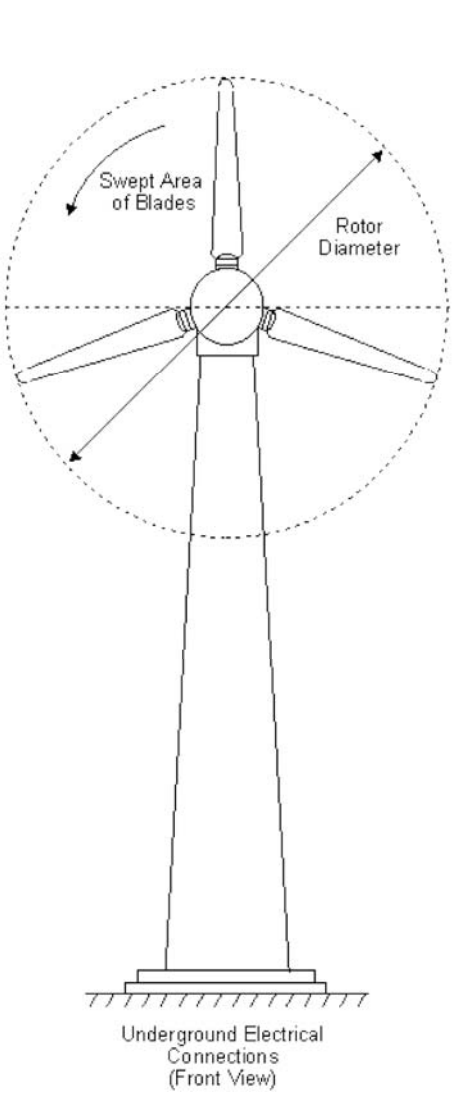
GE – 2.5 MW

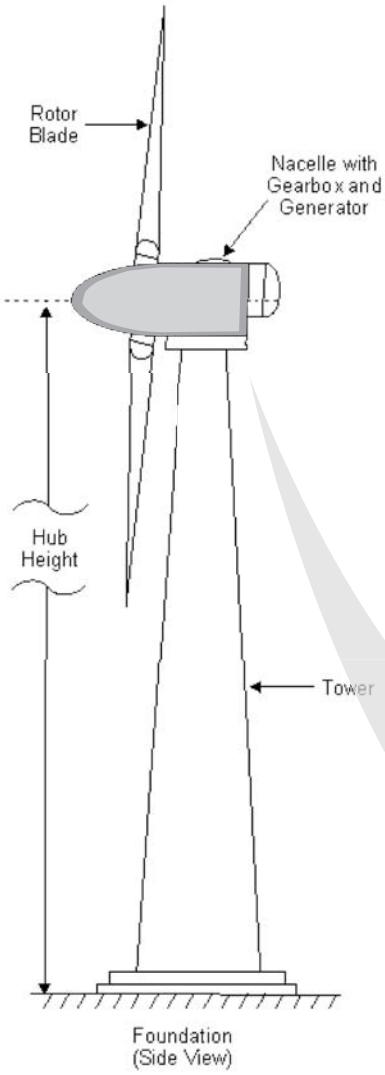
Gamesa G90 – 2.0 MW

Suzlon Energy – 1.25 MW

FIGURE 2-5
EXAMPLES OF WIND TURBINE GENERATORS
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

Source: Adapted from figure prepared by CH2MHill





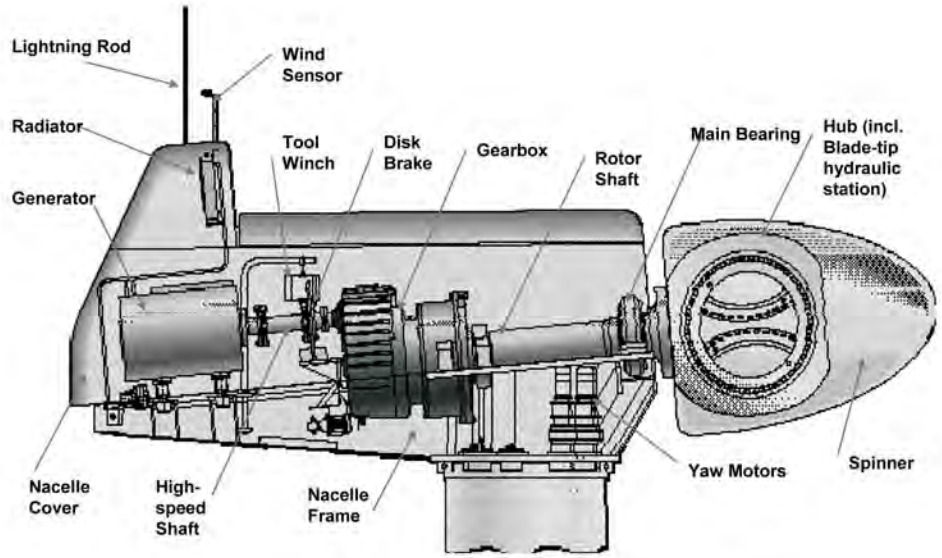


FIGURE 2-6
TYPICAL WIND TURBINE GENERATOR
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

Source: Adapted from figure prepared by CH2MHill

Inset A: WTG Foundation construction.

Inset B: Pad transformer beside WTG.

Inset C: Excavated trench for underground cables.

Inset D: Substation and interconnection facilities.

Inset E: Typical WTG construction.
The WTG is a 1.5-MW machine.
(Photo Credit: Michael D. Burns,
Oak Creek Energy Systems Inc., Mojave, California.)

Inset F: WTG blade/hub assembly.

Inset G:
Meteorological tower.

FIGURE 2-7
EXAMPLES OF PROJECT COMPONENTS AND CONSTRUCTION DETAILS
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA
Source: Adapted from figure prepared by CH2MHill

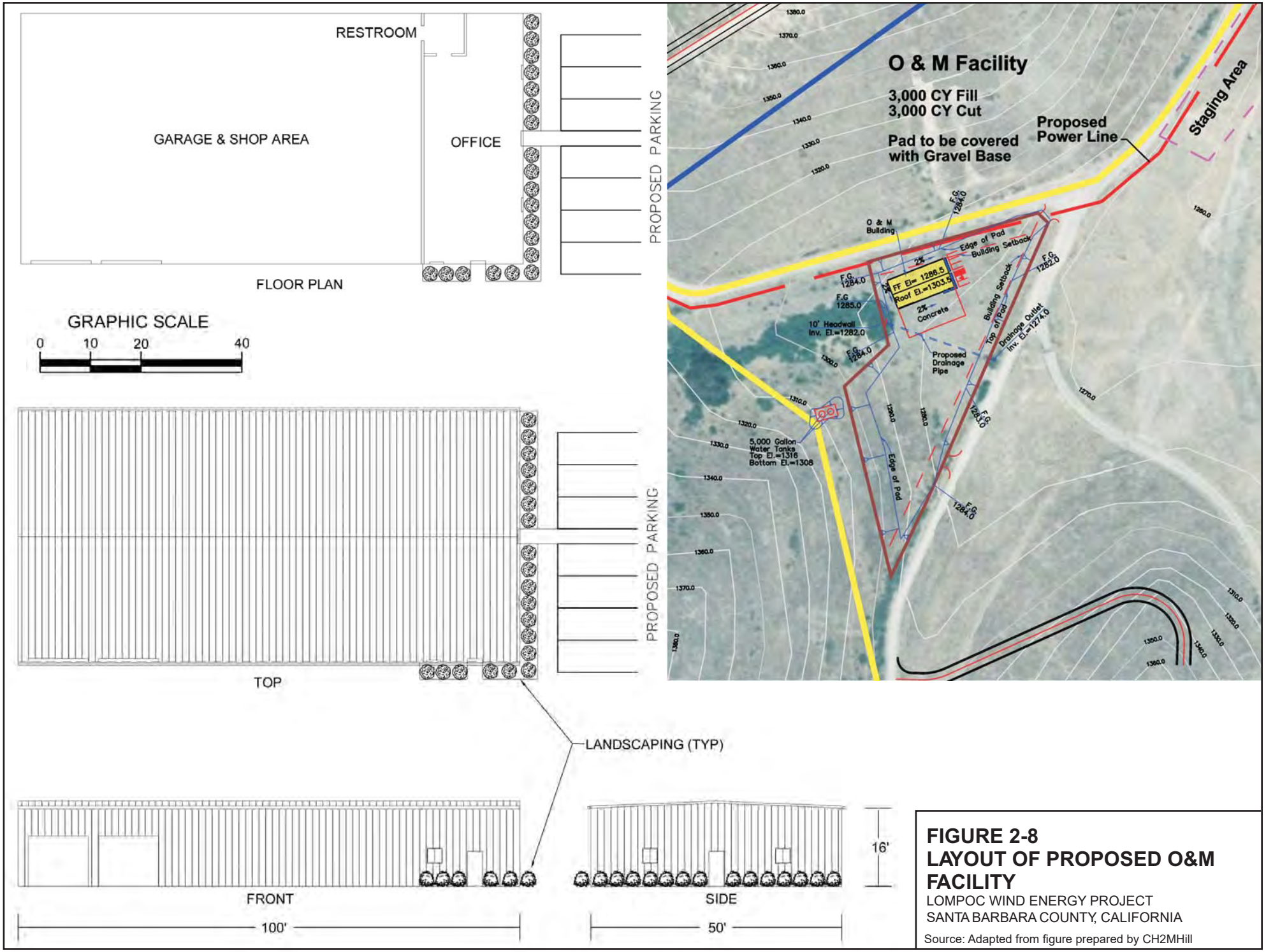


FIGURE 2-8
LAYOUT OF PROPOSED O&M FACILITY
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

Source: Adapted from figure prepared by CH2MHill

Batch Plant during Transport

Batch Plant in Operation

FIGURE 2-9
PORTABLE CONCRETE BATCH PLANT
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA
Source: Adapted from figure prepared by CH2MHill

3.0 Environmental Setting, Impacts, and Mitigation

3.1 Introduction

This introductory section serves as a roadmap for the reader, identifying the scope of the environmental analysis, format and content of the resource-specific analyses, and key methodological approaches to the impact analyses.

3.1.1 Scope of the Environmental Analysis

The primary Project components that are addressed in this Environmental Impact Report (EIR) are:

- **Lompoc Wind Energy Facility (LWEF)**. This is the wind turbine generator (WTG) component of the Project, located on 2,950 acres of privately owned lands; primary elements include 65 ~~0 to 80~~ 1.5 MW wind turbines, new access roads and road improvements, a communication system, meteorological towers, an Operations and Maintenance (O&M) facility, onsite electrical collection and distribution lines, and an onsite electrical substation (Project Substation).
- **Lompoc Wind Energy Power Line (power line).** This is a new ~~7.85~~ 8.7-mile 115-kV power line that would carry the electricity generated by the Project and interconnect with the Pacific Gas and Electric Company (PG&E) electric grid. This line would be constructed and operated by PG&E.
- Resource-specific impact analyses are included in the following sections:

  3.2 Aesthetics/Visual
  3.3 Agricultural Resources
  3.4 Air Quality
  3.5 Biological Resources
  3.6 Cultural Resources
  3.7 Energy/Electric Utilities
  3.8 Fire Protection and Emergency Services
  3.9 Geology/Soils
  3.10 Land Use
  3.11 Noise
  3.12 Paleontological Resources
  3.13 Risk of Accidents/Hazardous Materials/Safety
  3.14 Transportation/Circulation
  3.15 Water Resources
  3.16 Other Issue Areas

3.1.2 Format and Content of the Environmental Analysis

Each resource section includes a description of the following.

Existing Conditions. In most cases, the description of existing conditions focuses on the immediate vicinity of the Project sites. For some resources, such as air quality and transportation, regional information is more appropriate.

Regulatory Framework. This includes a description of federal, state, and/or local regulations that are applicable to the assessment of Project impacts.

Impact Assessment Methodology. This includes the procedures followed to determine the type and magnitude of impacts that would occur.

Thresholds of Significance. Resource-specific thresholds are used to evaluate the significance of environmental impacts. They are based on the County of Santa Barbara Environmental Thresholds and Guidelines Manual (County, 2006), augmented where appropriate with those identified in the Initial Study Checklist included in Appendix G of the California Environmental Quality Act (CEQA) Guidelines, and modified as needed to address potential Project impacts.

Project Impacts. Both direct and indirect impacts that would occur prior to the application of Applicant-proposed and County mitigation measures are identified. Direct impacts are those that are caused by and immediately related to the Project. Indirect impacts are not immediately related to the Project, but are reasonably foreseeable changes in the environment caused by the direct impacts (CEQA Guidelines Section 15358). Project impacts are categorized using County of Santa Barbara classifications, as follows:

- *Class I* – Significant adverse impacts that cannot be feasibly mitigated or avoided. If the Project is approved, decision-makers are required to adopt a statement of overriding considerations, pursuant to CEQA Section 15093, explaining why project benefits outweigh the unavoidable, adverse environmental effects.
- *Class II* – Significant adverse impacts that can be feasibly mitigated or avoided. If the Project is approved, decision-makers are required to make findings pursuant to CEQA Section 15091, that impacts have been mitigated to the maximum extent feasible by implementing the recommended mitigations.
- *Class III* – Adverse impacts that are less than significant. These impacts do not require that CEQA findings be made.
- *Class IV* – Beneficial impacts.

~~**Applicant-proposed**~~ **Mitigation Measures**. Applicant-proposed mitigation measures are listed in Section 2.8.4 ~~were consolidated where appropriate and reformatted to be consistent with the intent of the County's Standard Conditions and Mitigation Measures (Santa Barbara County, 2002)~~. These measures were ~~applied to~~ considered in the assessment of Project impacts to determine whether they would be mitigated ~~to the maximum extent feasible under CEQA~~ and in the development of additional mitigation measures.

~~**Additional Mitigation Measures.**~~ Other mitigation measures were identified as needed to reduce or avoid potentially significant environmental effects where no Applicant-proposed

mitigation measures have been identified or where it was determined that additional measures would be required to mitigate impacts to the maximum extent feasible in accordance with Santa Barbara County policy. Likewise, mitigation measures also have been identified for adverse, but less than significant impacts where impacts could be feasibly further reduced.

Residual Impacts. This section identifies the impacts that would remain after the application of either Applicant-proposed mitigation measures or other mitigation measures identified by the County to mitigate Project impacts.

3.1.3 Key Methodological Approaches

The following general methodological approaches were used in the resource-specific impact assessments:

1. ~~A detailed~~ The preliminary WTG layout for the LWEF area is presented in Figure 2-2. ~~has not been developed~~. The final WTG model selection, final design engineering, geotechnical studies, and environmental considerations, will be considered in determining the exact locations of the WTGs. The Applicant has identified WTG corridors that would allow for the placement of ~~60 to 80~~ 65 1.5 MW WTGs, while taking into consideration environmental, engineering, and meteorological factors. The analysis of environmental impacts assumes that the entire area within each corridor would be subject to disturbance during construction because the WTGs could be located anywhere within the designated corridors. Also, the WTGs, roadways, and onsite electrical collection lines are assumed to be located in areas where the greatest resource-specific impacts would occur. In general, specific layouts were developed for the visual and noise analyses to ensure that the greatest potential impacts were assessed.[1] Thus, the analysis assumes a "worst-case scenario" for the potential environmental impacts.

2. ~~An exact~~ The preliminary power line alignment is presented in Figure 2-4. ~~has not been developed~~. Due to expected Project refinements related to final design engineering and siting, as well as environmental considerations, the Applicant has identified a 200-foot-wide corridor (100 feet on either side of centerline) to accommodate the new power line. Detailed environmental resource surveys were conducted within this 200-foot corridor. The width of this corridor was selected with the understanding that it would allow flexibility in siting. Because the location of individual poles is not known, the impact analysis assumes that they would be located in areas where the greatest resource-specific impacts would occur (that is, "worst-case scenario"). Data for a 2,000-foot corridor (extending 1,000 feet on either side of centerline) also were collected through the review of aerial photography, existing reports, and databases to identify the general environmental resources between the 200-foot-wide corridor and the edge of the 2,000-foot-wide corridor.

3. The Applicant has proposed construction to occur in as many as two ~~three~~ phases. The first phase would include 82.5 megawatts (MW) of electrical generation capacity to satisfy an existing power purchase agreement with PG&E. This would require the installation of 55 WTGs. The installation of the additional 10 WTGs could either occur as

[1] The layout used in several visual simulations (KOPs 8, 11, 12, and 13) assume WTG placement as shown on Figure 2-2. This layout is realistic, but not necessarily worst case.

part of Phase I or in up to two subsequent phases. Phase I is proposed for construction in Spring 2009 ~~from 2007 to 2008~~ and would take approximately 6 to 10 months to complete. Commercial operation of Phase I is estimated to commence in the fourth quarter of 2008. Construction of Phase II and III would commence after the completion of Phase I, but no later than 7 years after the approvals for Phase I. Phase~~s~~ II and III would each have a 6-month construction schedule. In Sections 3.4 Air Quality and 3.14 Traffic/Circulation, the analyses evaluated the worst-case scenario of constructing all 97.5 ~~120~~ MW (up to 65 ~~80~~ WTGs) of the Project as part of Phase I.

4. The Project would not be constructed on lands under the jurisdiction of the California Coastal Commission (CCC) (that is, the Coastal Zone). However, some of the Project properties along the southeastern edge of the Project are bisected by the Coastal Zone boundary, and thus are partially within the Coastal Zone and partially within the County's Inland Zone. The environmental analyses included in this EIR encompass the full extent of the Project properties, including the areas within the Coastal Zone. Inclusion of these areas allows for potential future expansion of the Project farther south on the bisected properties, without having to conduct additional environmental review. The Applicant has indicated interest in possibly petitioning the CCC to adjust the Coastal Zone boundary by up to 200 yards southward on the affected parcels. (Such an adjustment is potentially allowable under the California Coastal Act in situations where the Coastal Zone boundary bisects parcels.) The County is not aware of any plans to expand the WTG corridors into this area, and any future Project expansion would be subject to all normal environmental review and permit requirements.

3.2 Aesthetics/Visual Resources ~~Impacts~~

3.2.1 Introduction

3.2.1.1 Purpose and Scope

Visual or aesthetic resources are defined as the natural and built features of the visible landscape. The combination of landform, water, and vegetation patterns represent the natural landscape features that define the visual character of an area, while constructed features (such as buildings, roads, and other structures) reflect human or cultural modifications to the landscape. These natural and built landscape features or visual resources contribute to public experience and appreciation of the environment. Visual resource or aesthetic impacts are defined in terms of the physical characteristics of a project, its potential visibility, and the extent to which the project could affect the quality of the existing scene or environment.

This section identifies potential visual impacts, including nighttime light and glare impacts, for the proposed Lompoc Wind Energy Facility (LWEF) and new 115-kV power line.

3.2.1.2 Aesthetic Issues Relating to Wind Turbines

Wind energy has a long history of utilization for pumping water and grinding grain. In many parts of America, especially the West, the windmill is a long-established and well-accepted part of the rural landscape. The wind turbine generator (WTG) was introduced to California in the 1980s to harness wind to produce electric energy at locations such as Altamont, Tehachapi, and San Gorgonio passes. Instead of individual machines, these installations included hundreds and even thousands of small WTGs, usually closely spaced. These wind farms frequently were located close to major highways or freeway corridors and generated considerable discussion regarding their visual impacts.

Opinions regarding these visual impacts were divided. To some, the WTGs were visually dominant technological structures that adversely affected the natural or rural character of the landscape. To others, the WTGs were visually interesting and reflected changing lifestyles away from conventional power plants and toward a more environmentally friendly and technologically advanced means of energy generation. The strings of WTGs also could be seen as delineating and emphasizing the natural topography and ridgelines. The unusual kinesthetic dimension created a unique visual experience.

While appreciated by many, the wind farms created a number of specific aesthetic issues. These issues included concerns about the creation of dense, disorderly, apparently cluttered arrays of WTGs on hillsides; the use and juxtaposition of diverse designs and heights in a single installation; the sense of a visual disconnect with the natural and historic character of the area; the presence of nonoperating WTGs; and impacts related to poorly engineered roads with visible erosion related to improper drainage design. This experience in California provided valuable lessons that have been used in planning and designing subsequent wind energy installations to minimize the aesthetic issues associated with these earlier projects.

The emerging situation was important enough to generate research on public perception of WTG farms. The research validates that although early California wind farms created

specific visual problems, the public perception of them was favorable for the most part. For example, research on public perceptions of the Altamont Wind Energy Area by Thayer and Freeman found that those surveyed perceived the wind farms to be highly visible constructed environments, but more respondents tended to like wind energy developments than dislike them (Thayer and Freeman, 1987). However, when asked to rate photographs of the wind energy installations on a scale from beautiful to ugly, respondents rated the views as neutral to slightly ugly. Thayer and Freeman discovered that reactions to the Altamont wind energy installations were complex, and factors other than appearance played a major role in determining personal responses. The symbolic or connotative aspects of the wind energy facilities were found to be particularly important in influencing reactions. Those who indicated strongly positive attitudes toward the wind energy facilities were likely to find them to be appropriate, efficient, safe, natural (in the production of energy), progressive, and a sign of the future. Those who indicated strongly negative attitudes tended to cite the visual conspicuousness, clutter, and unattractiveness of the facilities. This finding led Thayer and Freemen to conclude that the two groups focused on different aspects of the facilities "…with the 'like' group responding strongly to the symbolic, referential attributes not automatically associated with the visual stimuli. This group was willing to forgive the visual intrusion of the WTGs on the existing landscape for the presumably higher goals of the project where dislikers were not" (Thayer and Freeman, 1987).

Based on their research in 1987, Thayer and Freeman reached a number of conclusions related to design measures that could improve the public perception of wind farm attractiveness. Design measures supported by their research include:

- Use of neutral colors for WTGs
- Evenly spaced arrays
- Consistency in WTG type and size within arrays
- Use of fewer, larger WTGs versus use of numerous smaller ones
- Minimization of conspicuously malfunctioning WTGs

The proposed wind farm portion of the Project was designed to conform to these lessons. In addition, the Project would make use of the latest generation of WTGs, which are larger, more widely spaced, and rotate at lower revolutions per minute (RPM) than those used in the earlier projects. As can be seen in the figures provided in this section, the equipment proposed for the Project strives to make the WTG towers, nacelles, and rotors sleek and attractive.

3.2.1.3 Overview of Methodology

This analysis is based upon field observations and review of the following information.

- Previous research concerning the visual effects of wind energy facilities
- Local planning documents, project maps, drawings, and technical data
- Computer-generated maps of the zones of visual influence
- Ground and aerial photography and computer generated visual simulations

Site reconnaissance was conducted during the months of September and October 2006, and the baseline photographs were taken at this time. Figures 3.2-1 through 3.2-4 show context photographs from the vicinity of the Project.

The selection of Key Observation Points (KOPs) for the analysis is described in the impacts section. The methodology for assessing Project impacts follows the basic procedures and principles of the visual impact assessment methods developed by federal agencies and summarized in *Foundations for Visual Project Analysis* (Smardon, 1986). Additionally, in the late 1980s, the United States Army Corps of Engineers (USACE) developed a visual resources assessment procedure (VRAP) to provide a systematic approach to (1) evaluate and classify existing aesthetic or visual quality; (2) assess and measure visual impacts; (3) evaluate the adverse or beneficial nature of the visual impact; and 4) make recommendations for design and operation changes to projects to minimize visual impacts. The approach has been applied to wind energy projects throughout the United States.

The methodology for accessing Project impacts has been amended to respond to the special characteristics of WTG farms identified. This analysis incorporates and responds to California Environmental Quality Act (CEQA) issues, as well as special concerns of the County of Santa Barbara and adjacent communities. For the detailed application of these methodologies, please see Section 3.2.4 Impact Assessment Methodology.

3.2.2 Existing Conditions

3.2.2.1 Regional and Local Landscape Setting

The WTGs are proposed to be located 3 to 5 miles south of the City of Lompoc (Figure 2-1). Figure 3.2-5 shows the LWEF site with the potential WTG locations shown and identifies the distance from the Project site to various major regional features, such as the City of Lompoc and nearby beaches, through a series of mile-wide radius lines. The overall character of the terrain also can be visualized by reviewing the images on Figures 3.2-6 and 3.2-7. The route for the power line is shown on Figure 3.2-8. Additionally, San Miguelito Road traverses the landscape in a southerly, then westerly direction, leading uphill along Miguelito Creek, into the Project area.

The Project would be located on a series of ridges south of the City of Lompoc, which are variously designated the Santa Ynez Mountains, the Lompoc Hills, and the White Hills. The Project would be located generally between Tranquillon Mountain and trend east along several spurs of the Santa Ynez range toward Prospect Peak, Sudden Peak, and La Tinta Hill. The main drainages include Honda Creek, flowing west, and San Miguelito Creek, flowing east and then north. In addition, the northern face of this range is incised by several north-facing canyons, including Lompoc, La Salle, and Sloans canyons. Much of the area south and west of the Project is part of Vandenberg Air Force Base (VAFB), which includes radar and tracking facilities visible on top of Tranquillon Mountain, and Sudden Peaks, the most pronounced peaks in the area.

Topographic elevations in the general area range from 100 feet at the City of Lompoc to 2,159 feet at Tranquillon Mountain and 2,122 feet at Sudden Peak. Typically, the WTGs would be located on ridges that vary between 1,200 and 1,500 feet in elevation. None of the structures would be sited above 1,800 feet per agreement with VAFB. While the ranches in the higher portions of the San Miguelito Creek valley are used for grazing, much of the 2,950-acre LWEF site is composed of steep hillside areas partially covered with chaparral and oak woodland. The valley floors tend to be annual grasslands with limited riparian

vegetation. Occasional ranch structures are also characteristic. Almost all the land area has range management fences, with more secure fencing and gates at the VAFB entry points.

Within the vicinity of the Project are four subregions, each with its own unique visual character/quality.

Rural Areas (South and East of Lompoc)

This subregion encompasses the eastern portion of the regional landscape surrounding the Project. The area is largely undeveloped and is characterized by steep wooded hillsides from the United States (U.S.) Highway 101 corridor west toward the Lompoc urban area. The main routes through this area include State Route (SR)-1 (also known as Cabrillo Highway) and Jalama Road (Figure 3.2-1, Photos 1 and 2).

Jalama Coast and Vandenberg Air Force Base

The Jalama coast includes the area from Jalama County Beach to Surf Beach and Ocean Beach County Park adjacent to VAFB from the Pacific Ocean, east toward the Project. Undeveloped agricultural lands and natural vegetation largely surround the Jalama County Beach area. The terrain varies from coastal plains adjacent to the beach to steep rolling hills adjacent to the Project. The views from this area, although mostly natural, include existing facilities associated with VAFB including tracking stations on top of several ridges, most noticeably Tranquillon Mountain (Figure 3.2-2, Photos 3 and 4).). There is no public access west of Jalama Beach, thus visual impacts would only be to occasional boaters. This area has limited pleasure boating activities due to the treacherous waters offshore.

Lompoc Urban Area

The Lompoc urban area includes the City of Lompoc and the immediately adjacent unincorporated lands. The urban core is a mixture of residential and commercial development surrounded by single-family residential neighborhoods. Beyond the city limits are agricultural lands used for row crops and flowers, including some residential areas and agricultural processing facilities. The views toward the Project area are often ~~obstructed~~ blocked by existing urban development ranging from trees, existing structures, power lines, or other man-made obstructions. In addition, the hills immediately south of the City of Lompoc limit or completely shield views of the Project (Figure 3.2-3, Photos 5 and 6).

Northern Lompoc Valley

The northern Lompoc Valley area includes the agricultural fields north of the City of Lompoc and the Santa Ynez River, the rolling hills following SR-1 north of Lompoc and the communities of Vandenberg Village and the Mission Hills area, as well as the campus of Hancock College. Views toward the Project include the City of Lompoc and the rolling hills south of the City. Mission La Purisima is a state park located in this area (Figure 3.2-4, Photos 7 and 8).

3.2.2.2 Nighttime Conditions

Similar to daytime conditions, the nighttime views could be divided into four subregions, each with its own distinctive characteristics. The variations between subregions primarily reflect the diversity of development, which in turn generates other lighting sources that could alter the context in which Project lighting is viewed. The variations also reflect ambient lighting, which is defined as the general amount of overall lighting visible from any

viewing area. Reviewing the four identified subareas, factors affecting site visibility are identified in more detail.

Rural Areas (South and East of Lompoc)

This area is largely undeveloped with only an occasional ranch structure providing stationary light sources. Vehicles on SR-1 and Jalama Road are the only other sources of light, and are transient and seen within the context of the road being used. Minimal ambient light exists until the traveler approaches the outskirts of the City of Lompoc. ~~Lighting at the LWEF site would be remote from any of these sources because the site is located along currently unlit ridgelines.~~ The rural areas south of Lompoc are visible from La Purisima Mission (KOP 8), and from that vantage point, one red and three white lights on Sudden Peak are visible when looking to the south into this rural area. The three white lights flash in a synchronized fashion, per FAA standards, and the red light is constantly "on" during nighttime. These lights are part of the Sudden Peak facilities of Vandenberg Air Force Base. According to published material, La Purisima is open for self-guided tours from 9:00 a.m. to 5:00 p.m. seven days a week, except Thanksgiving, Christmas and New Year's Day. Evening hours and events would be "as scheduled" by the Park Ranger. Therefore, the nighttime view to these lights as seen from the Mission would be limited to special groups or events.

Jalama Coast and VAFB

The Jalama coast is also generally undeveloped and has few sources of stationary light. The exceptions would be the campground lighting from recreational vehicles, restrooms, and campfires at the beach parks, and the very distant security lighting at various VAFB facilities. ~~Lighting at the Project site would be remote from any of these sources because the site is located along currently unlit ridgelines.~~ The amount of ambient light in this area is minimal.

Lompoc Urban Area

The Lompoc urban area includes the City of Lompoc and the immediate unincorporated lands; the area is generally well lit when considering lighting for various buildings for extended business hours (such as shopping areas and convenience markets), residential lighting, street lighting, and traffic signals. Adjacent rural areas also have a fair amount of stationary lighting, given the number of agricultural buildings and rural business structures. Based upon several evenings of field observation, the urban and adjacent rural arterial streets have a relatively high amount of vehicular traffic that would be adjacent to potential viewers. Light from these sources, especially when a marine layer or summer evening haze would be reflected into the sky, creates a dome of "skyglow." Lighting for the LWEF is more remote and would be seen in the context of these numerous light sources. The amount of ambient lighting is relatively high.

Northern Lompoc Valley

The northern Lompoc Valley would have nighttime views across the relatively dark fields and land areas between the communities of Mission Hills, Vandenberg Village, and the City of Lompoc. The Lompoc urban area lies between viewers from these areas and the Project and sets the context for views of the Project of those living and traveling along La Purisima Road and SR-1, especially for the areas east of Vandenberg Village. From this point west, fewer urban lights and a more rural character exist with scattered lighting prevailing. Lighting for the Project is relatively remote and would always be seen in the context of these better lit areas. The amount of ambient light is moderate to high.

3.2.3 Regulatory Framework

3.2.3.1 Federal ~~and State~~

Given the relatively remote location from any federal ~~or state~~ lands (other than VAFB which, as a military installation, has no documents with identified visual standards for surrounding areas), no applicable standards exist. The Project would be visible from La Purisima Mission which is designated as a National Historic Landmark under the National Park Service National Landmark Program (National Register Number 70000147). ~~The Project would be located outside the jurisdiction of the California Coastal Commission.~~

3.2.3.2 State

The Project would be located outside the jurisdiction of the California Coastal Commission. As noted above, the Project would be visible from La Purisima Mission which is also designated as a State Historic Landmark, in addition to being a designated National Historic Landmark. The La Purisima Mission State Historic Park General Plan provides regulatory guidance for the Mission.

La Purisima Mission State Historic Park General Plan, California State Parks, State Park and Recreation Commission approval September 13, 1991.

The La Purisima Mission State Historic Park General Plan states that, "The primary goal of the plan is to preserve the historic scene and maintain the historic 'sense of place' – visitors' sense of stepping back in history. Department directives place the highest level of protection on cultural and natural resources" (pg. 3). One of the proposals of the plan is "working with local officials and landowners to protect the viewshed outside the park" (pg. 3). Objective 6 states "Preserve the historic scene and maintain a historic sense of place from the visitors' perspective" (pg. 11). The Declaration of Purpose for La Purisima Mission State Historic Park is stated as follows:

> "The purpose of La Purisima Mission State Historic Park is to preserve, restore, interpret, and make available to the people for their inspiration, enlightenment, and enjoyment the significant cultural resources associated with La Purisima Mission and its human inhabitants, as well as the unit's natural values. The natural setting of the mission is of particular importance because it allows visitors to step back in time and imagine themselves visiting La Purisima Mission when it was occupied by the Spanish missionaries and the Native Americans (pg. 49)."

Visual Resources are of great concern to the park. "The hills and land adjacent to the northern boundary of the park provide a significant backdrop to the historic unit…As stated in the goals for the unit, a primary concern regarding the viewshed is retention of the historic sense of place. For example, large panoramas of the park and surrounding areas can be seen from the valley floor much as they were seen in the 1800s…Intermediate ridge lines, visible from several key positions on the east and west side of the valley floor, are also important to historical integrity… Agricultural lands south of the park, opposite Purisima Road, also play a key role in perpetuating the rural flavor of the park… Continued coordination between the county, private property owners, and the department will be required to perpetuate this valuable surrounding resource" (pg. 50).

3.2.3.3 Local Agencies

Two County documents regulate Aesthetics and Visual Resources: the Santa Barbara County Comprehensive Plan, including the Scenic Highway Element, and the Santa Barbara County Land Use & Development Code (LUDC). Section 3.10, Land Use, also addresses LUDC issues.

Scenic Highway Element

The Scenic Highway Element of the Santa Barbara County Comprehensive Plan is intended to assist in preserving and enhancing the most scenic areas along state highways within the County. From its intersection with U.S. Highway 101 at Las Cruces, north to the southerly city limits of Lompoc, SR-1 has been designated a Scenic Highway under this element. A specific goal of the Scenic Highway Element is to "Enhance and preserve the valuable scenic resources located along roadways within the County."

Santa Barbara County Land Use & Development Code

The LUDC regulates development in the County based on the zoning designation and the proposed use of the Project. Within the LUDC, the following chapters and subsections are applicable to the Project.

Chapter 35.62. Ridgeline and Hillside Development

The intent of this Chapter ~~35.62~~ is to regulate development that could detrimentally affect the native hillsides of Santa Barbara County. The majority of this chapter is applicable to residential structures and development. This chapter allows specific exemptions to the development guidelines. Exemption 1 includes "poles, towers, antennas, and related facilities of public utilities used to provide electrical, communications, or similar services." The County has interpreted that the power line would be exempt from ridgeline and hillside development policies because the power line consists of poles and electrical lines that are a part of a public utility. The LWEF, including aboveground poles and towers, is *not* exempt; it is not a public facility because it would be owned and operated by the Applicant. To comply with these policies, the LWEF would also have to be reviewed by the Central Board of Architectural Review, which could make additional findings pursuant to Section 35.62.040B.2b.

Chapter 35.20. Height Measurements, Exceptions, and Limitations

An amendment to the 50-foot height limitation specified in Chapter 35.20 was adopted in September 2006 to allow exceedance of this limit for projects similar to this Project.

Chapter 35.57. Wind Energy Systems

Chapter 35.57 applies specifically to wind energy systems. This chapter discusses in detail the regulations regarding the electronic design, siting requirements, safety requirements, and includes specific regulations applicable to the design and visual effect that wind energy systems can have on the environment. <u>The development standards provided in Section 35.57.050 include the following:</u>

35.57.050.J. Color and Reflective Surfaces

The tower and blades of the system shall be painted a nonreflective, unobtrusive color that blends into the surrounding landscape to the greatest extent possible and incorporates nonreflective surfaces to minimize any visual disruption.

35.57.050.K. Visual Impact

The system shall be designed and located in such a manner as to minimize adverse visual impacts from public viewing areas (such as public parks, roads, and trails). To the greatest extent feasible, the wind energy system:

- Shall not project above the top of ridgelines
- Shall use natural landforms and existing vegetation for screening if visible from public viewing areas
- Shall not cause a significantly adverse visual impact to a scenic vista from a County- or state-designated scenic corridor
- Shall be screened to the maximum extent feasible by natural vegetation or other means to minimize potentially significant adverse visual impacts on neighboring residential areas

35.57.050.L. Exterior Lighting

Exterior lighting on any structure associated with the system shall not be allowed except that which is specifically required by the Federal Aviation Administration (FAA).

3.2.4 Impact Assessment Methodology

3.2.4.1 Introduction: Visual Impact Assessments

The methodology for analyzing an 80-unit WTG Project covering nearly 3,000 acres requires a somewhat different initial analysis than the typical project such as a shopping center or housing project that might occupy a 30-acre site and be located for convenient access near a valley floor. In this case, the WTGs are located on or just below ridge tops with a potential visibility of up to 25 miles depending on atmospheric conditions, lighting, and the time of day. The potential area for visual impacts in this case approaches 600 square miles, approximately an 18.5-mile radius from the nearest Project component. Within this area, nearly 270 square miles have the potential to be "clearly visible with moderate impact: becoming less distinct" and rising through intensity levels to a point where the Project could create a "dominant impact due to large scale, movement, proximity and number" of WTGs.

A Zone of Visual Impact (ZVI) map was prepared to determine the overall Project site visibility. Based on the visibility of the Project, KOPs were selected, and the traditional visual analysis based upon comparing photographs of the existing condition to simulated project conditions was performed. This method evaluates the existing scenic qualities and compares the sensitivity and reactions of the viewers to the before and after project conditions (Smardon et al, 1986). Finally, a third method developed in England and Wales specifically for WTG projects is included in the evaluation process to verify conclusions drawn by the Smardon methods (Sinclair-Thomas Model, 1999).

3.2.4.2 Project Site Visibility – Zone of Visual Impact Map

To determine the visibility of the Project given the highly varied terrain and the up to 80 WTGs that might be visible to varying degrees depending on the location of the viewer, a computer generated model was prepared. This ZVI map uses United States Geological Survey (USGS) topography, with the WTGs positioned to represent a worst-case layout for visual resources. Locations from which the WTGs might be visible were determined based upon the height of the WTGs and the intervening topography,. This mathematical visibility potential is shown on the ZVI map of Figure 3.2-5. As can be seen, the topography affects views; for example, only the northern portions of the City of Lompoc would have the potential to see the WTGs, but almost all of the northern portions of the Santa Ynez Valley would be able to view the LWEF site, although the viewers would be up to 20 miles away from the project area. The Project area is potentially visible from points in a 360-degree radius with significant topographical limitations. Potential views could be possible from limited boaters ~~the ocean~~, which would be approximately ~~is~~ 2 miles distant at the closest point. The nearest public beach (land view) is 4 miles distant at Jalama Beach. ~~According to the ZVI map,~~ Given intervening topography, the Project ~~has the potential to be seen as far away as portions of~~ would not be visible from the City of Santa Maria. Figure 3.2-5 also identifies rings of distance from the Project area. These rings, measured in miles from the Project, are used in the analysis because, although the map might show the Project site as visible, the nature of the WTGs is such that visibility would diminish significantly with distance.

Distance also is a factor with atmospheric haze conditions that are prevalent in the area for large portions of the year. This condition significantly reduces Project visibility for proportionately slender items such as the towers and blades of the WTGs.

3.2.4.3 Comparison of Pre- and Post-project Conditions

Assessment of Scenic Qualities

The scenic quality of landscapes potentially affected by the Project, as seen from viewing areas, is rated based upon the various factors identified in detail below. These ratings were developed in a series of field observations made in fall 2006. The final assessment of scenic quality was made based on professional judgment that incorporated consideration of a broad spectrum of factors including:

- Natural features such as topography, water courses, vegetation and rock outcrops.
- The effects (positive or negative) of man-made alterations, including structures, on the visual quality of the scene. Criteria in this category include assessment of vividness, intactness, and unity of patterns in the landscape, as follows:
  - ***Vividness*** is defined as the memorability of the visual impression received from contrasting landscape elements as they combine to form striking or distinctive visual patterns.
  - ***Intactness*** is defined as the integrity of visual order in the natural and built form landscape and the extent to which the landscape is free from encroaching and distracting visual elements.

- ***Unity*** is defined as the degree to which the visual resources of the landscape join together to form a coherent, harmonious visual pattern. Put another way, unity refers to the compositional harmony or intercompatibility between landscape elements. (United States Department of Transportation Federal Highway Administration [FHWA], 1988).

The scenic quality was then assigned a value of high, moderate, or low where:

- ***High*** defines a landscape with great scenic value – for example, a "picture postcard" scene such as SR-1 along a coastal area. People typically go out of the way to visit areas of high scenic quality that have high levels of vividness, unity, and intactness. (Buhyoff et al., 1994; FHWA, 1998).
- ***Moderate*** defines landscapes that are common or typical and have average scenic value. They usually lack significant man-made or natural features. Levels of vividness, unity, and intactness are average.
- ***Low*** defines landscapes that are below average in scenic value. They often contain visually discordant man-made alterations and provide little of interest in terms of landscape attributes. Views are typically classified as indistinct, unharmonious, and disjunctive.

Assessment of Visual Sensitivity

The analysis of viewers, viewing conditions, and viewer sensitivity in each viewing area takes into consideration viewers from public roads, recreation areas, and residential areas, where applicable. Viewers in public places would have varying sensitivities depending on their reasons and expectations for traveling or using the parks or other public areas. Overall levels of visual sensitivity in each of the viewing areas are identified as being High, Moderate, or Low, as follows:

- High levels of sensitivity were assigned in situations where WTGs would be visible within 0.5 mile or less from public viewing areas, heavily traveled roadways, or important recreational facilities.
- Moderate levels of sensitivity were assigned to areas where the WTGs were more distant, between 0.5 to 5 miles, within the primary cone of vision for travelers.
- Low level of sensitivity was assigned to areas beyond the 5-mile perimeter.

These assignments were modified depending on expectations (for example, of persons visiting the La Purisima Mission, where any modern activity could change the historic context of the 18th century setting of the mission).

Assessment of Visual Impact Severity

Based upon a simulation of the Project set into the baseline photograph, an assessment of the Visual Impact Severity was made based upon the following criteria:

- Visual Contrast (*Is the project "in or out" of character with the existing landscape?)*
- Project Dominance (*Does the project dominate the existing setting?)*
- View Impairment (*Does the project obscure or impair significant views or alter the character of a visually important scene?)*

As with Visual Quality and Sensitivity, the Impact Severity is rated as high, medium and low. This model concludes with a matrix comparing the Visual Quality, the Visual Sensitivity and the Impact Severity into a concluding statement of the level of visual impact.

3.2.4.4 Sinclair-Thomas Model

To help interpret the ZVI map and verify the conclusions drawn regarding the significance of the potentially affected views, a matrix (Table 3.2-1) including the Sinclair-Thomas number (visual sensitivity model shown in Table 3.2-1), location, and height of the WTGs, is provided to better define the degree of impact. These zones and definitions were developed in the United Kingdom through systematic observations of wind energy installations in England and Wales undertaken to define the potential for WTG visibility as a relationship of height to distance. The assessments represented in this matrix represent the worst-case situations (Sinclair-Thomas, 1999).

Information contained in Table 3.2-1 is used in conjunction with other standard visual analysis techniques to arrive at the final impact assessments identified in Section 3.2.5. For example, as specified in Table 3.2-1, the Sinclair-Thomas Model is based on turbines of 312 feet in height. Since the proposed Project turbines are up to 397 feet in height, the Sinclair-Thomas Model can only provide general guidance for impact assessment, but cannot be applied specifically and therefore other visual analysis techniques are used in conjunction with this model. As one would expect, the areas most adjacent to the Project have the highest potential to generate significant visual impacts.

TABLE 3.2-1
Sinclair-Thomas Model (Based on Turbines 95 meters or 312 feet in Height)

Descriptors	Band	Distance (miles)
Dominant impact due to large scale, movement, proximity, and number	A	0-2.49
Major impact due to proximity capable of dominating landscape	B	2.49-4.66
Clearly visible with moderate impact: potentially intrusive	C	4.66-7.46
Clearly visible with moderate impact: becoming less distinct	D	7.46-10.5
Less distinct: size much reduced but movement still discernable	E	10.5-13.67
Low impact, movement noticeable in good light: becoming components in overall landscape	F	13.67-16.77
Becoming indistinct with negligible impact on the wider landscape	G	16.77-21.75
Noticeable in good light but negligible impact	H	21.75-24.85
Negligible or no impact	I	24.85
Suggested radius for ZVI analysis		18.64

3.2.4.5 Application of Methodology

3.2.4.5.1 Methodology for KOPs 1 thorugh 10, Draft EIR, July 2007

The visual simulations for KOPs 1 through 10 as presented in the Lompoc Wind Energy Draft EIR, July 2007, were prepared based on the applicant's proposed project at that time (WTG heights ranging from 436 feet to a maximum of 492 feet) and anticipated WTG locations within the defined turbine corridors.[1]

Using the ZVI map and the standard CEQA criteria related to visibility from roads, parks, and public spaces, a series of KOPs representative of views from defined public areas was selected for further detailed analysis. The KOPs were reviewed with both County staff and the Applicant. Once the KOPs were identified and baseline photographs taken, simulations were prepared that take into account on-the-ground elements such as adjacent urban development, landscaping, and other factors that could affect views of the Project.

The simulations were developed by using several additional computer programs to compensate for the lack of precise WTG locations and the generalized nature of the topography for this area, which was taken from maps supplied by the USGS. Regarding the WTG location, since actual locations were not supplied by the Applicant, the consultant team (CH2M HILL) developed a reasonable maximum wind farm concept using Applicant-identified development corridors and generally accepted WTG location criteria as defined in the project description. The result is an 80 unit worst-case LWEF layout that is used as the basis for this analysis.

The location of each WTG was set using the same base map as that developed for the ZVI map. To develop this information into a three-dimensional model, the USGS map with WTG locations was then overlaid onto Google Earth (a 3-dimensional mapping program that is available on the Internet for large portions of the world via satellite photography).

Using "SketchUp," a 3-dimensional computer program, the WTGs were modeled, then placed on the Google Earth/USGS base, with the base of the tower on the appropriate contour (Figures 3.2-6 and 3.2-7). The Google Earth model was then rotated into the same view as the baseline photographs and the horizontal location of the WTG was transferred to a working copy of the baseline photograph for the KOP under review. The WTGs were also rendered in a Photoshop program to add shadows and other characteristics to make them appear close to the real world situation.

The accuracy of this process is limited by the general nature of the information of the worst-case WTG layout and the computer interpolation of the USGS topographical information. An additional ±5 feet of variation could exist on WTG height, given the small scale of the documentation for the Google Earth exercise.

An analysis on a KOP-by-KOP basis was then undertaken using the simulations as a base and evaluating the impacts using CEQA and County Significance Criteria as integrated into the Smardon process. These factors were combined to determine the class of impact.

[1] As presented in Section 2.0, since the Draft EIR was published, the applicant has reduced the maximum WTG height from 492 to 397 feet. A map was also provided by the applicant that identified the location of 65 WTGs within the previously identified corridors in accordance with resource, setback, and VAFB restrictions (see Figure 2-2). The final locations for the substation, O&M facilities, staging area, and power line were also provided.

Possible mitigation measures were also examined that could reduce significant impacts to a less than significant level. A concluding effort was done to compare the CEQA class of impact results with the Sinclair-Thomas Model to provide an alternative evaluation method.

3.2.4.5.2 Methodology for KOPs 8 (revised), 11, 12, and 13

In recognition of project description refinements made by the applicant since the publication of the Lompoc Wind Energy Project Draft EIR, July 2007, and comments received on the Draft EIR, analysis and simulations for KOP 8 were revised and KOPs 11, 12, and 13 were added to Section 3.2 as follows:

- KOP 8 (revised): The daytime and nighttime simulations from La Purisima Mission (KOP 8) were redone to confirm the project's visual presence from this location. Note that the original location of KOP 8 was re-occupied at the Mission and new photographs were taken.
- KOP 11: Establish new KOP on Upper San Miguelito Road.
- KOPs 12 and 13: Establish new KOPs at Miguelito County Park.

While KOPs 1 through 7, 9 and 10 reflect the original applicant's original proposal for WTGs up to 492 feet tall, the simulations for these KOPs were not redone since the currently proposed use of the shorter WTGs (397 feet maximum) would not change the impact classifications for these visual vantage points.

At KOP 8 and at each new KOP (11, 12, 13), photographs were taken with a Canon-20D (8.2 megapixel) high resolution digital camera equipped with a fixed focal length "normal" lens. The photographs were taken under clear sky conditions to create simulations in which the WTGs are highly visible, i.e., "worst case" scenario. The use of a 35mm film camera with a "normal" focal length has been the accepted professional standard for creating photographic images that are the equivalent of what is seen by the human eye.

USGS topographical quad maps were initially employed as a background reference. Auto-CAD drawings were provided by the Applicant, showing contour lines for the entire Project Area, including locations of all proposed WTGs, access roads, O&M building, substation, and aboveground power line. These AutoCAD drawings, showing topography and proposed Project structure locations and orientations were used to generate a digital terrain model. This terrain model and corresponding camera positions and orientations were correlated into the same 3D coordinate space as the USGS topo map and the photographs

Next, the photography was imported into the 3D database and loaded as an environment map, within which the camera view of the 3D model was generated. From here, the 3D wire frame models of the proposed Project and structures were displayed, along with the terrain model, so that proper alignment, scale, angle, and distance could be verified. Necessary layers were then created within the photography, representing foreground, middleground, and background, with respect to the 3D model and its appropriate position within the topography. Once the final composite for each simulated view was completed, additional filters designed to achieve atmospheric conditions such as blur, haze, etc., were applied, as appropriate. The WTGs were rendered in a light gray color (RAL 7035). Under some conditions (sunlight, atmosphere, background) they may appear nearly white. Under other conditions they may appear gray.

The simulations were presented in full 11" x 17" format to increase realism of the simulations when viewed at a distance of 18 inches.

3.2.5 Project Impacts, Mitigation, and Residual Impacts

3.2.5.1 Description of Visual Components of the Project

The major Project components include ~~60 to 80~~ 65 WTGs, new access roads and road improvements, a communication system, meteorological towers, an operations and maintenance (O&M) facility, onsite electrical collection and distribution lines, an onsite electrical Substation (Project Substation), and a new 115-kV power line (Figures 2-2 and 3.2-5).

Lompoc Wind Energy Power Line

The power line route is approximately 8 miles long, extending from the Project Substation ~~along~~off of San Miguelito Road and over a series of ridges to a connection with the PG&E system in Lompoc. A portion of this line would be adjacent to SR-1, as it approaches Lompoc, from the south and east (Figure 3.2-8). ~~Since no~~ Angle points, but not specific pole locations were included in the project description; therefore, the following assumptions were made as a "reasonable worst case" for this analysis. The Applicant stated that the typical configuration would be similar to that shown in Figure 3.2-9C with an underhanging insulator configuration on wooden poles 60 feet in height. The typical pole spacing was assumed to be 250 feet and this was considered to be a reasonable worst case. However, actual pole spacing could be up to 1,000-foot spans depending on terrain and design factors. The poles adjacent to San Miguelito would be in the same location as the existing poles but be extended in height to allow for the additional conductors to be placed above the existing power lines.

Wind Turbine Generators

The WTGs would be ~~315~~ 389 to ~~492~~ 397 feet in total height, from foundation to blade tip, with the greater height typical. Refer to Section 2.3.1.1 for a detailed description of WTG spacing and configuration. The WTG towers would be ~~200 to 330~~ 80 meters (262 feet) in height, constructed of heavy-duty, epoxy-coated, welded steel, and would form a conical shell. They would taper from approximately 15 ~~18~~ feet in diameter at the base to 7 feet at the nacelle (portion of the WTG where mechanical components are housed), as shown on Figure 2-~~65~~. The WTGs would be of the three-bladed, horizontal axis design, the type installed in most modern, commercial wind farms (Figures 2-4 and 3.2-9). The blades would be approximately ~~115~~ 126 to 135 ~~165~~ feet long. The FAA would ~~could~~ require lights on ~~at least~~ some of the WTGs, consistent with FAA guidelines. This analysis assumes that a synchronized flashing red light would be mounted on the top of the nacelle of the WTG located at the end of each WTG string; additional WTGs within the string also would have such a light, so that the maximum distance between lit WTGs would be no greater than 2,640 feet. ~~These lights would be placed in compliance with FAA guidelines.~~ However, because the Project area is located within VAFB restricted airspace, the FAA might determine an alternate WTG identification system based upon activities and needs of VAFB.

Other Operational Facilities

Each array of WTGs would be interconnected via cables. The cables would run underground from the base of each WTG and connect to a riser linking the underground

system to overhead 34.5-kV distribution lines within the Project area. Where deemed necessary to avoid ground disturbance and environmental impacts, cables would be mounted on aboveground poles.

The O&M facility would be located near the corner of San Miguelito Road and Sudden Road (Figures 2-2 and 2-7), would occupy approximately 2.0~~2~~ acres, and include a main building with offices, spare parts storage, restroom, a shop area, outdoor parking facilities, a turn around area for larger vehicles, outdoor lighting, and a gated access with partial or full perimeter fencing. The O&M building itself would be a pre-engineered metal building with a foundation footprint of approximately 50 by 100 feet.

Power from the overhead and underground distribution system would be delivered to the Project Substation located ~~adjacent to~~near the O&M facility (Figure 2-2). The Project Substation would be approximately 2 acres in size, within a fenced enclosure, and would consist of four components: a low voltage switchgear rack, step-up transformer, 115-kV switchrack, and a control building (Figure 2-7~~6~~, Inset D).

During Project construction, staging areas would be created and used for temporary storage of construction material and equipment (Figure 2-2). Each staging area would be scrubbed of vegetation and covered with a gravel base material and secured by an 8-foot-tall chain link fence surrounding the area, and accessed with a drive-through gate.

When construction of the Project was complete, each staging area would be dismantled, and the fence and base material would be removed; the base material would be redistributed on the existing gravel roads. The sites would be re-vegetated with material salvaged from the original scrubbing of the site vegetation.

Light and Glare

Turbine Lighting

To respond to the aircraft safety lighting requirements of the FAA, the Project would be marked according to guidelines established by the FAA. FAA guidelines for lighting of WTGs call for lights that flash red (at 2,000 candela) at night. These lights are designed to concentrate the beam in the horizontal plane, thus minimizing light diffusion down toward the ground and up toward the sky. Aside from any required aircraft warning lights, the WTGs would not be illuminated at night.

Related Facility Lighting

It is assumed that basic safety lighting would be provided at entries and parking spaces of facilities such as the O&M facility and Project Substation. Given the remote location of these facilities, this lighting is not considered to generate potential impact given the relatively similar lighting of the nearest residences or agricultural structures.

Shadow Flicker

Shadow flicker, or strobe effects, could occur only if a WTG is located in close proximity to a receptor, and is in a position where the blades interfere with very low-angle sunlight. The Project is not expected to result in any shadow flicker effect to any sensitive receptors, such as residences, due to the distance of more than 500 feet to the nearest residence, which is beyond the distance where shadow flickers can create impacts.

Atmospheric Haze and Fog

This section of the California coast is well known for the amount of haze and fog generated by the atmospheric and coastal conditions. The closest recorded representative data for the Lompoc Valley is Santa Maria which records an annual average of 87 days of haze and fog (WRCC, 2007). It is also noted that the primary wind direction is from the northwest. Therefore, since the WTGs would rotate to face the wind, the visual effects of the WTG blades would be reduced from areas to the northeast (perpendicular to the wind direction).

3.2.5.2 Selection of Key Observation Points

Each of the described landscape areas (Landscape Areas 1 through 5 ~~4~~ below) was reviewed in the field to select representative KOPs that would demonstrate the "reasonable worst case" views. In several cases, while a particular location would be occupied by highly sensitive viewers, the possibility was that actual visibility would be minimal. However, these KOPs have been retained to graphically demonstrate the actual level of impact.

Landscape Area 1

The primary public views of this relatively undisturbed area are provided by SR-1 (Cabrillo Highway) and Jalama Road (Figure 3.2-1, Photos 1 and 2). Review of the maps and the Sinclair-Thomas tables determined that the greatest potential to view the WTG aspect of the Project would be from SR-1 just before its intersection with Jalama Road. KOP 1 (Figure 3.2-11) views directly toward the most easterly array of WTGs, and is approximately 5 miles distant from them. Several other views are included in the context photos (Figures 3.2-1 through 3.2-4). In addition, the power line would cross SR-1 at the southern city limits of Lompoc.[2] This area is represented by KOP 2 (Figure 3.2-12), which shows the area of the potential highway crossing by the power line and its transition toward the west over an intervening ridge toward San Miguelito Canyon. KOP 3 (Figure 3.2-13) is selected to show potential impacts of the replacement power line along San Miguelito Road, as one returns from Miguelito County Park located about 3 miles south of the City of Lompoc business district.

Landscape Area 2

This area represents views from the coastal areas, and more specifically, publicly accessed beaches. KOP 4 (Jalama County Beach, Figure 3.2-14) lies 4.5 miles south of the most westerly array of WTGs. KOP 5 (Figure 3.2-15) is representative of views from Ocean County Park and Surf State Beach. This view is taken from 7.5 miles away and views the most northwestern WTG array. Tranquillon Mountain is just visible at the center of the photo.

Landscape Area 3

In this area, the City of Lompoc area is represented by KOPs 6 and 7. The older and more southern portions of the city are shielded from the Project area by an intervening series of hills. However, Project components would be visible from streets in the community north of Lemon Street. KOP 6 (Figure 3.2-16), at Tangerine and 7th Streets, represents the eastern portion of Lompoc with a generally oblique view south and west toward the eastern

[2] If Power Line Route Alternative 1 is selected (Section 5.3.2), the existing 115 kV power line that crosses SR-1 just inside the Lompoc City limit would be reconductored and the second line crossing SR-1 would not be built.

portions of the WTG arrays. KOP 7 (Figure 3.2-17), at Lemon Avenue, represents views from the more westerly residential streets that view south toward the Project area.

Landscape Area 4

The northern valley and the Purisma Hills area are represented by three KOPs. While somewhat more distant than some of the other areas, the local topography is such that views from this landscape area would be broader ranging. In other words, more of the WTGs have the potential to be viewed at the same time. KOP 8 (Figure 3.2-18) is taken from the open field within the confines of the State Historic Park at Mission La Purisima approximately 7 miles from the northern edge of the Project. Of concern would be whether the construction of the Project would alter the historical context of the Mission grounds. KOP 9 (approximately 7.5 miles north of the Project, Figure 3.2-19) was selected as representative of views from the public areas of Mission Hills and to a lesser extent Vandenberg Village. Harris Grade Road (similar to Rucker Road) is one of the major access points from the Lompoc Valley and the SR-1/Purisima Road corridor into the residential communities on the bluffs of Purisima Hills. Finally, KOP 10 (Figure 3.2-20) represents views from the northwestern end of the Lompoc Valley near the VAFB Gate area (SR-1 at Timber Lane). KOP 10 is approximately 10 miles distant from the Project, and offers the most panoramic view.

Landscape Area 5

Miguelito County Park is located on San Miguelito Creek and is accessed by San Miguelito Road. The Park is about 3 miles south of the City of Lompoc business district. Miguelito County Park and the entrance to the Project area along San Miguelito Road are represented by three new KOPs. These three KOPs represent public views from an established recreation area (Miguelito County Park) and a two-lane paved road (San Miguelito Road) that is used by local residents (both participating and non-participating landowners), sight-seers, bicyclists, runners, and bird watchers (see Section 3.10.1.1).

KOP 11 (see Figure 3.2-27) represents views from the upper portion of San Miguelito Road near its intersection with Sudden Road. KOP 11 is within the Project area.

KOP 12 (see Figure 3.2-28) is outside Miguelito County Park, on San Miguelito Road, near the northern parking area and overflow parking area. KOP 12 is approximately 1.44 miles from the closest WTG in the Project area, which is WTG #34 on La Tinta Hill. KOP 12 also is representative of the views along San Miguelito Road for approximately 0.5 miles while approaching the Park (see Figure 3.2-29). KOP 12 was selected by the consultant and County staff before WTG locations on La Tinta Hill had been finalized by the Applicant. Therefore, this location presents a view to only three of the four WTGs that would be located on La Tinta Hill. Other views along this one-half mile stretch of road north of the Park would offer views to all four WTGs. There would be long duration, close-up views of four WTGs for recreationists as they approach the Park.

KOP 13 (see Figure 3.2-30) represents one of the worst case views to the Project from within the Park, as existing vegetation screens most of the Project from inside-Park views, except for this view from the extreme north end of the picnic area. KOP 13 is approximately 1.38 miles from the closest WTG, which is WTG #34. A similar close-up view to WTG #34 would be available from the extreme south end of the Park near the existing Comfort Station.

Figure 3.2-10 shows the location of the selected KOPs and they are summarized as follows:

- KOP 1: SR-1 near El Jaro Creek (5 Miles East of the Project)
- KOP 2: SR-1 View of Power Line Crossing (1.25 Miles Southeast of Lompoc)
- KOP 3: San Miguelito Canyon View toward Power Line Crossing (0.9 Mile South of Lompoc)
- KOP 4: Jalama Beach County Park (4.5 Miles South of Project)
- KOP 5: Surf Beach Parking Lot (7.5 Miles Northwest of Project)
- KOP 6: Lompoc East: 7th Street at Tangerine (5.5 Miles North of Project)
- KOP 7: Lompoc West: Lemon Avenue at "X" Street (4.75 Miles North of Project)
- KOP 8: Mission La Purisima (7 Miles North of Project)
- KOP 9: Harris Grade (7 Miles North of Project)
- KOP 10: SR-1: Vandenberg AFB Entry Near Timber Lane (10.5 Miles North of Project)
- KOP 11: Upper San Miguelito Road (Inside Project Area (near the intersection of San Miguelito Road and Sudden Road)
- KOP 12: San Miguelito Road outside Migeulito County Park (approximately 1.44 miles northeast of closest WTG [34])
- KOP 13: Inside Miguelito County Park (approximately 1.38 Miles northeast of closest WTG [#34])

3.2.5.3 Thresholds of Significance

Based on the thresholds that are identified in CEQA Appendix G, and expanded upon in the County of Santa Barbara Environmental Thresholds and Guidelines Manual, impacts would be significant if the Project would:

- Have a substantial adverse effect on a scenic vista
- Substantially damage scenic resources
- Substantially degrade the existing visual character or quality of the site and its surroundings
- Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area

3.2.5.4 Construction Impacts

The visual aspects of construction involve two generally separate types of activity. First there would be general grading and site preparation, in which there would be moving equipment and clearing of temporary laydown areas and access roads, and setup of various small construction offices and storage units. The second would be the erection of the WTGs and associated power lines. While construction could occur in two to three phases, each phase is projected to occur in a 6-month period (Table 2-3). The first part of each construction phase would involve mostly onsite activities; the second would also include delivery of the Project components, including the very large WTG parts, and would affect those living and utilizing the travel corridors during the period of construction.

Visual Effect of Construction Activities

The onsite aspects of grading and site preparation, given the nature of the topography and the distance from critical viewing areas, would not be visible from any of the KOPs, and might be visible only from the ranches within the Applicant-leased areas (considered participating residences) or from adjacent ranches (considered nonparticipating residences). The second part of construction would be more visible, as the components being moved during the erection process are relatively large and would be high (up to 492 feet). They would be visible as they are transported to the Project area and would also be noticeable from various KOPs as they are moved into final position. The visual impacts of the trip to the site are considered short-term (less than a year in total duration) and less than significant, since they involve no permanent changes. The erection process would also be short-term and ultimately the impacts would vary by KOP. These impacts would be short-term and adverse, but less than significant *(Class II)* due to their temporary nature.

Construction of the power line would be visible along both SR-1 and San Miguelito Road. Construction activities would include moving equipment, clearing and delivery of materials to the laydown areas and erection of the poles and power lines. The construction process would take less than 6 months and is, therefore, the impact is considered, adverse, but less than significant (*Class III*).

3.2.5.5 Operation Impacts

Operational components of the Project could be visible from various areas represented by the KOPs defined in Section 3.2.5.2. Potential impacts are assessed and presented for each of the KOPs (including an assessment of nighttime light and glare) and summarized in Table 3.2-2. Impacts are then synthesized and summarized for the Project as a whole.

Impact Evaluation by KOP

The level of visual impact is measured by assessing the visual change created by the Project as compared to the existing levels of visual quality and viewer sensitivity. Daytime impacts are identified for each KOP and summarized in Table 3.2-2. The evaluation of impacts includes County requirements specific to WTGs, as well as the more general CEQA requirements.

KOP 1: SR-1 Near El Jaro Creek (5 Miles East of the Project). This location is representative of the first major view of the WTG array from the east along SR-1 (Figure 3.2-11). Any visible WTGs would be seen at a distance and would be partially hidden by the intervening ridge.

View Quality and Viewer Sensitivity: The scenic qualities and viewer sensitivities are both rated as moderately high, because this is a scenic highway in a relatively pristine natural area with harmonious rural, and man-made elements. The duration of views is moderate, and the number of viewers is also moderate; 9,500 average daily traffic (ADT) trips occur along this section of SR-1 (Caltrans, 2006).

Impact Severity: The impact of the addition of the Project area (seen when comparing Figure 3.2-11, Photo A, baseline, with Photo B, simulation) is that the WTGs are both distant and relatively small when compared with the whole scene. While there is the potential to silhouette, as the simulation shows, this is not clearly discernable at this distance under most viewing conditions. However, the WTGs might be visible at some time of the day and are, therefore, considered an introduction of a relatively incompatible element into this

otherwise somewhat intact scene. This evaluation is consistent with the Sinclair-Thomas Model that identifies the Project area as visible with moderate impact, depending on the circumstances. Therefore, the impact severity is classified as moderate. Use of low impact colors and the ruggedness of the topography would be mitigating factors from this KOP.

Impact Level: The level of impact from KOP 1 is classified as moderate—that is, adverse but less than significant *(Class III)*.

KOP 2: SR-1 View of Power Line Crossing (1.25 Miles Southeast of Lompoc). This location represents the end of the rural portion of SR-1, south of the City of Lompoc, at the White Hills gateway to the Lompoc Valley (Figure 3.2-12). The views are of open hills with few trees or major features and little evidence of urban development. The potential change to this view would be the addition of a new power line, which would enter the view at the small valley at left, ascend the ridge at mid-photo and proceed over the top toward the substation in Lompoc. This location is representative of the "worst-case" scenario for travelers along the SR-1 corridor. (Pole spacing is shown as 250 feet, the minimum distance proposed, which maximizes the number of poles.) As discussed in Section 5.3.2, an Applicant-proposed alternative power line route was developed to minimize the visual impacts associated with the Project power line from SR-1 (see Section 5.3.2).

TABLE 3.2-2
Summary of Visual Impacts

KOP No.	Quality	Sensitivity	Impact Severity	Impact Level	
				Daytime	Nighttime
1 (Figure 3.2-11) Hwy 1 Rural	Moderate-High	Moderate-High	Moderate	Class III	Class III
2 (Figure 3.2-12) Hwy 1 Lompoc	Moderate-High	Moderate-High	High	Class I *	NA
3 (Figure 3.2-13) San Miguelito Rd.	Moderate	Moderate-High	Moderate-High	Class III	NA
4 (Figure 3.2-14) Jalama Beach	High	High	High	Class I	Class I
5 (Figure 3.2-15) Surf Beach	Moderate-High	High	Low	Class III	Class III
6 (Figure 3.2-16) East Lompoc	Moderate	Moderate	Low	Class III	NA
7 (Figure 3.2-17) West Lompoc	Moderate	Moderate	Moderate	Class III	Class III
8 (Figure 3.2-18) Mission Purisima	High	High	Low	Class III	Class III
9 (Figure 3.2-19) Harris Grade Rd.	Moderate-High	Moderate-High	Moderate-Low	Class III	Class III
10 (Figure 3.2-20) VAFB: main gate	High	Moderate	Moderate-Low	Class III	NA
11 (Figure 3.2-27) Upper San Miguelito Rd	Moderate-High	Moderate-High	High	Class I	NA
12 (Figure 3.2-28) Outside Miguelito Park	High	High	High	Class I	NA
13 (Figure 3.2-30) Inside Miguelito Park	High	High	High	Class I	NA

Notes:
* Can be reduced to Class II impacts with the Applicant-proposed alternative power line route.
`NA Not Applicable

View Quality and Viewer Sensitivity: As with KOP 1, the scenic qualities and viewer sensitivity are both rated as moderately high, because this is a scenic highway in a relatively pristine natural area with harmonious rural and man-made elements. The duration of views is extended (over a minute), and the number of viewers is moderate at 9500 ADT.

Impact Severity: While the addition of the power line (Photo B of Figure 3.2-12) is not massive in the way a structure might be, it does silhouette the skyline in an area where there has been no previous silhouetting. Based upon the reasonable worst-case scenario, wherein 60-foot-high wood poles spaced 250 feet apart were simulated, at least five poles would silhouette from this location directly in front of northbound travelers. The poles at the right end of the visible line directly in front of the traveler would be the visually most intrusive. These poles would be most visible in the early morning when they would appear dark with the sun backlighting them from the east, and in the late afternoon when they would appear light gray with highlights when the sun angle is low and from the west. The relative height and projection of the ridgeline poles would increase as the traveler progresses northward and gets closer to the curve in the center of the photo, just above the trees. This condition exceeds the standards established by the County of Santa Barbara wherein "structures shall be subordinate in appearance to natural landforms…. and shall be sited so as not to intrude into the skyline as seen from public viewing places." The impact severity is therefore classified as high.

Impact Level: Given that the existing setting and viewer expectations are classified as moderately high, and because this portion of SR-1 is designated as a scenic highway under the Comprehensive Plan of the County and the City of Lompoc Urban Design policies, the impact from KOP 2 would be significant and unavoidable (*Class I*).

KOP 3: San Miguelito Canyon View toward Power Line Crossing (0.9 Miles South of Lompoc). This location represents views along the relatively scenic San Miguelito Road heading north from Miguelito County Park and the large ranches beyond toward Lompoc (Figure 3.2-13).

View Quality and Viewer Sensitivity: The view quality is rated moderately low in the area immediately south of the City of Lompoc, because the area has small houses and scattered farms on the west and the railroad spur to the Celite operation in the White Hills on the east of the road. After approximately 2 miles, the view quality becomes increasingly natural (approximately at the area where the photographs of KOP 3 are taken) and would be classified as moderate. Viewer sensitivity would be rated as moderately high, since many of the travelers would use the road for recreational or scenic purposes. However, while the duration of views of the new power line would be moderate, the number of viewers is classified as low (based upon personal observation during field analysis and extrapolated ADTs as discussed in Sections 3.13 and 3.14). In conclusion, the view quality and viewer sensitivity are considered moderate.

Impact Severity: The replacement of the existing power lines with higher pole structures would result in slightly greater silhouetting of the sky, as shown on the left (west) side of San Miguelito Road (Figure 3.2-13, Photo B). Further, there would be the addition of new structures on the right (east) side of San Miguelito Road. In this case, while the new structures do silhouette, they are seen within the context of existing power poles that also silhouette. Therefore, the impact severity is classified as moderately high.

Impact Level: Combining the view quality and viewer sensitivity criteria with the impact severity results, the impact from KOP 3 would be adverse, but less than significant *(Class III)*.

KOP 4: Jalama Beach County Park (4.5 Miles South of Project). The location is from Jalama Beach County Park. This park faces the Pacific Ocean ~~Channel Islands~~ and provides overnight camping, trailer spaces, and amenities (Figure 3.2-14). This view is representative of the majority of the visitors in the Park Campground area. While the view of the WTGs on the western most ridge would increase somewhat as a beach user walks north along the beach, some of the more easterly WTGs would be reduced somewhat in height because of the adjacent topography. Some portion of the LWEF would be visible from almost the entire park except where local structures could provide temporary interruption or from the southernmost portions that are cut off by the existing dunes and bluffs.

View Quality and Viewer Sensitivity: While the primary views are toward the ocean, the whole scene is one of almost undisturbed natural beauty. The mixture of dramatic bluffs and varied vegetation contrasted with the Pacific Ocean are the major contributing factors. These contrasts include vertical and horizontal form, texture, and color. While components of the railroad and some distant VAFB facilities are visible, there is minimal intrusion on the existing views. Any visual evaluation must recognize that these views would be obscured by the marine layer that is frequently present at this location especially during summer mornings. During visible times, however, the overall view quality is rated high and is considered one of the primary attractions of this beach. Viewer sensitivity is also high, since almost all visitors come to the park for recreational purposes that include appreciation of the natural setting. The level of viewer sensitivity, the duration of the views (which is classified as long because many visitors remain at the park and do not simply pass through) raises this rating to high sensitivity.

Impact Severity: The addition of WTGs to the view (13 are visible), while not obscuring a large expanse of the view, would certainly visibly silhouette as shown on Figure 3.2-14 and would attract viewer attention with the movement (flicker factor) at this location. These elements together are also considered to generate a significant contrast to the existing natural setting. The WTG color would also be out of character with the rest of the landscape. The Sinclair-Thomas methodology assigns a potential of a "major impact" (Table 3.2-1). The impact severity is rated as high.

Impact Level: Given that the scenic quality is high, viewer sensitivity is high, and the impact severity is high, the impact from KOP 4 would be significant (*Class I)*. Screening is not a viable option. While removal or relocation of 13 of the western most WTGs would reduce the level of visual impacts, this option is not considered a viable mitigation measure because the affected WTGs are in one of the prime wind resource areas of the Project. However, this level of change is considered as an alternative and is discussed in the Alternatives Analysis section (Section 5.3.1).

The Applicant has stated that they will not site WTGs in the westernmost portion of the West Corridor, as shown on Figure 2-2, in the immediate vicinity of the two westernmost WTGs depicted on Figure 3.2-10. Although the removal of these WTGs would reduce visual impacts, the change would not be sufficient to change the level of impact.

KOP 5: Surf Beach Parking Lot (7.5 Miles Northwest of Project). This location is representative of the more northerly beach areas of Surf Beach and the Ocean Beach County Park and is included to assess any potential impacts from these public resources (Figure 3.2-15).

View Quality and Viewer Sensitivity: The view quality of these two beaches is somewhat less than that described for the Jalama County Beach, since the various landform elements are less dramatic. Specifically, there are fewer bluff forms adjacent to the ocean, less vegetation, and less color contrast. Therefore, the view quality is rated as moderately high given the natural character of the area with the only distraction being the more visible proximity of the railroad embankments, the bridge over the Santa Ynez River, and some distant communication poles and VAFB tracking facilities. Viewer sensitivity is rated as high. Most visitors primarily come for the natural views and the beach experience. The duration of the views is also relatively long, though the primary views would be toward the shoreline and not the interior hills toward the Project.

Impact Severity: The Project would not be seen from the northern portion of the Surf Beach area (Figure 3.2-5). From the southern portion of the beach area, the relatively distant view of the Project WTGs (over 7 miles away) would be seen within the context of the existing pole structures. The severity is classified as low.

Impact Level: The impact from KOP 5 would be adverse, but less than significant *(Class III).*

KOP 6: Lompoc East: 7th Street at Tangerine (5.5 Miles North of Project). This location was selected as representative of the eastern sector of the City of Lompoc where the potential for viewing the Project first could be realized as the viewer moves to the north through the urbanized area (Figure 3.2-16). Note that the southern half of the City is protected from viewing the Project by the intervening hills near the mouth of San Miguelito Canyon (ZVI Map, Figure 3.2-5).

View Quality and Viewer Sensitivity: Views from this sector toward the Project area are filtered through an urban mix of adjacent structures and street trees. There is never an expanse of view, such as those possible from the previous KOPs. The scene is relatively fragmented, and the views are dominated by foreground objects such as streets, traffic, and structures. The view quality is rated as moderate. Viewer sensitivity is also rated as moderate, since very few people would be in this area or on the public streets for recreational purposes or to take advantage of the views. This is not to say that the residents in the area are insensitive to the views, but rather that they would have lower expectations or sensitivity than those visiting the beach areas. Duration of views would also be relatively short.

Impact Severity: As demonstrated by the simulation and confirmed in the Sinclair-Thomas table (Table 3.2-1), WTGs at the distance of 5.5 miles would be visible. They would be proportionately so small that they would not impair views, significantly silhouette the skyline, or provide contrast to the surrounding landscape. Only on a clear day, in the early morning when the sun could strike the WTG, providing a white contrast—or just before sunset, when some of the WTGs could silhouette—is the Project likely to be visible. The impact severity is classified as low.

Impact Level: Given that the view quality and viewer sensitivities are moderate and the impact severity is low, the visual impact from KOP 6 would be adverse, but less than significant *(Class III)*.

KOP 7: Lompoc West: Lemon Avenue at "X" Street (4.75 Miles North of Project). This location was selected as representative of the western residential areas of Lompoc, as well as the more centralized commercial core along O Street (SR-1, Figure 3.2-17). Views of the Project area are fragmented and distant, usually glimpses down streets that face south. This KOP represents the most open vista found in this portion of the city. The views are obscured by closer vehicles, street trees, and adjacent structures. The view quality is rated moderate. As with KOP 6, the view sensitivity is rated as moderate for the same reasons.

Impact Severity: From this general area on the western portion of the City of Lompoc, the Project site tends to be more visible given the north/south direction of the streets that face the Project area (Figure 3.2-17, Photo B). The Sinclair-Thomas Model rates the Project as visible with the potential impact as moderate. However, the WTGs would be distant and, except as noted in the analysis of KOP 6 above, not very visible for most of the day. The impact severity is rated as moderate.

Impact Level: The impact from KOP 7 would be adverse, but less than significant (*Class III).*

KOP 8: Mission La Purisima (7 Miles North of Project). As presented in Section 3.2.3, La Purisima Mission is a designated National and State Historic Landmark. The Mission site ~~This location~~ is unique in that it represents one of the best-preserved California mission compounds in the state and is an important state park (Figure 3.2-18). Part of the attraction of Mission La Purisima is that the visitor, once inside the Mission grounds, (across the small creek and away from the paved parking lot and modern looking visitor center), is mentally carried back almost 200 years to a California at the time of the coming of the Spanish.

View Quality and Viewer Sensitivity: Given the natural setting at the base of a small canyon with reconstructed centuries-old structures framing the views of the Lompoc Valley and the hills beyond, the view quality and setting is highly coherent, harmonious, and evocative of a different time. Urban areas are screened by a row of trees facing SR-246, although traffic noise is evident from this busy highway. The view quality is high; view sensitivity is also rated high, since the primary reason for coming to this state park is to experience a re-enactment of past times. The number of visitors might not be high, but the duration of the views is classified as long because pedestrians move in the open area adjacent to the Mission in the primary cone of vision facing the Project (Figure 3.2-18, Photo A).

Impact Severity: The new daytime simulation of the Project (see Figure 3.2-18b) demonstrate~~d~~ that ~~during the highest use portions of the day, the Project would not be visible given the Project~~ up to 10 WTGs would be visible from the Mission when looking south and that the tips of the blades of some of the WTGs would be skylining. However, the simulation presented in Figure 3.2-18b assumed that six of the WTGs would be 436 feet in height; the other four WTGs were simulated at 389 feet. Since the applicant has since reduced the maximum WTG height to 397 feet, the skylining of the blade tips would be reduced from what is presented in Figure 3.2-18b.

Given the Project distance from the Mission grounds (seven miles), gray coloration of the WTGs, and typical atmospheric conditions (haze to fog), the Project would be visually evident, but may not unnecessarily attract viewers' attention away from the historic Mission. Further, because of the prominent northwest prevailing winds in the area, the blades would under most circumstances be turned 90 degrees from the view of the Mission contrary to what is presented in the simulation (see Figure 3.2-18b). Finally, as shown on Figure 3.2-18, there are other modern structures visible on the skyline in this same view (i.e., tracking facilities at Vandenberg Air Force Base); therefore, the introduction of modern WTGs into this landscape would not be the first visual intrusion into the viewshed of this historic Mission site. ~~In terms of impact severity, occasionally in the very early morning or late evenings on very clear days the Project might be very visible. These occasions, however, would be for relatively few visitors, and days of this clarity are less than a majority for the area.~~ Therefore, the overall impact severity rating is ~~moderately~~ low.

Impact Level: La Purisima Mission is a designated National and State Historic Landmark. In this instance, with high view quality and viewer sensitivity, but relatively low impact severity, the visual impact from KOP 8 would be adverse, but less than significant *(Class III)*.

KOP 9: Harris Grade (7 miles North of Project). This KOP was selected as representative of the northern slopes of the hills facing the Lompoc Valley including such communities as Mission Hills, Vandenberg Village, and adjacent rural areas (Figure 3.2-19).

View Quality and Viewer Sensitivity: The view is a broad expanse of valley with a backdrop of the White Hills and related mountains. The City of Lompoc is nestled at their base. Agricultural fields typically occupy the middle ground with interspersed residential and agricultural structures, while the foreground is frequently of the more recent residential development that characterizes this area. While the scene has a few discordant components, it is for the most part relatively coherent and creates a landscape that many consider highly desirable for new residences. View quality is rated as moderately high. Factors affecting viewer sensitivity are similar to those evaluated for the City of Lompoc with the slight difference that there is a higher visitor component for those using SR-246 and SR-1 for recreational uses. The number of viewers at 28,000 ADT (Caltrans, 2006) is relatively high and the duration is extended. The viewer sensitivity is rated as moderately high.

Impact Severity: Construction of the Project would result in changes to the distant hills as seen in the simulation (Figure 3.2-19, Photo B). However, given the higher elevation of the views from the northern portion of the Lompoc Valley, many of the WTGs would be seen against a backdrop of the more distant hills. Only the most distant WTG arrays would have the potential to silhouette during the early morning or late afternoon hours. The distance is 7 or more miles, and the visibility would neither be intrusive nor distracting to the viewer. The impact severity is rated moderately low.

Impact Level: With moderately high view quality and viewer sensitivity, and a relatively low impact severity, the impacts from KOP 9 would be adverse, but less than significant *(Class III)*.

KOP 10: SR-1: Vandenberg Air Force Base Entry Near Timber Lane (10.5 Miles North of Project). This KOP represents the first views of the Project area when approaching Lompoc and the Project area from the northwest (Figure 3.2-20). This view, and the even more distant but

similar view when coming down Harris Grade, present the Project context for those commuting to and from the main gate at VAFB, as well as travelers using this portion of SR-1.

View Quality and Viewer Sensitivity: The views from this portion of SR-1 are of an open natural scene (a portion of VAFB) and a backdrop of the more dramatic portion of the hills bounding the southern portion of the Lompoc Valley, including Tranquillon Mountain and Sudden Peak. The view quality is rated high. Viewer sensitivity would be split between those commuting to work at VAFB and tourists. The commuters' viewer sensitivity is rated as moderate, since their primary purpose for utilizing the road is not recreation related. However, the tourist component would be rated as moderately high. The total number of people traveling this portion of the route is moderate (ADT of 16,100), and the duration of views is short (a matter of seconds given the undulating topography). The resultant rating is moderate.

Impact Severity: Given the even greater distance from the Project at 10.5 miles, the impact severity is less than rated for KOPs 8 and 9, since the visual proportion of the Project to the total landscape is reduced. The impact of the Project is less than the adjacent telephone poles and power lines. The impact severity is low.

Impact Level: Given that the view quality is moderately high, the viewer sensitivity is moderate and the severity is low, the impact from KOP 10 would be adverse, but less than significant *(Class III)*.

KOP 11: Upper San Migueltio Road Near Sudden Road (Inside the Project Area). KOP 11 was selected to illustrate the proposed locations of the WTGs, Operation and Maintenance (O&M) Building, electric substation, and power line (see Figure 2-2) as they would be seen from the southern end of San Miguelito Road, near Sudden Road. KOP 11 also is representative of major views from inside the Project area to WTG arrays as seen from Upper San Miguelito Road, at foreground and middleground distances, less than 1 mile away. The WTGs, O&M facility, substation, and power line would be seen at these close-up distances and in great detail (see Figure 3.2-27). At these viewing distances, the WTGs would be particularly visible and would visually dominate the landscape given their 15 foot base diameter, approximate 400 foot heights, and rotating blades. No topographic screening or vegetative screening is available to obstruct the views to these large wind tower/turbines. With evergreen vegetative screening, it would be possible to screen the O&M building and substation to some degree.

View Quality and Viewer Sensitivity: For KOP 11, the scenic qualities and viewer sensitivities are both rated as moderate-high, because this is a scenic rural area that is used primarily for grazing. Man-made elements are limited to primarily the paved road, fences, and agricultural-related structures/equipment. The duration of views is moderate to high, depending on mode of travel, as this road is used by local residents (both participating and non-participating landowners), people driving for pleasure, motorcyclists, bicyclists, runners and birdwatchers. Sightseers regularly travel south on San Miguelito Road to Sudden Road, to experience the ocean views that this area provides. Likewise, recreationists utilize San Miguelito Road and Sudden Road to enjoy the scenic opportunities and limited traffic that these roadways provide. The number of viewers is low, but their sensitivity to scenic quality is assumed to be high, resulting in a moderate-high value for sensitivity.

Impact Severity: At KOP 11, the impact of the addition of the Project (seen when comparing Figure 3.2-27, Photo A, baseline, with Photo B, simulation) is that the WTGs are both immediately adjacent and relatively gigantic when compared with the existing visual environment. While there is the potential to screen the O&M building and substation with vegetation, the WTGs would totally dominate this landscape scene, as illustrated in the simulation. The WTGs would be visible at all times of the day and on moonlit nights and are, therefore, considered an introduction of a relatively incompatible element into this otherwise intact landscape scene. Consulting the Sinclair-Thomas Model (which analyzed WTGs that were only 312 feet tall, instead of the approximate 400 foot tall WTGs of LWEP), this would be in "Band A" and would create a "Dominant impact due to large scale, movement, proximity, and number."

Impact Level: With a moderate-high view quality and sensitivity, and high impact severity, the level of impact from KOP 11 is considered to be significant and unavoidable (Class I). The dominant presence the approximately 400 foot tall, 15 foot base diameter, towers with rotating turbine blades would have in the existing rural setting is the reason this impact is classified as significant and unavoidable (Class I). The power line alone would not result in a significant impact.

KOP 12: On San Migueltio Road outside Miguelito County Park (1+ Miles North of the Project Area). This location is representative of an accumulation of views for the distance of approximately one-half mile while approaching Miguelito County Park from the north along San Miguelito Road (see Figures 3.2-28 and 3.2-29) and is representative of what Park users would experience as they travel to and enter the Park. There would be major views of the WTG array on La Tinta Hill, and WTGs 32, 33, 34, and 35 would be visible from the road. Because of one large evergreen tree in this view, WTG 35 is temporarily screened from view in the simulation, but all four WTGs would be visible from other locations as one travels south along this one-half mile stretch of county road. Four WTGs would be seen at distances of approximately 2 miles to 1.4 miles from the project area, and the lowest portion of the four WTG towers would be partially hidden by the intervening ridge, but the nacelles and blades would be very visually evident and motion of the blades would be detected easily.

View Quality and Viewer Sensitivity: The scenic qualities and viewer sensitivities are both rated as high, because this is a scenic rural area in a relatively natural condition given the wooded area along Miguelito Creek and views to surrounding undeveloped hillsides. Manmade structures along this subject half mile portion of San Miguelito Road include the roadway itself and parallel power line, and parking facilities associated with Miguelito County Park. The duration of views is moderate to high, depending on mode of travel, as this road is used by local residents (both participating and non-participating landowners), picnickers heading to the Park, people driving for pleasure, motorcyclists, bicyclists, runners and birdwatchers. The number of viewers is low to moderate, but their sensitivity to scenic quality is assumed to be high, resulting in a high value for sensitivity.

Impact Severity: At KOP 12, the impact of the addition of the Project (seen when comparing Figure 3.2-28, Photo A, baseline, with Photo B, simulation) is that the WTGs are visible on the skyline and their motion would attract attention when compared with the static nature of the existing visual environment. The WTGs would be visible at all times of the day and on moonlit nights and are, therefore, considered an introduction of a relatively incompatible

element into this otherwise intact landscape scene. Consulting the Sinclair-Thomas Model (which analyzed WTGs that were only 312 feet tall, instead of the 389 foot tall WTGs that would be placed on La Tinta Hill), this would be in "Band A" and would create a "Dominant impact due to large scale, movement, proximity, and number."

Impact Level: With a high view quality and sensitivity, and high impact severity, the level of impact from KOP 12 is considered to be significant and unavoidable (Class I).

KOP 13: Inside Miguelito County Park (1+ Miles North of the Project Area). This location is representative of one of the worst case views of the WTG array on La Tinta Hill from inside Miguelito County Park (see Figure 3.2-30). This view is from the north end of the park at a developed picnic area, and existing vegetation would screen WTGs 32, 33, and 35; only WTG 34 would be seen from KOP 13. Viewing distance is approximately 1.38 miles from the viewer to this WTG. The lower portion of WTG tower would be partially hidden by the intervening ridge as well as vegetation. A comparable worst case view to La Tinta Hill is from the south end of Miguelito County Park, near the group picnic area and restrooms.

View Quality and Viewer Sensitivity: The scenic qualities and viewer sensitivities are both rated as high, because this is a developed recreation area and a scenic rural area in a relatively pristine natural condition with harmonious rural and man-made elements. The duration of views is moderate to high, depending on the recreation event (family picnic, wedding celebration, lunch break, etc.). The number of viewers is high, and their sensitivity to scenic quality is assumed to be high, resulting in a high value for sensitivity.

Impact Severity: At KOP 13, the impact of the addition of the Project (seen when comparing Figure 3.2-30, Photo A, baseline, with Photo B, simulation) is that WTG 34 is both immediately adjacent and visible when compared with the existing visual environment. WTG 34 would attract attention given it's visibility from the park and rotating blades. WTG 34 would be visible at all times of the day and on moonlit nights and is, therefore, considered an introduction of a relatively incompatible element into this otherwise intact landscape scene. Consulting the Sinclair-Thomas Model (which analyzed WTGs that were only 312 feet tall, instead of the 389 foot tall WTGs on La Tinta Hill), this would be in "Band A" and would create a "Dominant impact due to large scale, movement, proximity, and number."

Impact Level: With a high view quality and sensitivity, and high impact severity, the level of impact from KOP 13 is considered to be significant and unavoidable (Class I).

Nighttime Light and Glare Impacts

CEQA requires that potential new sources of light and glare be considered in project evaluations. In this case, construction impacts are not considered significant, given that most of the work would be done during the day, and the Applicant has no plans for major nighttime construction at heights visible from the surrounding community as identified by the KOPs.

Figures 3.2-21 through 3.2-26 were prepared to represent nighttime conditions when the landscape would be most visible, using as a reference basis a time after sunset, and when Project lighting would have the highest probability of being seen by potential viewers. In summary, the only potential light would be from FAA-required beacons at the end of each

array of WTGs, as discussed in Section 3.2.3. Simulations were prepared and the results are illustrated in Figures 3.2-21 through 3.2-26.

KOP 1: SR-1 Near El Jaro Creek (Figure 3.2-21). At this location, when comparing Photo A (baseline conditions) to B (simulated conditions), there is the potential for three to four beacons to be visible. However at the distance of 4.5 miles, it is doubtful that they would be more than barely visible. They would be very small in comparison to lights from adjacent structures or headlights from oncoming cars. The nighttime light and glare impact from KOP 1 would be adverse, but less than significant (*Class III*).

KOP 4: Jalama Beach County Park (Figure 3.2-22). At this location, there is the potential for four to five beacons to be visible. While Figure 3.2-22 depicts the beacons as nearly white, it is more likely that they would be synchronous flashing red beacons, in accordance with FAA regulations. Again at the distance of 4.5 miles, while proportionately small in comparison to the lights from adjacent structures such as the restroom visible in the simulation, they would change the character of the nighttime views. Given the high viewer sensitivity, the impact severity exceeds the threshold of significance. The nighttime light and glare impact from KOP 4 would be significant (*Class I*).

KOP 5: Surf Beach Parking Lot (Figure 3.2-23). At this location, there is potential for the tops of several beacons to be visible (although this could not be accurately determined without precise locations of the beacon towers, which were not provided). However, even if visible, the distance of 7.5 miles and the potential for nearer lighting from the VAFB tracking station lighting would result in an adverse, but less than significant (*Class III*) nighttime light and glare impact from KOP 5.

KOP 7: Lompoc West: Lemon Avenue at "X" Street (Figure 3.2-24). At this location, there is the potential for two to four beacons to be visible. However at the distance of 4.5 to 6 miles, it is doubtful that they would be more than barely visible. They would be very small in comparison to adjacent lights from streetlights, structures, or headlights from oncoming cars. The nighttime light and glare impact from KOP 7 would be adverse, but less than significant (*Class III*).

KOP 8: Figure 3.2-25. ~~At this location, there is the potential for five to six beacons to be visible. However at the distance of 7.5 miles, it is doubtful that they would be more than barely visible, and most would not be seen against the sky. They would be seen in the context of the ambient light from Lompoc, which would be visible over much of the vista.~~ At this location, six new red beacons would be visible from the Mission (see Figures 3.2-25a and 3.2-25b). The existing condition photograph (Figure 3.2-25a) was taken approximately one hour after sunset, and the red light on a mast-top on Sudden Hill is clearly visible at the distance of 7.5 miles. Additionally, three white lights associated with Vandenberg Air Force Base tracking facilities also are clearly visible along the night skyline. There is some ambient light from Lompoc's city street lights, but the synchronized strobe lights on Sudden Peak attract attention in the nighttime landscape. The addition of the six new red synchronized lights as presented in Figure 3.2-25b reflects likely Federal Aviation Administration requirements for synchronized, flashing, red lights mounted on the top of the nacelle of the WTG located at the end of each WTG string. There are ten WTGs visible from the Mission

in three strings. Since each string is less than 2,640 feet long, six new red beacons are anticipated.[3]

While daytime viewer sensitivity from this location was rated high, there are almost no night visitors, a fact that reduces the sensitivity factor to low. The nighttime light and glare impact from KOP 8 would be adverse, but less than significant (*Class III*).

KOP 9: Figure 3.2-26. At this location, there is the potential for 10 to 12 beacons to be visible. However at the distance of 10.5 miles, it is doubtful that they would be visible except under the most clear nighttime conditions. While the daytime sensitivity was rated as moderate, it would be low at night given that the number of tourists would be minimal. The beacons would be seen in the context of the VAFB tracking station lighting and would essentially be imperceptible. The nighttime light and glare impact from KOP 9 would be adverse but less than significant (*Class III*).

Possible Visual Impacts on Private Adjacent Ranches

While CEQA limits its visual analysis requirements to views from public places, such as roads or recreation areas, it is important to discuss the visual impacts to the nonparticipating ranches adjacent to the Project.

A WTG that is nearly 500 feet tall from the ground to the tip of the highest blade rotation, and with a truck-sized generator located 200 to 330 feet above the ground, when fully visible, would have the potential to create significant impacts if visible within a 3-mile radius. This fact is confirmed with the Sinclair-Thomas ratings in Table 3.2-1. Further, such structures would be highly visible within a radius of less than 5 miles when silhouetting within a direct line of sight. This condition would apply to those ranches within the general area of the San Miguelito Creek watershed, as well as ranches who lease land for the LWEF.

Even though the precise locations of the WTGs have not been established, the residents of nonparticipating ranches would be subjected to what could be considered significant and unavoidable (*Class I*) visual impacts if they were a public place. More precise detail regarding the location of the WTGs in relationship to potentially affected private residences would be required to analyze visual impacts on them. Visual impacts to private properties are outside the scope of this EIR.

Possible Visual Impacts on San Miguelito Road South of Miguelito County Park

While KOP #3 reviewed the impacts for the power line north of Miguelito County Park as a traveler heads toward the City of Lompoc, there is also the potential for visual impacts along upper San Miguelito Road south of the park. At this point the road becomes steeper and less traveled since it serves only the ranches in the Project vicinity. This area would be affected by the construction process, which would result in adverse, but less than significant (*Class III*) construction impacts from the development of WTG sites, laydown areas, the transport of the WTG components, and the potential removal or trimming of some trees to accommodate the large trucks that would be used. The operational impacts would change the visual character of upper San Miguelito Road, and this is discussed for KOP 11 at Upper San Miguelito Road and Sudden Road. The duration of views is moderate to high for travelers on this portion of the road, depending on mode of travel. This road is used by local

[3] If a WTG string were greater in length than 2,640 feet, additional red beacons would be placed within the string in accordance with FAA requirements (see Section 2.3.1.4).

residents (both participating and non-participating landowners), people driving for pleasure, motorcyclists, bicyclists, runners and birdwatchers. The number of viewers is low, but their sensitivity to scenic quality is assumed to be high, resulting in a moderate-high value for sensitivity. ~~However, the viewer sensitivity is rated as low since there would be very few travelers, and the majority of the users of the road would be related to the ranches that have agreed to have the Project. The operational impacts are also rated as adverse and, but less than significant (*Class III*).~~ As previously discussed, visual impacts as seen from KOP 11 are considered significant and unavoidable (Class I).

3.2.5.6 Synthesis of Project Impacts

Based upon the analysis presented, the following Project-level impacts would be generated.

Impact No.	Impact Description	Phase	Impact Classification
VIS-1	WTGs and related structures have the potential to be visible in the vicinity of the Project.	Construction and Operations	Class I~~I~~

Impact VIS-1. Construction and operation of the Project will be visible from San Miguelito Road, near its ~~terminus~~ intersection with Sudden Road, and near its western terminus at the Vandenberg Air Force Base property line. Visual impacts will be caused by the WTGs, O&M facility, electric substation, and other Project structures, signage, and onsite electrical lines, access roads, lighting, landscaping, and facility upkeep practices, including materials and equipment storage. The Project would be subject to the development standards of Section 35.57.050 of the County LUDC, which includes requirements for WTG appearance, facility appearance and lighting, and visual screening. ~~Although~~ San Miguelito Road is considered a public viewing area. It ~~it~~ is in a remote location and dead-ends at the Project site, creating a unique environment for motorists, motorcyclists, bicyclists, runners, and birdwatchers. It is lightly traveled by the public, but offers recreational and sightseeing opportunities, and, therefore, is considered of ~~low~~ moderate-high visual sensitivity and high impact severity. Consequently, visual impacts created by implementation of the LWEP would be ~~adverse, but less than~~ significant and unavoidable *(Class I~~I~~)*.

Impact No.	Impact Description	Phase	Impact Classification
VIS-2	Westernmost WTGs would be visible to users of Jalama Beach County Park; Northeastern-most WTGs would be visible to users of Miguelito County Park and La Purisima Mission.	Construction and Operations	Class I – Jalama, Miguelito County Park Class III – La Purisima Mission

Impact VIS-2. Construction and operation of WTGs in the westernmost arrays of the Project area would be visible to users of Jalama Beach County Park (KOP 4) approximately 4.5 miles distant (both during daytime and nighttime periods). The tips of the blades in this particular case are considered to be the rough equivalent of other VAFB tracking facilities, also visible from KOP 4. Based upon the generalized reasonable worst-case analysis (80 WTGs), three WTGs would be visible near the base of Tranquillon Mountain, and an estimated ten would be visible in the southern-most WTG array along the ridgeline. Further, 3 to 4 WTGs would

be visible from San Miguelito Road for a half-mile as one approaches Miguelito County Park from the north. In addition, WTG 34 would be visible from within the Park. This impact would be significant and unavoidable *(Class I)* for Jalama Beach and Miguelito County Park. ~~As discussed in Section 5.3.1, both LWEF Alternatives 1 and 2 would result in less than significant visual impacts.~~

While up to 10 WTGs could be visible from La Purisima Mission, given the distance of the WTGs from the Mission (seven miles), limited skylining of blades due to the reduced WTG heights, typical atmospheric conditions (haze and fog), and likely blade orientation due to northwest prevailing winds (blades would be perpendicular to the view from the Mission), the visual impact from the Mission is considered adverse, but not significant (*Class III*).

Impact No.	Impact Description	Phase	Impact Classification
VIS-3	WTGs would be visible throughout the SR-1 corridor and the Lompoc Valley.	Operations	Class III

Impact VIS-3. WTGs visible throughout the SR-1 corridor and the Lompoc Valley (KOPs 1, 3, ~~and~~ 5 through 7, 9 and 10) would result in adverse, but less than significant impacts during both daytime and nighttime periods (*Class III*).

Impact No.	Impact Description	Phase	Impact Classification
VIS-4	Placement of the power line in the area of SR-1 introduces a significant new series of power poles that would silhouette against the skyline.	Operations	Class I

Impact VIS-4. Placement of the power line in the area of SR-1, as seen in KOP 2, introduces a significant new series of power poles that would silhouette against the skyline. This impact would be significant and unavoidable *(Class I)*.

To reduce impacts, the applicant proposes to replace the most visible portions of the power line by connecting the new power line starting at angle point 19 to the existing Celite power line just beyond the visible ridgeline. This partial line replacement to co-locate with the Celite line is discussed in the section on project alternatives (Section 5.3.2).

Impact No.	Impact Description	Phase	Impact Classification
VIS-5	Construction and operation of the power line would be visible from public roadways.	Construction and Operations	Class III

Impact VIS-5. Construction and operation of the power line visible from public roadways such as San Miguelito Road would result in adverse, but less than significant impacts (*Class III*).

3.2.5.7 Synthesis of Project's Contribution to Cumulative Impacts

Based upon the analysis presented in Section 4.5.1 under impact C-VIS-3 Cumulative Impacts, the Project would contribute to cumulatively significant and unavoidable (*Class I*)

impacts related to the degradation of scenic resources in the coastal zone areas of the Lompoc Valley and northern Santa Barbara County.

3.2.5.8 ~~Applicant-proposed~~ Mitigation Measures

The following mitigation measures incorporate appropriate provisions of the Applicant-proposed mitigation measures listed in Section 2.8.4, with revisions as needed to ensure maximum feasible mitigation in accordance with Santa Barbara County policy~~The following Applicant-proposed mitigation measures are considered part of the Project description. They have been refined to reflect County of Santa Barbara Standard Conditions of Approval and Mitigation Measures (Santa Barbara County, 2005), including renaming them as visual resource mitigation measures and adding plan requirements, timing, and monitoring actions that would be required.~~

Mitigation Measure ~~A-~~VIS-1: Materials Storage. All construction materials and excavated materials shall be stored away from San Miguelito Road, whenever possible, to reduce impacts on mountain views. Materials storage shall be confined to within the WTG corridors ~~right-of-way~~, staging areas, and the Project Substation and O&M facility areas.

Plan Requirement: County staff will confirm that a notation regarding materials storage is denoted on building plans.

Timing: County staff will review and approve the plan notation prior to zoning clearance for the first phase of project construction and prior to zoning clearance for subsequent project phases.

MONITORING: County staff will conduct inspections during construction activities along San Miguelito Road to confirm and enforce compliance *(Addresses Impact VIS-1*).

Mitigation Measure ~~A-~~VIS-2: Location of Construction Activities. Construction activities shall be confined to within the WTG corridors ~~right-of-way~~, staging areas, and the Project Substation and O&M facility areas.

Plan Requirement: County staff will confirm that a notation regarding construction activities and materials storage is denoted on building plans.

Timing: County staff will review and approve the plan notation prior to zoning clearance for the first phase of project construction and prior to zoning clearance for construction of subsequent project phases.

MONITORING: County staff will conduct inspections during construction activities to confirm and enforce compliance *(Addresses Impact VIS-1*).

~~Mitigation Measure A-VIS-3: Power Line. Where possible, particularly on nonparticipating ranches, the power line shall follow the existing distribution lines. Where possible, existing distribution and power lines shall be built below the proposed power line to consolidate facilities.~~

~~**Plan Requirement:** County staff will confirm that all feasible consolidation efforts have occurred.~~

~~**Timing:** County staff will review and approve the final plans prior to zoning clearance for the first phase of project construction and prior to zoning clearance for subsequent project phases.~~

~~**MONITORING:** County staff will conduct inspections during construction activities to confirm and enforce compliance *(Addresses Impact VIS-5*).~~

Mitigation Measure VIS-3~~1~~: Contribution to County Parks Fund. The Applicant shall make a one-time $100,000 payment to the County. This money shall be used by the County Parks Department exclusively to preserve and enhance the natural beauty of ~~County Parks located within the coastal zone in the region~~ Miguelito County Park and Jalama Beach County Park.

Plan Requirement and Timing: The Applicant shall provide the payment prior to the zoning clearance for the first phase of construction.

MONITORING: County staff will confirm receipt of payment prior to the zoning clearance for the first phase of construction (*Addresses Impact ~~C~~ VIS-3*).

~~Mitigation Measure A-VIS-4: Power Line Relocation/Pole Height. At the southeast corner of the City of Lompoc, where the power line route would be visible from SR-1, the following measures shall be used, where technically feasible, to minimize visual impacts: longer spans between the poles; shorter poles; straddle ridgeline with two poles instead of a single pole on the ridge line.~~

~~**Plan Requirement:** Power line location and pole sizing shall be submitted to the County for review and approval.~~

~~**Timing:** County shall approve plan prior to issuance of the zoning clearance for the first phase of construction.~~

~~**MONITORING:** County staff will inspect prior to occupancy clearance (*Addresses Impact VIS-4*).~~

Mitigation Measure VIS-4: Landscape and Lighting Plan. In accordance with the Santa Barbara County Land Use Element, Visual Resources Policies, Policy 1, the Applicant shall be required to submit a landscaping plan to the County for review and approval. In addition, any facility lighting shall be included. Measures to minimize the attraction of birds to facility lighting shall be developed and presented in the plan (see also Mitigation Measure LU-1, Section 3.10.3.4).

Plan Requirement and Timing: The Landscape and Lighting Plan shall be reviewed and approved by the County prior to zoning clearance for the first phase and subsequent phases of construction.

MONITORING: County staff shall conduct inspections during operations to confirm and enforce compliance (*Addresses impacts VIS-1 through VIS-3*).

~~Additional Mitigation Measure~~

~~In addition to the Applicant-proposed mitigation measures, the following additional mitigation measure will be implemented to provide the maximum feasible mitigation under~~

~~CEQA for the Project's contribution to cumulatively significant and unavoidable (*Class I*) impacts related to the degradation of scenic resources in the coastal areas of the Lompoc Valley and northern Santa Barbara County. This mitigation measure would not be required if LWEF Alternatives 1 or 2 (Section 5.3.1) were selected.~~

3.2.5.9 Residual Impacts

With the implementation of the mitigation measures, residual impacts ~~will~~ would be less than significant for Impacts ~~VIS-1~~, VIS-3 and VIS-5. The residual impacts for Impacts VIS-1, VIS-2 (Jalama Beach and Miquelito County Park only), and VIS-4 ~~and C-VIS-3~~ would remain significant.

1 View toward project site from the southeast area of Highway One at El Jaro

2 View toward project site from East Lompoc along Highway One

FIGURE 3.2-1
CONTEXT PHOTOS
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

CH2MHILL

3 View toward project site from Jalama Beach

4 View toward project site from Ocean Beach

FIGURE 3.2-2
CONTEXT PHOTOS
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

CH2MHILL

5 View toward project site from Lompoc Area foothills

6 View toward project site from Burton at A Street

FIGURE 3.2-3
CONTEXT PHOTOS
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

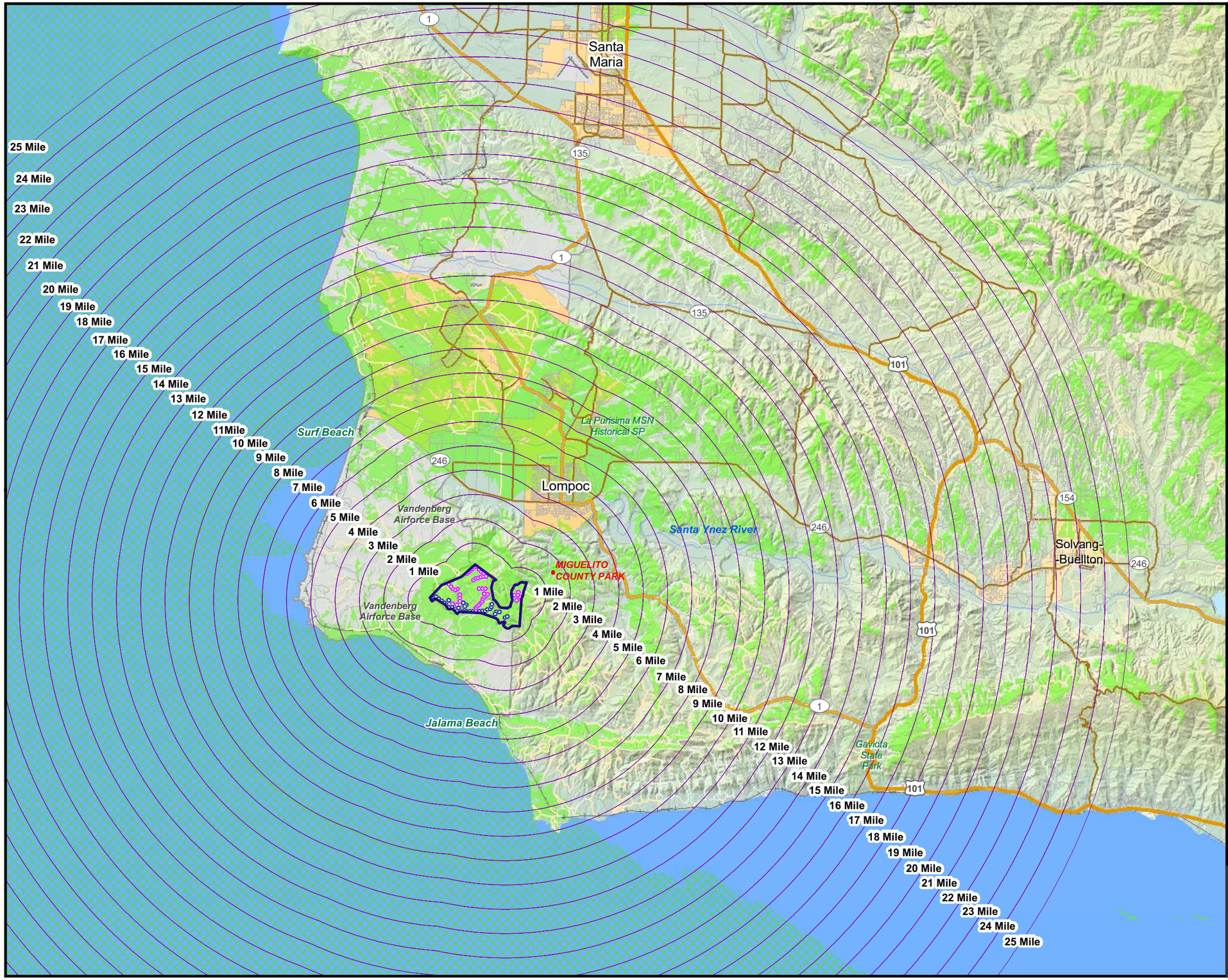
CH2MHILL

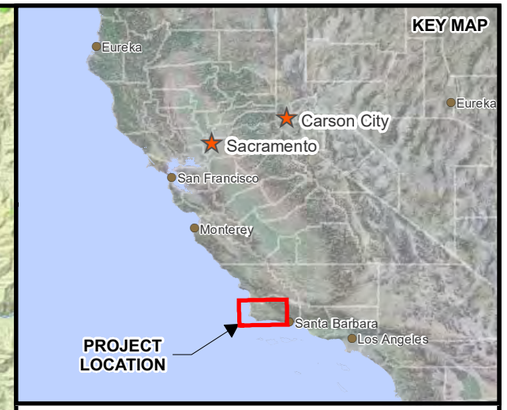
7 View toward project site from La Purisima Road in the North Valley

8 View toward project site from Rucker Road in the North Valley

FIGURE 3.2-4
CONTEXT PHOTOS
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

CH2MHILL





LEGEND

- 436 Foot Turbines
- 492 Foot Turbines
- Site Boundary
- 1 Mile Buffer Rings

Turbines Visible or Not Visible

- Visible From Land
- Visible From Ocean

Note: Elevation data used in analysis from USGS 30 Meter National Elevation Dataset (NED)

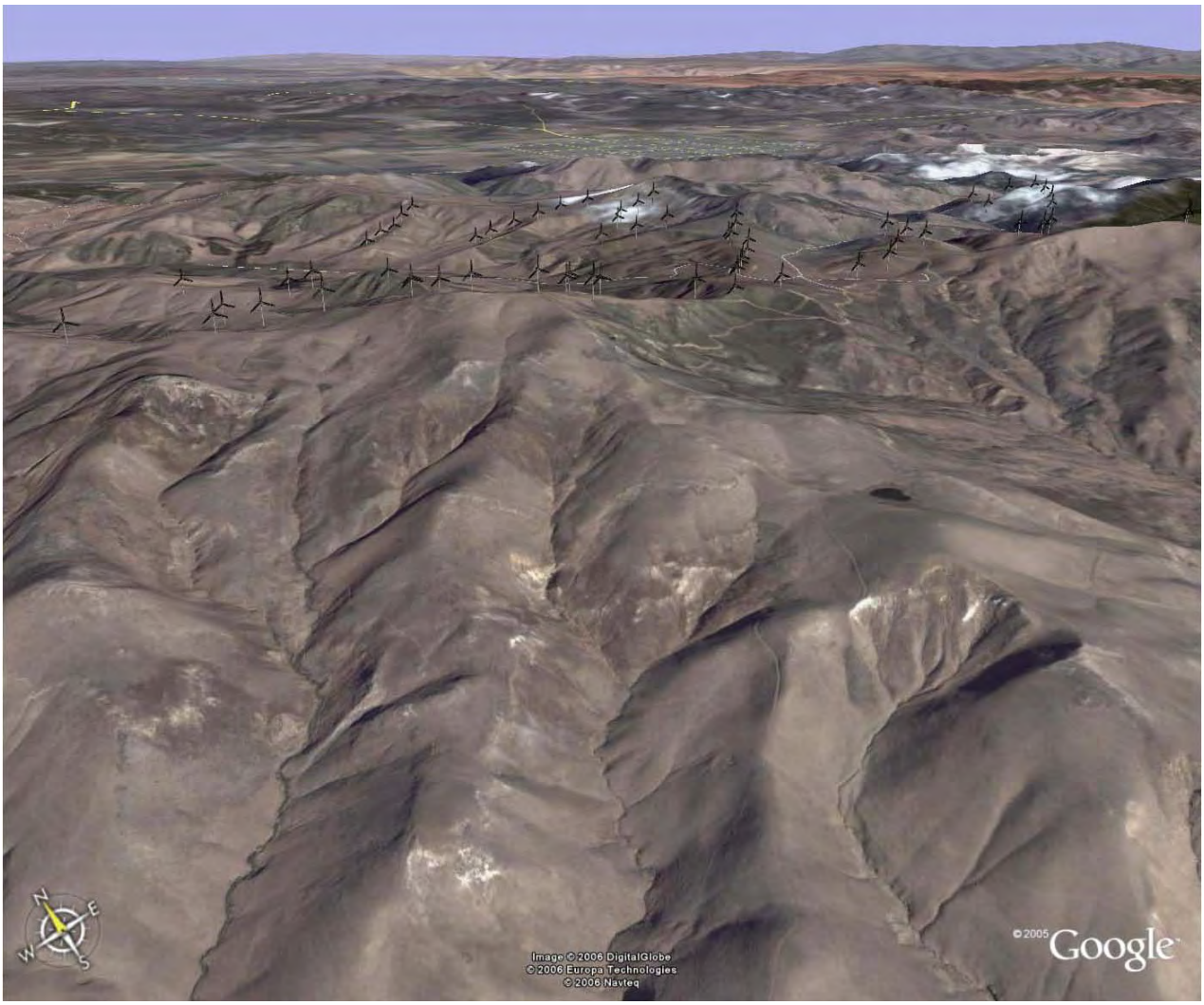
N

0 4 8 Miles

1 inch equals 4 miles

FIGURE 3.2-5
ZONE OF VISUAL IMPACT ANALYSIS
492 AND 436 FOOT TURBINE HEIGHT
LOMPOC WIND ENERGY
SANTA BARBARA COUNTY, CALIFORNIA

Source: adapted from figure prepared by CH2M Hill

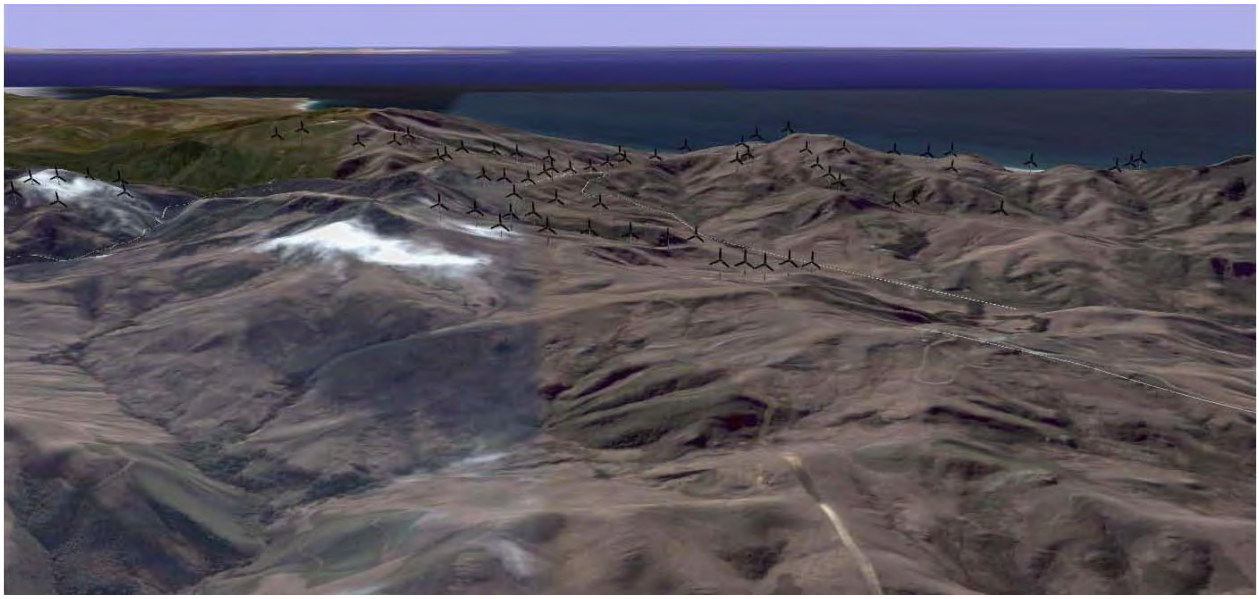


Google Earth and Sketchup Rendering - North-East View

NOTE: Wind turbines located in the upper center of rendering. Lompoc and Santa Ynez Valley are visible at the upper portion of the rendering. La Purisma Hills are visible at the top of the rendering.

FIGURE 3.2-6
AERIAL VIEW OF PROJECT
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

CH2MHILL



Google Earth and Sketchup Rendering - Southwest View

NOTE: The wind turbines at their respective locations and heights (typically 300 feet to the nacelle) are placed utilizing Sketchup USGS Contours. Their configuration is then overlaid utilizing Google Earth for rotation into the same view as the baseline KOP and becomes the basis for the simulations.

FIGURE 3.2-7
USGS VIEW OF PROJECT
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

CH2MHILL

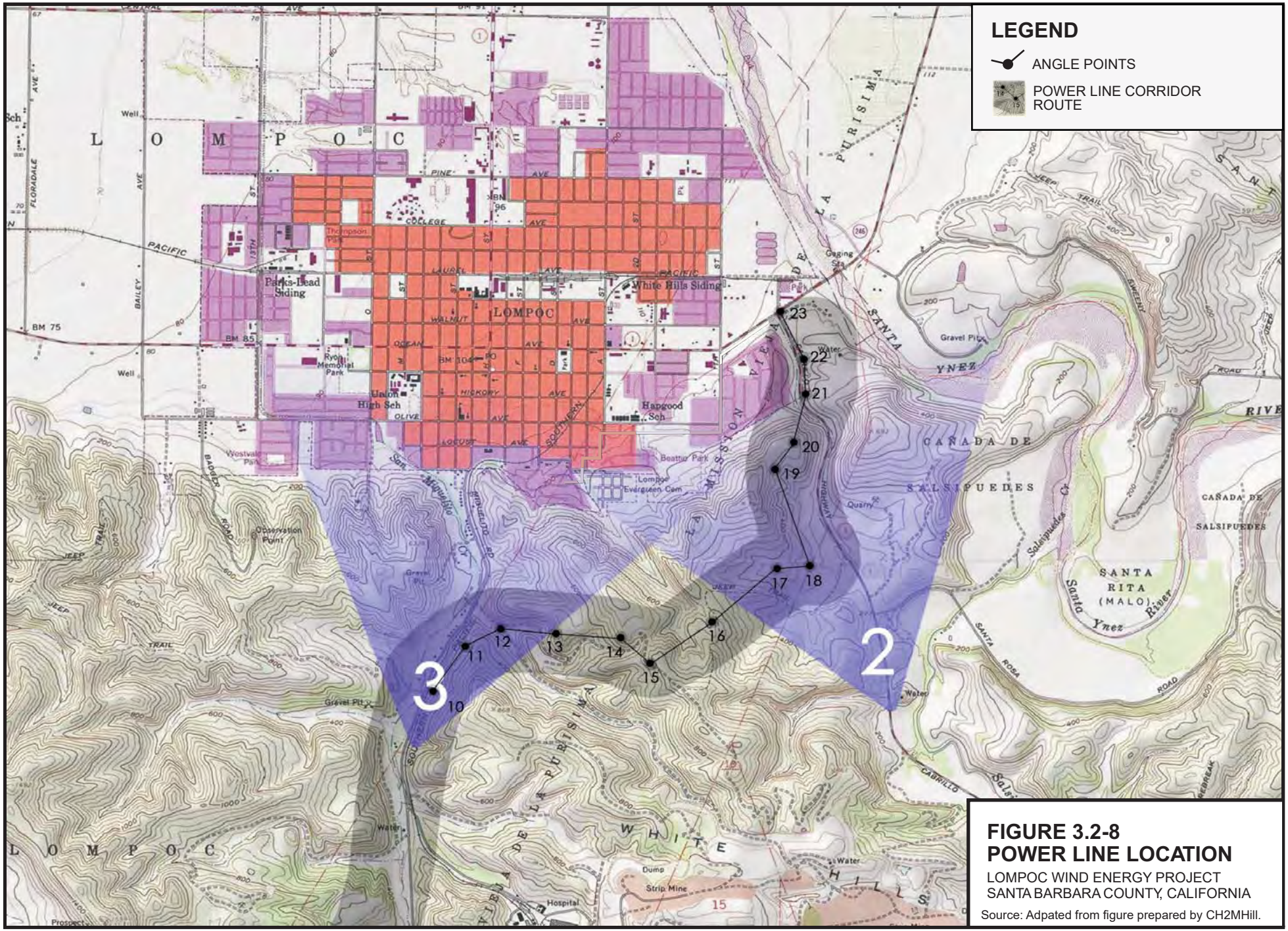
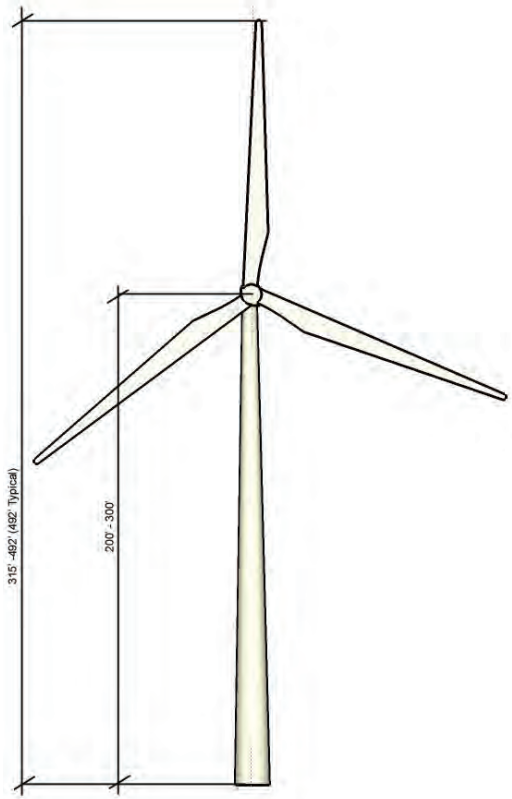


FIGURE 3.2-8
POWER LINE LOCATION

LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

Source: Adpated from figure prepared by CH2MHill.



A Wind Turbine Rendering - Front

Vestas - V90 - 3.0 MW

B Wind Turbine Generator Example (Similar to Proposed)

C Example of Typical Power Line Pole Structure

FIGURE 3.2-9
EXAMPLES OF WIND TURBINES AND POWER POLES
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

CH2MHILL

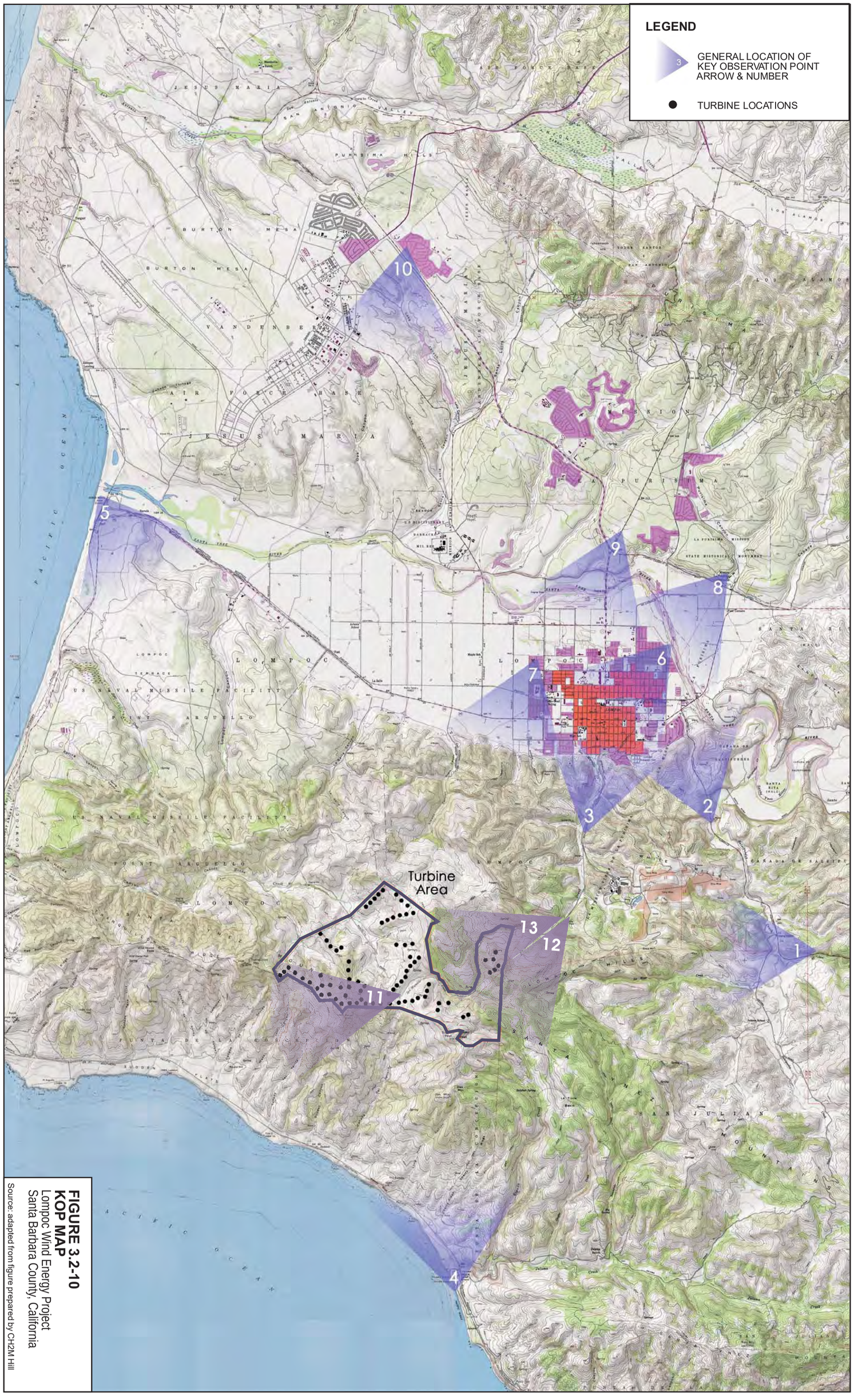


FIGURE 3.2-10
KOP MAP
Lompoc Wind Energy Project
Santa Barbara County, California

Source: adapted from figure prepared by CH2M Hill

A Baseline photo of the proposed project as seen from KOP 1 - Highway 1 western view

B Simulation of the proposed project as seen from KOP 1

FIGURE 3.2-11
KOP 1 SIMULATION
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

CH2MHILL

A Baseline photo of the proposed project as seen from KOP 2 - Highway 1 approaching east Lompoc

B Simulation of the proposed project as seen from KOP 2

FIGURE 3.2-12
KOP 2 SIMULATION
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

CH2MHILL

A Baseline photo of the proposed project as seen from KOP 3 - San Miguelito Canyon

B Simulation of the proposed project as seen from KOP 3

FIGURE 3.2-13
KOP 3 SIMULATION
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

CH2MHILL

A Baseline photo of the proposed project as seen from KOP 4 - Jalama Beach northern view

B Simulation of the proposed project as seen from KOP 4

FIGURE 3.2-14
KOP 4 SIMULATION
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

CH2MHILL

A Baseline photo of the proposed project as seen from KOP 5 - Ocean Beach southern view

B Simulation of the proposed project as seen from KOP 5

FIGURE 3.2-15
KOP 5 SIMULATION
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

CH2MHILL

A Baseline photo of the proposed project as seen from KOP 6 - 7th and Tangerine southwest view

B Simulation of the proposed project as seen from KOP 6

FIGURE 3.2-16
KOP 6 SIMULATION
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

CH2MHILL

A Baseline photo of the proposed project as seen from KOP 7 - Lemon Ave. southern view

B Simulation of the proposed project as seen from KOP 7

FIGURE 3.2-17
KOP 7 SIMULATION
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

CH2MHILL

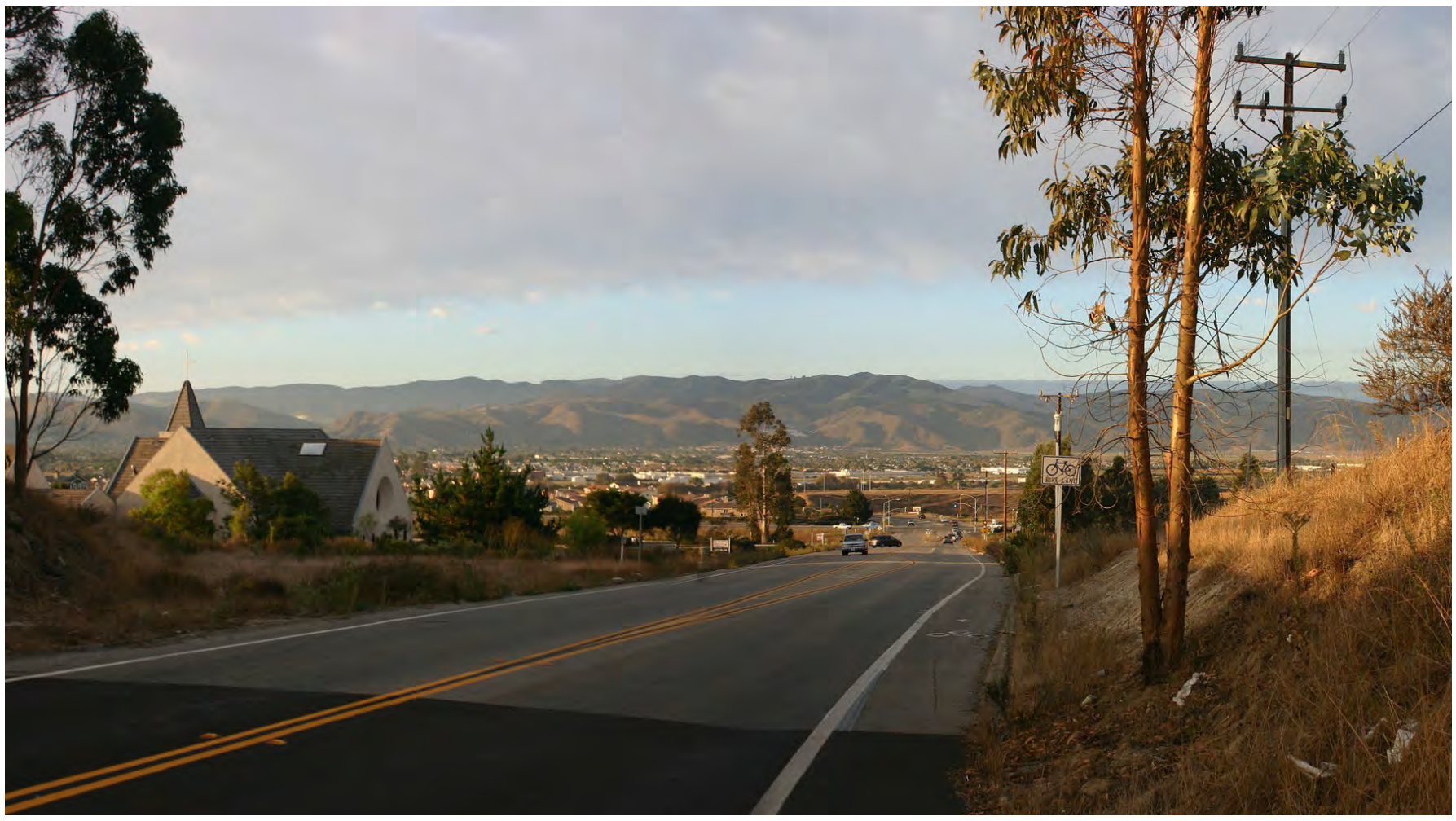
FIGURE 3.2-18A
BASELINE CONDITIONS
FOR KOP 8
LA PURISIMA MISSION
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

Source: Lee Roger Anderson, 2008.

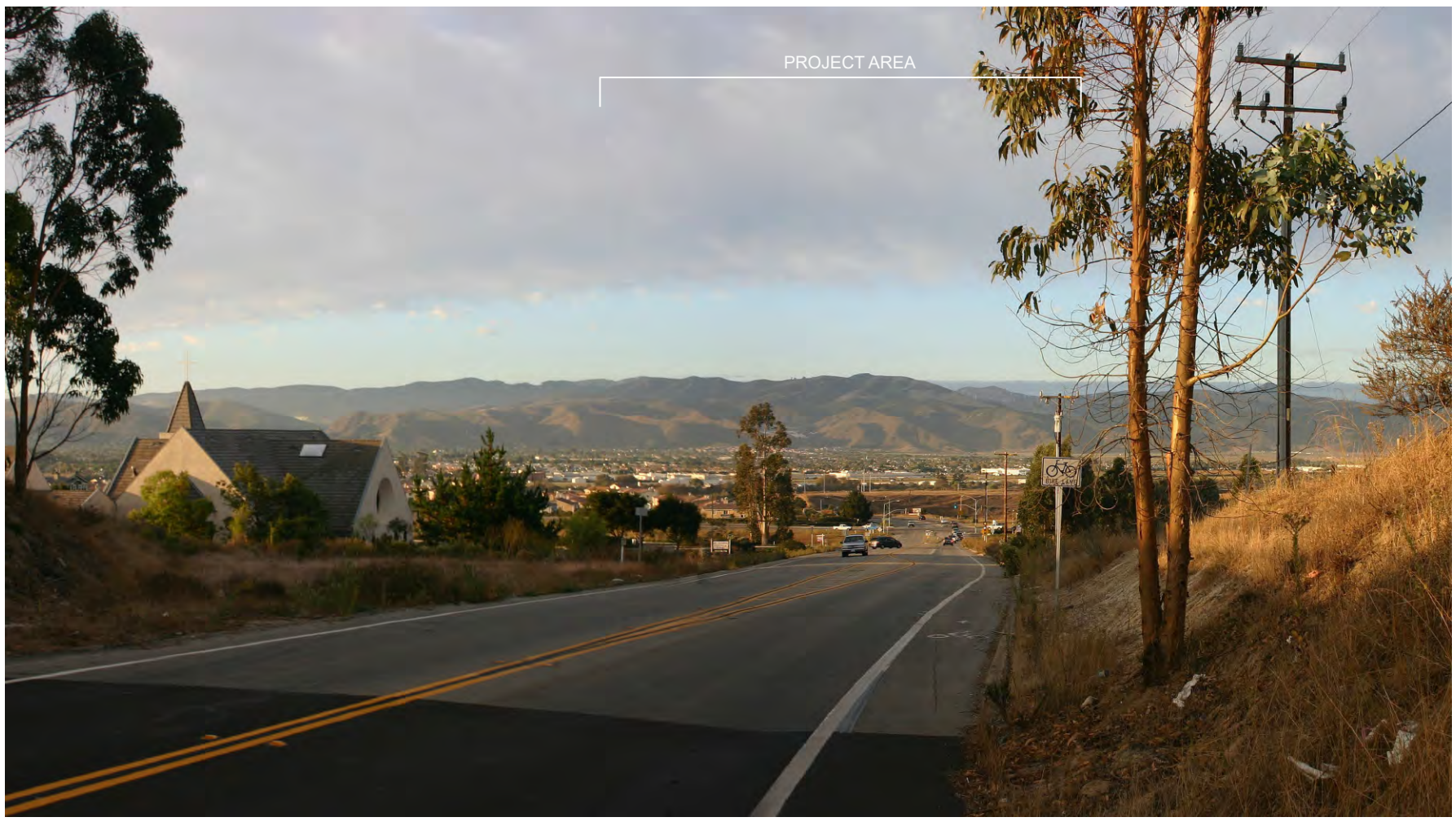
NOTE: This simulation was prepared assuming that six of the WTGs would be 436 feet in height and the other four WTGs would be 389 feet. Since then, the applicant has reduced the maximum WTG height from 436 feet to 397 feet.

FIGURE 3.2-18B
VISUAL SIMULATION
FOR KOP 8
LA PURISIMA MISSION
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

Source: Lee Roger Anderson, 2008.



A Baseline photo of the proposed project as seen from KOP 9 - Harris Grade Road



B Simulation of the proposed project as seen from KOP 9

FIGURE 3.2-19
KOP 9 SIMULATION
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

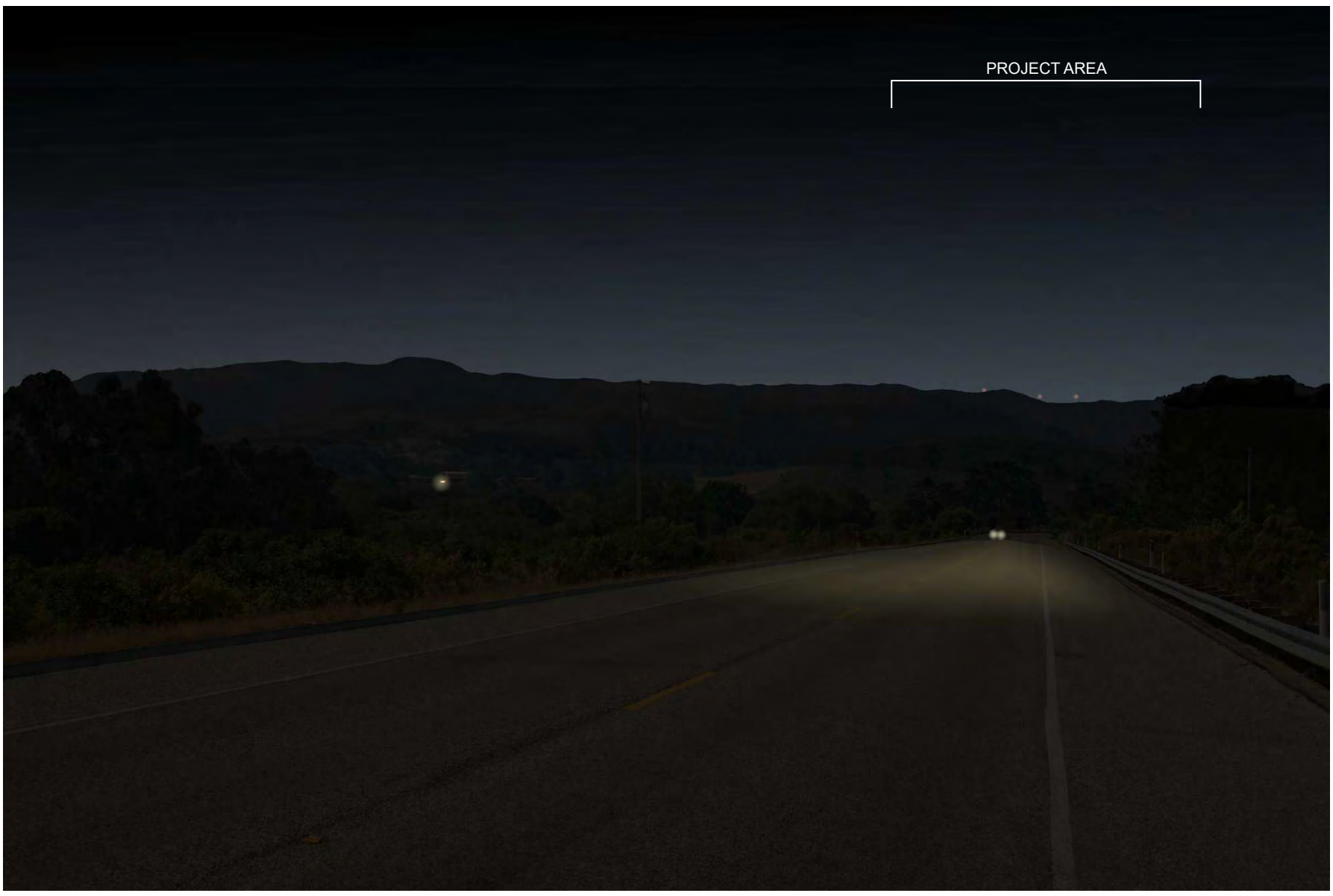
A Baseline photo of the proposed project as seen from KOP 10 - Vandenberg entry

B Simulation of the proposed project as seen from KOP 10

FIGURE 3.2-20
KOP 10 SIMULATION
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

CH2MHILL

A KOP 1 - Highway 1 western view - Night baseline



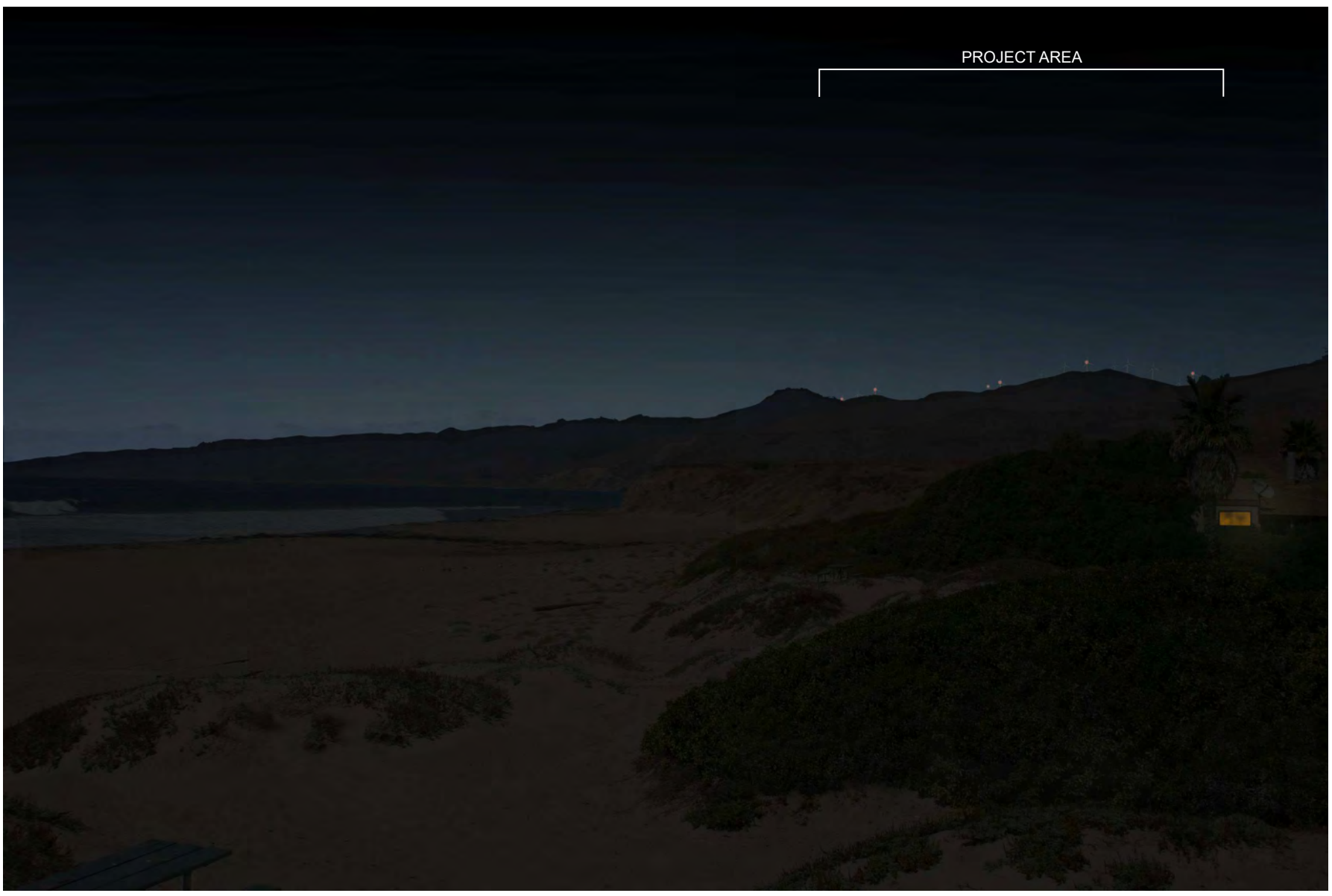
B KOP 1 - Highway 1 western view - Night simulation

FIGURE 3.2-21 - KOP 1 NIGHT SIMULATION

LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

CH2MHILL

A KOP 4 - Jalama Beach northern view - Night baseline



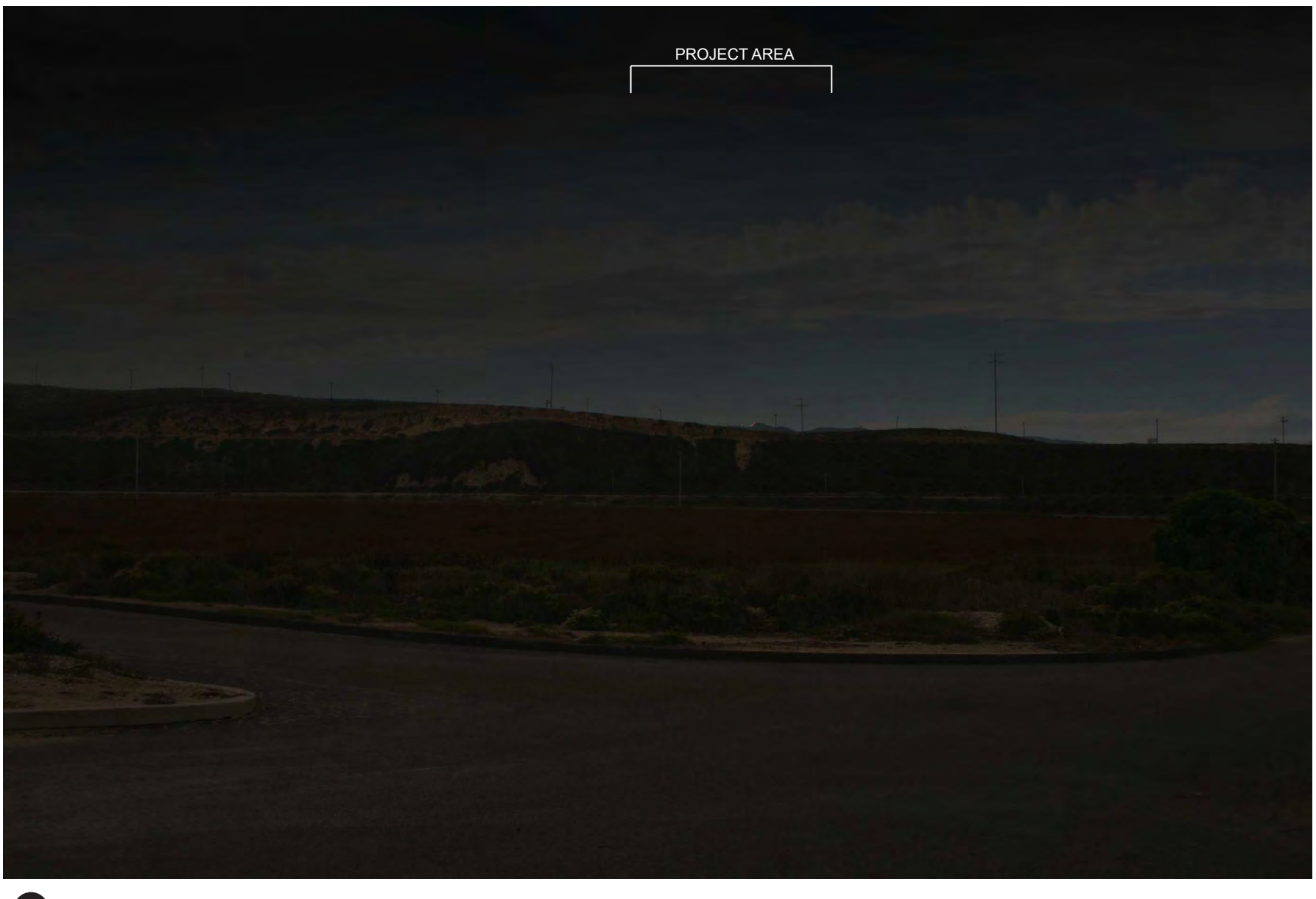
B KOP 4 - Jalama Beach northern view - Night simulation

FIGURE 3.2-22 - KOP 4 NIGHT SIMULATION

LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

CH2MHILL

A KOP 5 - Ocean Beach southern view - Night baseline



B KOP 5 - Ocean Beach southern view - Night simulation

FIGURE 3.2-23 - KOP 5 NIGHT SIMULATION

LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

CH2MHILL

A KOP 7 - Lemon Ave. southern view - Night baseline

B KOP 7 - Lemon Ave. southern view - Night simulation

FIGURE 3.2-24 - KOP 7 NIGHT SIMULATION

LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

CH2MHILL

FIGURE 3.2-25A
BASELINE CONDITIONS FOR KOP 8
LA PURISIMA MISSION AT NIGHT
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

Source: Lee Roger Anderson, 2008.

FIGURE 3.2-25B
VISUAL SIMULATION FOR KOP 8
LA PURISIMA MISSION AT NIGHT
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

Source: Lee Roger Anderson & 3DScape, 2008.

A KOP 9 - Harris Grade - Night baseline

B KOP 9 - Harris Grade - Night simulation

FIGURE 3.2-26 - KOP 9 NIGHT SIMULATION

LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

CH2MHILL

FIGURE 3.2-27A
BASELINE CONDITIONS FOR KOP 11
UPPER SAN MIGUELITO ROAD
NEAR SUDDEN ROAD
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

Source: Lee Roger Anderson, 2008.

FIGURE 3.2-27B
VISUAL SIMULATION FOR KOP 11
UPPER SAN MIGUELITO ROAD
NEAR SUDDEN ROAD
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

Source: Lee Roger Anderson & 3DScape, 2008.

FIGURE 3.2-28A
BASELINE CONDITIONS FOR KOP 12
SAN MIGUELITO ROAD
AT MIGUELITO COUNTY PARK
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

Source: Lee Roger Anderson, 2008.

FIGURE 3.2-28B
VISUAL SIMULATION FOR KOP 12
SAN MIGUELITO ROAD
AT MIGUELITO COUNTY PARK
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

Source: Lee Roger Anderson & 3D Scape, 2008.

FIGURE 3.2-29
EXISTING CONDITIONS FOR SAN MIGUELITO ROAD APPROACHING MIGUELITO COUNTY PARK FROM THE NORTH (VIEW OF LA TINTA HILL IN FOREGROUND)
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

Source: Lee Roger Anderson, 2008.

FIGURE 3.2-30A
BASELINE CONDITIONS FOR KOP 13
INSIDE MIGUELITO COUNTY PARK
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

Source: Lee Roger Anderson, 2008.

FIGURE 3.2-30B
VISUAL SIMULATION FOR KOP 13
INSIDE MIGUELITO COUNTY PARK
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

Source: Lee Roger Anderson & 3DScape, 2008.

3.3 Agricultural Resources

3.3.1 Existing Conditions

The California Department of Conservation's (DOC) Farmland Mapping and Monitoring Program (FMMP) categorizes and maps farmlands within Santa Barbara County biennially; the most recent data available are from calendar year 2004 and are shown in Table 3.3-1.

TABLE 3.3-1
Santa Barbara County FMMP Land Classifications

Category	Acres
Urban and Built-Up Land	62,021
Grazing Land	583,234
Farmland of Local Importance	20,834
Prime Farmland	67,766
Farmland of Statewide Importance	12,378
Unique Farmland	35,131
Water	4,264
Other Land	254,056
Area not mapped	593,691
Total	1,633,374

Source: DOC, 2004a

Definitions of the land classifications used by the FMMP are provided in Table 3.3-2.

TABLE 3.3-2
Definitions of FMMP Categories

Farmland Category	Definition
Prime Farmland	Land that has the best combination of physical and chemical characteristics for the production of crops. It has the soil quality, growing season, and moisture supply needed to produce sustained high yields of crops when treated and managed, including water management, according to current farming methods. Prime Farmland must have been used for the production of irrigated crops at some time during the two update cycles prior to the mapping date.
Farmland of Statewide Importance	This land is similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to hold and store moisture. Farmland of Statewide Importance must have been used for the production of irrigated crops at some time during the two update cycles prior to the mapping date.

TABLE 3.3-2
Definitions of FMMP Categories

Farmland Category	Definition
Unique Farmland	This is land of lesser quality soils used for the production of specific high economic value crops at some time during the two update cycles prior to the mapping date. It has the special combination of soil quality, location, growing season, and moisture supply needed to produce sustained high quality or high yields of a specific crop when treated and managed according to current farming methods. Unique farmland is usually irrigated, but may include nonirrigated orchards or vineyards as found in some climatic zones in California. Examples of crops on Unique Farmland include oranges, olives, avocados, rice, grapes, and cut flowers. This category does not include publicly owned lands for which there is an adopted policy preventing agricultural use.
Farmland of Local Importance	This is land of importance to the local agricultural economy and is determined by each county's Board of Supervisors and local advisory committees. Examples of this type of land could include dairies, dryland farming, aquaculture, and uncultivated areas with soils qualifying for Prime Farmland and Farmland of Statewide Importance.
Interim Farmland (Irrigated and Non-Irrigated Farmland)	Interim Farmland is a designation used for farmed areas lacking modern soil survey information and for which there is expressed local concern on the status of farmland. Interim Farmland is designated as either Irrigated or Non-Irrigated Farmland. Irrigated Farmlands are lands with a developed irrigation water supply that is dependable and of adequate quality and that have been used for irrigated agricultural production at some time during the 4 years prior to the mapping date. Non-Irrigated Farmlands are lands on which agricultural commodities are produced on a continuing or cyclical basis utilizing stored soil moisture.
Grazing Land	Grazing land is land on which the existing vegetation, whether grown naturally or through management, is suitable for grazing or browsing of livestock.
Urban and Built-up Land	This is used for residential, industrial, commercial, construction, institutional, and public administrative purposes; railroad yards; cemeteries; airports; golf courses; sanitary landfills; sewage treatment plants; water control structures; and other development purposes.
Other Land	Other land is that which is not included in any of the other mapping categories. The following types of land are generally included low-density rural development; brush, timber, and other lands not suitable for livestock grazing; government lands not available for agricultural use; roads systems for freeway interchanges; vacant and nonagricultural land larger than 40 acres in size and surrounded on all sides by urban development; confined livestock facilities of 10 or more acres; strip mines and borrow and gravel pits; a variety of other rural land uses.
Water	Water areas with an extent of at least 40 acres.

Notes:

None of these categories include publicly owned lands for which there is an adopted policy preventing agricultural use.

CEQA defines Important Farmland as Prime Farmland, Farmland of Statewide Importance, and Unique Farmland.

Source: DOC, 2004a.

3.3.1.1 Lompoc Wind Energy Facility

The Lompoc Wind Energy Facility (LWEF) site is located in a rural area and is surrounded by lands used for cattle grazing. The site itself also is used primarily for cattle grazing, although a limited amount of dryland farming occurs immediately on either side of San Miguelito Road between the Scolari and North properties. Most of the LWEF site (approximately 2,926 acres) is designated as Grazing Land by the FMMP, although the approximately 45-acre area where dryland farming occurs is designated as Farmland of

Local Importance (DOC, 2004a). Single family residences or mobile homes and agricultural accessory structures are located on seven of the 10 parcels comprising the LWEF site, and the entire site is zoned for agriculture. The portions of the site where development would occur are zoned Agriculture, 100 or more acre minimum parcel size (AG-II-100). All of the parcels are under Williamson Act Agricultural Preserve contracts (DOC, 2004b). (Refer to Section 3.3.3.2.1 for a discussion of the Williamson Act.)

3.3.1.2 Lompoc Wind Energy Power Line

The 115-kilovolt power line corridor is located in a rural area just south of the City of Lompoc. Most of the corridor is classified as Grazing Land under the FMMP and used for cattle grazing, although small areas of Farmland of Local Importance, Urban and Built-Up Land, and Other Land also are present (Table 3.3-3 and Figure 3.3-1). Within unincorporated Santa Barbara County, the corridor is zoned AG-II-100 and General Agriculture, minimum parcel size 100 acres. Within the City of Lompoc, the corridor is located on land zoned as Open Space and Residential Agriculture. Approximately one-half of the corridor ~~(189 acres)~~ is under Williamson Act Agricultural Preserve Contracts, of which approximately 22 acres are under nonrenewable contracts (DOC, 2004b).

TABLE 3.3-3
LWEP Power Line Agricultural Land Acreages

FMMP Category	Power Line LWEP (acres)
Urban and Built-up Land	~~3.99~~ 11.83
Grazing Land	~~362.84~~ 385.71
Farmland of Local Importance	~~11.79~~ 7.89
Other Land	~~8.68~~ 18.45
TOTAL	**~~387.3~~ 423.88**

3.3.2 Regulatory Framework

3.3.2.1 State

The California Land Conservation Act of 1965, commonly referred to as the Williamson Act, established the state's primary program for the retention of private land in agriculture and open space use. The Williamson Act is a voluntary, locally administered program that offers reduced property taxes on lands that have enforceable restrictions on their use via contracts between individual land owners and local governments. The minimum term for a contract is 10 years. However, some jurisdictions exercise the option of making the term longer, up to 20 years. Contracts renew automatically every year unless the nonrenewal process is initiated by either the local government or the landowner. A "notice of nonrenewal" starts the 9-year nonrenewal period during which the annual tax assessment gradually increases. At the end of the 9-year nonrenewal period, the contract is terminated.

As noted above, the land within the LWEF site and a portion of the proposed power line corridor are located within agricultural preserves; such preserves define the boundary of an

area within which a city or county may enter into contracts with landowners. The boundary is designated by resolution of the Board of Supervisors (Board) or City Council (Council) having jurisdiction. Only land located within an agricultural preserve is eligible for a Williamson Act contract. Preserves are regulated by rules and restrictions designated in the resolution to ensure that the land within the preserve is maintained for agricultural or open space use.

The Williamson Act states that a Board or Council, by resolution, shall adopt rules governing the administration of agricultural preserves. The rules of each agricultural preserve specify the uses allowed. Generally, any commercial agricultural use would be permitted within any agricultural preserve. In addition, local governments may identify compatible uses permitted with a use permit.

3.3.2.2 Local

The County of Santa Barbara is responsible for regulating land uses in its jurisdiction in part through establishing zoning districts that specify allowable uses. As discussed above, the LWEF site is located in an agricultural zone. The County's Land Use & Development Code (Sec. 35.57.030) specifically allows for large wind energy projects on agricultural land, subject to a Conditional Use Permit (CUP).

The County of Santa Barbara has adopted an agricultural preserve program as described above under the Williamson Act. This program is codified under the County's Uniform Rules for Agricultural Preserves and Farmland Security Zones. The County's Agricultural Preserve Advisory Committee reviewed the proposed Project on June 2, 2006, and determined that it is a compatible use under the existing Agricultural Preserve contracts.

The Agricultural Element of the Santa Barbara County Comprehensive Plan contains a number of policies applicable to agricultural resources. The Project's consistency with those policies is addressed in detail in Section 3.10, Land Use.

3.3.3 Project Impacts, Mitigation, and Residual Impacts

3.3.3.1 Impact Assessment Methodology

Based on the County of Santa Barbara's Environmental Thresholds and Guidelines Manual, the analysis considers whether the Project would result in the conversion of prime agricultural land to nonagricultural use, impairment of agricultural land productivity (whether prime or nonprime), or conflict with agricultural preserve programs.

3.3.3.2 Thresholds of Significance

CEQA Guidelines provide the following thresholds for determining the significance of impacts to agriculture, if the project would:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the FMMP of the California Resources Agency, to nonagricultural use?
- Conflict with existing zoning for agricultural use, or a Williamson Act contract?

- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to nonagricultural use?

3.3.3.3 Project Impacts, Mitigation, and Residual Impacts

Project Impacts

Impact No.	Impact Description	Phase	Impact Classification
AG-1	Development of the LWEF and power line installation would result in the temporary and permanent disturbance of farmland and provide financial support to property owners.	Construction and Operations	Class III; Class IV

Impact AG-1: Important Farmland/Williamson Act Contract Lands. Development of the LWEF would result in the temporary disturbance of approximately 196 ~~36~~ acres of Grazing Land, and a permanent disturbance of approximately 40 ~~32~~ acres of Grazing Land. Approximately 0.01 acre of the area designated as Farmland of Local Importance would ~~not~~ be temporarily disturbed by Project construction. ~~nor would any~~ No Prime or Unique Farmland would be disturbed. As noted above, the County's Agricultural Preserve Advisory Committee reviewed the Project on June 2, 2006, and determined that it is a compatible use under the existing Agricultural Preserve contracts. As discussed in Section 3.10.3.3, Impact LU-1, wind energy facilities are a permitted use in AG-II-100 zoning districts with a CUP. Grazing would be able to continue during and after construction, and the permanent loss of up to approximately 40 ~~32~~ acres of Grazing Land out of a total of 2,926 acres onsite (~~less than 0.1~~ approximately 0.14 percent of the total acreage) would not significantly impair agricultural productivity. The loss of grazing land would be an adverse, but less than significant impact to agricultural resources (*Class III*).

The Project also could have a beneficial (*Class IV*) impact to agricultural resources because it would provide financial support to property owners, who could use that funding to enhance the viability of their agricultural operations. The Project also would maintain roads in agricultural areas, which would allow property owners greater access to their lands and increase accessibility by firefighters as needed; this increased access also could enhance agricultural operations.

The installation of about ~~169~~184 poles in the power line corridor would result in the temporary disturbance of approximately ~~10~~33 acres and a permanent disturbance of approximately 1.33 acres. Most of the land that could be affected is Grazing Land, but depending on the placement of individual poles, some Farmland of Local Importance could be affected, as well. Power line construction would not affect Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Some of the area that would be disturbed is under Williamson Act contracts. As noted above, the County's Agricultural Preserve Advisory Committee reviewed the Project on June 2, 2006, and determined that it is a compatible use under the existing Agricultural Preserve contracts. As discussed in Section 3.10.3.3, Impact LU-1, wind energy facilities are a permitted use in AG-II-100 zoning districts with a CUP. Grazing would be able to continue during and after construction, and the permanent loss of approximately 1.33 acres of Grazing Land or Farmland of Local Importance would not significantly impair agricultural productivity. Impacts to agricultural

resources from construction of the power line would be adverse, but less than significant (*Class III*).

The Project also would provide financial support to property owners along the power line corridor, who could use that funding to enhance the viability of their agricultural operations; thus, construction of the power line could have a beneficial (*Class IV*) impact to agricultural resources.

3.3.3.4 Mitigation Measures

No mitigation measures are required, because no significant impacts to Agricultural Resources would occur.

3.3.3.5 Residual Impacts

~~No r~~Residual impacts would ~~occur because no mitigation measures are required~~ be less than significant.

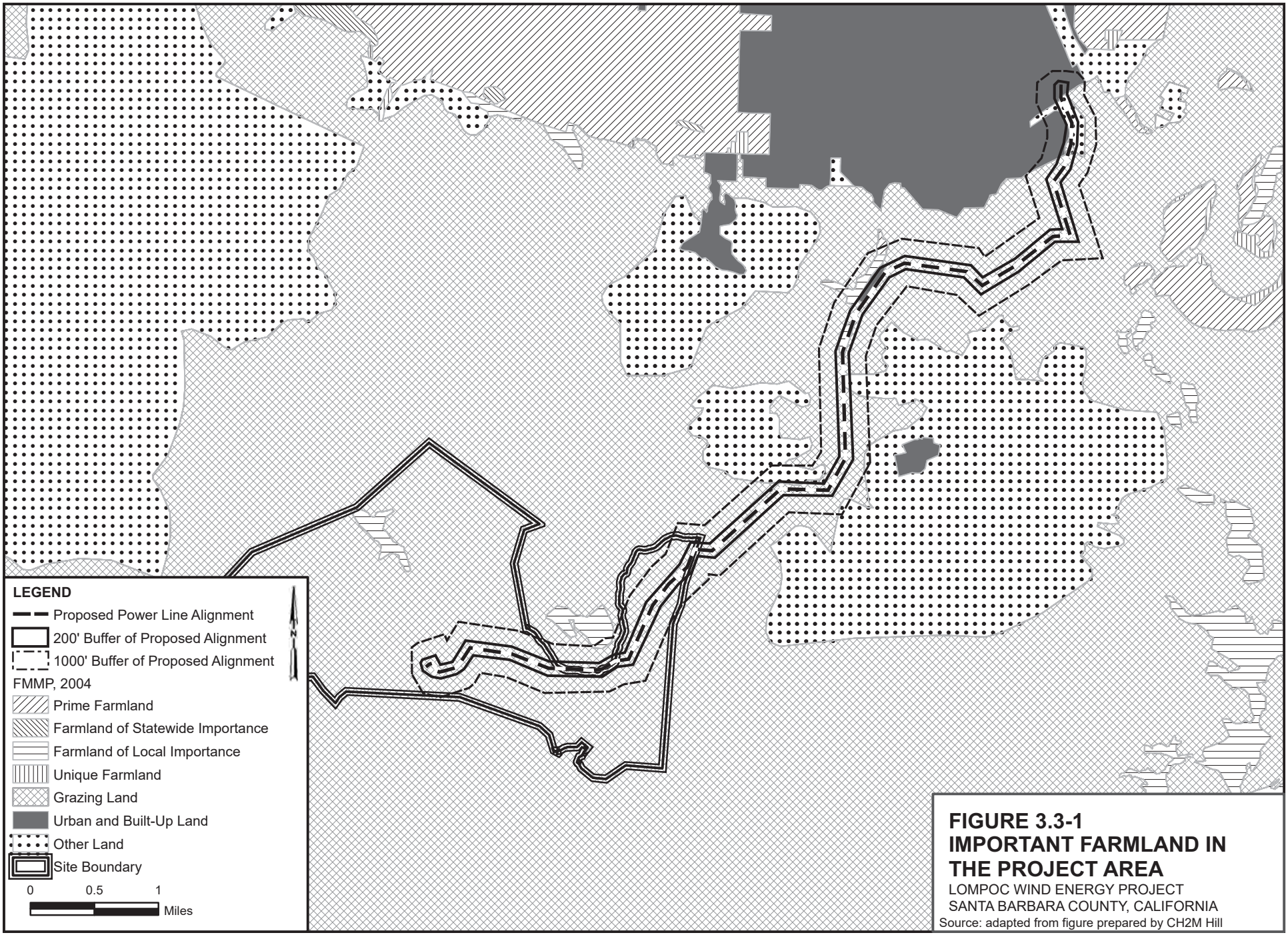


FIGURE 3.3-1
IMPORTANT FARMLAND IN THE PROJECT AREA
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA
Source: adapted from figure prepared by CH2M Hill

3.4 Air Quality

3.4.1 Existing Conditions

3.4.1.1 Climate and Meteorology

Santa Barbara County's air quality is influenced by both local topography and meteorological conditions (Santa Barbara County Air Pollution Control District [SBCAPCD], 2004). The Project would be located in an inland, rural area on ridges of the Santa Ynez Mountains. The terrain includes rolling hills and rugged, steeper slopes where the wind prevails from the northwest. The principal land use in the Project area is cattle grazing.

A complete summary of the meteorological and topographical influences that are important to air quality in Santa Barbara County is available in the 2004 Clean Air Plan (SBCAPCD, 2004). The following describes the meteorological and topographical influences, excerpted from the 2004 Clean Air Plan, that may affect air quality in the Project area:

- The semipermanent high pressure that lies off the Pacific Coast leads to limited rainfall (around 18 inches per year), with warm, dry summers and relatively damp winters. Maximum summer temperatures average about 70 degrees Fahrenheit near the coast and in the high 80s to 90s inland. During winter, average minimum temperatures range from the 40s along the coast to the 30s inland. Additionally, cool, humid, marine air causes frequent fog and low clouds along the coast, generally during the night and morning hours in the late spring and early summer. The fog and low clouds can persist for several days until broken up by a change in the weather pattern.
- During summer, the northwesterly winds are stronger and persist later into the night. At night, the sea breeze weakens and is replaced by light land breezes (from land to sea). The alternation of the land-sea breeze cycle can sometimes produce a "sloshing" effect, where pollutants are swept offshore at night and subsequently carried back onshore during the day. This effect is exacerbated during periods when wind speeds are low.
- Santa Ana winds are northeasterly winds that occur primarily during fall and winter, but occasionally in spring. These are warm, dry winds blown from the high inland desert that descend down the slopes of a mountain range. Wind speeds associated with the Santa Anas are generally 15 to 20 miles per hour, though they can sometimes reach speeds in excess of 60 miles per hour. During Santa Ana conditions, pollutants emitted in Santa Barbara County, Ventura County, and the South Coast Air Basin (Los Angeles region) are moved out to sea. These pollutants can then be moved back onshore into Santa Barbara County in what is called a "post-Santa Ana condition." The effects of the post-Santa Ana condition can be experienced throughout the county. However, not all post-Santa Ana condition lead to high pollutant concentrations in Santa Barbara County.
- Upper-level winds (measured at Vandenberg Air Force Base [VAFB] once each morning and afternoon) are generally from the north or northwest throughout the year, but occurrences of southerly and easterly winds do occur in winter, especially during the morning. Upper-level winds from the south and east are infrequent during the summer. When they do occur, they are usually associated with periods of high O_3 levels. Surface and upper-level winds can move pollutants that originate in other areas into the county.

- Surface temperature inversions (0 to 500 feet) are most frequent during the winter, and subsidence inversions (1,000 to 2,000 feet) are most frequent during the summer. Inversions are an increase in temperature with height and are directly related to the stability of the atmosphere. Inversions act as a cap to the pollutants that are emitted below or within them, and O_3 concentrations are often higher directly below the base of elevated inversions than they are at the earth's surface. For this reason, elevated monitoring sites will occasionally record higher O_3 concentrations than sites at lower elevations. Generally, the lower the inversion base height and the greater the rate of temperature increase from the base to the top, the more pronounced effect the inversion will have on inhibiting vertical dispersion. The subsidence inversion is very common during summer along the California coast and is one of the principal causes of air stagnation.
- Poor air quality is usually associated with "air stagnation" (high stability and restricted air movement). Therefore, it is reasonable to expect a higher frequency of pollution events in the southern portion of the county where light winds are frequently observed, as opposed to the northern part of the county where the prevailing winds are usually strong and persistent.

3.4.1.2 Existing Air Quality

The SBCAPCD operates a network of ambient air quality monitoring stations within the Santa Barbara County portion of the South Central Coast Air Basin (SCCAB), which includes the Project area. The monitoring stations measure concentrations of the following air pollutants: carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), respirable particulate matter defined as particulate matter less than 10 microns in aerodynamic diameter (PM_{10}), and fine particulate matter defined as particulate matter less than 2.5 microns in aerodynamic diameter ($PM_{2.5}$). The monitoring stations located closest to the proposed Project area are VAFB Space Transportation System (STS) facility on VAFB and Lompoc H Street. $PM_{2.5}$ is measured at only two monitoring stations in Santa Barbara County: the Santa Barbara-East Canon Perido station in the City of Santa Barbara and Santa Maria-S Broadway station in the City of Santa Maria. Table 3.4-1 lists the maximum pollutant levels measured and the number of days each year that ambient concentrations were above the federal and California standards from 2004 to 2006. As shown in Table 3.4-1, measured PM_{10} concentrations exceeded the 24-hour California standards twice in the past 3 years. However, the federal PM_{10} standards were not exceeded. Ozone (O_3), CO, NO_2, and $PM_{2.5}$ did not exceed the California or federal standards during the past 3 years.

TABLE 3.4-1
Summary of Maximum Ambient Air Quality Monitoring Data in the Project Area

Pollutant	Averaging Time	2004	2005	2006
Ozone (ppm)				
Lompoc-S H Street	1 Hour	0.084	0.064	0.056
	Number of Exceedances (State)	0	0	0
	8 Hour	0.075	0.052	0.054
	Number of Exceedances (Federal)	0	0	0
VAFB-STS	1 Hour	0.090	0.072	0.063
	Number of Exceedances (State)	0	0	0
	8 Hour	0.083	0.066	0.060
	Number of Exceedances (Federal)	0	0	0
Carbon Monoxide (ppm)				
Lompoc-S H Street	1 Hour	2.7	2.2	2.3
	Number of Exceedances (State)	0	0	0
	Number of Exceedances (Federal)	0	0	0
	8 Hour	1.26	1.07	1.09
	Number of Exceedances	0	0	0
VAFB-STS	1 Hour	0.3	0.9	0.3
	Number of Exceedances (State)	0	0	0
	Number of Exceedances (Federal)	0	0	0
	8 Hour	0.36	0.70	0.28
	Number of Exceedances	0	0	0
Nitrogen Dioxide (ppm)				
Lompoc-S H Street	Annual Arithmetic Mean	0.006	0.006	0.005
	Number of Exceedances (Federal)	0	0	0
	1 Hour	0.036	0.035	0.037
	Number of Exceedances (State)	0	0	0
VAFB-STS	Annual Arithmetic Mean	0.001	0.001	*
	Number of Exceedances (Federal)	0	0	0
	1 Hour	0.023	0.019	0.016
	Number of Exceedances (State)	0	0	0
PM_{10} ($\mu g/m^3$)				
Lompoc-S H Street	Annual Arithmetic Mean	21	18	*
	Number of Exceedances (State)	1	0	0
	Number of Exceedances (Federal)	0	0	0
	24 Hour	52.3	86.6	26.8
	Number of Exceedances (State)	1	1	0
	Number of Exceedances (Federal)	0	0	0
VAFB-STS	Annual Arithmetic Mean	19	16	*
	Number of Exceedances (State)	0	0	0
	Number of Exceedances (Federal)	0	0	0
	24 Hour	38.1	41.8	43.4
	Number of Exceedances (State)	0	0	0
	Number of Exceedances (Federal)	0	0	0

TABLE 3.4-1
Summary of Maximum Ambient Air Quality Monitoring Data in the Project Area

Pollutant	Averaging Time	2004	2005	2006
$PM_{2.5}$ ($\mu g/m^3$)[a]				
Santa Barbara-East Canon Perido	Annual Arithmetic Mean	*	*	*
	Number of Exceedances (State)	*	*	*
	Number of Exceedances (Federal)	*	*	*
	24 Hour	27.5	28.3	27.7
	Number of Exceedances (State)	0	0	0
	Number of Exceedances (Federal)	0	0	0
Santa Maria – S Broadway	Annual Arithmetic Mean	7.5	*	*
	Number of Exceedances (State)	*	*	*
	Number of Exceedances (Federal)	*	*	*
	24 Hour	16.6	29.8	12.7
	Number of Exceedances (State)	0	0	0
	Number of Exceedances (Federal)	0	0	0

*According to the California Air Resources Board (ARB), there was insufficient (or no) data available to determine the value.

[a]$PM_{2.5}$ is only measured at two monitors in Santa Barbara County, the Santa Barbara-East Canon Perido and Santa Maria-S Broadway.

Notes:

Hydrogen sulfide, vinyl chloride, and visibility-reducing particles are not monitored in the SCCAB.

ppm – parts per million

$\mu g/m^3$ – micrograms per cubic meter

N/A – There was insufficient (or no) data to determine the value.

Source: ARB, 2006b; EPA, 2007.
Data as of February 23, 2007.

3.4.2 Regulatory Framework

The regulatory structure for air quality planning in California includes federal, state, regional, and local agencies. These agencies either have actual regulatory authority or are responsible for the development and implementation of programs and plans designed to reduce air pollution levels.

3.4.2.1 Federal

Federal air quality policies are regulated through the Federal Clean Air Act (CAA). Pursuant to this act, the United States Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS) for the following air pollutants (termed "criteria" pollutants): CO, O_3, NO_2, sulfur dioxide (SO_2), respirable particulate matter defined as particulate matter less than 10 microns in aerodynamic diameter (PM_{10}), fine particulate matter defined as particulate matter less than 2.5 microns in aerodynamic diameter ($PM_{2.5}$), and lead. The act was amended in 1977 to require each state to maintain a state implementation plan (SIP) for achieving compliance with the NAAQS. In 1990, the act was amended again to strengthen regulation of both stationary and motor vehicle emission sources. Conformity to the SIP is defined under the 1990 CAA amendments as conformity with the plan's purpose in eliminating or reducing the severity and number of violations of the NAAQS and achieving expeditious attainment of these standards. The federal CAA also requires the EPA to designate areas (counties or air basins)

as attainment or nonattainment with respect to each criteria pollutant, depending on whether the area meets the NAAQS. An area that is designated nonattainment means the area is not meeting the NAAQS and is subject to planning requirements to attain the standard.

3.4.2.2 State

The California Air Resources Board (ARB) oversees California air quality policies and is responsible for preparing and submitting the SIP to the EPA. California established state ambient air quality standards (CAAQS) in 1969. These standards are generally more stringent and include more pollutants than the NAAQS. The California CAA was approved in 1988 and requires each local air district in the state to prepare an air quality plan to achieve compliance with the CAAQS. Similar to the EPA, the ARB designates counties in California as attainment or nonattainment with respect to the CAAQS.

The federal and state ambient air quality standards represent levels established to avoid specific adverse health effects associated with each pollutant. Table 3.4-2 presents the federal and state attainment status for each pollutant.

Santa Barbara County has been designated nonattainment for O_3 and particulate matter. A brief summary of the pollutants follows.

Ozone (O_3)

Ozone is a gas created when nitrogen oxides (**(**NO_X) and volatile organic compounds (VOCs) chemically react in the presence of ultraviolet sunlight. Ozone is a primary ingredient of summertime smog. Studies have indicated that exposure to ground-level O_3 air pollution, even at very low levels, can cause a number of respiratory health effects (SBCAPCD, 2006a). The major sources of O_3 precursor emissions in Santa Barbara County are motor vehicles, the petroleum industry, and solvents associated with paints, consumer products, and certain industrial processes. (SBCAPCD, 2007).

Particulate Matter

Fine mineral, metal, soot, smoke, and dust particles suspended in the air can harm the lungs (SBCAPCD, 2006a). For health reasons, there are two sizes of particulate matter of concern, PM_{10} and $PM_{2.5}$. Sources of PM_{10} include mineral quarries, grading, demolition, agricultural tilling, road dust, and vehicle exhaust (which also contributes to $PM_{2.5}$) (SBCAPCD, 2007). Particles of these sizes can permanently lodge in the deepest and most sensitive areas of the lung, and can aggravate many respiratory illnesses including asthma, bronchitis, and emphysema. High levels of particle pollution have also been associated with a higher incidence of heart problems, including heart attacks (SBCAPCD, 2006a).

TABLE 3.4-2
Ambient Air Quality Standards and Attainment Status

Criteria Pollutant	Federal Standard (Averaging Period)[a]	Federal Attainment Status	State Standard (Averaging Period)[b]	State Attainment Status
Carbon Monoxide (CO)	35 ppm (1 hour)	Attainment	20 ppm (1 hour)	Attainment
	9 ppm (8 hour)	Attainment	9 ppm (8 hour)	Attainment
Nitrogen Dioxide (NO_2)	0.053 ppm (annual arithmetic mean)	Attainment	0.25 ppm (1 hour)	Attainment
Ozone (O_3)	0.08 ppm (8 hour)	Attainment	0.07 ppm (8 hour)	Nonattainment[c]
			0.09 ppm (1 hour)	Moderate Nonattainment
Fine Particulate Matter ($PM_{2.5}$)	15 μg/m^3 (annual arithmetic mean)	Attainment	12 μg/m^3 (annual arithmetic mean)	Unclassified
	35 μg/m^3 (24 hour)[d]	Attainment	No separate Standard (24 hour)	
Particulate Matter (PM_{10})	Revoked[d]	Attainment	20 μg/m^3 (annual arithmetic mean)	Nonattainment
	150 μg/m^3 (24 hour)	Attainment	50 μg/m^3 (24 hour)	Nonattainment
Sulfur Dioxide (SO_2)	0.030 ppm (annual arithmetic mean)	Attainment	--	--
	0.14 ppm (24 hour)	Attainment	0.04 ppm (24 hour)	Attainment
	--	--	0.25 ppm (1 hour)	Attainment
Lead	1.5 μg/m^3 (calendar quarter)	Attainment	1.5 μg/m^3 (30 day average)	Attainment
Sulfates	No Federal Standards		20 μg/m^3 (24 hour)	Attainment
Hydrogen Sulfide			0.03 ppm (1 hour)	Attainment
Vinyl Chloride			0.01 ppm (24 hour)	Attainment
Visibility Reducing Particles			Extinction coefficient of 0.23 per kilometer — visibility of 10 miles or more (0.07 to 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent.	Unclassified

Source: ARB, 2006a.

ppm: parts per million, by volume

μg/m3: micrograms per cubic meter

Notes:

[a]National standards, other than O_3, particulate matter, and those based on annual averages or annual arithmetic means, are not to be exceeded more than once a year. The O_3 standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 μg/m^3 is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

[b]California standards for O_3, CO, sulfur dioxide (1-hour and 24-hour), NO_2, suspended particulate matter (PM_{10}, $PM_{2.5}$, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded.

[c]According to the SBCAPCD (2006b), although the ARB has not officially designated areas for the 8-hour O_3 standard, the ambient air data collected by the district indicate the area will be designated nonattainment.

[d]On September 21, 2006, the EPA promulgated a new 24-hour $PM_{2.5}$ standard and revoked the annual PM_{10} standard. To attain the $PM_{2.5}$ standard, the 3-year average of the 98th percentile 24-hour concentration at each population-oriented monitor within an area must not exceed 35 μg/m^3. These changes became effective December 17, 2006 (EPA, 2006b).

Greenhouse Gases

- Assembly Bill 32 (AB 32) requires that California's greenhouse gas (GHG) emissions be reduced to 1990 levels by 2020. The reduction will be accomplished through an enforceable statewide cap on global warming emissions to be phased in beginning 2012. AB 32 directs the ARB to develop regulations and a mandatory reporting system to track and monitor global warming emissions levels (AB 32, Chapter 488, Statutes of 2006).

  In passing AB 32, the California Legislature found that:

  > "*Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.*"

  The California Climate Action Team Report to the Governor (2006) includes a range of strategies to reduce GHG emissions. One of these strategies is the Accelerated Renewables Portfolio Standard Program, which requires investor-owned public utilities to transition to renewable energy sources. The report shows this program to be one of the most promising strategies for reducing GHG emissions, with reductions projected to be 5 million metric tons (CO2 Equivalent) by 2010 and 11 million metric tons by 2020.

- Senate Bill 1368 (SB 1368). This bill aims specifically to reduce GHG emissions from electric utilities. It prohibits any "load-serving entity" (for example, electric service provider) from entering into a long-term electricity procurement contract unless it complies with greenhouse gas emission performance standards. The standards will be developed and enforced by the Public Utilities Commission (CPUC). (SB 1368, Chapter 598, Statutes of 2006).

GHG emissions have not historically been regulated. Because the laws are new, neither GHG emissions standards nor thresholds of significance for their environmental impacts have been established. Nevertheless, anticipated GHG emissions and benefits from the Project warrant qualitative discussion. Please refer to Section 4.5, Cumulative Impacts.

3.4.2.3 Regional and Local

The Project is located within the jurisdiction of the SBCAPCD. The SBCAPCD is the local agency charged with preparing, adopting, and implementing mobile, stationary, and area air emission control measures and standards. Under the California CAA, the SBCAPCD is required to develop an air quality attainment plan for nonattainment criteria pollutants within the air district. The district has two attainment plans; one plan to meet federal CAA requirements, and one plan to meet California CAA requirements. The SBCAPCD 2004 Clean Air Plan (3-Year Update for California Clean Air Act) was adopted by the SBCAPCD Board in December of 2004, has been submitted to the ARB, and is the 3-year update to the 2001 Clean Air Plan. The 2004 Plan shows how the county will make progress towards meeting the state 1-hour O_3 standard. The SBCAPCD 2001 Clean Air Plan (federal CAA) was adopted by the SBCAPCD Board and approved by both the EPA and the ARB. This plan is in effect for federal standards.

Because the County is designated nonattainment for the state PM_{10} standards, dust mitigation measures are required for all discretionary construction activities regardless of the significance of the fugitive dust impacts (SBCAPCD, 2007).

The Project is subject to all SBCAPCD prohibitory rules and regulations even though permits may not be required. Stationary sources, such as emergency generators, are required to have permits from the SBCAPCD before constructing, changing, or operating the source. During Project construction, the concrete batch plant and other portable equipment would ~~either~~ need to be permitted by the SBCAPCD or registered in California's Portable Equipment Registration Program, as appropriate. Portable or temporary equipment if present on site for more than 12 months, including concrete batch plants and associated engines, and gasoline storage tanks of 250 gallons or more would require permits from the SBCAPCD. During Project operation, stationary sources that would require permits from the SBCAPCD have not been identified.

Local agencies, cities, and organizations also take part in improving air quality. For example, the Santa Barbara County Association of Governments assisted the SBCAPCD in preparing the 2004 Clean Air Plan. The County of Santa Barbara also contributes to improving air quality through land use planning and developing guidance documents. The following County documents were reviewed for applicability to Project-related air quality impacts: Comprehensive Plan: Air Quality Supplement to the Land Use Element, Environmental Thresholds and Guidelines Manual, and Conditions of Approval and Mitigation Measures.

3.4.3 Project Impacts, Mitigation, and Residual Impacts

This section assesses Project-induced impacts to air quality during the construction and post-construction phases.

3.4.3.1 Impact Assessment Methodology

The potential air quality impacts occurring during the construction and operation of the Project were evaluated using the CEQA Guidelines and the quantitative thresholds of significance established by the County of Santa Barbara and the SBCAPCD. It was assumed that if construction emissions (reactive organic compounds [ROC] and NO_x) and operation emissions were less than the thresholds of significance, the Project would not cause or contribute to a violation of the ambient air quality standards. Additional details regarding the methodological approach used are described under the individual impacts. Appendix A includes the results of the air quality modeling for construction and operations.

3.4.3.2 Thresholds of Significance

The County's Environmental Thresholds and Guidelines Manual and the SBCAPCD guidance document summarize the criteria for determining whether the construction and operation of a project would have a significant adverse air quality impact (County, 2006; SBCAPCD, 2007). Based on this guidance, the following two issues are addressed:

- Would the project cause or contribute to a violation of any federal or California Ambient Air Quality Standard

- Would the project be consistent with the adopted federal and California air quality plans for Santa Barbara County

Table 3.4-3 summarizes the quantitative thresholds of significance used to evaluate the potential air quality impacts of the Project. The County has not established ~~published~~ quantitative thresholds of significance for short-term construction emissions; however, the SBCAPCD uses 25 tons per year for ROC or NO_x as a guideline for determining the significance of construction impacts (SBCAPCD, 2007). For long-term or operation impacts, the values in Table 3.4-3 represent a combination of the most conservative quantitative thresholds from both the County and the SBCAPCD.

TABLE 3.4-3
Thresholds of Significance

Impact Source	Thresholds of Significance		
	ROC	NO_x	PM_{10}
Construction (ton/yr)[a]	25	25	NA
Operation – All Project Sources (Mobile and Stationary) (lb/day)[b]	55	55	80
Operation – Motor Vehicle Trips (lb/day)[b]	25	25	NA

[a] Under APCD Rule 202 D.16, if the combined emissions from all construction equipment used to construct a stationary source which requires an Authority to Construct have the potential to exceed 25 tons of any pollutant, except carbon monoxide, in a 12-month period, the owner of the stationary source shall provide offsets under the provisions of Rule 804 and shall demonstrate that no ambient air quality standard would be violated.

~~[a] Quantitative thresholds of significance for short-term construction emissions have not been established; however, the SBCAPCD suggests using 25 tons/year of ROC or NOx as a guideline for determining the significance of construction impacts (SBCAPCD, 2007).~~

[b] County of Santa Barbara, 2006.

NA – Not applicable; a significance threshold has not been established.

3.4.3.3 Project Impacts

Consistency with Plans

The SBCAPCD 2004 Clean Air Plan presents the strategy to continue to improve air quality in the County. The plan includes emission reductions achieved from existing and proposed regulations and provides emission inventories up to the year 2020. The Air Quality Supplement to the County's Comprehensive Plan is a mandated element of the Comprehensive Plan. The Project would be consistent with the overall goal of the Air Quality Supplement because it would not increase regional vehicles miles traveled. The Project would also be consistent with Policy E (integration of long-range planning with air quality) of the Air Quality Supplement. The Project would generate energy with a minimal impact to air quality when compared to traditional sources of energy generation. The Project is consistent with the goals of the 2004 Clean Air Plan and the policies in the Air Quality Supplement of the County's Comprehensive Plan. Operation of the Project would generate energy and would not contribute to a violation of an air quality standard.

Comparison to Thresholds of Significance

Impact No.	Impact Description	Phase	Impact Classification
AQ-1	Exhaust emissions from construction equipment would result in short-term emissions of NOx and ROC.	Construction	Class III

Impact AQ-1: Short-term Construction NO_x and ROC. Construction equipment exhaust would result in short-term emissions of NO_x and ROC. Although the Project is expected to be constructed in as many as three phases that span more than one calendar year, construction emissions were conservatively estimated by assuming that the Project would be completed in 1 year. ~~and estimated annual construction emissions were compared to the ton per year thresholds of significance.~~ Exhaust emissions from the construction equipment listed in Table 2-4 were quantified using URBEMIS2002 (version 8.7.0). Emissions from the truck trips associated with construction (Table 2-3) were calculated using year 2007 EMFAC2007 (version 2.3) emission factors for heavy-duty diesel trucks in Santa Barbara County. Exhaust emissions from helicopters that may be used during power line construction were estimated using emission factors from the Federal Aviation Administration's Emissions and Dispersions Modeling System (EDMS) (FAA, 2007).

As shown in Table 3.4-4, the construction phase NO_x and ROC emissions would be less than the threshold of significance (25 tons per year); therefore, the impact from construction NO_x and ROC emissions would be adverse but less than significant (*Class III*).

Impact No.	Impact Description	Phase	Impact Classification
AQ-2	Particulate matter emissions during construction would result from soil disturbance, travel on unpaved roads, mobile source exhaust emissions, and concrete batch plants.	Construction	Class II

Impact AQ-2: Short-term Construction PM_{10} Emissions. Particulate matter emissions during construction would result from soil disturbance, travel on unpaved roads, mobile source exhaust emissions, and concrete batch plants located in several locations throughout the Project site. PM_{10} emissions from construction equipment exhaust and soil disturbance were quantified for the Project using URBEMIS2002 (version 8.7.0). PM_{10} exhaust emissions from truck trips associated with construction were calculated using the year 2007 EMFAC2007 (Version 2.3) emission factors for heavy-duty diesel trucks in Santa Barbara County (ARB, 2007). Concrete batch plant emissions were estimated using AP-42, Fifth Edition, Compilation of Air Pollutant Emission Factors, Chapter 11.12 (EPA, 2006a). Table 3.4-4 presents the PM_{10} emissions. Quantitative PM_{10} and $PM_{2.5}$ thresholds of significance have not been established by the County or the SBCAPCD for construction, but the County is designated nonattainment for the state PM_{10} standards; and dust mitigation measures are required for all discretionary construction activities regardless of the significance of the fugitive dust impacts (SBCAPCD, 2007). Project impacts from construction PM_{10} emissions would be significant, but mitigable to less than significant (*Class II*).

TABLE 3.4-4
Construction Emissions

Construction Activity	Emissions (tons/yr)[a,b,c]		
	ROC	**NO_x**	**PM_{10}**
Site Preparation and Road Construction	0.71	4.9	0.64
Foundation Construction	0.43	2.9	1.7
Electrical Collection System	0.22	1.4	0.5
Power Line Construction	0.66~~0~~	4.3 ~~3.9~~	1.7~~5~~
Substation, O&M Facility, and Meteorological Tower	0.33	2.3	0.8
Turbine Installation	0.32	1.9	0.7
TOTAL (tons/yr)	**2.67**	**17.7**	**6.0 ~~5.8~~**
Truck Trips[d]	**ROC**	**NO_x**	**PM_{10}**
Transport of WTG Parts	0.04	0.19	0.01
Transport for WTG Foundation	0.09	0.52	0.03
Transport for WTG Water	0.09	0.45	0.03
Access Roads	0.08	0.40	0.02
Pole Placement	0.03	0.15	0.009
Line Stringing	0.005	0.02	0.001
Meteorological Tower	0.003	0.02	0.001
Substation and O&M Facility	0.002	0.009	0.0005
TOTAL (tons/yr)	**0.3**	**1.8**	**0.1**
GRAND TOTAL (tons/yr)	**3**	**19**	**6**
Thresholds of Significance (ton/yr)	**25**	**25**	**NA**

[a]Calculations from pounds per day in the URBEMIS2002 output to tons per project assume that construction equipment would operate 22 days/month.

[b]Fugitive dust emissions assume 2 acres per day would be disturbed for each activity.

[c]Helicopter emissions are included with Power Line Construction and assume the helicopter would operate 3 hours per day per LTO and would operate 5 times per month during six-month construction period.

[d]Truck emissions assume each truck travels a distance of 12 miles within the Project boundary per trip.

NA – Not applicable, a PM_{10} significance threshold has not been established for construction related impacts.

URBEMIS2002 estimates reactive organic gas (ROG) emissions. It was assumed ROG emissions equal ROC emissions.

Impact No.	Impact Description	Phase	Impact Classification
AQ-3	Exhaust emissions from workers driving onsite and a forklift would result in long-term emissions of NO_x and ROC. Fugitive dust emissions from workers driving on unpaved roads would result in long-term emissions of PM_{10}.	Operations	Class III

Impact AQ-3: Long-term Emissions. Operation of the Project would involve an onsite staff of approximately 10 workers who would travel onsite as needed, monitor WTG and system operation, perform routine maintenance, troubleshoot malfunctions, shut down and restart turbines when necessary, and provide security. In addition, support equipment, such as a forklift used for unloading parts, would be used as part of Project operation. Operation of the Project would not require the use of diesel-powered backup generators. Any use of a diesel-powered generator would require a permit from SBCAPCD. Exhaust emissions from workers driving onsite and a forklift would result in long-term emissions of NO_x and ROC. Fugitive dust emissions from workers driving on unpaved roads would result in long-term emissions of PM_{10}. Operation emissions were quantified using URBEMIS2002 (version 8.7.0) (Jones and Stokes, 2002). As shown in Table 3.4-5, NO_x, ROC, and PM_{10} emissions would be less than the thresholds of significance. Therefore, long-term emissions would be adverse, but less than significant (*Class III*).

TABLE 3.4-5
Operation Emissions

Operation Source	Emissions (lb/day)[a]		
	ROC	**NOx**	**PM_{10}**
Forklift	0.2	1.1	0.03
On-site Gasoline-fueled Trucks	0.09	0.05	18
TOTAL (lb/day)	0.3	1.2	18
Thresholds of Significance – All Sources (lb/day)	**55[b]**	**55[b]**	**80[b]**
Thresholds of Significance – Motor Vehicle Trips (lb/day)	**25[b]**	**25[b]**	**NA**

[a]Output from URBEMIS2002 (version 8.7.0) assuming an operation year of 2008, a vehicle mix of 100 percent light duty trucks traveling 20 miles per day onsite on unpaved roads at 15 miles per hour, and one forklift operating 2 hours per day.
[b]County, 2006.

URBEMIS2002 estimates reactive organic gas (ROG) emissions. It was assumed ROG emissions equal ROC emissions.

3.4.3.4 ~~Applicant-Proposed~~ Mitigation Measures

The following mitigation measures incorporate appropriate provisions of the Applicant-proposed mitigation measures listed in Section 2.8.4, with revisions as needed to ensure maximum feasible mitigation in accordance with Santa Barbara County policy.

~~The following Applicant-proposed mitigation measures are considered part of the project description. They have been grouped by topic and refined where appropriate to reflect the Standard Conditions of Approval and Mitigation Measures (Santa Barbara County, 2005), including plan requirements, timing, and monitoring actions that would be required.~~

AQ-1: Construction Equipment Emission Reduction Plan. A Construction Equipment Emission Reduction Plan shall be prepared by the Applicant that contains the following elements. These measures are based on the construction impact mitigation measures for equipment exhaust summarized in the SBCAPCD guide (SBCAPCD, 2007).

a. ***Catalytic Converters –*** Ensure that catalytic converters are installed on all gasoline-powered equipment, if feasible. Install diesel catalytic converters, diesel oxidation catalysts, and diesel particulate filters as certified and/or verified by EPA or California on diesel equipment, if available.

b. ***High Pressure Fuel Injectors –*** Use high-pressure fuel injectors on Caterpillar engine types 3306 and 3406 DITA to reduce NO_x emissions.

c. ***Engine Maintenance –*** Maintain engines and emission systems in proper operating condition.

d. ***Engine Model Year –*** Utilize heavy-duty diesel-powered construction equipment manufactured after 1996, whenever feasible**.**

e. ***Engine Size –*** The engine size of construction equipment will be the minimum practical size.

f. ***Number of Equipment –*** The number of construction equipment operating simultaneously will be minimized through efficient management practices to ensure that the smallest practical number is operating at any one time.

g. ***Engine Timing –*** Construction equipment operating onsite will be equipped with two to four degree engine timing retard or precombustion chamber engines.

h. ***Equipment Replacement –*** Diesel-powered equipment will be replaced by electric equipment whenever feasible.

i. ***Truck Idle Time –*** Idling of heavy-duty diesel trucks during loading and unloading will be limited to 5 minutes; auxiliary power units will be used whenever possible.

j. ***Worker Trips –*** Construction worker trips will be minimized by requiring carpooling and by providing for lunch onsite.

Plan Requirements: Requirement shall be shown on grading and building plans prior to the issuance of zoning clearance for the first phase of construction and prior to issuance of zoning clearance for subsequent Project phases.

Timing: Condition will be enforced throughout all construction periods.

MONITORING: County staff will ensure measures are included in the Construction Equipment Emission Reduction Plan. County staff shall perform periodic site inspections of construction contractor maintenance activities (*Addresses Impact AQ-1)*.

AQ-2: Dust Control Plan. A Dust Control Plan shall be prepared by the Applicant that contains the following elements.

a. ***Water Application –*** Apply water sprays to all disturbed active construction areas a minimum of two times per day, except when soil water content would exceed the level recommended by the soils engineers for compaction or when weather conditions warrant a reduction in water application. Additionally, use adequate dust control to keep fugitive dust from being transmitted outside of the trail right-of-way. Perform increased dust control watering when wind speeds exceed 15 miles per hour. The amount of additional watering would depend upon soil moisture content.

b. ***Soil Stabilization –*** Stabilize any disturbed area that would not be covered with base or paving within 14 days after completion of disturbing activities by use of soil coating mulch, dust palliatives, compaction, reseeding, or other approved methods. Soil stockpiled for more than 2 days shall be covered, kept moist, or treated with soil binders to prevent dust generation. Trucks transporting soil will be covered in transit.

c. ***Construction Monitoring –*** The contractor or builder shall designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust offsite. Their duties will include holiday and weekend periods when work may not be in progress.

d. ***Limit Traffic Speed*** – Reduce traffic speeds on all unpaved roads to 15 miles per hour or less.

Plan Requirements: All requirements shall be shown on grading and building plans prior to the issuance of the zoning clearance for the first phase of construction and prior to issuance of the zoning clearances for subsequent Project phases.

Timing: Condition will be enforced throughout all construction periods.

MONITORING: County staff will ensure measures are included in the Dust Control Plan and shall perform periodic site inspections to ensure compliance (*Addresses Impact AQ-2)*.

3.4.3.5 Residual Impacts

Impact AQ-1, construction NOx and ROC emissions, would be less than significant The residual impact of Impacts AQ-2 and AQ-3, construction and operational PM_{10} emissions, respectively, would be less than significant given implementation of Mitigation Measures ~~A-~~ AQ-1 and AQ-2. Impact AQ-3, operational NOx and ROC emissions, would be ~~reduce an already~~ less than significant~~impact~~.

3.5 Biological Resources

Note to reader: Section 3.5 Biological Resources of the FEIR does not include strikeout or underline as in other sections of the FEIR that show changes from DEIR. Changes are not included in this section due to the numerous changes and substantial reordering of this section.

The Lompoc Wind Energy Project (Project) would be located in a semiarid region where warm and cold ocean currents mix and distributional ranges of a number of northern and southern wildlife species overlap. A high rate of endemism (species only known to occur within a certain area) also characterizes this region of varied topography, geology, and soils. The relatively humid coastal environment of the project region (western Santa Ynez Mountains near Point Conception), characterized by moist sea breezes and frequent fog, is conducive to the growth of lichens. Spanish lace lichen (*Ramalina menziesii*) hanging from the branches of oak trees in San Miguelito Canyon below the project site provides an obvious indication of the atmospheric moisture. This analysis addresses potential Project impacts on both common and special-status plant and wildlife species during both the construction and operation and maintenance (O&M) phases.

Section 3.5.1 describes the data and information sources used to characterize existing conditions at and in the vicinity of the Project. This discussion is followed by Section 3.5.2, a detailed description of the vegetation and habitats observed in the Project area. Section 3.5.3 addresses the common wildlife and plant species present (or likely to be present) in the Project area, and Sections 3.5.4 addresses special-status wildlife and plant species. Wetlands and other sensitive aquatic features are described in Section 3.5.5. The regulatory framework addressing the type of species potentially found in the Project area is included in Section 3.5.6, and impacts, mitigation measures, and residual impacts are included in Section 3.5.7.3.

3.5.1 Methods

Biological resources in the Project area were identified through literature and database searches, personal communications with qualified wildlife biologists and botanists, and field surveys.

3.5.1.1 Literature and Database Review

Much of the information regarding existing conditions was derived from the Lompoc Wind Energy Project Biological Resources report (Olson and Rindlaub, 2006) and supplemented by data provided in technical reports (Memorandums for the Record) prepared by Sapphos Environmental, Inc. on behalf of the applicant. These reports were independently reviewed by the Final EIR preparers, and their findings were verified and supplemented through additional field surveys and database searches.

The Olson and Rindlaub report, published in 2006, was based on the review of numerous sources, including regional and local bird guides, technical reports prepared for nearby La Purisima State Park and Vandenberg Air Force Base (VAFB), the La Purisima Audubon Society newsletters and Web site, and other technical reports prepared for the Lompoc area. Additionally, the California Department of Fish and Game (CDFG) Natural Diversity Database (CNDDB) was queried in 2003 and 2005 for the 7.5-minute United States Geological Survey (USGS) quads of the Project area, as well as adjacent quads (Tranquillon Mountain, Lompoc, Lompoc Hills, Santa Rosa Hills, Point Arguello, Los Alamos, Point Conception, Sacate, and Surf). Additional information regarding

special-status plants was obtained from the California Native Plant Society (CNPS) online inventory, the Central Coast Center for Plant Conservation, and the Santa Barbara Botanical Garden, as well as technical reports for nearby areas, including VAFB and Hollister Ranch. The Jepson Manual (Hickman, 1993) was used to key and identify plant species in the field, and vegetation communities were classified according to the system (1986).

The information gathered by Olson and Rindlaub (2006) was supplemented by CNDDB searches for the Project area and surrounding lands in 2006 and 2008. A list of threatened and endangered species also was obtained from the United States Fish and Wildlife Service (USFWS) in 2006. Further information was obtained from a long-term ecological monitoring program at VAFB conducted by the University of California, Santa Barbara (UCSB) Museum of Systematics and Ecology (Gallo et al., 2000) and from Christmas Bird Counts conducted in Miguelito Canyon by the Audubon Society from 1997 to 2005 (National Audubon Society, 2006).

The Central Coast Bat Research Group (CCBRG, 2008) conducted surveys and prepared a Bat Survey Report for the site that included data collected in previous surveys of the project area.

Data from the Weather Surveillance Radar or NEXRAD (Next Generation Radar) at Vandenberg Air Force Base (VAFB), California were analyzed by Geo-Marine, Inc. under the direction of Dr. Sidney A. Gauthreaux, Jr. (Gauthreaux 2008, Final report included in (Appendix B) to characterize migration patterns of birds over the project area.

Additionally, literature searches and contact with experts was conducted in 2007 and 2008 by the Final EIR preparers and by the Applicant's consultant.

3.5.1.2 Professional Contacts

Biologists with extensive experience in the general Project area were contacted to obtain information about local species distribution, including birds, bats, and species of local concern. Agency botanists from the USFWS, CDFG, VAFB, and the County, as well as the Santa Barbara Botanic Garden were contacted to obtain information regarding Gaviota tarplant (*Deinandra increscens* ssp *villosa*) status and distribution (Olson and Rindlaub, 2006). Information on the endangered El Segundo blue butterfly (*Dienandra increscens* ssp *villosa)* was obtained from contact with environmental staff at Vandenberg Air Force Base, the U. S. Fish and Wildlife Service, and lepidopterist Dr. Gordon Pratt.

Information regarding raptor observations in San Miguelito Canyon dating from 1971 was obtained from the University of California at Santa Cruz, Santa Cruz Predatory Bird Research Group (UCSC SCPBRG) (B. Walton, Personal Communication).

3.5.1.3 Botanical and Plant Community Surveys

Botanical surveys were conducted during daylight hours on 7 separate days in the spring and summer of 2002 for all areas of potential disturbance, including access roads. Surveys were conducted on foot, except for South Road both north and south of Signorelli Ranch, and North West Road south of the Scolari farmstead; these were surveyed from a vehicle. The Olson and Rindlaub (2006) study included portions of the Signorelli Ranch property that extend into the coastal zone; however, these areas are not included in the current Project. Areas that were inaccessible because of steep terrain were checked using binoculars to characterize the vegetation and the presence of

sensitive species. Coverage of the corridors along access roads was limited to about 20 feet on either side of the road unless a wind turbine generator (WTG) site was mapped farther off the road. Similar methods were used on 5 separate days in the spring, summer, and fall of 2005, although these were more limited, focusing on new WTG sites and new access roads (Olson and Rindlaub, 2006).

All areas of the Project site with sandy soils were checked for Gaviota tarplant in 2002. Areas where tarweed seedlings were observed in early 2002 were revisited later in the season, when Gaviota tarplant was in full flower. Areas with sandy soils where WTGs were added or relocated and along new access road routes were rechecked in 2005, but not all areas where Gaviota tarplant was found in 2002 were rechecked in 2005 (Olson and Rindlaub, 2006).

Additional reconnaissance-level surveys were conducted by CH2M HILL on 4 separate days in September 2006, using similar methods to provide independent verification of the findings of the earlier surveys and to evaluate areas not previously surveyed by Olson and Rindlaub (2006) for special-status plant species; particular focus was given to identification of the Gaviota tarplant. New areas for surveys included the PG&E transmission line corridor and Larsen Ranch. Power line angle point locations were marked on maps and flagged or staked in the field. Depending on the terrain, the power line corridor (a 200-foot swath, 100 feet on each side of the proposed alignment) between angle point locations was surveyed by binoculars or walking meandering transects every 20 feet. Surveys for Gaviota tarplant were conducted in a 200-foot radius around potential angle point locations. Vegetation communities were mapped 1,000 feet on either side of the power line corridor. Larsen Ranch was surveyed for the presence of Gaviota tarplant by walking meandering transects every 20 feet along access roads and WTG corridors. Because the 2006 botanical surveys were completed late in the growing season, only dominant plant species were identified in the general community descriptions (CH2M HILL, 2006a). Sapphos Environmental, Inc. (2008) conducted supplemental vegetation surveys and prepared an updated vegetation map for the project property and mapped distribution of Coast buckwheat (*Eriogonum parvifolium*) which may support the El Segundo blue butterfly on site. The Final EIR preparers conducted additional onsite reconnaissance on October 4, 2007, February 18, 2008, and March 10, 2008.

3.5.1.4 Wildlife and Bird Surveys

Wildlife surveys of the WTG corridors, including surveys for birds, were conducted by Olson and Rindlaub on 6 separate dates in the spring, summer, and fall of 2002, and on 7 separate dates in the spring and summer of 2005. The 2005 surveys included the WTG corridors and the Project Substation site. The 2002 surveys were conducted during the afternoon to facilitate good visibility and to avoid the marine layer weather conditions, which are common during the late spring and summer months. Most of the 2005 surveys were conducted in the afternoon, but some took place in the mornings. Surveys extended into adjacent habitats, especially those with a woodland component, out to a distance of 500 feet from proposed WTG corridors. Binoculars were used to examine habitats and to scan periodically for birds in flight. Large features that could be used by nesting and perching birds, such as existing electrical distribution lines, fences, trees, and rock outcrops, were searched with binoculars and a spotting scope (Olson and Rindlaub, 2006).

Additional reconnaissance-level surveys were conducted on 4 separate dates in September 2006 to provide independent verification of the earlier surveys and to identify wildlife present in previously nonsurveyed areas, including portions of some roads, the O&M facility, Larsen Ranch,

and the Pacific Gas and Electric Company (PG&E) power line corridor (CH2M HILL, 2006b). These surveys were performed by CH2M HILL biologists using a methodology similar to that used in 2002 and 2005.

In addition, avian point count stations were established within strategic areas of Larsen Ranch and North Corridor (primarily on the gradient between two vegetation communities and in areas that provided optimal views of ridgelines and valleys) to allow the quantification of bird sightings (Figure 3.5-1) (CH2M HILL, 2006b). Surveys were conducted during the afternoon to avoid the marine layer that is characteristic of the area. All bird species detected through observation and vocalizations were documented during a 10-minute point count interval. To remain consistent with previous survey methodology (Olson and Rindlaub, 2006), incidental wildlife observations also were obtained while walking along meandering transects between point count stations. All wildlife detected via direct observation, vocalization, tracks, scat, or feathers were noted.

Olson (2007) conducted avian point count surveys during three, 3-day periods in December 2006 at 18 potential WTG sites (Figure 3.5-1). The points were surveyed for 20 minutes at different times of the day for each survey. Each point was surveyed once each during the morning, midday, and afternoon. Each point count survey identified birds using sight and sound along with the number of individuals, types of species, the natural community, topography, and incline in which the observation was made, and the behavior of the bird (for example, foraging, flying, or vocalizing). Areas near the point locations were scanned constantly with binoculars during the 20-minute count. A spotting scope was used to identify birds at a distance. Larger birds were observed to an approximate distance of 800 meters on days with good visibility.

Sapphos Environmental, Inc. conducted field surveys in 2007 and 2008 and prepared an avian study memo for the project property. In addition, Sapphos Environmental, Inc. conducted winter 2008 preconstruction avian surveys of the proposed project property (Appendix B). Winter 2008 avian preconstruction surveys were conducted from two to five days a week over a seven-week period, from February 4 through March 27, 2008, for a total of 24 days. A total of 208 hours were dedicated to field observations during this period. Winter 2008 preconstruction avian surveys comprised four different surveys: (1) area search counts centered around 54 points with a 50-meter radius, (2) diurnal raptor and raptor nest surveys along five ridges, (3) supplemental bird counts along 10 transects at three established sites, and (4) incidental bird counts, as follows:

(1) Area search counts. Sapphos Environmental, Inc. used area search counts centered around a total of fifty-four 50-meter-radius point (area of 7,850 m2) to obtain species identification with quantitative information on resident and migrant birds during preconstruction surveys for all species, especially non-raptor species. Most sampling points were placed at a minimum of 100 to 150 meters (m) apart. All birds were counted within each point circle, including birds flying over within the imaginary cylinder of each point circle. Each point was sampled twice during the season (February through March) within five hours of official sunrise when non-raptor species are generally most active. Some counts were conducted under foggy conditions but with visibility greater than 50 meters. Counts were also conducted under windy conditions but never when both weather factors coincided.

(2) Diurnal raptor and nest surveys. Survey efforts focused on collecting information on existing nests and activities of diurnal raptors. For raptor species, Sapphos Environmental, Inc. used line transects of unequal distance and times on each of the five main ridge systems where the

proposed project development would occur, with raptor observations standardized to number observed per kilometer. Observation times were standardized for each ridge system.

(3) Supplemental bird counts. The line transects were limited distance transects, with recorded observations restricted to within each of the five ridges, to reduce concerns associated with repeat counts of birds moving between ridges. All line transects were driven at 5 miles per hour, with stops. Line transects for each of the five main ridge systems were sampled twice from March 18 through 27 during midday (10:30 a.m.–3:00 p.m.) when raptors are expected to be most active. Counts were conducted in mid-March due to heavy rains in early February. Raptors were also counted by using the described methods on all 24 days the observers were in the field. Searches for active raptor nests, including owls, employed area search counts that were conducted within suitable habitat areas—including oak woodlands, riparian corridors, eucalyptus groves, and landscape trees—but focused on the eucalyptus groves. Area search counts for raptor nests, including owls' nests, were conducted three times at all eucalyptus groves within the proposed project property and included the largest grove above the westernmost residence.

Supplemental bird counts were conducted in and outside of the above-referenced areas in all habitats. Supplemental bird counts were conducted on ten established transects as described below. Supplemental bird counts included species detected outside count circles while conducting count circle counts and species detected while walking or driving between count circles. Supplemental counts also included area searches of two of the three arable fields within the proposed project property, one north of Honda Creek, the other about one-half mile south of Honda Creek alongside an ephemeral stream.

Supplemental bird counts were conducted along six line transects located on Honda Creek, two on San Miguelito Canyon Road, and two transects were located on the largest arable field within the proposed project property. Count times varied from 30 to 75 minutes.

(4) Incidental bird counts. Incidental observations were recorded throughout the proposed project property and included plot mapping of horned lark (*Eremophila alpestris*) locations. Incidental observations noted the location of special status bird species and other notable field observations. Sapphos Environmental, Inc. attempted to identify and collect data on morning flights of migratory songbirds that are early spring migrants within the proposed project property, particularly during the month of March.

Sapphos Environmental, Inc collected 2008 spring avian data in a similar fashion; (Appendix B). In addition, the winter survey methods (or similar methods in consultation with CDFG) will be replicated during post-construction surveys to obtain a before-after-control-impact (BACI) comparison to measure potential impacts to avian species at the proposed project site.

To determine the potential for federally or state-listed aquatic species or other sensitive terrestrial wildlife species to occur at the proposed project site, Sapphos Environmental, Inc. conducted a review of published and unpublished literature, including field guides, previously prepared technical reports, the CNDDB, applicable listing packages, USFWS Recovery Plans, and designated or proposed critical habitat to document the potential for sensitive aquatic species reported within the vicinity of the proposed project site to occur within the proposed project site. Sapphos Environmental, Inc. prepared a Memorandum for the Record to describe the Habitat Suitability for

Three Listed Aquatic Species and a second Memorandum to describe the Habitat Suitability for Sensitive Terrestrial Species at the project site.

The FEIR preparers conducted additional onsite reconnaissance on October 4, 2007, February 18, 2008, and March 10, 2008.

3.5.1.5 Bat Surveys

The Central Coast Bat Research Group (CCBRG) conducted surveys and prepared a Bat Survey Report (CCBRG 2008) for the site which included data collected in previous surveys of the project area. In addition, data on specific bat species presence was gathered from previous surveys conducted for VAFB in 1997 and 1998 (a portion of these surveys were conducted by CCBRG biologists).

Acoustic Sampling. CCBRG recorded bat echolocations using broadband ultrasonic bat detectors (Anabat II; Titley Electronics, Ballina, Australia) to determine relative activity levels and occurrences of bat species at a sample of proposed turbine sites. Passive monitoring stations contained an Anabat II detector attached to a high-frequency microphone housed in a waterproof shroud with a 45° reflector mounted on a 1-meter tall pole. The detector was connected to an Anabat Compact Flash Zero-Crossings Interface Module (Titley Electonics, Ballina, Australia) recording device. Four Anabat acoustic units recorded echolocation activity from 1930 to 0630 from March 9th-16th, 2008.

Identification of Species. Anabat uses a zero-crossings analysis (ZCA) (Parsons et al. 2000), which produces files displaying echolocation calls on time-frequency graphs. Sequences were identified to species if they had greater than two diagnostic pulses that met defined criteria based on reference calls. Call parameters such as characteristic frequency (flattest part of the call), minimum and maximum frequency, characteristic slope (slope of the flattest part of the call), call duration, interpulse interval, and shape of the body of the call were measured from known reference calls and were used to characterize call sequences of species (O'Farrell et al. 1999, Gannon et al. 2004).

Nine of the bat species likely to occur in the region are readily identified using the Anabat system. These species are Townsend's big-eared bat (*Corynorhinus townsendii*), pallid bat (*Antrozous pallidus)*, western red bat (*Lasiurus blossevillii*), hoary bat (*Lasiurus cinereus*), long-eared myotis (*Myotis evotis*), fringed myotis (*Myotis thysanodes*), western pipistrelle (*Pipistrellus hesperus*), spotted bat (*Euderma maculatum*), and the western mastiff bat (*Eumops perotis*). Although discernible, Townsend's big-eared bat is rarely detected by acoustic units because it has a low intensity, high frequency call, and the bat must fly in extremely close proximity to the detector unit in order to be recorded.

3.5.1.6 Radar Study of Avian Migration

The project site is within the Pacific Flyway, which is one of the four major north-south migratory bird routes. The Pacific Flyway extends from the Pacific Ocean on the west to Utah and Arizona on the east.[1] Little detailed information is available about migratory traffic over the project area, and it

1 A USFWS map of the Pacific Flyway is posted at http://pacificflyway.gov/Documents/Pacific_map.pdf

is possible that nocturnal migratory birds may set down in the project area, particularly during inclement weather.

Doppler weather radar systems have the ability to detect flocks of migratory birds. Weather radars operate at coarse spatial scales. For example, the resolution cell can be 500x500x1,000 meters of air space. While the radar cannot resolve individual birds, it does respond to the overall, combined reflectivity of birds flying within the resolution cell. Specifically, the data can be used to detect, quantify, and monitor biological targets in the atmosphere (Gauthreaux and Belser 1998, 1999, 2003; Gauthreaux et al. 2000; Diehl and Larkin 2005).

To characterize patterns of nocturnal bird migration over the project area and region, a study was conducted using the Weather Surveillance Radar, or NEXRAD (Next Generation Radar). Data from radar stations in this system, including the Vandenberg AFB station, are archived and available for internet download from the National Climatic Data Center. Archived data from the Vandenberg AFB station were analyzed by Geo-Marine, Inc. under the direction of Dr. Sidney A. Gauthreaux, Jr. (Gauthreaux 2008, Final Report included in Appendix XX). The project site is located approximately 30-36 km south-southwest of the radar station. The study analyzed data from the nighttime hours of the spring and fall migration periods of 2006 and 2007 (spring: 15 March to 31 May, and fall: 15 August to 15 November).

Radar reflectivity for each pixel under analysis was processed to estimate bird density per cubic kilometer of aerial space.[2] Further processing yielded information on the direction and speed of the birds and migratory activity during adverse weather conditions. The data were prescreened to focus the analysis on nights with appreciable bird movement and to exclude nights for which the data were contaminated by precipitation, insects, or particulate matter. Two data sets were prepared for this project, as follows:

1) Project Site. The data analyzed (referred to as "sample area" in the report) encompasses a zone directly above the project site extending upward from an elevation of 500 meters above sea level.[3] By comparison, the average elevation of the top of the proposed WTGs is 548 meters. Thus, on average, the proposed WTGs would extend nearly 50 meters (more than half their rotor diameter) into the radar beam. The beam width (and height) at the project site is 486-585 meters. The zone sensed by the radar can be visualized as a block of aerial space above the project area, with its bottom surface cutting through the rotor-swept area of the WTGs and top surface 486-585 meters (approximately 1600-1900 feet) higher up.

2) Regional View. This data set (referred to as "maximum dBZ" in the report) extends out to 240 kilometers from the antenna.[4] At that distance, the bottom of the beam is at 4,283 meters above

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2 The NEXRAD system scans 360 degrees horizontally around the antenna, with a conical beam-width of approximately 1 degree. In the data used for this study, the radar beam centerline was tilted upward ½ degree above the horizontal plane. The nominal 3-D pixel size is 1 degree (horizontal) by 1 degree (vertical) by 1 km in "range" (i.e., along the beam axis).

3 The volume analyzed consists of 147 pixels. (Twenty-one 1-degree pixels horizontal times one 1-degree pixel vertical times seven 1-km range bins = 147 pixels.) These pixels cover a 21-degree arc horizontally, by 1 degree vertically, by 7 km in range. At the project site, the base of the radar beam is 78-108 meters above the elevation of the NEXRAD antenna, which is 401 meters above mean sea level. The beam elevation increases with range distance across the site.

4 The regional data set encompasses a full 360 degree (horizontal) by 1 degree (vertical) radar scan, extending out to 240 km (except where blocked by topography). The radar-sensed volume can be visualized as a disk surrounding the radar antenna, thin at the center, and becoming thicker and higher toward the perimeter.

mean sea level and the top of the beam is at 8,177 meters above mean sea level.[5] Unlike the Project Site data, which was processed to estimate average bird densities above the site, the Regional View was processed to locate areas where bird movement was maximal. Because the elevation of the radar-sensed volume increases with range distance, this analysis provided information on location, direction, and altitude of migration in the surrounding region.

The analysis addressed hour-to-hour, night-to-night, and year-to-year variation in migration density, as well as the direction of nightly movements during spring and fall migration. In an effort to determine the number of nights in a season when collisions of migrants with man-made structures such as meteorological towers and wind turbines might occur, the analysis related the density of migration to weather conditions that might cause birds to fly at lower altitudes.

3.5.2 Vegetation and Habitats

The major plant communities at the Lompoc Wind Energy Facility (LWEF) site are identified in Figure 3.5-2 and Table 3.5-1. Most areas where Project components would be located are grazed by cattle. As in many other parts of California, naturalized non-native species are important members of the herbaceous communities. However, some of the grazed grasslands were quite diverse. About 70 percent of the taxa found during the surveys were native plants, although the diversity and proportion of native versus non-native species varied from site to site. Native species usually are more important on steeper terrain where soils are not as favorable to non-native forage and weed species; where bedrock is shallow or exposed; and in areas shaded by larger shrubs and trees.

TABLE 3.5-1
Plant Communities Within the Proposed Lompoc Wind Energy Project Site.

Mapped Series / Association	Area (acre)	Percent of Proposed Project Area
Annual Grassland	1,575.2	53.0
Native Grassland	5.1	< 1
Grassland - Coastal Scrub Mosaic	137.8	4.5
Central Coast Scrub	852.7	28.9
Evergreen Forest and Woodland	196.8	6.5
Central Coast Riparian Scrub	87.3	3.0
Monterey Cypress*	1.0	< 1
Eucalyptus Groves	34.8	1.1
Agricultural Fields	59.3	2.0
Total	2,950	100

* Monterey cypress mapped are trees that originated from plantings around a farmhouse
Source: Sapphos 2008

Native perennial herbs and shrubs not only persist in many of the grazed grassland areas, but are often quite common, particularly on the sandy loam soils of Middle Corridor. Many of the endemic plants for which northern Santa Barbara County is known are more likely to occur in the shrub- and tree-dominated habitats that would be largely avoided by the Project. Chaparral was not found in the immediate Project area.

Evergreen woodlands and forests grow on the tops and leeward slopes of some hills, along ravines, and around farmsteads (where stands of evergreen species have developed from early plantings of

[5] These elevations were calculated using the calculator on the NOAA website http://www.wdtb.noaa.gov/tools/misc/beamwidth/, with 401 meters added to account for antenna height.

species commonly planted in the region, such as eucalyptus and Monterey cypress). Shrub-dominated vegetation is common on steeper slopes and more exposed sites. The boundary between scrub and grassland is often abrupt, sometimes following fence lines. Deciduous riparian vegetation is uncommon at these elevations. Most drainages are steep with rapid runoff, although moisture may be present most of the year, supplied by the scattered seeps and springs. Scrub or evergreen woodland vegetation follows shaded drainage reaches. Flatter and broader reaches may support willow thickets, rush colonies, or small patches of freshwater marsh. Grasslands are the most extensive vegetation type; some grasslands include a substantial component of native plant species, including native grasses. A few areas mapped as grasslands are composed of a mosaic of annual and perennial grasses, short-statured native shrubs, and perennial herbs.

The major vegetation and habitat types are described below.

3.5.2.1 Grassland

Southern Coastal Grassland

Grass- and annual forb-dominated vegetation occupies most of the gentler to moderately steep slopes in the Project area, including the power line corridor. Species composition apparently varies with soil types (dark clays versus lighter sandy loams) and slope exposure, but may also respond to grazing intensity and other factors related to land use history. Where diversity is lowest, dominants are usually non-native annuals, particularly wild oats *(Avena* spp), introduced bromes *(Bromus spp.),* foxtail barley *(Hordeum leporinum),* ryegrass *(Lolium),* milk thistle *(Silybum marianum),* bur clover *(Medicago polymorpha),* storksbill *(Erodium botrys)* and Crete weed *(Hedypnois cretica).* This assemblage is most common on heavily grazed sites, gentle slopes with southern exposure, and on sites with dark clay soil.

Grasslands with more diversity, contributed mostly by native species, are found on sites with less grazing pressure, on northern or eastern exposures, and generally on sandy loam soils. These flowery grassland areas are most prevalent on the central portion of Middle Corridor, extending across San Miguelito Road to Middle Corridor - South, on Sudden Corridor - East, around Quarry Ridge, and on the eastern slopes of South Corridor - Central. Common species include pineapple weed *(Amblyopappus pusillus),* horkelia *(Horkelia cuneata),* silver puffs *(Uropappus),* tidy tips *(Layia platyglossa),* goldfields *Lasthenia californica),* owl's clover *(Castilleja* spp.), mountain dandelion *(Agoseris* spp.), lupines *(Lupinus* spp), Lotus *(Lotus* spp.), clovers (*Trifolium* spp.), and Gaviota tarplant. Native grasses, particularly needlegrasses *(Nassella*) and creeping rye *(Leymus triticoides)* often are associated with concentrations of native herbs. The annual Crete weed is abundant and strongly dominant in most grassland areas, particularly on clay soil. Patches of mustard, principally black mustard *(Brassica nigra),* and colonies of milk thistle are found on some knolls and ridge tops.

In the power line corridor, annual grasslands are dominated by slender wild oats (*Avena barbata*), foxtail barley (*Hordeum murinum),* meadow barley (*Hordeum brachyantherum*), Italian rye-grass (*Lolium multiflorum*), milk thistle, soft chess (*Bromus hordeaceus*), saw-toothed goldenbush (*Hazardia squarrosa*), plantain (*Plantago* sp.), and curly dock (*Rumex crispus*).

Grassland/Coastal Scrub Mosaic

Fingers of bracken fern (*Pteridium aquilinum*) and runners of blackberry (*Rubus ursinus*) and poison oak (*Toxicodendron diversilobum*) extend into the grassland near rock outcrops, cliffs, and on ridges, with small-statured individuals of coffeeberry (*Rhamnus californica*), small-leaved buckwheat (*Eriogonum parvifolium*), goldenbush (*Isocoma* sp), and California sagebrush *(Artemisia californica).* Colonies of needlegrasses and creeping rye are sometimes common in the grasslands with many native herbs, possibly due to upslope seeps, such as on south Middle Corridor. Patches of common rush *(Juncus patens)* and sickle-leaved rush *(J. falcatus)* are scattered in some grassland areas that appear to be downslope of seeps and springs.

Annual Grassland Habitat

Annual grassland is the most widespread vegetation type within the Project area, including the power line corridor. The large expanses of annual grassland are used by nesting horned larks (*Eremophila alpestris*) and western meadowlarks (*Sturnella neglecta*). Flocks of red-winged blackbirds (*Agelaius phoeniceus*) and tricolored blackbirds (*Agelaius tricolor*) were observed during the surveys, as were lark sparrows (*Chondestes grammacus*), grasshopper sparrows (*Ammodramus savannarum*), white-crowned sparrows (*Zonotrichia leucophrys*), and Brewer's blackbirds (*Euphagus cyanocephalus*). Turkey vultures (*Cathartes aura*), red-tailed hawks (*Buteo jamaicensis*), and American kestrels (*Falco sparverius*) foraged over this vegetation type. During two surveys, kestrels were observed roosting on anemometer tower guy wires. California thrasher (*Toxostoma redivivum*), northern harrier (*Circus cyaneus*), and Nuttall's woodpecker (*Picoides nuttallii*) also were observed, as were Western bluebird (*Sialia mexicana*) and golden-crowned sparrow (*Zonotrichia atricapilla*). Other bird species that utilize this open grassland habitat type include: white-tailed kite (*Elanus leucurus)*, ferruginous hawk (*Buteo regalis)*, peregrine falcon (*Falco peregrines)*, and loggerhead shrike (*Lanius ludovicianus*). Short-grass habitats support breeding birds as well, including grasshopper sparrow, western meadowlark, and California horned lark (*Eremophila alpestris actia*). These species are joined in the winter by the western burrowing owl (*Athene cunicularia hypugea*), savannah sparrow (*Passerculus sandwichensis*), and American pipit (*Anthus rubescens*).

Several bird species were noted at the edges of grassland and other vegetation types, such as Central Coast scrub and mixed evergreen forest. Those included red-shouldered hawk (*Buteo lineatus*), mourning dove (*Zenaida macroura*), western scrub-jay (*Aphelocoma californica*), and lesser goldfinch (*Carduelis psaltria*). Western fence lizards (*Sceloporus occidentalis*) were observed throughout the Project area, including the power line corridor, as were species of small mammals that represent prey items for raptors, such as California ground squirrel (*Spermophilus beecheyi*) and Botta's pocket gopher (*Thomomys bottae*). The ground squirrels were not evenly distributed throughout the grassland areas, but rather, were in scattered locations. Sign of several predatory mammals was noted, including gray fox (*Urocyon cinereoargenteus*), coyote (*Canis latrans*), American badger (*Taxidea taxus*), and mountain lion (*Felis concolor*).

Native Perennial Grassland

Native grasses, particularly the needlegrasses, may be widely distributed on parts of the LWEF site. These species were more prevalent in late August of 2005 than in 2002, possibly due to unusually high rainfall or because those pastures were grazed early that year. Native grasses can be difficult to identify when the vegetation is heavily grazed.

Native perennial grasses such as purple needlegrass *(Nassella pulchra)* seem dense enough in several areas both on clay and sandy soils to satisfy the 10 percent relative cover criterion used as a threshold to delineate native grassland by the County of Santa Barbara (2006), particularly in the southwest portion of the Signorelli property, near its border with the West property. Other species of native grasses, including coast range melic (*Melica imperfecta*), alkali rye (*Elymus triticoides*), and foothill needlegrass (*Nassella lepida*) are in these species-rich grasslands. This grassland is similar to the Valley Needlegrass Grassland of Holland, except that native associates were coastal, rather than interior, species (Holland, 1986). They include wedge-leaved horkelia, poison oak, cudweed aster (*Lessingia filaginifolia*), goldenrod *(Solidago* spp), bracken fern, goldenbush, annual wildflowers, and annual grasses.

A less common type of native grassland, strongly dominated by California barley, is found on or below areas fed by seeps, particularly on the slopes of the southernmost portion of the Signorelli property (South Corridor). In most instances, these grasslands also include a substantial proportion of native perennial herbs.

Native Grassland Habitat

Wildlife species using native grassland in the Project area include western meadowlark, white-crowned sparrow (*Zonotrichia leucophrys*), lark sparrow, and Brewer's blackbird, northern harrier, loggerhead shrike, California horned larks, and sharp-shinned hawk (*Accipiter striatus*).

3.5.2.2 Central Coast Scrub

Coastal scrub in the Project area is most common on steeper sites, where cover often is very high. As suggested above, grazing probably limits the extent of scrub vegetation on many areas of gentler terrain, although wind and grazing probably control shrub stature. Central Coast Scrub is composed of both summer deciduous and evergreen shrubs and differs from Venturan Coastal Sage Scrub in part because black sage (*Salvia mellifera*) is the only shrubby salvia. Dominant species in most areas include California sagebrush, coyote brush (*Baccharis pilularis*), poison oak, and coffeeberry. Diversity is higher on north-facing slopes, where wild strawberry (*Fragaria vesca*), bracken fern, bedstraws (*Galium* spp), and monkeyflower (*Mimulus aurantiacus*) mingled with the more widely distributed species. Wedge-leaved horkelia, various lotus, sanicle (*Sanicula* spp), wild hyacinth (*Dichelostemma capitatum*), bee plant (*Scrophularia californica*), Indian paintbrush (*Castilleja affinis*), everlastings (*Gnaphalium* sp), and cudweed aster (*Lessingia filaginifolia*) are often found in openings.

In many areas, the line between grassland and scrub is abrupt, but mosaics of shrubs and grasslands occur on the slopes east of Sudden Peak, the east side of South Corridor, and along drainages descending from West Corridor, South Corridor, and Middle Corridor. Scrub vegetation often surrounds rock outcrops and large rocks, and it grows among boulder piles and other places where access is difficult for grazers and browsers. The densest scrub vegetation grows in the bottoms of the deeper drainages.

Central Coast scrub along the power line corridor is dominated by California sagebrush, coyote brush, bush lupine (*Lupinus albifrons*), buckwheat (*Eriogonum* sp.), black mustard, coffeeberry, coast tarweed (*Dienandra increscens ssp. increscens*), pampas grass (*Cordaderia* sp.), and monkey flower (*Mimulus* sp.). In the northeast portion of the power line corridor, the coastal scrub communities are

intermixed with annual grasslands. Even in those portions where coastal scrub is dominant, except rock outcrops, it is intermixed with grasslands.

Central Coast Scrub Habitat

Birds observed in scattered patches of Central Coast scrub within the Project area included loggerhead shrike, California quail (*Callipepla californica*), Anna's hummingbird (*Calypte anna*), wrentit (*Chamaea fasciata*), spotted towhee (*Pipilo maculatus*), Bewick's wren (*Thryomanes bewickii*), common yellowthroat (*Geothlypis trichas*), and song sparrow (*Melospiza melodia*). Rock wrens (*Salpinctes obsoletus*) were observed on and around rock outcrops that occurred in pockets within larger areas of grassland and Central Coast scrub. Sapphos reports that other avian species observed within this habitat included: western scrub-jay, wrentit (*Chamaea fasciata*), California thrasher (*Toxostoma redivivim*), California towhee (*Pipilo crissalis*), and white-crowned (*Zonotrichia leucophrys*) and golden-crowned (*Zonotrichia atricapilla*) sparrows.

Other wildlife sighted included southern alligator lizard (*Elgaria multicarinatus*), California striped racer (*Masticophis lateralis*), and brush rabbit (*Sylvilagus bachmani*). Coyote or gray fox scat, or both, was observed near most patches of Central Coast scrub, particularly those with rock outcrops.

3.5.2.3 Evergreen Forest and Woodland

Evergreen Forest and Woodland are tree-dominated communities that usually occupy north-facing slopes, ravines, and drainages. Understory plants are generally a mixture of shrubs, forbs, and grasses from the surrounding areas; some understory plants are restricted to the shady habitats beneath the tree canopies. Additional shrub species probably grow among the trees that were not found growing on more exposed sites in the adjacent communities. The presence of fence lines along woodland edges and the greater areal coverage by woodland on the VAFB side of the ridges suggest that this vegetation was more extensive in the Project area in the past. The communities within the power line corridor designated as mixed evergreen forest/oak woodland are dominated by oak woodland. Species found in this community type are coast live oak (*Quercus agrifolia*) and poison oak and are surrounded by annual grassland vegetation.

Tanoak Forest

Tanoak forest, dominated by tanoak (*Lithocarpus densiflorus*), is uncommon in Santa Barbara County although common farther north. Many of the species typically found in this type of vegetation may be absent or only sporadic at this latitude (Holland, 1986). Tanoak forest is most commonly seen on the ridges and northeasterly or leeward slopes surrounding the Project site. A small stand of tanoaks was observed on a ridgeline in Larsen Ranch. Chaparral shrubs such as toyon (*Heteromeles arbutifolia*) appeared in the understory with species from the Coastal Scrub community, such as wood mint (*Stachys bullata*) and yerba buena (*Satureja douglasii*). Madrone (*Arbutus menziesii*) and Pacific wax-myrtle (*Myrica californica*), both species with northern affinities, were present in this vegetation community.

Coast Live Oak Woodland

Dominated by coast live oak (*Quercus agrifolia*), coast live oak woodland is common in coastal Santa Barbara County. Oak woodland is common at the lower elevations in Miguelito Canyon, as well as

on some of the more protected north-facing slopes at higher elevations, particularly toward the east end of the LWEF site. A knoll northeast of Sudden Peak is forested by both tanoak and coast live oak. The unusually moist character of the foggy hilltops is illustrated by the distribution of coast live oak on the south-facing slopes, with tanbark oak on west- and north-facing exposures. Shrubs from the surrounding coastal scrub community are most commonly seen in the understory. Some oaks and occasional tanoak and Pacific wax-myrtle (*Myrica californica*) grow in deeper creek channels and on drainage bottoms adjacent to planned access roads.

Evergreen Forest and Woodland Habitat

A number of bird species were observed in mixed evergreen forest, but not in adjacent grassland or Central Coast scrub habitats. Nests of red-tailed hawks were included in the observations. The nests were northeast of the areas that would be disturbed by LWEF construction (that is, northeast of North Corridor and Sudden Corridor).

Red-shouldered hawks and golden eagles (*Aquila chrysaetos*) are also known to be present in this vegetation type in the vicinity; however, no nests of either species were found during the surveys. A communal roost of more than 250 American crows (*Corvus brachyrhynchos*) was observed northeast of Sudden Corridor. A number of woodpeckers used this habitat, including acorn woodpeckers (*Melanerpes formicivorus*), northern flickers (*Colaptes auratus*), Nuttall's woodpeckers, and downy woodpeckers (*Picoides pubescens*). Other birds observed included oak titmouse (*Baelophus inornatus*), bushtit (*Psltriparus minimus*), and California towhee (*Pipilo crissalis*). Sapphos reports that the most numerous avian species observed within this habitat at the LWEP property included: western scrub-jay (*Aphelocoma californica*), oak titmouse, spotted towhee (*Pipilo maculates*), and dark-eyed junco (*Junco hyemalis*).

Mule deer (*Odocoileus hemionus*) and evidence (scat, rootings in the ground) of wild pigs (*Sus scrofa*) were observed during surveys in mixed evergreen forest, especially near interfaces with grassland. Several stick nests of dusky-footed woodrats (*Neotoma fuscipes*) were noted to the northeast of North and Sudden corridors.

3.5.2.4 Central Coast Riparian Scrub

Arroyo Willow Scrub

On gentler, more open terrain, drainages are vegetated by Arroyo Willow Scrub dominated by arroyo willow (*Salix lasiolepis*), common rush, coyote brush, poison oak, and occasionally with narrow-leaf willow (*Salix exigua*) and giant creek nettle (*Urtica dioica* ssp *holosericea*). Ruderal species such as milk thistle are often common along the banks. Common rush is common, along with willow shrubs, in some areas along creeks, such as the small drainage that flows from the south end of Middle Corridor toward Sudden Peak Road. Arroyo willow is most common, although sandbar willow *(Salix exigua)* appears with it along creeks in the bottomlands. Other associates include blackberry (*Rubus* sp.), creek nettle (*Urtica dioica),* coffeeberry, and poison oak. Occasional colonies of elderberries (*Sambucus mexicana*) were found.

Well-developed willow scrub is more common in bottomlands and follows Honda Creek along San Miguelito Road in the vicinity of the proposed access road crossing near the VAFB boundary fence. Arroyo willow scrub also follows the unnamed tributary to Honda Creek that runs between Scolari

and Signorelli benches; and patches of thickets grow on the hillside between the Scolari farmstead and Scolari Corridor. Willow patches were also occasionally seen along seeps and springs, such as the patch in South Middle Corridor.

Dominant species along the power line corridor include California sagebrush, coyote brush, blackberry (*Rubus* sp.), and willows (*Salix* sp.).

Animals utilizing willow scrub habitat include: coyote, bobcat (*Lynx rufus*), raccoon (*Procyon lotor*), black bear *(Ursus americanus californiensis*, which is known to occur on VAFB and could be expected occasionally in the project area); and two-striped garter snake (*Thamnophis hammondii).* On most site visits, Sapphos reports that the most numerous avian species within this habitat at the LWEF property were commonly occurring bird species which included: Nuttall's woodpecker (*Picoides nuttallii*), black phoebe (*Sayornis nigricans*), bushtit (*Psaltriparus minimus*), Bewick's wren (*Thryomanes bewickii*), yellow-rumped warbler (*Dendroica coronata*), song sparrow (*Melospiza melodia*), and purple finch (*Carpodacus purpureus*). Other expected avian species include barn owl (*Tyto alba*), yellow warbler *(Dendroica petechia)*, ruby-crowned kinglet (*Regulus calendula*), California towhee, Anna's hummingbird, and mourning dove.

Central Coast Riparian Scrub Habitat

Wildlife species observed in this habitat type included common yellowthroat, yellow warbler, yellow-rumped warbler, dark-eyed junco, and California towhee. Killdeer *(Charadrius vociferus*) were observed nearby, and golden eagles were observed flying overhead during December 2006 surveys (Olson, 2007) and February 2008 reconnaissance. Brush rabbits occurred in the understory vegetation, as did stick nests of dusky-footed woodrat and coyote scat. Surface water is likely deep enough in some areas of these small drainages for occupation by Pacific treefrogs *(Pseudacris regilla)* and western toads *(Bufo boreas)*.

3.5.2.5 Freshwater Marshes, Seeps, Springs, and Ponds

These freshwater habitats may be closely related because they all appear to originate from the scattered seeps and springs in the Project area. Features subject to regulation under CDFG code, Section 404 of the Clean Water Act, and Santa Barbara County definitions of wetland features are described in more detail in Section 3.5.5.

Seeps and Springs

The USGS Tranquillon Mountain 7.5-minute quadrangle shows a number of seeps and springs scattered through the Project area, particularly at high elevations in Middle and South corridors. Many of the drain ages in this area appear to originate below springs.

An unusually mesic drainage with a rich flora is found in the drainage on the north slope of South Corridor, where elements of mixed evergreen forest, willow scrub, and coastal scrub all are present. Several locally rare species are found along this drainage, including Pacific wax-myrtle (*Myrica californica*), sword fern (*Polystichum munitum*), and thimbleberry (*Rubus parviflorus*). Other mesic associates are strawberry (*Fragaria vesca*), alum root (*Heuchera micrantha*), possibly canyon gooseberry (*Ribes menziesii*), California polypody (*Polypodium californicum*), bracken fern, poison oak, and blackberry (*Rubus* sp.).

Seasonal wetlands are also present in the vicinity of San Miguelito Canyon Road and Sudden Road, dominated by a perennial rush (likely *Juncus phaeocephalus*), brass buttons (*Cotula coronopifolia*), California buttercup (*Rununculus californicus*) and non-native grasses. Exposed, spring-fed hillsides with more open exposures support arroyo willow thickets. A particularly extensive patch of these scattered thickets was seen north of the Scolari farmstead near the bottom of Honda Canyon and the VAFB fence line. Associate species were common rush, toad rush (*Juncus bufonius*), brown-headed rush (*J. phaeocephalus*), honeysuckle (*Lonicera involucrata*), and canyon gooseberry (identification uncertain).

Hillside seeps dominated by patches of what appeared to be California barley are found around and south of VABM Prospect 1933 (South Corridor). The colonies were only occasionally spot-checked to search for meadow barley, which is a wetland indicator. The soil beneath these colonies was very dark clay; no formal testing for hydric soil characteristics was performed, although a few bright mottles were seen on a recently bladed road. Clay soils that weather from Monterey shale may be very dark without being wetland soils.

A colony of California barley was also found on the steeper section of the planned route for access to South Corridor along Signorelli Ridge. The steep northwest slope of VABM Prospect 1933 (South Corridor) and a small area in South Middle Corridor support colonies of Mexican rush (*Juncus mexicanus*). In the former location, creeping rye, purple owl's clover (*Castilleja exerta*), and alkali rye (*Elymus glaucus*) are associates with other upland grasses and forbs. No quantitative cover data were collected, although the extent of the Mexican rush colony in South Corridor was measured in 2005. Sickle-leaved rush also was found farther down slope from the South Middle Corridor seep, mixed in the grassland with creeping rye and purple owl's clover.

Wildlife species observed at the seeps included California towhee, spotted towhee, Anna's hummingbird (*Calypte anna*), blue grosbeak *(Passerina caerulea)*, and brush rabbit.

Ponds

A small pond is located on the western slope of the northern part of Middle Corridor, where a landslide apparently created a small basin that collects rainwater runoff. Duckweed (*Lemna* sp.) was observed floating on the water surface, and mesic weedy species, such as watercress (*Rorippa anagallis-aquatica*) and pimpernel (*Anagallis arvensis*), were observed in the muddy area surrounding the pond. Another pond is located just north of the northwestern ridge of VABM Prospect 1933 (South Corridor). Vegetation surrounding this bermed pond includes giant spikerush (*Eleocharis macrostachya*) and poison hemlock (*Conium maculatum*), as well as clumps of common rush. Brass buttons (*Cotula coronopifolia*) and watercress were observed growing in the water. This pond appears to be fed by seeps, as well as rainwater runoff. A third pond, which was not surveyed, was seen next to the agricultural field at the bottom of Honda Canyon.

Freshwater Marsh

Freshwater marsh develops only in very small areas in the rather steep terrain on the Project sites. Landslides may impound runoff and slow drainage, creating marshy areas colonized by species of rush, as in northern Middle Corridor around the small pond. Freshwater marsh, dominated by giant spikerush, surrounds the small bermed pond below the South Corridor ridgeline. Another small patch of freshwater marsh has developed around a spring-fed cattle trough on the access

route to North Corridor. In 2002, watercress, brass buttons, willow dock (*Rumex salicifolius*), rabbit's foot grass (*Polypogon monspeliensis*), and other common species had colonized the short reach of the creek that had silted in behind the access road along the small channel next to the trough.

3.5.2.6 Eucalyptus Groves

Well-grown eucalyptus trees, generally composed of blue gum (*Eucalyptus globulus*), are planted around most of the residences in the Project area and along portions of the power line corridor. One large grove of eucalyptus trees has expanded near the VAFB boundary on the south side of Honda Canyon north of the Scolari farmstead buildings. These trees are down slope of the willow-dominated seep area. The trees in this grove are clustered; groups of trees with interwoven canopies are separated by small openings. Other stands of eucalyptus trees are far smaller and are often planted along fence lines. At the northern end of the eucalyptus grove is an area of Monterey cypress (*Cupressus macrocarpa*) about an acre in extent that probably developed by reproduction of trees originally planted at the original Scolari house. Monterey cypress is a California native species native to the Monterey Peninsula that has been extensively planted in coastal areas outside its current natural distribution.

Eucalyptus Groves as Habitat

Five (four small and one large) eucalyptus groves are all in one location near the farmhouses in the east-central part of the LWEF area. All the eucalyptus trees probably originated from the same planting period. Because groves of eucalyptus trees are almost monotypic, this habitat lacks structural diversity to be used by many wildlife species. However, the trees do provide important habitat for some species. The trees are known to be used by some roosting and nesting birds. American crows (*Corvus brachyrhynchos*) were observed in the trees during the surveys. During the August 26, 2005, survey, up to 12 turkey vultures were observed foraging over and near the large eucalyptus grove. Sapphos reports observing this species roosting in the largest eucalyptus grove near the western boundary of the LWEF property. The wintering-flowering species of eucalyptus has resulted in some bird species now wintering in the County. Some species of bats, including the red bat (*Lasiurus blossevillii*), are known to forage along rows of eucalyptus trees.

3.5.2.7 Ruderal

A few areas are dominated by one or a few weedy plant species that typically follow disturbance. Native species may be entirely absent in ruderal areas, but some natives, such as coyote brush and telegraph weed (*Heterotheca grandiflora*), readily colonize disturbances. Ruderal plants often persist along roadsides and trails, next to agricultural fields, and around fences, water sources, and in areas where livestock use is concentrated. Ruderal species may replace the herbaceous understory in tree and shrub dominated habitats if cattle find shade beneath the taller plants. Ruderal plants may be annual or perennial, and many produce copious amounts of seed. Common ruderal species are black mustard and thistles, including milk thistle, Italian thistle (*Carduus pycnocephalus*), bull thistle (*Cirsium vulgare*), and tocalote (*Centaurea melitensis*). Knotweed (*Polygonum aviculare*) is an example of a species commonly found growing in very compacted soils. Poison hemlock frequently colonizes disturbed wetland margins, and fennel (*Foeniculum vulgare*) may spread over large areas of upland habitats.

3.5.2.8 Agricultural Fields

Cultivated fields were located in the bottom of Honda Canyon between Honda Creek and the hills to the south. The crop under cultivation in 2005 appeared to be a forage crop such as red fescue. Crops in 2002 may have included safflower. Another cultivated field is located along the bottom of the unnamed drainage just south of Honda Canyon and south of the West Corridor site. Agricultural fields usually are surrounded by a few ruderal species such as milk thistle.

Agricultural Fields as Habitat

Red-winged blackbirds were observed foraging in agricultural fields during the surveys. Such fields are also known to provide habitat for burrowing small mammals, such as Botta's pocket gopher and California ground squirrel. The presence of small mammals attracts raptors, including northern harrier and red-tailed hawk, to forage over agricultural fields. Undisturbed portions of these fields are especially important to ground dwelling birds such as meadowlark, horned lark, and lark sparrow.

3.5.3 Wildlife

Common wildlife species are addressed in this section with special attention to raptors, passerines, bats and general avian migration patterns in the project area.

Common wildlife species observed or expected to be in the Project area include western fence lizard, California ground squirrel, Botta's pocket gopher, gray fox, bobcat, coyote, mountain lion, southern alligator lizard (*Elgaria multicarinatus*), California striped racer (*Masticophis lateralis*), brush rabbit, mule deer (*Odocoileus hemionus*), wild pigs (*Sus scrofa*), and dusky-footed woodrats. Additionally, small drainages may be occupied by Pacific treefrogs and western toads.

3.5.3.1 Avian Species

During the various field surveys for this Project, numerous species of birds were observed. Lists of all birds observed in the 2002, 2005, 2006, and 2008 surveys are presented in Appendix B.

Sapphos reports (Appendix B) observing 73 avian species at the LWEP site as a result of winter avian pre-construction surveys conducted from December 2007 through March 2008. These 73 avian species were categorized as 39 year-round residents, 17 winter residents, and 17 winter transients (or early spring migrants). An additional 18 species were reported as a result of the winter season avian pre-construction surveys. With the addition of these 18 species, the total number of avian species recorded at the project site during all of the project surveys through March 2008, including species documented in the DEIR and the two biological reports, is 91 avian species. These 91 avian species represent 38 families, with 6 families added to the list as a result of the winter season avian surveys.

Eleven sensitive species (discussed below) were observed during the winter season bird surveys within and/or near the boundary of the proposed project: northern harrier, sharp-shinned hawk, Cooper's hawk (*Accipiter cooperii*), ferruginous hawk, golden eagle, long-billed curlew (*Numenius americanus*), western burrowing owl, loggerhead shrike, California horned lark, California rufous-crowned sparrow (*Aimophila ruficeps*), and grasshopper sparrow. Six of these 11 sensitive species are raptors.

The horned lark was the most frequently recorded species on area search counts, being observed in 25 of 108 counts, followed by three other species of grassland birds in order of decreasing frequency: western meadowlark, savannah sparrow (*Passerculus sandwichensis*), and American pipit. The only other species recorded more than 10 times on area search counts was the turkey vulture (*Cathartes aura*). The other three raptors recorded on area search counts, in order of decreasing frequency, was American kestrel, red-tailed hawk, and northern harrier.

The mean number of birds per count circle within and outside of wind turbine corridors was 4.64 birds per sample area.

During previous surveys of the project site the most frequently observed species on the LWEF site and power line corridor include the following:

- Turkey vulture (*Cathartes aura*)
- Red-tailed hawk (*Buteo jamaicensis*)
- American kestrel (*Falco sparverius*)
- California quail (Callipepla californica)
- Killdeer (Charadrius vociferus)
- Mourning dove (*Zenaida macroura*)
- Anna's hummingbird (*Calypte anna*)
- Western scrub-jay (Aphelocoma californica)
- California horned lark (Eremophila alpestris actia)
- Cliff swallow (Petrochelidon pyrrhonota)
- Wrentit (Chamaea fasciata)
- European starling (*Sturnus vulgaris*)
- Spotted towhee (*Pipilo maculatus*)
- Song sparrow (Melospiza melodia)
- Western meadowlark (*Sturnella neglecta*)
- American Crow (Corvus brachyrhynchos)
- Barn swallow (*Hirundo rustica*)
- American pipit (*Anthus rubescens)*
- Savannah sparrow (Passerculus sandwichensis)

Raptors

As of winter 2008, fourteen species of raptors were observed during the surveys on the LWEF site. Up to seven raptor species were observed during each survey week at the LWEF property from February into early March during the Sapphos 2008 surveys. The number of raptors observed dropped to three to four raptor species for the survey weeks from mid to late March. The first survey on March 18–19, 2008 produced 12 turkey vultures, 6 adult red-tailed hawks, and two female American kestrels. The second survey on March 26–27 produced 22 turkey vultures, 6 adult red-tailed hawks, and 1 common raven (*Corvus corax*).

The sensitive raptor species observed (white-tailed kite [*Elanus leucurus*], ferruginous hawk [*Buteo regalis*], peregrine falcon [*Falco peregrinus anatum*], golden eagle [*Aquila chryssaetos*], northern harrier [*Circus cyaneus*], sharp-shinned hawk [*Accipiter striatus*], western burrowing owl [*Athene cunicularia*] and Cooper's hawk [*Accipiter cooperii*]) are discussed in Section 3.5.4.2, along with other sensitive raptors with potential to occur in the Project area. Species without sensitive classifications that were sighted during surveys for this Project include turkey vulture, red-tailed hawk, red-shouldered hawk, and American kestrel. With the exception of red-shouldered hawk, these species were observed throughout the Project area. As noted earlier, kestrels were observed perching on the guy wires for two anemometers near Quarry Ridge and North Corridor. Overall, turkey vultures, red-tailed hawks, and American kestrels would be considered common in the Project area, while red-shouldered hawks were uncommon.

The four non-sensitive raptor species are year-round resident species in the vicinity of the Project area. Red-tailed hawk nests were observed in mixed evergreen forest northeast of Middle Corridor. Red-shouldered hawks also nested in mixed evergreen forest. This species more likely nests in lower densities within the vicinity of the Project area than red-tailed hawks and kestrels. Turkey vultures nest primarily in cavities in cliffs, banks, and steep hillsides. As such, secluded portions of Sudden Peak, Oak Mountain, and other ridges in the vicinity of the Project area contain potential nesting habitat. No turkey vulture nests were found during the surveys.

Several raptors (predominantly red-tailed hawks and American kestrels) were repeatedly observed using the uplift formed along ridgelines on the project site for soaring. Raptors including red-tailed hawk kestrel, golden eagle, peregrine falcon and other bird-of-prey, including burrowing owl and great-horned owl were observed on several occasions foraging over open areas throughout the project area.

Sapphos reports that active nests were identified for two species of raptors on the project site: red-tailed hawk and great horned owl. An active red-tailed hawk nest was discovered in a tall eucalyptus tree in the upper Honda Creek valley on February 23, 2008. Sapphos reports that this nesting pair is one of four resident pairs of red-tailed hawks that include at least a portion of the LWEF property within their home range. Two of the three remaining pairs were assumed to nest outside the LWEP property.

An active great horned owl nest was discovered in another tall eucalyptus tree in the lower Honda Creek valley on February 27, 2008. This great horned owl pair is reportedly one of two pairs present at the LWEF property; the other pair frequents the Larsen tract and areas outside the LWEF property where it is expected to nest.

During the Sapphos 2008 winter surveys red-tailed hawks were recorded on many diurnal raptor surveys along the five main ridges of the LWEP property, and on every one of the 24 survey dates. More than 90 percent of red-tailed hawks detected were adults. The largest daily number of birds observed at the LWEP site was 10 to 12 red-tailed hawks being observed in December 2007. The raptors were observed flying below, within, and above wind turbine blade swept heights, with an appreciable percentage (>30 percent) within wind turbine blade swept heights of approximately130 to 400 feet. Individuals in February and March, 2008 all appeared to be local breeding birds, and breeding activity was observed as early as early February. Red-tailed hawks occurred over all habitats throughout the LWEP site. In general, the observed birds preferred foraging in open and semi-open habitats or along woodland and forest edges; they are expected to roost in eucalyptus groves, oak woodland, or other tall closed habitats at the LWEF site. An appreciable percentage of red-tailed hawks flew within wind turbine blade swept heights of approximately 130 to 400 feet.

Sapphos reports that only one observation of an American kestrel was recorded on some diurnal raptor surveys along the five main ridges of the LWEF property, and on 20 of the 24 survey dates. All but two American kestrels observed were females, and the single males were seen on site on one day each. The largest daily number of birds observed at the LWEF property was five to six birds in February 2008, although numbers decreased in March. Larger numbers, up to approximately 10 birds, were observed in December 2007. Birds flew below and within wind turbine blade swept heights with fewer than 20 percent of individuals within wind turbine blade swept heights of approximately 130 to 400 feet, although American kestrels frequently perched on meteorological towers within wind turbine swept blade heights. The number of American kestrels

had considerably decreased by late March 2008, when two to three females were still present, with no breeding activity observed. Breeding activity did not occur after March. American kestrels occurred over all habitats throughout the LWEF site, although females in particular typically preferred foraging in open and semi-open habitats.

Two great horned owls were heard calling on two calm nights (February 5 and February 6) during the Sapphos winter surveys in the lower to middle Honda Creek valley. Sapphos reports that according to local residents, owls had been present on this territory for at least several years. Great horned owls occurred over all habitats throughout the LWEF site and are expected to forage in a variety of habitats at the LWEF site.

Twenty turkey vultures were recorded 16 times during Sapphos winter area search counts, on all diurnal raptor surveys along the five main ridges of the LWEF property, and on every one of the 24 survey dates. The largest number of up to 25 birds formed a nocturnal roost at the largest eucalyptus grove near the western boundary of the LWEP property adjacent to VAFB. The largest number of birds observed foraging in a single flock on the LWEF property was 14 to 17 birds. Birds flew below (<130 feet), within (130 to 400 feet), and above wind turbine blade swept heights (> 400 feet), with an appreciable percentage (>30 percent) within wind turbine blade swept heights of approximately 130 to 400 feet. No certain spring migrants were observed on the LWEF property, which can begin as early as mid-February in Southern California.

Passerines

A majority of the birds observed during the field surveys were passerines. Among the most frequently observed species listed above were California horned lark, wrentit, spotted towhee, song sparrow (*Melospiza melodia*), western meadowlark, cliff swallow (*Petrochelidon pyrrhonota*), and European starling (*Sturnus vulgaris*). Spotted towhees occasionally nest on undergrowth or piles of debris or brush just above ground level. California horned lark (*Eremophila alpestris actia*) and western meadowlark nest almost exclusively in grassland. Song sparrows nest on the ground or in shrubs or trees just above ground level in chaparral, coastal sage scrub, and riparian scrub habitat. Cliff swallows build mud nests along cliffs or rock overhangs. Starlings have been known to nest on the ground, but typically nest in cavities or crevices.

Sapphos reports (2008) observing the following avian species within the ridgeline areas: mourning dove (*Zenaida macroura*), Say's phoebe (*Sayornis saya*), western bluebird (*Sialia mexicana*), European starling (*Sturnus vulgaris*), savannah sparrow (*Passerculus sandwichensis*), western meadowlark (*Sturnella neglecta*), Brewer's blackbird (*Euphagus cyanocephalus*), and house finch (*Carpodacus mexicanus*).

Bats

Seventeen species of bats, from two families, are known to occur in the Central California region. Nine of these species have special status and all are insectivorous, yet vary in their foraging and roosting habits. Information on the presence of the following bat species detected in the project region (Table 3.5-2) was gathered using survey results conducted by CCBRG in 2008 and previous studies conducted on VAFB (Pierson et al., 2002) and surrounding areas in 1997 and 1998.

Occurrence information for the four species with sensitive classifications (pallid bat [*Antrozous pallidus*], Townsend's big-eared bat [*Corynorhinus townsendii*], western red bat [*Lasiurus blossevillii*], and western mastiff bat [*Eumops perotis*]) is presented below under other sensitive species (Section 3.5.4.2).

TABLE 3.5-2
Species Detected in Lompoc Area during Spring 2008 and VAFB Surveys 1997-1998

Family VESPERTILIONIDAE (Plain-nosed or mouse-eared bats)		
Myotis yumanensis	Yuma myotis	VAFB
Myotis californicus	California myotis	VAFB
Eptesicus fuscus	Big brown bat	2008, VAFB
Lasionycterius noctivagans	Silver-haired bat	VAFB
Lasiurus blossevillii	Western red bat*	VAFB
Lasiurus cinereus	Hoary bat	VAFB
Corynorhinus townsendii	Townsend's big-eared bat *	VAFB
Antrozous pallidus	Pallid bat*	2008, VAFB
Family MOLOSSIDAE (Free-tailed bats)		
Tadarida brasiliensis	Mexican free-tailed bat	2008, VAFB
Eumops perotis	Western Mastiff bat*	VAFB

2008 = Detected during CCBRG acoustic surveys March 9 through March 16, 2008
* Sensitive species discussed in Section 3.5.4
VAFB = Detected during Pierson surveys on Vandenberg Air Force Base 1997-1998

Two species and one phonic group were detected across four acoustic sampling stations (Table 3.5-2). Activity levels during the five days of sampling were very low. Four call sequences were recorded for a total of 25 detector nights. Notes on the acoustic detection follow:

California myotis (Myotis californicus). No 50Khz call sequences characteristic of California myotis were detected at any of the acoustic monitoring stations. This species was widespread and frequently encountered during the 1997-1998 VAFB Study and was consistently recorded during acoustic surveys in Upper Honda Canyon.

Big brown bat (Eptesicus fuscus. Call sequences characteristic of big brown bats were recorded during the 2008 sampling. This species' calls were reported as being abundant during acoustic surveys in Upper Honda Canyon during the 1997 and 1998 sampling.

Silver-haired bat (Lasionycteris noctivagans). This species was not recorded during the 2008 sampling but was recorded at three acoustic sites during the 1997-1998 VAFB study. Two of the detection sites were located near the Lompoc Wind Energy project site (Upper Honda canyon had detections in July and Miguelito County Park in June).

Hoary bat (Lasiurus cinereus). No hoary bats call sequences were detected during the 2008 surveys. Hoary bat calls were recorded throughout VAFB from 1997-1998 VAFB Study yet at only a few sites and in low numbers. The majority of the detections were recorded during the fall migration period which is consistent with records which suggest that this species is migratory along the California coast.

Mexican free-tailed bat (Tadarida brasiliensis). One call sequence in the 25khz range was recorded that could possibly be attributed to this species during the 2008 sampling. This species was the second most abundant a frequently encountered species during the VAFB

1997/1998 study. This species was detected year round. Mexican free-tailed bats were regularly detected acoustically in Upper Honda Canyon.

Yuma myotis (Myotis yumanensis). Although a number of roosts of Yuma myotis were identified on the base during the 1997/1998 studies, most were on North Base, a considerable distance from the Project area. This species is a year-round resident of the region.

3.5.3.2 Migration Patterns

Migratory movements of birds in northern Santa Barbara County include both seabird migration which occurs along the Pacific coastline, and overland migration of large numbers of aquatic and terrestrial avian species. Migration typically occurs during two different times of the year when birds fly north in the spring and south during the fall. However, due to Southern California's mild and homogenous climate, birds could be expected to migrate through and/or over the project area during any month of the year.

Bird migration can occur during the day or night. Species that typically begin their flights during the night from land and fly over water include rails, sandpipers, plovers, large shorebirds, flycatchers, orioles, most sparrows, warblers, vireos, and thrushes (EDC 2007). Special status or locally rare species in this group include burrowing owl, western snowy plover, southwestern willow flycatcher (*Empidonax traillii extimus*), and yellow warbler. Daytime migrants include some species of ducks and geese, loons, gulls, pelicans, hawks, swallows, nighthawks, and swifts (EDC 2007). Many of the larger species, especially raptors and vultures use updrafts created by thermal convection or wind deflection off of ridgelines to gain altitude during migration events.

Inclement weather conditions such as fog or high winds are likely to influence typical bird behavior and migration routes as adverse weather may cause ocean-going migrants landward. The typical weather patterns in the project area can be characterized as having mild winters with 18 inches or more of precipitation rain and temperatures occasionally reaching freezing. Little to no rain typically falls during the summer months; however, the project site is located close to the coast and regularly has heavy fog from spring through the summer months. High winds are also typical of the site with the normal wind pattern being from the Northwest. During and immediately prior to major storms, winds often shift and head in from the south and east.

Pacific Flyway

The Pacific Flyway is a major bird migration route extending from Alaska to Patagonia. The coastal route of the Pacific Flyway is utilized by shorebirds and seabirds that breed in the north and fly to important wintering areas along the coast of California between, the San Francisco Bay and Baja California in the fall (Hickey et al 2003). Extraordinarily large numbers of waterfowl and shorebirds including loons, Brants, scoters, California brown pelicans, cormorants, gulls, terns, and phalaropes have been observed migrating along the coast. Lehman recorded 37 species flying south during surveys along the Goleta coastline in 1976 that included common loon, Pacific loon, red-throated loon, surf scoter, Brant, Brant's cormorant, red-necked phalarope, California gull, and Heerman's gull.

Fall Migration. A majority of the fall, southward migration to the wintering areas occurs from late September to late December with a fairly consistent rate of passage (Lehman 1994). Although there

are typically many more birds flying south at this time of the year than the spring northward migration, the fall passage of coastal seabirds is less pronounced (i.e., migration occurs over a longer duration of time) overall than the passage in spring. In the fall, the migration route occurs farther offshore than the spring migration with coastal seabirds largely being detectable only from the shore north of Point Conception.

Spring Migration. Large numbers of seabirds have been observed from the shore at Goleta Point in spring returning to their breeding grounds (Lehman 1994). Lehman theorizes that the east-west trending coastline from Malibu to Point Conception is a broad barrier to the seabirds migrating north, and the seabirds hug the coastline until Point Conception and then continue on their northward path. Lehman also notes the spring migration is more concentrated in a shorter time period than in the fall. The northward migration of Pacific coastal seabirds occurs from the end of February through the beginning of June, although some species have much more concentrated migration pulses (e.g., over 90% of the three species of loon migrate in spring in a one month period from early April to early May, Lehman 1994).

Overland Migration. Based on the observational data from Lehman (1994), the following waterfowl or shorebird species have been observed to utilize overland migration routes: red-necked phalarope (spring nocturnal migrations were detected over the Santa Barbara coastal plain in 1980, 1981, and 1982 during calm, clear nights), western sandpiper (a dead western sandpiper was found at the Jesusita trail in the Santa Barbara foothills and western sandpipers are known to use Lake Cachuma), semi-palmated plovers, whimbrels, long-billed curlews, and parasitic jaeger (all of which have been recorded at Lake Cachuma). Sapphos Environmental, Inc. also observed a single long-billed curlew flying over low elevation nonnative grasslands outside the project development footprint on February 6, 2008 (Sapphos 2008).

Migrating Shorebirds

The following species comprise a subset of one group of birds (shorebirds) as an example of expected migration in coastal areas of Santa Barbara County. Most shorebirds are expected to be concentrated near the coast (and potentially as far inland as the project area). The following descriptions of just these nine species demonstrate the variability in timing and numbers of migrating species expected along the coastline:

Red-necked Phalarope. Over 80,000 individual red-necked phalaropes migrate along the U.S. Pacific Coast in fall (Page et al. 1999), with almost 20,000 found in San Francisco Bay alone (Stenzel et. al 2002, Hickey et al 2003). Fall transients arrive in the project area mid or late June; the first juveniles arrive in early or mid-August and the species is rare by late October. Spring migration occurs from mid-April until the beginning of June. During spring the large majority appear to pass farther offshore (Lehman 1994). This species is most abundant in offshore waters during migration events.

Red Phalarope. This species is an abundant offshore migrant in the California current (Tyler et al. 1993; Warnock et al. 2001) but accurate counts are lacking (Hickey et al 2003). Fall migrants appear in the project area as early as mid-August. The species is most numerous during late fall (late October to November). Spring migration occurs primarily offshore with peak numbers in April and May. The largest numbers during migration events occur in offshore waters; large flights are rarely visible from the shore (Lehman 1994).

Western Sandpiper. Over one million western sandpipers migrate through the Central Valley and along the coast during spring (PRBO unpublished data; Hickey et al 2003). Early western sandpipers migrants arrive in Santa Barbara County at the end of July. By late October most sandpipers are found at their principal wintering areas: Santa Maria Valley and the Sandyland Slough. Spring migration begins in late March and peaks between early April and the beginning of May (Lehman 1994). This species is known to utilize Lake Cachuma (Lehman 1994) and further evidence of overland migration includes a single count of a dead bird being found at the Jesusita trail in the foothills above Santa Barbara.

Dunlin. The minimum estimate of 250,000 individuals of the race (*Calidris alpina pacifica)* that winters along the coast and in the Central Valley (PRBO unpublished data) represents about one half of that subspecies' entire population (Page and Gill 1994; Hickey et al 2003). The first individuals of this species appear by mid-September. Individuals overwinter mainly at the Santa Maria River mouth and Sandyland Slough. Spring transients move through the general area from early April to mid-May (Lehman 1994). This species prefers coastal sloughs and river mouths during migration events (Lehman 1994).

Short-billed Dowitcher. As many as 150,000 short-billed dowitchers migrate along the California coast in spring (PRBO unpublished data; Hickey et al 2003). This species is common only in migration, which takes place from early July to late September in the fall and from late March to early May in the spring. Flocks of up to 200 individuals have been seen migrating offshore or over the coastal plain during April (Lehman 1994).

Marbled Godwit. An estimated 37,000 godwits occur along the California coast in winter (PRBO unpublished data), and up to 138,000 may pass through during migration, assuming the majority of birds wintering in Baja California, Mexico (Page et al. 1997) migrate through California. Wintering numbers on the California coast are unmatched elsewhere in the United States (Hickey et al 2003). This species is a common transient and winter visitor. Fall migrants begin appearing in early July and are occasionally observed in large numbers on flooded fields in the Santa Maria Valley (Lehman 1994).

Willet. Over 20,000 Willets winter along the California coast and over 50,000 may migrate through the coastal region (PRBO unpublished data; Hickey et al 2003). Migrants return early mid- or late-June and this species is typically observed during migration events near sloughs, lagoons, beaches, and along the shore (Lehman 1994).

Semipalmated Plover. Coastal wetlands are important for this species during fall and spring migration, with low thousands of birds migrating through the region (Page et al. 1999; Hickey et al 2003). Late spring transients are observed until late May, and fall transients appear as early as late June. Evidence of overland migration includes three records at Lake Cachuma (Lehman 1994).

Black-bellied Plover. At least 28,500 birds winter and 42,500 migrate along the coast (PRBO unpublished data; Hickey et al 2003). The first south bound migrants have been observed as late June and early July. This species is known to frequent coastal areas and short grass pastures during migration events (Lehman 1994).

Migratory Flight Altitude

Birds migrate within a wide range of altitudes, from ten feet to ten thousand feet. Some species like the common loon fly only a few feet over water but fly 3,000 to 5,000 feet over land. The height of migratory flights can be extremely variable and birds change their flight altitude according to weather and topography (Kerlinger 1995).

Weather conditions have been shown in many radar studies to influence migration passage rates and flight altitudes of nocturnal birds. Wind is a key factor in migratory flight altitudes. Birds typically fly at heights at which headwinds are minimized and tailwinds are maximized (Cooper, 2004). In pre-construction surveys at a Chautauqua Study Area, New York, it was observed that flight altitudes were significantly lower during foggy daytime periods than during periods with no fog; in contrast, at night, birds flew significantly higher during foggy periods (Cooper 2004). Table 3.5-3 shows altitudes (feet above ground level) of bird species that were observed in the Chautauqua Study Area (several of these bird species are also expected in the Lompoc Project area). The largest single-night kill for nocturnal migrants (27 passerines) at a wind power project occurred on a foggy night during spring migration, when they collided with a turbine near a lit substation at the Mountaineer Wind Power Development in West Virginia (Curry & Kerlinger, 2004).

TABLE 3.5-3.
Radar-measured flight altitudes (feet above ground level) of birds observed in the Chautauqua Study Area, New York during spring 2003

Species	Flight Altitude (feet)			Number of Flocks
	Mean	Minimum	Maximum	
Common Loon	1,780	1,030	3,060	9
Turkey Vulture	400	90	1,650	83
Osprey	810	190	1,540	4
Bald Eagle	1,860	1,530	2,170	3
Northern Harrier	550	350	750	3
Sharp-shinned Hawk	490	190	720	4
Cooper's Hawk	580	160	590	3
Accipiter spp.	1,010	260	2,620	13
Red-shouldered Hawk	1,950	1,270	2,620	2
Broad-winged Hawk	1,260	240	2,730	172
Red-tailed Hawk	550	140	2,620	37
Buteo spp.	480	160	930	10
American Kestrel	120	110	130	2
Raptor spp.	880	230	1,160	7
Shorebird spp.	710	710	710	4
Barn Swallow	380	160	590	2
Passerine spp.	1,230	130	2,190	8

From Table 3 (Cooper 2004)

Passerines. The majority of passerines' flight occurs in the first 2,000 feet above the ground surface. A radar study conducted in the eastern United States (Able 1970) demonstrated that more than 75 percent of passerines in their study migrated at altitudes between the ground and 2,000 feet. A survey conducted in the Appalachians found that during nights of heavy southward migration over the Appalachian ridgelines, there were an exceptional number of birds flying less than 100 feet from the ground surface (Williams 2001). In other observations at sites with level terrain Williams (2001) did not observe as many low-flying birds.

Waterfowl. The migratory flights of ducks and other waterbirds over water are typically within 100 to 200 feet of the ocean. In studies along the Atlantic Coast researchers found that 90 percent of thousands of scoters, mergansers, black ducks, loons, gannets and other birds flew at less than 90 feet above the ocean (Kerlinger 1995). Kerlinger observed common loons and some ducks regularly migrating overland at 3,000 to more than 5,000 feet above ground level. A radar study conducted in Scandinavia found that migrating eiders and oldsquaws flew at less than 300 feet above the ocean, but when crossing the Scandinavian Peninsula they flew at altitudes between 2,000 and 6,000 feet. Kerlinger postulates that some seabird fly at high altitudes overland because the ability to see water is important to birds that cannot take off from land (Kerlinger 1995).

Shorebirds. A visual study of overland migration of shorebirds in eastern Alaska found that approximately eighty percent of shorebirds within the study area flew within 100 feet of the ground surface (Cooper 1995). However, a few long-distance shorebirds (red knots, semi-palmated plovers) were observed to migrate at very high altitudes, from 5,000 to even 12,000 feet above the ground surface. These are some of the highest flights known for migrants (Kerlinger 1995).

3.5.3.3 Results for Radar Analysis of Nocturnal Bird Migration Patterns

The NEXRAD radar study (Gauthreaux, 2008) provides estimates of average density and movement of nocturnal migrating birds in a surveillance area above the project area during the 2006 and 2007 spring and fall migration seasons. The study also provides information on patterns of migration in the northern Santa Barbara region. Please refer to Section 3.5.1.6 for a summary of the study methodology and Appendix B for the Final Report. The Final Report contains the full data set of estimated bird densities used in the study, analysis of migration direction, and detailed information on adverse weather conditions and associated migratory bird activity. The following is a brief summary of the study results. Because the methodology is complex and the results fairly difficult to interpret, a draft summary of results was provided to Dr. Gauthreaux for verification. The following summary reflects his revisions and includes supplementary information not contained in the Final Report, but provided subsequently by Dr. Gauthreaux in phone calls and email communications.[6] The summary omits discussions of variability in migration hour-to-hour, day-to-day, season-to season, and year-to-year, which are covered in the Final Report.

Migration above the project site. The maximum bird density recorded above the project site was 86 birds per cubic kilometer (km^3) on one day in May, 2006. Density was much lower on most days during the peak migration period. The overall level of nocturnal migration above the project site in both fall and spring migratory seasons in 2006-07 was typical for those recorded along the West Coast but very low compared to other sites previously analyzed by the author in other parts of the U.S. As discussed in Section 3.5.1.6, the surveillance area above the site extended from within the WTG rotor swept zone (RSZ) upwards approximately 1600-1900 feet. The Final Report notes: "It is impossible to tell exactly where the birds are within the radar beam over the sample area, but based on the fact that migration density increased with altitude, it is likely that a major proportion of the birds recorded in the sample area were above the RSZ."

Regional migration. The highest densities of birds observed in the region were flying at altitudes (between 2,000 to 5,000 feet) much higher than the WTGs rotor sweep zones. In addition, most of

6 Pers. Comm. S. Gauthreaux to John Day: Phone calls May-June, 2008; and emails June 23-30, 2008.

the migration followed trajectories just west of the Sierra Madre and San Rafael Mountains which would locate the majority of migration approximately 20 to 40 miles east of the project area.

Observed bird densities for the region were generally very low compared to over 70 sites also analyzed by Gauthreaux: maximum densities exceeding 100 birds km^{-3} were detected on only 22 occasions during the four migratory periods analyzed. By comparison, peak bird densities observed in other studies in other parts of the U.S. described in the report ranged from 400 to 1,148 birds per km^3. (Gauthreaux 2008, p. 9) The direction of migration observed in the spring was toward the north-northwest (342° to 343°) and in the fall was toward the south-southeast (152° to 153°). The results indicate that most overland migration in Santa Barbara County follows an inland route, cutting diagonally north-northwest from the Gaviota Coast, rather than following the coastline around Point Conception or above the coastal ridges and project site.

Seasonality. The observed peak migration periods were from mid-April to mid-May and from mid-August to the end of September. Fall migration over the project site and regionally was between 1.1 to 1.5 times greater than what was observed in spring. In the spring, migration was recorded beginning in mid-April, peaks near the end of April and the beginning of May, and then declines after the first weeks of May. In the fall, the patterns of migration were similar in 2006 and 2007 with more of the migration occurring between August 15 and September 30 than between October 1 and November 15. A pulse of fall migration began in late August and early September and another pulse of greater magnitude occurred in late September. From the beginning of October the density of migration declined and by November very little migration was recorded. Bird densities above the project site were closer to the region-wide densities in the fall than in the spring. This is likely due to more favorable winds at low altitudes in fall than in spring. The seasonal patterns of migration show year-to-year variation, which is discussed in the Final Report.

Inclement Weather. Adverse weather conditions (e.g., fog, overcast, low ceiling, drizzle, rain) were reported on 66 out of 171 nights in 2006 and 76 out of 171 nights in 2007. These weather conditions could force migrating birds to fly at lower altitudes over the project area, where they could potentially collide with wind turbines. However, the analysis also indicated that on most days with adverse weather, little or no migration was recorded. Of the 142 nights with adverse weather, bird densities of 25 or more birds per km^3 over the project site were detected on only 27 occasions.

3.5.4 Endangered, Threatened, Rare, and Other Sensitive Species

Wildlife and plant species that have special status may be protected under policies of federal, state, and local agencies. These include species formally proposed or listed for protection under the Federal or California Endangered Species acts (ESA and CESA, respectively) as well as species that are not protected by Endangered Species legislation but are recognized by various authorities including the California Native Plant Society, the California Department of Fish and Game, and other authorities as rare, declining, or species of local concern. These are collectively termed "other sensitive species."

3.5.4.1 Federally and State-Listed Species

Federally and state-listed and their potential to occur in the Project area are listed in Table 3.5-4, which is followed by a more detailed description of each.

TABLE 3.5-4
Federally and State-Listed Species and Potential Occurrence in the Project Area

Common Name/ Scientific Name	Federal/ State Rank	Occurrence
Gaviota tarplant Dienandra increscens ssp villosa	FE/SE	Grasslands in North Corridor, Middle Corridor, South Corridor – East, Sudden Corridor – West, Quarry Flank, Signorelli Corridor, and Scolari Bench
Gambel's Water Cress *Rorippa gambelii*	FE/SE	One population on VAFB. Has not been found on LWEP site.
Lompoc Yerba Santa Eriodictyon capitatum	FE/SR	Has not been found on LWEP site.
Seaside Bird's Beak Cordylanthus rigidus ssp littoralis	--/SE	Has not been found on LWEP site.
El Segundo Blue butterfly (ESBB) Euphilotes battoides allyni	FE/--	Known from remnant coastal dune habitat in Los Angeles County. A geographically distinct population recently discovered on Vandenberg Air Force Base was identified as ESBB in2005. Since then it has been documented from several areas on Vandenberg Air Force Base, including areas near Tranquillon Peak, adjacent to the project site. ESBB is closely associated with coast buckwheat (*Eriogonum parvifolium*), which is documented on the project site. Based on proximity to documented occurrences of ESBB and presence of the host plant on the project site, ESBB is expected to occur on project site.
Vernal pool fairy shrimp Branchinecta lynchi	FT/--	Occurs in 12 locations on VAFB. No suitable habitat has been identified on the project site.
California tiger salamander Ambystoma californiense	FT/CSC	Not expected to occur due to lack of habitat
California red-legged frog Rana aurora draytonii	FT/CSC	Known to occur in Honda Creek west of Tranquillion Peak. Marginal habitat for this species is present on the project site in Honda Creek and stockponds. The southwestern portion of the project site is located within designated critical habitat (STB-4) although no suitable aquatic habitat is present onsite within the critical habitat unit.
Unarmored threespine stickleback Gasterosteus aculeatus williamsoni	FE/SE, FP	Occurs in Canada Honda Creek downstream of project. Honda Creek within the project site boundary provides low quality habitat for this species due to the lack of permanent water in the channel.
California condor Gymnogyps californianus	FE/SE	Not seen at LWEP, or western Santa Barbara County.
Peregrine falcon Falco peregrinus	--/SE, FP	Utilize open habitats. Observed during surveys in winter 2006 and during SAIC February 2008 site visit; low likelihood for nesting on project site, is known to nest on VAFB.
Southwestern Willow flycatcher Empidonax traillii extimus	FE/SE	Utilizes willow vegetation at VAFB. Not documented to occur at LWEP, no nesting habitat for this species on the project site.

CSC – California Species of Special Concern
FE – Listed by the Federal government as an endangered species
FT – Listed by the Federal government as a threatened species
FP – Fully protected animal in California per Section 5050 of the California Fish and Game Code
SE – Listed by the State of California as an endangered species
SR – Listed by the State of California as a rare species
Source: Olson and Rindlaub, 2006; Sapphos 2008; USFWS 2007

Gaviota Tarplant (*Deinandra increscens* ssp. *villosa*)

Gaviota tarplant is a late-season annual species that flowers from approximately May through October. Plants are often clustered, possibly because it does not disperse easily over longer distances. It frequently is found in recently disturbed or grazed areas. Horses and cattle generally avoid grazing these strongly scented plants. Gaviota tarplants plants prefer full sun and apparently compete poorly with introduced annual grasses. These tarplants may flower abundantly in 1 year and then virtually disappear for the next several years.

Gaviota tarplant has been affected by a number of oil and gas development projects in the Gaviota area. When listed by CDFG, Gaviota tarplant was thought to be restricted to about 1 mile along the coastal terraces in Gaviota. Additional sites documented in recent years include locations on Hollister Ranch, at Point Conception, Jalama Beach, Point Arguello, Oak Mountain/Sudden Peak, Lions Head on north VAFB, and near Point Sal. All federal land proposed as Critical Habitat in the Oak Mountain/Sudden Peak area was removed from the Critical Habitat in the final rule (November 2002). Private property, including some of the proposed Project area, was included in the Federal Critical Habitat designated by the USFWS.

Recent surveys of the distribution of this species on private land conducted in 2002 near Point Sal, near Orcutt, on both north and south VAFB, and on the Bixby Ranch documented new, large populations, and demonstrated that the plant is probably distributed more or less continuously on suitable habitat between Point Sal and Gaviota (Olson and Rindlaub 2006). Some of the new populations were found on the sandy loam soil thought typical for this species, but other, very large populations were found on completely different, broken shale substrate. These new populations included many thousands of individuals on many acres in 2002. New sites for Gaviota tarplant were found in many locations on north VAFB, and on several locations on south VAFB (at both low and high elevation). The Sudden Ranch fire in June 2002 eliminated the vegetation over a large area north of Jalama, but it seems likely that Gaviota tarplant occupies the coastal terraces at this location (Olson and Rindlaub, 2006). Plants resembling Gaviota tarplant were reportedly seen in 2005 (C. Nathe, Personal Communication).

Gaviota tarplant locations on the LWEF site are shown on Figure 3.5-3. More detailed results are presented in Olson and Rindlaub (2006). Gaviota tarplant is scattered over Middle Corridor - South, Middle Corridor - North, and Middle Corridor – Flank; and it appeared again in North Corridor - East. Small populations also were found northwest of the upper part of North Ridge Central Road and on the east side of the creek in the upper Sloan Canyon drainage. A small population was found near the VAFB fence line north of Honda Creek. Gaviota tarplant also occurs in much of the area northwest of Sudden Peak, in Sudden Corridor - West, Quarry Flank, and near the junction of Quarry and Sudden roads. Gaviota tarplant occurs patchily in Signorelli Corridor and along the lower elevations of Signorelli Ridge Road. It also was found along Scolari Bench Road. The 2006 botanical survey identified numerous plants in North Corridor within 200 feet of the proposed access road, and one small population was observed on a north facing slope. One small patch also was found in the power line corridor on the hills south of San Miguelito Road west of the quarry on the fingers of valleys and ridges. No Gaviota tarplant was observed on the Larsen Ranch property.

Gambel's Water Cress *(Rorippa gambelii)*

One of the three extant populations of this aquatic plant is on north VAFB (Keil and Holland, 1998). Although the Project area is rather high in elevation for this species, potential habitat may be found in the bottom of Honda Canyon. The area where the new North East Road would cross Honda Creek is deeply cut and shaded by willows. According to Keil and Holland, this plant probably requires permanently wet soils, and is "generally associated with tall monocots in freshwater marshes." No suitable habitat for this species occurs on the Project site, and even the pools and creeks at the higher Project elevations probably dry out too much in normal rainfall years for this species to thrive. Gambel's water cress was not found during the surveys and is unlikely to occur on the LWEF site or the power line corridor.

Lompoc Yerba Santa (*Eriodictyon capitatum*)

This endemic shrub is associated with chaparral and closed-cone pine forest. It has been found on the crest of the Santa Ynez Mountains on Hollister Ranch, three sites on Vandenberg AFB, including localized occurrences in Lake Canyon and near 13th Street south of the Airfield, and in the Purisima Hills north of Lompoc. It has not been found in the Sudden Peak or Tranquillon Ridge areas. It is also possible that suitable shrub-dominated habitat on the project site was converted to grassland. Keil and Holland commented that they found no sensitive species from the tanoak woodland on VAFB (Keil and Holland, 1998). Lompoc yerba santa is unlikely to occur on the main LWEF site based on floristic surveys conducted on the site. It is unlikely to occur along San Miguelito Road, partly because of the shady nature of most of the habitat, and partly because it probably would have been noticed along the public road.

Seaside Bird's Beak (*Cordylanthus rigidus* ssp *littoralis*)

The Santa Barbara County population of seaside bird's beak is disjunct from the larger center of distribution in Monterey County. With the exception of one record from the Santa Rosa Hills, all populations have been reported from sites north of Lompoc in the sandy soils of the Burton Mesa. This genus flowers late in the season and would have been observed during the late season surveys conducted for Gaviota tarplant. This species is unlikely to occur on the LWEF site, but could occur in the power line corridor.

El Segundo Blue Butterfly (*Euphilotes battoides allyni*)

The El Segundo blue butterfly is a federally listed endangered species. It is not listed under the California Endangered Species Act. Until recently it had been known from only three extant occurrences in coastal dune habitat in Los Angeles County (El Segundo, near LAX, and at Malaga Cove on the Palos Verdes Peninsula. These locations total about 220 acres in area and are located over 120 miles southeast of the project area. At the Los Angeles County locations, the butterflies are very closely associated with coast buckwheat (*Eriogonum parvifolium*). The larvae feed and develop in the developing seed heads, pupate under the bush, and the adults feed on nectar produced by the flowers.

In 2005, ESBB were identified by Dr. Gordon Pratt on Vandenberg Air Force Base (VAFB) in western Santa Barbara County and additional surveys in 2006 and 2007 have increased the understanding of its distribution on VAFB. On VAFB, the butterflies are associated with the same

host plant species (coast buckwheat) but were found not only in coastal dune habitats but also on slopes and rocky areas occupied by coast buckwheat. The distribution on VAFB includes areas immediately adjacent to the Project site (Figure 3.5-4).

It has been estimated by FWS (2007) that VAFB contains 17,470 acres of ESBB habitat. This estimate is derived by adding a 1-mile buffer to each documented locality where ESBB has been found in 2006 and 2007 and determining the area. The 1-mile buffer is related to the approximate maximum dispersal distance of ESBB (USFWS 2007).

Given the distance from the known Los Angeles County populations and the additional habitat types occupied by the species on VAFB, the identification and status and the VAFB population is currently being further evaluated taxonomically. However, based on proximity to documented occurrences on VAFB, continuity of similar habitat between the project site and the documented VAFB occurrences near the project site, and the relative abundance of habitat occupied by coast buckwheat on the project site, ESBB is assumed to be present on the project site. There are an estimated 30.9 acres of habitat on the project site containing the ESBB host plant (Sapphos 2008, MFR-06). These are concentrated in the southern portion of the project site (Figure 3.5-5).

Vernal Pool Fairy Shrimp *(Branchinecta lynchi)*

Vernal pool fairy shrimp occur in vernal pools and vernal pool-like depressions. They are most commonly found in small swales, earth slumps or depression basins in grassland habitat. Habitats can vary dramatically in size from a vernal lake exceeding 25 acres to a shallow puddle of less than three square feet and one inch deep. Vernal pool fairy shrimp often occur in swale and depression areas that exhibit an unpredictable and short-lived inundation pattern. The species can reach maturity in approximately 18 days under optimal conditions; however, 41 days is more typical. Vernal pool fairy shrimp have been found at elevations that range from 33 to 4,003 feet above mean sea level (AMSL) with one occurrence recorded at 5,600 feet AMSL in the Los Padres Nation Forest, Santa Barbara County. The species is found predominantly in the Central Valley and Coast Ranges of California. At least 12 habitat complexes on VAFB are occupied by vernal pool fairy shrimp. The site has not been investigated for the presence of this species. Possible habitat exists on the site in slumps and depressions caused by earth movement in the northwestern portion of the site and in seasonal wetlands elsewhere on the site. Suitable habitat would be generally absent from the areas where the wind turbines are proposed, which are typically on ridgelines.

California Tiger Salamander *(Ambystoma californiense)*

The California tiger salamander is a federally listed threatened species and a California Species of Special Concern. The USFWS published a Final Rule in November 2004 (50 CFR Part 17) designating 11,180 acres of land as critical habitat in several portions of Santa Barbara County; the Project site and power line corridor are not within designated critical habitat. The tiger salamander is found in permanent and seasonal ponds and pools, usually in grassland and savanna habitats. Seasonal pools must hold surface water for at least 10 weeks to allow successful breeding to take place. This species spends a majority of its life underground in small mammal burrows that can be up to 1.2 miles from the breeding pond or pool. California tiger salamanders are known from the Santa Maria and Los Alamos valleys and from several locations between Lompoc and Buellton. There are no known locations near the Project area. The only potential habitat for this species are impounded stock ponds located throughout the project footprint. The only observations of

amphibians during the surveys were Pacific treefrog larvae. Due to a lack of habitat and substantial distance from the nearest reported occurrence, this species is not expected within the Project area.

California Red-legged Frog *(Rana aurora draytonii)*

The California red-legged frog is a federally listed threatened species and a California Species of Special Concern. The USFWS published a Final Rule in April 2006 (50 CFR Part 17) designating critical habitat in several portions of Santa Barbara County, including Unit STB-4 comprised of 7,662 acres about 4.4 miles south of the City of Lompoc; this area includes the southeastern portion of the Project site. Possible threats to this species include predation by non-native species and water management practices that could negatively affect the aquatic habitat of the frog.

This species is known to occur in Honda Creek west of Tranquillion Peak and tadpoles have been observed in a trough near a northern tributary to Miguelito Canyon near the boundary between VAFB and the project site. Marginal habitat for this species is present on the project site in Honda Creek and in the various stockponds present on the project site. California red-legged frogs are also known to travel long distances overland between different aquatic habitat. This species typically utilizes rivers and streams with permanent water. Honda Creek was observed on several occasions during past surveys to be dry at different times of the year making it less hospitable for red-legged frogs. This species may persist in stockponds located on the project site although the three ponds observed by SAIC biologists during their two day visits to the site did not contain any wetland vegetation that this species typically requires. The southwestern portion of the project site is located within designated critical habitat (STB-4) although no suitable aquatic habitat is present onsite within the critical habitat unit. This species may be present on the project site during infrequent migration events and may persist in stockponds located throughout the LWEF site. USFWS protocol surveys for this species were not conducted for this EIR due to the lack of suitable habitat (i.e., Honda Creek does not have water flow during the summer every year) on the project site.

Unarmored Threespine Stickleback (*Gasterosteus aculeatus williamsoni*)

Unarmored threespine sticklebacks are known to occur in Canada Honda Creek (approximately 1 mile downstream of the project boundary) as a transplanted population originating from elsewhere on VAFB. In 1984, about 850 unarmored threespine stickleback were salvaged from the Barka Slough area of San Antonio Creek on VAFB and relocated to Canada Honda Creek. This species prefers slow moving water, such as pools with abundant vegetation, backwater areas, and stream margins where water velocity is low. Habitat requirements also include clear water with temperatures below 23 degrees Celsius with sufficient water depth. The portion of Honda Creek on the project site does not provide a permanent water source for this species. Unarmored threespine stickleback are unlikely to be present on the project site. However, protocol surveys for this species were not conducted for this EIR due to the lack of suitable habitat (i.e., Honda Creek does not have water flow during the summer every year) on the project site.

Steelhead (*Onchorrynchus mykiss*)

The southern steelhead trout is an anadromous fish that utilize an area extending from the Pacific Ocean to the freshwater streams where spawning occurs. Adults need water approximately 10 to 20 centimeters deep to move upstream and downstream. The jump height for steelhead trout is

dependent on several factors, such as size of the fish, depth of jumping and landing pools, how far the fish would have to swim to the barrier, and size of the barrier. In addition, southern steelhead trout do not tolerate temperatures much above 21°C; therefore, cooler, deeper pools are critical to the success of the trout. Fish movements both upstream and downstream generally coincide with flow pulses from storms.

There are no known occurrence records for steelhead trout within the proposed project site. As a result of the CNDDB query, the nearest known occurrence record for steelhead trout near the proposed project site is located over 14 miles to the east in the Santa Ynez River (observed in 1993).

The proposed project includes several streams that appear to run seasonally but do not provide the conditions necessary to support steelhead trout or the resident variety of rainbow trout. Only two drainages at the proposed project site flow to the ocean and in turn have the potential to support steelhead trout: Cañada Honda Creek and San Miguelito Creek. Sapphos (2008 MFR 8) reports that San Miguelito Creek has several impediments to movement. Cañada Honda Creek does not have impediments to steelhead trout movement, but this drainage is dry during periods of drought. At VAFB, suitable spawning habitat was identified along Cañada Honda Creek with intact riparian and in-stream habitat. However, during 1987–1992, this drainage was absent of water. In addition, a survey of Cañada Honda Creek at VAFB did not identify steelhead trout within this drainage. A reconnaissance survey and preliminary habitat assessment conducted by Sapphos Environmental, Inc. biologists did not result in the identification of suitable habitat for steelhead trout due to the lack of water in the majority of the drainages found throughout the proposed project site. Where water was observed in drainages, the water was too shallow to support steelhead trout, particularly within areas proposed for road crossings.

California Condor (*Gymnogyps californianus*)

The California condor has not been recorded in western Santa Barbara County (Sapphos 2008) but occurs in wilderness areas in eastern Santa Barbara County, more than 30 miles away from the project area. The three condor feeding stations in eastern Santa Barbara County and environs often concentrate condors there. Though the California condor can travels great distances (50+ miles) during the day, the closest single occurrence to the project site in Santa Barbara County was 43.8 miles away in eastern Santa Barbara County at the Sisquoc-San Rafael Condor Area (1975 sighting date). Nesting habitat is unavailable at the project site although cattle and mule deer are present and could provide this species large carrion to feed on. In the rare case that a California condor would appear at the project area, it is most likely that the individual or individuals would traverse the site at high altitude, as is typically the case when condors are traveling long distances (i.e., not foraging).

Peregrine Falcon (*Falco peregrinus anatum*)

The peregrine falcon is a state-listed endangered species and fully protected bird in California. The peregrine falcon was federally delisted on August 25, 1999. This species forages over open habitats, such as grasslands, agricultural fields, ponds, and coastal areas. Throughout Santa Barbara County and specifically in the Lompoc area, the peregrine falcon is considered rare, occurring mostly in fall and winter months.

Sightings compiled by Holmgren and Collins (1999) included a September 1993 observation by Paul Collins on Honda Ridge and a pair observed along lower Honda Ridge Road in September 1994. Tetra Tech (1999a,b) reported that one nesting pair of peregrine falcons had been using rocky cliffs along the coast of South VAFB. Those reports also included an estimate of 60 acres of such habitat occurring on the base. No similar habitat exists in the Project area. Peregrine falcon was among the species observed during surveys on the South Base of VAFB. Nancy Read indicated that peregrine falcons are regularly reported from the vicinity of the Project area during migration (Olson and Rindlaub, 2006). During the December 2006 survey, two observations of this species were made during Surveys 1 and 3 at North Corridor – East and South Corridor – Central, respectively. It is possible that the two observations of the bird diving were the same individual. This species was observed on two occasions during the SAIC site visits: one individual was observed on October 4, 2007 and a second peregrine falcon observation was made on February 18, 2008; this falcon was observed in level flight at about 30 meters altitude flying near the proposed O&M site at San Miguelito Road and Sudden Peak Road.

Southwestern Willow Flycatcher (*Empidonax traillii*).

The willow flycatcher is an uncommon breeder and spring and autumn transient in Santa Barbara County within streamside willow vegetation at VAFB. Suitable breeding habitat with appropriate vegetative characteristics is lacking along Cañada Honda Creek and San Miguelito Canyon Creek at the LWEF site. However, this species is anticipated to be a rare spring and autumnal migrant at the LWEP study area. It was not documented to be present at the LWEF site, but intensive sampling usually is required to detect this elusive species outside the breeding season.

3.5.4.2 Other Sensitive Species

Sensitive Species include those that are:

- Plant species categorized under "List 1B," "2," or "4" by the California Native Plant Society (CNPS).
- Wildlife species on the "species of special concern," "watch list," or "fully protected" lists maintained by the State of California.
- Plant and wildlife species considered to be rare or declining on a local or regional basis

Special-status species and their potential to occur in the Project area are listed in Table 3.5-5, which is followed by a more detailed discussion of each.

TABLE 3.5-5
Other Sensitive Species in the Project Area and Potential Occurrence on the Project Site

Common Name/Scientific Name	Status Federal/ State/Local	Occurrence
Plants found on the Project Site		
Kellogg's horkelia Horkelia cuneata ssp sericea	CNPS List 1B[a]	Middle Corridor, possibly Sudden Corridor and Quarry Ridge areas, Signorelli Corridor and South Corridor –East
Mesa horkelia[b] Horkelia cuneata ssp puberula	CNPS List 1B	Middle Corridor, possibly the Sudden Corridor and Quarry Ridge areas, Signorelli Corridor, and South Corridor – East and Central.

Common Name/Scientific Name	Status Federal/ State/Local	Occurrence
Western dichondra Dichondra occidentalis	CNPS List 4[a]	South and West Corridors
Seaside agoseris[c] Agoseris apargioides	Local Concern	Middle Corridor, South Corridor – East
Seaside heuchera Heuchera pilosissima	Local Concern	Old road linking Signorelli and Scolari benches
Sickle-leaved rush Juncus falcatus	Local Concern	Middle Corridor – South, South Corridor – East, possibly upper Signorelli Corridor
California globemallow[c] Sidalcea malvaefolia ssp californica	Local Concern	Middle Corridor
Plants Possibly Occurring on the Project Site or Powerline Corridor		
Purisima manzanita *Arctostaphylos purissima*	CNPS List 1B	Not observed
Eastwood's manzanita *Arctostaphylos tomentosa* ssp *eastwoodiana*	CNPS List 1B	Not observed at site, although it may occur along the powerline corridor where it passes through chaparral
Straight-awned spineflower *Chorizanthe rectispina*	CNPS List 1B	Not expected to occur
Umbrella larkspur *Delphinium umbraculorum*	CNPS List 1B	Not observed and not expected to occur
Blochman's dudleya *Dudleya blochmaniae* ssp *blochmaniae*	CNPS List 1B	Not observed
Ojai fritillary *Fritillaria ojaiensis*	CNPS List 1B	Not observed and not expected to occur at site; more likely in drainages traversing power line corridor
Santa Barbara honeysuckle *Lonicera subspicata* ssp *subspicata*	CNPS List 1B	Not observed
Black-flowered figwort *Scrophularia atrata*	CNPS List 1B	Not observed, although likely to occur at the site and very likely to occur along power line corridor
Sonoran maiden-fern *Thelypteris puberula* var. *sonorensis*	CNPS List 2	Not observed; probability of occurrence is very low
Vernal barley *Hordeum intercedens*	CNPS List 3	Could possibility occur at the site and along the power line corridor, particularly in areas with seeps and springs.
Mount Diablo cottonweed *Micropus amphibolus*	CNPS List 3	Not observed, but is a possibility in scrub openings and in low and open grassland with a high native component
Bitter gooseberry *Ribes amarum* var. *hoffmannii*	CNPS List 3	Unlikely to occur at site, but may occur along power line corridor
Santa Cruz Island manzanita *Arctostaphylos tomentosa* ssp. *subcordata*	CNPS List 3	Not observed, although it could possibly occur in the power line corridor or along road alignments
Plummer's baccharis *Baccharis plummerae* ssp. *Plummerae*	CNPS List 3	Not observed, but may occur at the site
Brewer's calandrinia *Calandrinia breweri*	CNPS List 4	Considered likely to occur at the site and the power line corridor
Catalina mariposa lily *Calochortus catalinae*	CNPS List 4	Not found in VAFB, and therefore, unlikely to occur at site
Small-flowered morning-glory *Convolvulus simulans*	CNPS List 4	Not observed, but potentially occurs at the site and along the power line corridor
San Luis Obispo wallflower *Erysimum capitatum* ssp. *Lompocense*	CNPS List 4	Has been found on north VAFB, but unlikely to occur at site and may occur along the power line corridor

Common Name/Scientific Name	Status Federal/ State/Local	Occurrence
Southern California black walnut *Juglans californica*	CNPS List 4	Found near site in south VAFB, but not observed at site. Unlikely to occur at site, but may occur along power line corridor
Ocellated Humboldt lily *Lilium humboldtii* ssp. *ocellatum*	CNPS List 4	Not observed at the site, although there is potential habitat at site and along power line corridor
Michael's rein orchid *Piperia michaelii*	CNPS List 4	Observed in VAFB in Honda Canyon, unlikely on the project site due to differences in habitat.
Santa Cruz Island oak *Quercus parvula* var. *parvula*	CNPS List 4	Possible but unlikely on project site
Hoffmann's sanicle *Sanicula hoffmannii*	CNPS List 4	Possible but unlikely on project site
Pacific Coast Iris *Iris douglasiana*	LR	Not expected on Project site.
Douglas' Pogogyne Pogogyne douglasii	LR	Possible on project site.
Canyon Gooseberry *Ribes menziesii*	LR	Possible on project site.
Island Morning-glory *Calystegia macrostegia* subsp. *macrostegia*	LR	Possible on project site.
Sensitive lichen species	LR	Possible on the project site.
Amphibians		
Western spadefoot toad *Spea (=Scaphiopus) hammondii*	--/CSC	Not expected to occur due to lack of habitat
Reptiles		
Coast patch-nosed snake *Salvadora hexalepis virgultea*	--/ CSC, LR	Possible in areas with scrubby vegetation
Southwestern pond turtle *Emys (=Actimenys= Clemmys) marmorata pallida*	--/CSC	Unlikely due to lack of suitable habitat
Two-striped garter snake *Thamnophis hammondii*	--/CSC	Moderately likely along Miguelito Creek; known from area, but limited habitat
California horned lizard *Phrynosoma coronatum frontale*	--/CSC	Known to occur
Silvery legless lizard *Anniella pulchra pulchra*	--/CSC	Likely present in some areas (scrub and woodland habitats)
Birds		
Golden eagle *Aquila chrysaetos*	BGA/FP, WL	Observed during surveys in April 2005, winter 2006,during February 2008 site visit by SAIC biologist, and spring 2008 surveys by Sapphos. Likely to nest near the Project area and forage over large grasslands and semiopen woodlands.
White-tailed kite *Elanus leucurus*	--/FP, LR	Most likely to forage over open areas, low probability of nesting, though nesting has been observed in the Lompoc area. Observed on project site in Spring 2008 during Sapphos survey.
Western burrowing owl *Athene (=Speotyto) cunicularia hypugea*	--/CSC, PSTE	Observed onsite utilizing large expanses of grassland and agricultural areas. Wintering individuals known from VAFB and Cojo Ranch. Burrows remained active during the Sapphos winter 2008 surveys, this included multiple observations.
Grasshopper sparrow *Ammodramus savannarum*	--/CSC, LR	Observed nesting in grassland on Project sites. Found in grassland areas with scattered shrubs that are used as perches. Found at all elevations and throughout project site. Observed during summer 2002 and 2005 surveys by Olson, and also observed most weeks of Sapphos 2008 surveys. Large numbers were seen in early May.

Common Name/Scientific Name	Status Federal/ State/Local	Occurrence
Northern harrier *Circus cyaneus*	--/CSC	Observed foraging in area. Utilize a number of habitats including: grassland, CSS, wetlands, and agricultural fields. Observed during an April 2005 survey by Olson and also during spring 2008 surveys by Sapphos.
Long-eared owl *Asio otus*	--/CSC	One sighting at VAFB in 1996. In winter, large numbers (8-12 individuals) have been observed in recent past roosting along Honda Creek just off VAFB.
Loggerhead shrike *Lanius ludovicianus*	--/CSC	Known to occur onsite; observed by CH2M HILL in 2006 and Olson in 2007. Utilizes multiple habitat types, but not seen during Sapphos 2008 surveys.
Vaux's swift *Chaetura vauxi*	--/CSC	Observed during the spring 2008 surveys by Sapphos. Found in past years at VAFB. Does not breed in area.
Mountain plover *Charadrius montanus*	--/CSC	Found in numbers on VAFB. Not seen during Sapphos 2008 surveys.
Yellow warbler *Dendroica petechia*	--/CSC	Known to occur onsite; observed by Olson in 2002 and 2005. Breeds in riparian areas, particularly dense willow shrubs. Observed almost every week during Sapphos 2008 surveys.
Tricolored blackbird *Agelaius tricolor*	--/CSC	Observations in area; unlikely to nest due to lack of extensive bulrush/cattail habitat. Observed by Olson in 2002. Not seen during 2008 Sapphos surveys.
Yellow-breasted chat *Icteria virens*	--/CSC	Breeds in riparian areas of Santa Barbara County, including Honda Creek on VAFB. Observed during the spring 2008 survey by Sapphos.
California rufous-crowned sparrow *Aimophila ruficeps ruficeps*	--/ WL, LR	Observed nesting in select areas that include dry open areas of scrub habitat or rock outcrops. Were observed during 2002 and 2005 surveys by Olson and also during winter and spring 2008 surveys by Sapphos.
Sharp-shinned hawk *Accipiter striatus*	--/WL	Occupies woodlands and the interface between woodlands and open areas. Observed during the winter and spring 2008 surveys by Sapphos.
Cooper's hawk *Accipiter cooperii*	--/WL	Observed during surveys. Utilizes woodlands, riparian areas, and open habitats – including agricultural. Olson observed during 2002 and 2005 surveys, and Sapphos observed during both winter and spring 2008 surveys. Additionally, one definitive and possibly a second nest site.
Ferruginous hawk *Buteo regalis*	--/WL	Observed during surveys in winter 2006; low potential to nest in vicinity. Utilizes open areas – grasslands and agricultural. Not observed during Sapphos 2008 surveys.
Merlin *Falco columbarius*	--/WL	Low. Utilize open habitats. Not observed during Sapphos 2008 surveys.
California horned lark *Eremophila alpestris actia*	--/WL	Observed nesting and numerous on Project sites during nesting season. Utilize open areas with short vegetative cover. Observed during most surveys by Olson in 2002 and 2005. Observed every week (often in large numbers) during the Sapphos 2008 surveys.
Bell's sage sparrow *Amphispiza belli belli*	--/WL	Low; not observed on site but habitat present in region. Utilizes chaparral habitat types.
Long-billed curlew *Numenius americanus*	--/WL	Observed by Sapphos in Winter 2008 flying over site. Found in the Santa Maria River Plain and beaches along VAFB.
Olive-sided flycatcher *Contopus borealis*	--/LR	Observed by Sapphos in May 2008 near the boundary of the proposed project site; expected in very low numbers.
Blue grosbeak *Guiiraca caerulea*	--/LR	Observed by Sapphos during the 2008 avian surveys near the boundary of the proposed project site; expected in relatively low numbers.
Swainson's thrush *Catharus ustulatus*	--/LR	Observed by Sapphos during the 2008 avian surveys on the proposed project site; expected in relatively low numbers.

Common Name/Scientific Name	Status Federal/ State/Local	Occurrence
Mammals		
American badger *Taxidea taxus*	--/ CSC, LR	Resident along Sudden Corridor – East and North Corridor; could occur elsewhere in grassland habitat.
Western mastiff bat *Eumops perotis*	--/CSC	Rare; observed in 1997/1998 on VAFB, no suitable roosting habitat onsite but could forage over Project site.
Pallid bat *Antrozous pallidus*	--/CSC	Pallid bats were recorded onsite during the 2008 CCBRG surveys. No roosting habitat available, but likely to forage over LWEP.
Townsend's big-eared bat *Corynorhinus townsendii*	--/CSC	Low likelihood, found at VAFB in 1997/1998 surveys. No roosting habitat available, but could occasionally forage over LWEP.
Red bat *Lasiurus blossevillii*	--/CSC	Low likelihood, commonly found at VAFB in 1997/1998 surveys in upper Honda Canyon. No roosting habitat available, but could occasionally forage over LWEP.
San Diego desert woodrat *Neotoma lepida intermedia*	--/CSC	Potential to occur in areas of coastal sage scrub, especially South Corridor and West Corridor, Signorelli Ridge, and Signorelli Bench.

[a] CNPS Status
List 1B: Plants rare, threatened, and endangered in California and elsewhere
List 4: A "watch list" for plants that appear to be declining.
[b] Identification tentative, but included as a potential hybrid with other Horkelias, including Kellogg's horkelia.
[c] Identification tentative.
BGA – Protected by the Bald and Golden Eagle Act
CSC – California Species of Special Concern
FE – Listed by the Federal government as an endangered species
FT – Listed by the Federal government as a threatened species
FP – Fully protected animal in California per Section 5050 of the California Fish and Game Code
LR – Recognized as a locally rare species
PCSC – Proposed for status as California Species of Special Concern
PSTE – Petitioned for state-listing as threatened or endangered
SE – Listed by the State of California as an endangered species
WL – California Department of Fish and Game Watch List – defined by the CA DFG on the basis of prior concern for the well-being of these populations in California. These species are not on the current special concern list.
Source: Olson and Rindlaub, 2006; Pierson et al., 2002

3.5.4.2.1 Other Sensitive Plant Species

The following section discusses sensitive plant species considered to have some potential to occur in the project area (Olson and Rindlaub 2006). Floristic field surveys of the site were conducted in 2002 and 2005 with supplemental surveys in 2006-2008 as described under methods (Section 3.5.1.3). The following accounts are drawn primarily from Olson and Rindlaub (2006).

California Native Plant Society (CNPS) Listed Plant Species

The CNPS maintains several lists in its Inventory of Rare and Endangered Plants of California, now in its 6th edition (CNPS, 2001). Plants on List 1B may qualify for federal or state listing. Therefore, mitigation is usually required for List 1B plants under the provisions of CEQA. The following paragraphs discuss the subset of the species from Santa Barbara County that potentially occur on the Project site.

CNPS List 1B: Plants Rare, Threatened, or Endangered in California and Elsewhere

The closely related CNPS List 1B taxa Kellogg's horkelia *(Horkelia cuneata ssp. sericea)* and Mesa horkelia *(H. c. ssp. puberula)* were found on the Project site. A few other species potentially occur on the site and could have been missed, because they are easily overlooked or because the above-ground parts may have been grazed off early in the season.

Contra Costa goldfields (*Lasthenia conjugens*) is a federally listed species that is also on CNPS List 1B. This vernal pool plant is apparently extinct in Santa Barbara County, although its range extends farther inland and northward. It was not observed on the project site.

Purisima Manzanita (Arctostaphylos purissima). Purisima manzanita is endemic to the region. It ranges from Point Sal and Solomon Hills in the north to the Burton Mesa and Purisima Hills, eastward to Buellton; is in the hills southeast of Lompoc; and extends to the Santa Ynez Mountains on Hollister Ranch (Smith, 1998). Although part of the maritime chaparral that grows in the Pleistocene dune sheets, this species also grows on soils derived from diatomite and siliceous shales. Records appeared in the CNDDB search for the area in lower Sloan and La Salle Canyons within about 1 mile of SR-246. There were no records for this species within the hills southwest of Lompoc. The unusually mesic character of the local climate may be unsuitable for this species. It was not seen and is very unlikely to occur on the LWEP site; Purisima manzanita is unlikely but possible in the transmission line corridor if it passes through chaparral habitat. This species is also unlikely but possible in the power line corridor where it passes through chaparral habitat.

Eastwood's Manzanita (Arctostaphylos tomentosa ssp eastwoodiana). This subspecies is a local endemic that occurs on diatomite on Purisima Ridge and extends to Point Sal. It also occurs on the Burton Mesa and in the lower reaches of Sloans and La Salle canyons within about 1 mile of Ocean Avenue (SR-246), west of Lompoc. It was not seen and is not expected to occur on the LWEP site. Eastwood's manzanita may occur along the power line corridor where it passes through chaparral habitat.

Straight-awned Spineflower (Chorizanthe rectispina). Straight-awned spineflower grows in sandy to gravelly soils in grassland, woodland, and coastal scrub habitats below about 4,000 feet elevation. It was found on north VAFB (Keil and Holland, 1998), but no records are listed for it on the South Base or south of the Santa Ynez River. This annual is considered rather unlikely in the foggy habitat of the LWEP site.

Umbrella Larkspur (Delphinium umbraculorum). Larkspurs were not found on the LWEP site, although this species may occur in the woodland and scrub habitats. The nearest location of Umbrella larkspur is at Refugio Pass, about 25 miles east of the site. It is very unlikely to grow on the LWEP site or the power line corridor.

Blochman's Dudleya (Dudleya blochmaniae ssp blochmaniae). This small, vernal liveforever has been found in heavy clay soil on the back side of the Point Sal Ridge, which is similar to some of the clay soil grassland habitats on the LWEP site. Typical habitats for this species are shallow, fine-textured soils over rock outcrops. It is very small and dries up in summer and fall, so it could have been missed. It was not found on the project site, but rock outcrops and clay lenses should be considered potential habitat.

Ojai Fritillary (Fritillaria ojaiensis). Ojai fritillary potentially occurs in the project area. It is known from Point Sal, although most other locations are farther south and farther inland. The only fritillary observed in the project area was in rocky soil near the VAFB property line, but it appeared to be *F. bicolor.* Suitable habitat for Ojai fritillary is found along drainages, but the probability that this species grows on the LWEP site is low. It is somewhat more likely in areas traversed by the power line corridor.

Mesa Horkelia (Horkelia cuneata ssp puberula). Mesa horkelia is a perennial herb that grows in sandy or gravelly soils in coastal scrub, chaparral, and woodland habitats. It flowers from February to September. The known range is from 230 to 2,657 feet (70 to 810 meters) elevation, from San Luis Obispo to San Diego counties along the coast and inland to Riverside and San Bernardino counties. Populations in Ventura, Riverside, San Bernardino, and San Diego have been extirpated. According to the regional flora, the Santa Barbara County occurrences of this entity are probably part of a hybrid population (Smith, 1998).

Plants with some of the characteristics of mesa horkelia were found occasionally, scattered among the more common Horkelia *(Horkelia cuneata* ssp *cuneata)* populations of Middle Corridor and South Corridor - East, where plants that keyed to Kellogg's horkelia also were found. Even if the plants in the Project area are not "pure" mesa horkelia, the mixed gene pool may be characteristic of plants in this region of the coast.

Mesa horkelia may occur with low probability in the upper elevations of the power line corridor.

Kellogg's Horkelia (Horkelia cuneata ssp sericea). Kellogg's horkelia is part of the group of closely related taxa discussed above. It also grows in chaparral and coastal scrub habitats. Kellogg's horkelia has recently been recorded from Gaviota State Park (Ballard, 2005) and from Hollister Ranch (Hendrickson et al., 1998).

Glandular plants that keyed to this entity were found in central and southern Middle Corridor and eastern South Corridor. The number of individuals attributable to this subspecies is unknown. Other populations of Horkelia within the project area may also include this subspecies, particularly in areas with sandy-loam soil, such as Signorelli Corridor, Scolari Bench, the Sudden Corridor area, particularly Quarry Flank, and North Corridor – East.

Kellogg's horkelia may occur in the upper elevations of the power line corridor.

Santa Barbara Honeysuckle (Lonicera subspicata ssp subspicata). This Santa Barbara County endemic has been recorded on the south side of the Santa Ynez Mountains as far west as Refugio Canyon, but suitable habitat for it is found in the drainages, cool coastal scrub, and woodland habitats in the project area. However, the probability that this species occurs on the LWEP site is low, but it could occur in the power line corridor. It was not found during the surveys.

Black-flowered Figwort (Scrophularia atrata). Black-flowered figwort is likely to occur in the project site. Figworts often were encountered in scrub and along creeks, but the flowers of all plants observed were red with the very open throats that characterize California bee plant (*Scrophularia californica*). Although this endemic species was not found, it may grow in the woodlands and creeks. There is a high probability that black-flowered figwort occurs along the power line corridor, particularly in Miguelito Canyon or on soils derived from diatomite.

CNPS List 2: Plants Rare, Threatened, or Endangered in California, but more Common Elsewhere

Sonoran Maiden-fern (Thelypteris puberula** var. **sonorensis), CNPS 2. This large fern, also known as downy wood fern, has not been found west of Gaviota. In Santa Barbara County it grows on sandstone outcrops in moist, shaded canyons on the south side of the Santa Ynez Mountains, typically where there is a spring or seep. This species ranges southward into Mexico and the documented Santa Barbara County occurrences are at its northern and western limits of distribution. Sandstone outcrops in the Project vicinity may be suitable for this plant, but the probability of occurrence is very low and project elements are not proposed in such environments.

CNPS List 3: A Review List of Plants about which More Information is Needed.

Vernal Barley (Hordeum intercedens), CNPS 3. Vernal barley has a wide distribution and occurs in vernally wet lands such as seeps and vernal pools. It ranges to 1,000 meters in elevation. This small annual grass is easily overlooked, particularly in grazed grasslands, and this species may be more common than current records indicate. It could possibly occur on the LWEP site and along the power line corridor, particularly in areas with seeps and springs.

Mount Diablo Cottonweed (Micropus amphibolus), CNPS 3. Mount Diablo cottonweed has been found in Santa Barbara County and ranges well to the north. This is a small annual, superficially similar to a close and common relative. For that reason, Mount Diablo cottonweed may be more common than records show. It potentially occurs on the Project site. No species of *Micropus* were seen during the survey, but these small plants could have been grazed down. It would be a possibility in scrub openings and in low and open grassland with a high native component.

Bitter Gooseberry (Ribes amarum var. hoffmannii), CNPS 3. Bitter gooseberry is a plant of cool canyons and streams in the Santa Ynez Mountains, but it has not been found west of Gaviota Pass (Smith, 1998), which is about 18 miles east of the site. Based on vegetative characters, the gooseberries found in the Project area appeared closer to Canyon gooseberry (*Ribesmenziesii*) than to bitter gooseberry, but the identification has not been confirmed. The probability for this species in the LWEP area is relatively low, but it could occur in the power line corridor.

Santa Cruz Island Manzanita (Arctostaphylos tomentosa ssp. subcordata), CNPS 1B. Occasionally found on the mainland coast, the main distribution of this species is on the Channel Islands. Neither chaparral habitat nor any manzanitas were found in the Project area, but this species could possibly occur in the power line corridor or along road alignments.

Plummer's Baccharis (Baccharis plummerae ssp. Plummerae), CNPS 4. This shrub grows in forests, woodland, and in coastal scrub. It is visible all year, but was not found on the Project site. This species did not appear on the CNDDB search and is not listed for the Project area in the local flora (Smith, 1998). Its probability of occurrence is medium on the LWEP site and the power line corridor.

CNPS List 4: Plants of Limited Distribution

Brewer's Calandrinia (Calandrinia breweri), CNPS 4. Brewer's calandrinia is an annual herb that reportedly is often mixed in with populations of its more common sister species, red maids *(Calandrinia ciliata)*, although Brewer's calandrinia may more strictly follow fires. Neither species, which have vividly colored flowers, was seen in 2002 or 2005. This species is considered likely on the LWEP site and power line corridor.

Catalina Mariposa Lily (Calochortus catalinae), CNPS 4. Plants that grow from bulbs (such as wild hyacinth and amole) that were seen during the surveys were largely confined to rock outcrops, broken rock, and on slopes with some shrub cover. Although not seen, Catalina mariposa lily would be most likely to occur in those habitats, rather than on the exposed ridges proposed as sites for the wind turbines. Because this species was not found on VAFB, its probability of occurrence in the LWEP area is low.

Small-flowered Morning-glory (Convolvulus simulans), CNPS 4. This small morning-glory is often, but not always, found on serpentinite. It has been recorded growing in coastal scrub, chaparral, and valley and foothill grasslands (CNPS, 2001). The nearest coastal location in Santa Barbara County is on metamorphics near Point Sal (Keil and Holland, 1998). It has also been found in Mission Canyon in Santa Barbara on soils derived from sedimentary rock. It potentially occurs on the Project site, including the power line corridor, and could have been overlooked in grasslands.

Western Dichondra (Dichondra occidentalis), CNPS 4. Western dichondra is a perennial herb that is likely to occur on the Project site. In grasslands, it most likely would be grazed off by cattle, with the result that the most likely occurrences for surviving plants would be rock outcrops with limited access for livestock. Plants in a vegetative condition that may have been western dichondra were found on several rock outcrops and rocky areas, primarily along the VAFB fence line.

San Luis Obispo Wallflower (Erysimum capitatum ssp. Lompocense), CNPS 4. Typical habitat for this species is in the woodlands, coastal scrub, and chaparral of the Burton Mesa Chaparral, Solomon Hills, and Nipomo Mesa. It has been found in several locations on north VAFB. Keil and Holland noted that they also had found it "below the Honda Ridge Tower on South Base in the Santa Ynez Mountains," but they do not comment on the soil type (Keil and Holland, 1998). It has also been found in Miguelito Canyon (Smith, 1998). This species may occur in areas of scrub and woodland on sandy soils in the Project area, although the probability that it would occur at the elevation of the main Project sites is low; it was not seen during the surveys. This species may occur on the power line corridor.

Southern California Black Walnut (Juglans californica), CNPS 4. A disjunct population of this Southern California species recently was found on south VAFB near the Project area (D. Wilken, Personal Communication). It may grow in some of the wooded areas around the Project components within the LWEP site, but it was not found on any of those sites. It is unlikely on the LWEP site. This native tree may grow along the power line corridor.

Ocellated Humboldt Lily (Lilium humboldtii ssp. ocellatum), CNPS 4. This species is likely to occur in the Project area, most likely in shaded woodland and stream channels. It has been found in the upper watersheds of both Honda and Miguelito Canyon (D. Wilken, Personal Communication). It was not seen on the LWEP site; however, suitable habitat is present on the old road between Signorelli and Scolari benches.

This species potentially could occur in the power line corridor, particularly where the line descends into shaded, moist, north-facing habitats.

Michael's Rein Orchid (Piperia michaelii), CNPS 4. This plant, also known as Purple-flowered Piperia, would be very unlikely in the grassland habitats where most facets of the Project will be located. Keil and Holland, who found it on VAFB, found it in dune swales and scrubby or tall

grassy vegetation. They also found it in dune chaparral/scrub on south VAFB at lower elevations near Mesa Road (Keil and Holland, 1998). This species may grow at lower elevations or farther downstream in Honda Canyon, but the type of habitat where it has been found does not occur on the Project site. Depending on the selected route, this small orchid could be present along the power line corridor.

Santa Cruz Island Oak (Quercus parvula var. parvula), CNPS 4. This species of scrub oak has been reported as an associate of endemic manzanitas in chaparral at lower elevation in lower Sloan and La Salle Canyons, and near Mount Tranquillon. It may grow among the tanbark oaks and in thick coastal scrub, but no scrub oaks were noted on the areas where disturbance could occur on the LWEP site. It could grow along the power line corridor.

Hoffmann's Sanicle (Sanicula hoffmannii), CNPS 4. Hoffmann's sanicle is typically an understory species in woodland and scrub habitats. It may occur in the surrounding woodlands; it has been found on north VAFB (Keil and Holland, 1998), and near Point Sal (Smith, 1998). It has not been reported from the Miguelito Canyon area, although suitable habitat exists there. It was not seen, and is considered only moderately likely to occur, on the power line corridor portions of the LWEP where disturbance would occur.

Plant Species of Local Concern

Plant species of local concern addressed in this document include plants having fewer than 10 occurrences in Santa Barbara County, native trees, and lichens.

Plants with Fewer than 10 Occurrences in Santa Barbara County

The following species listed by the Central Coast Center for Plant Conservation (2005) as having fewer than 10 Occurrences in Santa Barbara County have some potential to occur in the project area (Olson and Rindlaub 2006). Several of the taxa that appear on this list of locally rare species may occur on the Project site; some were found in mesic habitats near the Project site. The following accounts are from Olson and Rindlaub 2006.

Seaside Agoseris (Agoseris apargioides). This species may occur in Middle Corridor, but the identification was doubtful. The elevation of the Project site may exceed the range for this species.

Seaside Heuchera (Heuchera pilosissima). This species was found in two locations, one in a seep along a small stream between Scolari and Signorelli benches and another in coastal scrub in the Sudden Peak area. This plant may be found along the power line corridor.

Pacific Coast Iris (Iris douglasiana). Pacific coast iris, near the southern limit of its range, is known from a site near Honda Canyon on VAFB with Bishop pines (Smith, 1998). It was not found during Project surveys, but could occur in cool, moist habitats crossed by the power line.

Sickle-leaved Rush (Juncus falcatus var falcatus). A small population of this species was found in the grassland/coastal scrub mosaic down slope of a small seep in Middle Corridor – South, where it probably would be traversed by Middle South Road. The limits of the population were not ascertained. This species may also occur downslope of other seep areas in similar soils, such as upper Signorelli Corridor and Middle Corridor - West.

Douglas' Pogogyne (Pogogyne douglasii). This small member of the mint family was recently found in heavy clay soil on a ridge northeast of Mount Tranquillon on VAFB (D. Wilken, Personal Communication). Smith notes another occurrence in serpentine near the head of Lompoc Canyon (Smith, 1998). Pogogyne was not found during the surveys, but could have been missed. It is at its southern distributional limit in the Project area and potentially occurs in poorly drained clay soils on the Project site, particularly those associated with wetland.

Canyon Gooseberry (Ribes menziesii). Gooseberries that could not be identified with certainty may be this species, which has been found in the Project area. Gooseberries were found on the old road linking Scolari and Signorelli benches. This plant may be found along the power line corridor.

California Globemallow (Sidalcea malvaefolia ssp californica). This species was recorded from south Middle Corridor - South, but no voucher was collected (Olson and Rindlaub 2006). Globemallows also were seen in South Corridor - Central and South Corridor - East.

Island Morning-glory (Calystegia macrostegia). This species was not observed during field surveys but it may potentially occur in the Project area within grassland habitats. It could occur in both the LWEP and PG&E power line corridors.

Native Trees

Native trees, including coast live oak (*Quercus agrifolia*), are protected under policies of the County of Santa Barbara. Forest habitat with oaks occurs just east of Sudden Bench - Northeast and north of the Project sites on Middle Corridor - North and Middle Corridor - Flank.

Lichens

The relatively humid coastal environment of the project region (western Santa Ynez Mountains near Point Conception) characterized by moist sea breezes and frequent fog is conducive to the growth of lichens. Lichens come in many colors and forms and may grow on trees, shrubs, rock and soil. Lichens are a combination of a fungus and an alga growing together, the fungus providing the body (thallus) of the plant and the alga doing the photosynthesis. Lacking roots, lichens depend largely or wholly on atmospheric moisture and rainfall. They receive their nutrients from dust deposition and nutrients dissolved in rainfall, or dew, and in water running across the stems, rocks, or soils on which they grow. Lichens have adaptations enabling them to survive prolonged periods of desiccation and temperature extremes during dry conditions and to become metabolically active as soon as they become moist again. Despite this seeming toughness, lichens are very sensitive to air pollution and many species have disappeared in the vicinity of urban areas as a result of air pollution.

Lichen identification in many groups requires detailed microscopic examination and laboratory analysis to identify diagnostic chemical compounds. As a result of the difficulties of identification and the relatively small number of scientists qualified to inventory lichens, lichen floras of different areas are not well known. In contrast to the higher plant flora of California, in which fully 30 percent of the 5,000 species are found nowhere else and many of which have very restricted ranges, the lichen flora of California is comprised of about 1,000 species with a much lower fraction being restricted to California, although some groups of crustose lichens may have a higher proportion of

species with restricted distribution (Hale and Cole 1988). Crustose lichens, in particular, are very poorly known.

3.5.4.2.2 Other Sensitive Wildlife Species

This section includes CDFG California Species of Special Concern, CDFG Watch List Species, CDFG Fully Protected Species, Species protected by the Bald and Golden Eagle Act, and Species Considered to be Locally Rare. The species accounts are arranged by taxonomic group (Amphibians, Reptiles, Birds, Mammals).

Western Spadefoot Toad (Spea hammondii). Similar to the California tiger salamander, the western spadefoot breeds in permanent and seasonal ponds and pools, but spends much of its life underground in small mammal burrows or deep cracks in the ground. The only seasonal pool is an impounded stock pond on the western portion of Sudden Corridor. This is an isolated pool in which only Pacific treefrog larvae were observed during the May 20, 2005, survey. This species is not expected to occur in the Project area due to the substantial distance to other reported occurrences of the western spadefoot toad and the lack of suitable habitat in the area.

Populations in this unit may also require special management or protection due to their potential importance in stabilizing populations in tributaries to the Santa Ynez River. The California red-legged frog is found in a variety of freshwater aquatic habitats, including ponds (natural and artificial), small reservoirs, and portions of streams and rivers with pools or slow-moving water. They are known from a number of locations on VAFB, including upper Honda Canyon, a number of smaller streams in the Lompoc area, and areas along State Route 1 (SR-1) between Lompoc and Las Cruces.

Coast Patch-nosed Snake (Salvador hexalepis virgultea). This species is considered to be locally rare in the western portions of Santa Barbara County. The coast patch-nosed snake is often found in scrub and chaparral habitats, but has a distribution that is generally east of SR-154. There have been recent sightings in the Lompoc region, including one in Vandenberg Village. Although not reported previously in the vicinity of the Project, the occurrence of this species is possible, especially in habitats with a shrub component.

Southwestern Pond Turtle (Emys marmorata pallida). The southwestern pond turtle is a California Species of Special Concern. Similar to red-legged frogs, this species uses areas with permanent surface water, such as ponds, reservoirs, and slow-water pools in streams. Basking sites that protrude above the surface of the water (such as rocks, logs, downed trees, and mats of aquatic vegetation) are an important component of the habitat. Pond turtles are also found occasionally in nearby upland areas during nesting and winter. Loss of and disturbance to wetlands and riparian zones have caused this species to decline in numbers and distribution.

This species is known to occur in creeks and ponds in northern Santa Barbara County. It occurs at a number of locations on VAFB. It is unlikely that southwestern pond turtles occur in or near the Project area due to a lack of permanent surface water.

Two-striped Garter Snake (Thamnophis hammondii). This species is a California Species of Special Concern. Two-striped garter snakes are found in a variety of aquatic habitats, including creeks, streams, ponds, and reservoirs. Aquatic and riparian vegetation is used as cover. This species is

known to occur in coastal northern Santa Barbara County, including VAFB and in the vicinity of the Project site.

Habitat for two-striped garter snakes in and near the Project area is very limited. One area of North Corridor - East would cross over a seasonal drainage that includes marginal habitat for this species. An access road leading to parts of the South Corridor and West Corridor crosses a seasonal drainage with limited riparian scrub habitat. In addition, artificial impoundments on the western portion of Sudden Corridor and on Middle Corridor represent at least seasonal habitat for this species. The occurrence of two-striped garter snakes at the streams is possible, but unlikely; the habitat quality is marginal, and the duration of surface water is unknown. The pond represents better quality habitat, but persistence of surface water in that impoundment is unknown, and the pond is isolated from other areas of potential habitat.

California Horned Lizard (Phrynosoma coronatum). The California horned lizard is a California Species of Special Concern. Habitat loss has occurred in many parts of the range of this species due to residential development and other factors, such as conversion to cultivated agriculture. Horned lizards are active above-ground primarily between April and October with activity concentrated in April through June. Preferred habitat includes loose, sandy loam and sandy-gravelly soils supporting scattered shrubs and an open canopy, including riparian woodland, riparian scrub, coastal sage scrub, open areas in chaparral, and annual grassland.

This species occurs in many habitats on VAFB. In the vicinity of the Project area, California horned lizards could occur at locations that are inland enough to be away from persistent convection fogs that blanket western and southern coastlines of Santa Barbara County. This would include most portions of the Project area that contain combinations of annual grassland and Central Coast scrub.

Silvery Legless Lizard (Anniella pulchra pulchra). The silvery legless lizard is a California Species of Special Concern. There have been recent estimates of the loss of approximately 20 percent of the historic range of this species (Jennings and Hayes, 1994). Factors in habitat loss include urbanization, conversion to intensive agriculture, coastal dune development, and the introduction of non-native plants, such as veldt grass (*Ehrharta calycina*), ice plant (*Carpobrotus edulis* and related species), eucalyptus, and other invasive species that displace native vegetation and create unsuitable microhabitat conditions for silvery legless lizards. This species is very limited in its mobility. It is quite long-lived, having survived in captivity for up to 7 years. Reproductive maturity is reached at 2 to 3 years. Adult females bear from one to four (usually one) live young between September and November (Goldberg and Miller, 1985). Suitable habitat occurs in portions of the Project area that contain Central Coast scrub and annual grassland that has elements of Central Coast scrub.

Golden Eagle (Aquila chrysaetos). This species is a California Species of Special Concern and a fully protected species in California. In addition, it is protected by the Bald and Golden Eagle Act. Golden eagles use open areas and semiopen woodlands. They often forage over large expanses of grassland. This species is considered to be rare in the Lompoc region; however, there are records in the Project vicinity. Three were observed in the Oak Mountain region during August and September 1990. This species occurs year-round on VAFB. Data collected and compiled by Holmgren and Collins in 1999 include sightings primarily around the mouth of the Santa Ynez River and the Point Sal area. However, there were at least six sightings in Miguelito Canyon and

Sudden Canyon, and near Sudden Peak and Oak Mountain, during 1994 and 1995. The 1994 report near Oak Mountain was of a nesting pair.

Tetra Tech reported that golden eagles had nested in the vicinity of an Oak Mountain road repair project (TetraTech, 1999b). VAFB wildlife biologist Nancy Read noted that one or two pairs have nested in that area consistently over the past several years. She indicated that the Oak Mountain area is one of the few locations in northern Santa Barbara County where golden eagles are consistently observed (T. Olson, 2002). A pair was observed while conducting surveys on VAFB in the vicinity of the Project site (Olson and Rindlaub, 2006).

During the Olson and Rinlaub surveys for this Project, five golden eagles were sighted. Two individuals were observed near the junction of San Miguelito Road and Sudden Road. An immature golden eagle was observed on June 20, 2002. The other observation was an adult flying overhead on April 15, 2005. Three individuals were observed in the Signorelli Ridge/South Corridor area in December 2006 and one immature individual was observed over the site on February 18, 2008 by SAIC during a site reconnaissance. This species also was observed during Sapphos' Winter and Spring 2008 surveys. These surveys yielded three golden eagle observations: one immature, one sub-adult, and one adult. These observations were made over three separate surveys. Golden eagles occurred over all habitats throughout the LWEF site, depending on their activities, but were most frequently detected foraging over open habitats such as non-native grassland. Sapphos did not detect any nesting for this species during their 2007-2008 surveys. They report that, although not confirmed, one pair may nest nearby in the vicinity of Tranquillon Peak on VAFB. This species was observed and is expected to fly within wind turbine blade swept heights of approximately 130 to 400 feet at the LWEF site.

Golden eagles were observed to forage over large expanses of open habitat (mostly grassland) throughout the Project area. The foraging habitat for this species within the Project area is small compared to territory size. Natural vegetation within the Project area is about 3,000 acres. Adjacent and nearby properties with significant areas of natural vegetation include south VAFB (about 30,000 acres) and Bixby Ranch (more than 10,000 acres). Studies have shown that golden eagles occupy large territories. Dixon estimated the average size of golden eagle territories in a study conducted in San Diego County to be 93 square kilometers (36 square miles = 23,040 acres) (Dixon, 1937), while another study reported an average territory size of 124 square kilometers (48 square miles = 30,720 acres) for golden eagles in northern California (Olson and Rindlaub, 2006).

White-tailed Kite (Elanus leucurus). This is a locally rare species and a fully protected bird in California. White-tailed kites are an uncommon resident of the Lompoc area. They forage over relatively open areas, including grassland and agricultural land. Communal roosts used in the fall and winter are established in a variety of settings, including stands of oak and eucalyptus trees.

Most nesting occurs between March and July. This species has been observed nesting in the Lompoc region (Olson and Rindlaub, 2006; Holmgren and Collins, 1999). None of the records compiled by Holmgren and Collins were in the vicinity of the Project area. An individual white-tailed kite was observed during Survey 3 at Point 18 from Signorelli Ridge and South Corridor. One white-tailed kite was observed during Spring 2008 surveys by Sapphos. The kite was observed foraging at low heights.

Foraging habitat for this species occurs in annual grassland and agricultural field throughout the Project area, including the vicinities of the Project Substation and maintenance station. Some portions of the Project area are nearby potential roosting and nesting habitat, including the eastern part of Sudden Corridor and portions of North Corridor - East and Middle Corridor - Flank, and Sudden Corridor –Northeast.

Western Burrowing Owl (Athene cunicularia). The burrowing owl is a California Species of Special Concern. Burrowing owls use large expanses of grassland and agricultural areas. The burrows used for roosting and nesting are primarily those initially excavated by California ground squirrels. Lehman (1994) states that the burrowing owl is almost extirpated in Santa Barbara County due to conversion of grassland habitat, rodent control, and pesticide usage. In the petition to list this species under the California Endangered Species Act (CESA), the Center of Biological Diversity, et al. (2003) also described the status of burrowing owls in Santa Barbara County as "nearly extirpated." In the Lompoc area, this species is considered to be an uncommon but regularly observed species during nonbreeding months of the year.

Wintering birds and transients are regularly sighted on VAFB, primarily between November and April (Tetra Tech, 1999b). A previous sighting in 1997 was within 1 mile of the Oak Mountain Road Repair Project site, but not at the time of the work was underway. There have been no reports of burrowing owl nests on VAFB since 1980. Despite the lack of nesting records, Holmgren and Collins indicated there was "significant use of suitable habitat on the base by migrants and winter visitors." During that study, there were 47 sightings at 31 different locations in grassland and coastal scrub habitats. Included among the 31 localities were 4 on East Honda Ridge, 12 on the Sudden Ranch, and 1 sighting at Oak Mountain (Holmgren and Collins, 1999). Suitable wintering habitat occurs in the Project area in annual grassland and Central Coast scrub habitats. Burrowing owls were observed throughout the Sapphos winter surveys with burrows remaining active during the entire Winter 2008 survey, with at least two individuals (based on four observations) observed occupying two separate burrows.

Grasshopper Sparrow (Ammodramus savannarum). The grasshopper sparrow is considered regionally rare; it does not have other sensitive classifications. This species is found in extensive grassland areas with scattered shrubs, often coyote brush. The shrubs and other taller plants are used as perches. It is considered an uncommon and local summer resident in the Lompoc area.

Among observations made in 1995 and 1996 on VAFB, 12 were near Oak Mountain, Sudden Peak, Honda Ridge, and upper Honda Canyon (Holmgren and Collins, 1999). On two occasions, either juveniles or fledglings were observed, including: (1) on a ridgeline between Sudden Peak and Oak Mountain; and (2) west of the junction of Tranquillon Mountain Road and Arguello Boulevard.

During surveys conducted for this study, grasshopper sparrows were observed on May 31, June 30, and July 21, 2002, as well as during four of the 2005 surveys (April 15, May 4, June 12, and June 16). The highest number observed was nine on June 16, 2005. The observations were in grassland areas at the bases of and partway up hills in the following areas: South Corridor - Central, Middle Corridor - North, Quarry Ridge, Sudden Corridor - East, and Sudden Bench - Northeast. The 2006 survey yielded a sighting of this species in annual grassland. Sapphos documented occurrences of grasshopper sparrow during most weeks of their Spring 2008 survey. An explosion in observations occurred in early May, with 55 recorded observations during a three day period. These birds are widely distributed throughout the LWEP site at all elevations.

Northern Harrier (Circus cyaneus). This species is a California Species of Special Concern. Northern harriers use a variety of open habitats, such as grassland, coastal sage scrub, wetland areas, and agricultural lands. In the Lompoc area, this species is considered to be rare during the breeding season and uncommon for the remainder of the year. Holmgren and Collins compiled numerous sightings on VAFB, including several with evidence of nesting. Four of the observations were in the vicinity of the Project area; however, none included signs of nesting (Holmgren and Collins, 1999). Northern harriers were observed on nearby VAFB property and are believed to be present in low numbers in the vicinity (Olson and Rindlaub, 2006).

An adult female was sighted by Olson and Rindlaub on April 15, 2005, soaring low to the ground along Quarry Ridge. This species could occur in the Project area on infrequent occasions but is not expected to nest in the vicinity. Relatively open areas throughout the Project area, including grassland, open Central Coast scrub, and agricultural field, provide potential foraging habitat for this species. In September 2006, a harrier was sighted in annual grassland and Central Coast riparian scrub. Two individuals were seen at Points 5 and 18 at Middle Corridor South and Signorelli Ridge, respectively, during Surveys 2 and 3 in December 2006. This species also was observed along the power line corridor in September 2006. Northern harriers were observed flying low over the ground foraging for food during the Spring Sapphos 2008 surveys.

Long-eared Owl. Nocturnal owls had not been surveyed at the LWEF study area until early February 2008, when a resident pair of great horned owls (*Bubo virginianus*) was documented in the main valley at the western end of the LWEF study area. The nocturnal long-eared owl, which are preyed upon by great horned owls, may occur at the LWEF study area where its probable status is very rare or rare. Only one bird (26 December 1996) has been reported at VAFB, until recently, and one bird was reported on the La Purisima CBC over 10 years from 1998 through 2007. However, a winter roost of 8 to 12 long-eared owls was recently observed at Cañada Honda Creek, but Sapphos reports that the exact area referred is uncertain.

Loggerhead Shrike (Lanius ludovicianus). The loggerhead shrike is a California Species of Special Concern. This species is found in grassland, oak savanna, scrub habitats, open riparian zones, and agricultural areas. It is an uncommon year-round resident along the northern coast of Santa Barbara County. In the Lompoc area, it is considered common in fall and winter and uncommon, but regularly observed, in spring and summer. Among numerous sightings on and near VAFB compiled by Holmgren and Collins were observations in upper Honda Canyon and Sudden Canyon, as well as along lower Honda Ridge Road and near Oak Mountain. The Oak Mountain sighting was reported by Nancy Read and included one to two pairs. The Holmgren and Collins report included nine sightings in 1995 and 1996 with evidence of nesting. None of the observations reported by Holmgren and Collins was in or near the Project area (Holmgren and Collins, 1999).

No loggerhead shrikes were observed during 2002 and 2005 surveys conducted for this study. Suitable foraging habitat occurs in the Project area in areas of open Central Coast scrub and at the margins of that habitat and annual grassland. Based on previously collected data, nesting by this species in or near the Project area is likely. A loggerhead shrike was observed in September 2006 within grassland habitat, and an incidental sighting of one occurred in December 2006 during Survey 2.

Vaux's Swift. An agile aerial insectivore; Vaux's swift is an uncommon spring and autumnal migrant at VAFB. Vaux's swift is anticipated to be an uncommon migrant at the LWEF study area,

even though populations are declining in western North America due to the dwindling old growth forest of the Pacific Northwest, where Vaux's swift breeds. Vaux's swifts were documented by Sapphos in the Spring of 2008. Two observations were made including one observation of three individuals.

Mountain Plover. The mountain plover is a rare nonbreeding visitor in Santa Barbara County, including VAFB where as many as 27 birds have been seen, although it is probably regular on the Santa Maria river plain. The mountain plover may occur at the LWEF study area on short-grass nonnative grasslands where project development would be concentrated or at the three small arable fields. However, the plover would be expected to be a scarce transient at the LWEP study area.

Yellow Warbler (Dendroica petechia). The yellow warbler is a California Species of Special Concern. It breeds in riparian areas, usually in relatively dense willow shrubs. Lehman described this species as a fairly common summer resident in the North Coast region of Santa Barbara County. In the Lompoc area, yellow warblers are considered to be common during spring and summer, especially near riparian and wetland areas (Lehman, 1994).

During surveys for this study, there were observations of yellow warblers on three dates: May 31, 2002; April 13, 2005; and May 20, 2005. A total of four individuals were sighted during the surveys conducted for this Project. All were in arroyo willows along small drainages. Based on survey results, the number of yellow warblers in the construction zone is expected to be small. Potential habitat occurs along small drainages and around some seeps and wetlands in Sudden Corridor, West Corridor, South Corridor, and the West Access Road to North Corridor. Yellow warblers were observed often (during every week but one of the Sapphos 2008 surveys) along Lower Honda Creek. Most observations were of singing males.

Tricolored Blackbird (Agelaius tricolor). The tricolored blackbird is a California Species of Special Concern. This species is usually found in scattered, large colonies that use dense stands of bulrush *(Scirpus* spp) and cattails *(Typha* spp) for roosting and nesting. This species often forages in agricultural fields and grasslands grazed by cattle. Nesting occurs between April and early July. The species is uncommon to common in portions of Santa Barbara County, but highly localized in distribution. In the Lompoc area, tricolored blackbirds are considered rare during breeding season and uncommon during other seasons of the year. Wintering concentrations occur in the Santa Maria Valley and on VAFB.

Important locations for this species on VAFB include Mod III Pond, Punchbowl Pond, Barka Slough, San Antonio Creek, the Santa Ynez River, Wildflower Wetland, Live Oak Spring, and the Waterfowl Management Ponds. Other sightings, including those of groups foraging in upland areas, have been scattered and not repeated. The closest observations to the Project area reported by Holmgren and Collins were in grasslands along Sudden Road, about 0.5 miles south of the base boundary (Holmgren and Collins, 1999). During surveys for this study, a group of approximately 12 was observed on May 31, 2002, in grasslands along the existing access road in Middle Corridor. An earlier sighting included a flock of about 30 on May 6, 2002. No tricolored blackbirds were observed during the 2005 surveys. This species is not expected to breed in the Project area due to a lack of suitable nesting habitat; however, suitable foraging sites occur in the Project area in grasslands on relatively level terrain and on gently sloping hillsides.

Yellow-breasted chat. The yellow-breasted chat breeds in riparian areas in Santa Barbara County, including VAFB in areas such as Cañada Honda Creek where it is uncommon; the yellow-breasted chat also occurs as a spring and autumnal migrant. The LWEF study area likely lacks suitable breeding habitat for yellow-breasted chat because the riparian habitat is not extensive enough to support breeding habitat and has been degraded as a result of cattle grazing. However, the yellow-breasted chat could occur at the LWEF study area as an uncommon migrant. One observation of a yellow-breasted chat was made during the Spring 2008 Sapphos survey.

California Rufous-crowned Sparrow (Aimophila ruficeps ruficeps). The California rufous-crowned sparrow is considered to be rare in the region and is on the CDFG Special Animals List (CDFG 2008) Watch List). It does not have other sensitive classifications. This species uses dry, open areas of scrub and grassland habitats. Shrub cover is usually interspersed with patches of bare ground or grass and forb cover. Rufous-crowned sparrows often are observed around sparsely vegetated areas around road cuts. On South VAFB, this species was frequently observed on south-, east-, and west-facing slopes of hills and ridges, as well as on high ridges between Sudden Peak and Oak Mountain (Holmgren and Collins, 1999).

This species is considered an uncommon resident species in coastal sage scrub in the Lompoc-VAFB area of Santa Barbara County. During 1995 and 1996 surveys conducted for the Holmgren and Collins report, there were 19 rufous-crowned sparrow sightings in the vicinities of Oak Mountain, Honda Ridge, and Sudden Peak. The observations were made in March, April, May, June, and October. Three observations in June 1996 in the Sudden Peak to Oak Mountain area were of fledglings and adults carrying food; these sightings and activities indicate that these birds were nesting in the area. Overall, there were 397 rufous-crowned sparrows and 218 territories identified on South VAFB during the 1995 and 1996 surveys. Among the more abundant sites were the eastern end of North Honda Canyon Ridge and high ridges between Sudden Peak and Oak Mountain (Holmgren and Collins, 1999).

During surveys conducted for this study, rufous-crowned sparrows were observed on May 31, 2002, and September 25, 2002. Both sets of observations were of adults, including two on May 31 along West Corridor and one on September 25 along Sudden Bench – Northeast. In 2005, rufous-crowned sparrows were observed on May 4 and June 16 along North Corridor – Central, North Corridor –East, and Sudden Bench – Northeast.

Suitable habitat also occurs on hillsides with Central Coast scrub along the following corridors: South Corridor, portions of West Corridor, Quarry Ridge, Quarry Flank, and Signorelli Corridor. Two individuals were observed at Middle Corridor at Points 5 and 6 during Survey 1 in December 2006. California rufous-crowned sparrows were observed during the Winter and Spring 2008 surveys by Sapphos.

Sharp-shinned Hawk (Accipiter striatus). The sharp-shinned hawk is a California Species of Special Concern. This species occurs in woodlands and at interfaces between wooded and open habitats. In the Lompoc area, it is an uncommon winter visitor. Lehman reported that only one probable nesting has been documented in Santa Barbara County (Lehman, 1994).

No sharp-shinned hawks were observed during the surveys for this study during 2002 or 2005. This species could potentially occur on an uncommon basis during fall and winter at edges of annual grassland and mixed evergreen forest. Locations are northeast of Middle Corridor and Sudden

Corridor. Nesting by sharp-shinned hawks is not expected in the Project area. In 2006, a sharp-shinned hawk was observed in grassland habitat. Sharp-shinned hawks were observed during the Winter and Spring 2008 surveys by Sapphos. Single birds were observed hunting on three days (February 5, March 13, and March 18) at low heights above ground (< 100 feet) in the Honda Creek valley or along the South Ridge. The single birds were adults, when the age could be determined (2 of 3 times). Sharp-shinned hawks occurred over all habitats throughout the LWEF site depending on their activities. No sharp-shinned hawks were observed to fly within wind turbine blade swept heights of approximately 130 to 400 feet.

Cooper's Hawk (Accipiter cooperi). This species is a California Species of Special Concern. Cooper's hawks use woodlands, riparian areas with openings, and some open habitats, including agricultural fields. In the Lompoc area, this species is a rare breeding species and uncommon during other seasons of the year. During a study of La Purisima Mission State Historic Park in 2004, there were several observations of this species, including one successful nest (Olson and Rindlaub, 2006). Among many reported observations compiled by Holmgren and Collins (1999) were: (1) one along Lower Honda Ridge Road in September 1994; and (2) a probable nesting near Upper Honda Creek (an adult carrying food) in June 1996. During the surveys for this study, one adult was observed on September 25, 2002, and another on May 20, 2005. The 2002 sighting was in mixed evergreen forest northeast of Middle Corridor - Flank. The 2005 sighting was near a small patch of woodland adjacent to a seep on the western portion of Sudden Corridor - West. Suitable habitat for this species occurs in the Project area, primarily in and around areas of mixed evergreen forest northeast of Middle Corridor - Flank and Sudden Corridor - East. In December 2006 during Survey 2, an individual was sighted in Signorelli Corridor flying relatively low to the ground at a height of 4 to 5 meters. During the winter 2008 Sapphos surveys, two observations were made on consecutive weeks. The spring 2008 surveys also by Sapphos, resulted in observations every week. This included a mated pair attending to a nest along Lower Honda Creek. Sapphos reports another nest is likely to be located in oak woodlands along South Miguelito Canyon Road. Additionally, two inactive Cooper's hawk nests have been found on the site.

Ferruginous Hawk (Buteo regalis). The ferruginous hawk is a California Species of Special Concern. This species occurs in open areas, mostly grassland and agricultural areas in parts of Santa Barbara County, where it is uncommon in the fall and winter. Although most county observations are made in the Cuyama Valley, small numbers of ferruginous hawks frequent the Lompoc/VAFB region each winter. This species is not known to nest in Santa Barbara County.

There are 36 observations of ferruginous hawks in and near VAFB in Holmgren and Collins (1999), including an October 1996 sighting by Paul Collins in the Oak Mountain area. There are no nesting records for this species in the vicinity of the Project area. No ferruginous hawks were observed during the Olson and Rindlaub spring and summer surveys conducted for this site. Foraging habitat occurs in open annual grasslands in the Project area. One ferruginous hawk was observed during midday, flying at approximately 40 meters from Middle Corridor – North, during Survey 3 of the December 2006 survey. One adult bird (light-morph) was observed foraging low along the North Ridge during the Sapphos winter 2008 surveys.

Merlin (Falco columbarius). This species is a California Species of Special Concern. Merlins occur in open habitats, such as agricultural fields, grasslands, wooded wetlands, and beaches. This species is a rare winter visitor along the northern coast of Santa Barbara County. Holmgren and Collins (1999)

compiled a list of 25 sightings on VAFB between 1980 and 1996. Most of those observations were either near the mouth of the Santa Ynez River or the waterfowl management ponds. However, one February 1996 sighting by Kathleen Whitney was at Sudden Flats, about 0.5 miles west of Sudden Canyon. There are no records of merlins nesting in Santa Barbara County.

No merlins were observed during the surveys conducted for this study. This species could potentially occur in the Project area on a rare basis during the winter. Nesting by merlins is not expected in or near the Project area.

California Horned Lark (Eremophila alpestris actia). The California horned lark is a California Species of Special Concern. It occurs mostly in open areas with short vegetative cover, including fallowed cropland, dunes, and short grassland. This species is still considered a fairly common nesting species in North Coast areas of Santa Barbara County, especially around Lompoc and Santa Maria. Numbers of this species in the fall and winter are higher due to an influx of migrants from elsewhere.

During surveys conducted for the Holmgren and Collins report, there were several observations of this species on Honda Ridge, Sudden Road (to the base of Tranquillon Peak and near the junction with San Miguelito Road), and near the Oak Mountain gate. The observation near the Oak Mountain gate was of a female with a "broken wing" display, indicating that an active nest was nearby (Holmgren and Collins, 1999).

California horned larks were commonly observed during five of the six Project surveys in 2002 (May 31, June 30, July 21, August 23, and September 25). The highest count for one survey in 2002 was 20 on August 23. Nests were found on May 31 and June 30, 2002, on West Corridor, North Corridor - East, and Middle Corridor - Flank. In general, nests were established on relatively level areas with very short grass cover.

This species was noted in 2005 during surveys conducted on April 15, June 12, June 16, and August 26. During the August 26, 2005, survey, this species was especially common along Middle Corridor - South; a total of 27 California horned larks were observed during that survey. Based on observations made in 2002 and 2005, other areas also contain suitable nesting habitat, including South Corridor - East, South Corridor - Central, the new access road leading from San Miguelito Road to North Corridor, Sudden Bench - Northwest, and Sudden Corridor – West. Several individuals were observed during all three December 2006 surveys at Sudden Bench, and Quarry, Middle, North, Signorelli, South, Scolari, and West corridors. Horned larks were also observed every week (often in large numbers) throughout the Sapphos surveys of 2008, including singing males in some of the ruderal fields. The horned lark was the most frequently recorded species on area search counts (25 of 108 counts, 23 percent). Horned lark was also the most abundant species on area search counts (150 birds), with six counts of flocks of 8 to 33 birds. Horned larks were widely distributed along all surveyed ridgelines on proposed impact areas (except for the northern portion of the Larsen landholding), with flocks as high as 41 birds. Sapphos reports that some horned larks were paired on territory as early as early February.

Bell's Sage Sparrow (Amphispiza belli). This species is a California Species of Special Concern. In the Lompoc area, it is an uncommon and local resident of chaparral on VAFB and La Purisima Mission, as well as in the vicinity of Vandenberg Village. Nearly all observations made during the Holmgren and Collins studies were in Burton Mesa chaparral. By comparison, only one sage

sparrow was sighted in coastal sage scrub. Areas of Burton Mesa chaparral that had burned within the previous 15 years contained the highest densities of individuals. Sightings on La Purisima Mission State Historic Park were mostly in chaparral, but also included some in coastal sage scrub (Holmgren and Collins, 1999; Olson and Rindlaub, 2006).

Most of the sightings made in 1995 and 1996 were on North VAFB. The closest subpopulation to the Project area was on the south slope of the west end of Honda Ridge, off Avery Road (Holmgren and Collins, 1999). There were no new territories identified in the Project area. No Bell's sage sparrows were observed in 2002 and 2005.

Long-billed Curlew (Numenius americanus). The long-billed curlew is generally an uncommon transient in Santa Barbara County, rarer in winter, although important localities along the coast where it can be locally abundant include the Santa Maria River floodplain and river mouth and other beaches along VAFB. During winter avian surveys of resident and temperate zone migrants, Sapphos observed one long-billed curlew flying over low elevation nonnative grasslands outside the project development footprint on February 6, 2008. The long-billed curlew may occur at the LWEF study area at the three arable fields where project development would not occur. The long-billed curlew would be expected to be a scarce transient at the LWEF study area.

American Badger (Taxidea taxus). This species is considered locally rare. Formerly, it was included on the list of California Species of Special Concern. This species is found in a variety of nonwooded habitats, including grassland and scrub habitats. Badgers often dig and use several dens, even in the course of a single month. Areas frequented by badgers are often marked by abundant evidence of digging activity, which includes not only dens, but also attempts to dig out Botta's pocket gophers (*Thomomys bottae*) and California ground squirrels. Those two small mammal species are principal prey items for badgers.

Although declining in general, badgers still occur in many areas of northern Santa Barbara County. During surveys conducted for this study in 2002, badger dens and digging evidence were found in annual grassland habitat on May 31, July 21, and August 23. Inactive burrows were also observed in grassland during 2005 surveys on May 4, May 20, and August 28. The locations of the observations were along West Corridor, Signorelli Corridor, and Sudden Corridor. There is potential for this species to occur in grassland areas throughout the Project area, including the vicinity of Project Substation Alternatives 1 and 2 and the O&M facility.

Western Mastiff Bat (Eumops perotis). The western mastiff bat is a California Species of Special Concern. It occurs throughout much of California up to about 8,900 feet (2,713 meters) elevation. Western mastiff bats frequent a variety of habitats, including desert scrub, oak woodland, chaparral, and ponderosa pine forest (Pierson et al., 2002). They forage mostly on moths while in flight (sometimes up to 1000 feet (304.8 meters) above the ground).

During surveys conducted from 1997 to 1999, this species was detected acoustically on VAFB only three times, all in upper Honda Canyon; one bat was observed flying down canyon. Pierson et al. believe those individuals may have come from a roosting site well away from the base. It appears that the western mastiff bat is not a resident of the base (Piersen et al., 2002). As such, its only potential occurrence in the Project area would be during foraging on very rare occasions. No western mastiff bats were detected during the 2008 surveys conducted by the CCBRG.

Pallid Bat (Antrozous pallidus). The pallid bat is a California Species of Special Concern. This species uses a variety of habitats ranging from deserts to oak and redwood forests. Pallid bats roost in crevices, such as openings in rock outcrops, mines, caves, hollow trees, buildings, and bridges. Within the Central Coast region, they forage in both open woodlands and wooded canyons for arthropods, including beetles and grasshoppers.

During surveys conducted from 1997 to 1999 on VAFB, this species was found at 19 sampling locations (Pierson et al., 2002). It was the sixth most abundant bat species on base. The only significant population was found in Upper Honda Canyon. Swordfish Cave was used as a day and night roost by a maternity colony of about 40 to 50 adult females, a few adult males, and young bats. Bats from Upper Honda Canyon often foraged in tanoak habitat on ridges and in coast live oak (*Quercus agrifolia*) habitat in Honda and Miguelito creeks. This species apparently relies on cave habitat on base. Because cave habitat is lacking, pallid bats are unlikely to roost in the Project area; however, foraging habitat occurs in mixed evergreen forest, especially those locations on hillsides characterized by tanoak. Such areas occur northeast of Sudden Corridor and North Corridor. Two pallid bats were detected during the acoustic sampling site during the 2008 CCBRG studies.

Townsend's Big-eared Bat (Corynorhinus townsendii). The Townsend's big-eared bat is a California Species of Special Concern. It is quite widely distributed through the region, occurring in habitats ranging from deserts to coastal scrub and woodland. It roosts primarily in mines, caves, and buildings. Townsend's big-eared bats feed on small moths and a variety of other insects.

During surveys conducted from 1997 to 1999, big-eared bats were found in 16 day-roosts (Pierson et al., 2002). Most of the roost sites were near oak-dominated drainages and canyons. A total of 29 individuals were captured. No maternity roosts were found on VAFB. This species is not expected to roost in the Project area due to a lack of cave and mine habitat; however, foraging habitat occurs in wooded areas similar to those described above for pallid bat (*Antrozous pallidus*). This species was not detected during the 2008 surveys conducted by the CCBRG.

Western Red Bat (Lasiurus blossevillii). The red bat has been proposed for future listing as a California Species of Special Concern. There are scattered records of red bat occurrence in central and southern California where they use low elevation riparian habitats. They roost under the cover of overhanging leaves of sycamore and cottonwood trees, as well as in orchards. This species forages while in flight on a variety of insects.

During surveys in 1997 to 1999, this species was detected throughout VAFB, primarily in creek drainages along San Antonio Creek, the Santa Ynez River, and lower and upper Honda Canyon. It was also detected in wetland areas and foraging along rows of eucalyptus trees. Due to a lack of riparian habitat, this species is not expected to roost in the Project area. Foraging habitat in the Project area is limited to the eucalyptus groves and seeps along South Corridor, Signorelli Corridor, and Scolari Corridor. No western red bats were detected during the 2008 surveys conducted by the CCBRG.

San Diego Desert Woodrat (Neotoma lepida). The San Diego desert woodrat is a California Species of Special Concern. This species is known to inhabit scrub habitats, such as coastal sage scrub. Its distribution tends to be on the west side of Coast Ranges from San Diego County north to at least San Luis Obispo County. Several individuals were live-trapped at La Purisima Mission State

Historic Park in 2004 (Olson and Rindlaub, 2006). Recently, this species was also live-trapped near Montana de Oro State Park in San Luis Obispo County.

Unlike dusky-footed woodrats, San Diego desert woodrats do not construct large stick nests. This species normally occupies openings in rocks, vegetation (such as openings among patches of cactus), and even debris. Sometimes small stick nests are built within an opening or crevice. Portions of the Project area that contain coastal sage scrub with occasional rocky areas could be used by this species. These areas include West Corridor, North Corridor, Scolari Corridor, Signorelli Corridor, and the slope that links Signorelli and Scolari corridors.

Locally Rare Species

Although no formal Federal or California State designation is attributed, several species present or expected to be present on the LWEF are considered to be locally rare:

- Short-eared owl (Asio flammeus)
- Olive-sided flycatcher *(Contopus cooperi)*
- Rock wren (Salpinctes obsoletus)
- Swainson's thrush *(Catharus ustulatus*)
- Blue grosbeak (Passerina caerulea)
- Common poorwill (Phalaenoptilus nuttallii)

3.5.4.3 Summary of Listed and Other Sensitive Species Occurrences on the Project Site

Listed and other sensitive species observed at the Project site during the various Project surveys are listed in Table 3.5-6. The status and distribution of these species are summarized above in tables 3.5-4 and 3.5-5.

TABLE 3.5-6
Summary of Listed and Other Sensitive Species Observed in the Project Site

Name	2002	2005	2006	2007	2008
Plants					
Gaviota tarplant (*Dienandra increscens* ssp *villosa*)	X	X	X		
Mesa horkelia (*Horkelia cuneata* ssp *puberula*)	X	X			
Kellogg's horkelia (*Horkelia cuneata* ssp *sericea*)	X	X			
Western dichondra (*Dichondra occidentalis*)	X	X			
Seaside agoseris (*Agoseris apargioides*)	X	X			
Sickle-leaved rush (*Juncus falcatus*)	X	X			
California globemallow (*Sidalcea malvaefolia* ssp *californica*)	X	X			
Birds					
White-tailed kite (*Elanus leucurus*)			X		X
Golden eagle (*Aquila chrysaetos*)	X	X	X	X	X
Northern harrier (*Circus cyaneus*)		X	X	X	X
Sharp-shinned hawk (*Accipiter striatus*)	X	X			X
Cooper's hawk (*Accipiter cooperii*)	X	X	X		X
Ferruginous hawk (*Buteo regalis*)			X		
Peregrine falcon (*Falco peregrinus*)			X	X	X
Long-billed curlew (*Numenius americanus*)					X
Western burrowing owl (*Athene (=Speotyto) cunicularia hypugea*)					X
Vaux's swift (*Chaetura vauxi*)					X

TABLE 3.5-6
Summary of Listed and Other Sensitive Species Observed in the Project Site

Name	2002	2005	2006	2007	2008
California horned lark (*Eremophila alpestris actia*)	X	X	X	X	X
Loggerhead shrike (*Lanius ludovicianus*)			X	X	
Yellow-breasted chat (*Icteria virens*)					X
California rufous-crowned sparrow (*Aimophila ruficeps ruficeps*)	X	X	X		X
Bell's sage sparrow (*Amphispiza belli belli*)	X	X	X		
Grasshopper sparrow (*Ammodramus savannarum*)	X	X	X		X
Tricolored blackbird (*Agelaius tricolor*)	X				
Mammals					
American badger (*Taxidea taxus*); den and burrowing evidence	X	X	X		

3.5.5 Wetlands and Other Sensitive Aquatic Features

Wetlands and other sensitive aquatic features described in this section include those areas that may be subject to regulation under Section 404 of the Clean Water Act (CWA) and Section 1600 of the California Department of Fish and Game Code. Wetlands are defined differently by different regulating agencies; however, all definitions are based on the presence of wetland hydrology, hydric soils, and/or hydrophytic plants. The U.S. Army Corps of Engineers (USACE) requires all three indicators to be present; CDFG, County of Santa Barbara, and U.S. Fish and Wildlife Service require only one indicator to be present. Features that are subject to Section 404 of the CWA include those areas that are "inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas" (EPA, 40 CFR 230.3 and USACE, 33 CFR 328.3). Jurisdictional wetlands are a subset of Waters of the U.S., which include, in addition to wetlands as defined above, areas subject to the ebb and flow of the tide; traditional navigable waters; relatively permanent tributaries to traditional navigable waters; and other waters that may affect the chemical, physical, or biological integrity of a traditional navigable waters. Frequently the term "wetlands and other Waters of the U.S." is used when describing areas under USACE jurisdiction.

As noted above, CDFG and the County of Santa Barbara define wetlands by the predominance of hydrophytic plants, the occurrence of undrained hydric soils or well defined wetland hydrology. This broader definition generally includes riparian corridors associated with streams and other less permanent features.

Potential State and Federal wetlands or other jurisdictional features in the vicinity of the proposed project can be characterized as the following: streams and riparian corridors associated with proposed improved road crossings, wetland features at the proposed O&M facility and staging area building sites, and naturally occurring seeps and associated riparian/hydrophytic vegetation within the proposed WTG corridors. Proposed stream crossings were delineated in January 2008 for both State of California and USACE jurisdiction (Sapphos 2008 MFR 10), and the proposed building sites were delineated in 2008 (Sapphos 2008 MFR 16) for the same. Because the locations of specific WTGs would be determined as part of the design phase of the project, no formal delineation has been completed for the WTG corridors; however, potential wetlands have been identified based on project specific vegetation mapping, the National Wetlands Inventory, and field reconnaissance, and represents an adequate baseline for the assessment of impacts. Formal wetland delineations for all areas within the WTG corridor that are potentially subject to CDFG/USACE jurisdiction (based on the presence of hydrophytic vegetation) would be completed following the

final design location of specific WTGs. Wetland features are shown in Figure 3.5-6 and described in more detail below.

3.5.5.1 Stream Crossings

Potential State and Federal wetlands and other Waters of the U.S. were identified and delineated in the vicinity of the proposed project area based on the USACE 1987 delineation manual (Environmental Laboratory 1987), USACE guidance resulting from recent litigation, and CDFG guidance and standards (Sapphos MFRs 10 and 16, 2008). The applicant investigated potentially jurisdictional features in January 2008 at stream crossings that have the potential to be affected by proposed project activities. For each crossing, potential wetland location, vegetation, soils and hydrology were investigated. Wetland delineation reports with forms and a detailed description of the sampling method are included in Appendix B.

All crossings would occur at, or on tributaries to, Canada Honda Creek. The specific proposed crossing locations vary in habitat quality but generally support degraded willow-dominated riparian scrub. Evidence of cattle is present throughout the proposed project area including eroded creek banks, paths, and reduced riparian cover.

3.5.5.2 Development Associated with Facility Siting (Substation, O&M Facility, and Staging Area)

Sapphos reviewed and delineated several areas proposed for development associated with the siting of a staging area, substation, and O&M facility (Sapphos MFR 16). These areas are located in the vicinity of the intersection of San Miguelito and Sudden Roads. The following descriptions of subject area are based on the Sapphos delineation and a field reconnaissance by SAIC biologists and wetland scientists. The originally proposed substation area was located directly southeast of Sudden Road. The Applicant has subsequently relocated the substation site approximately 500 feet west of the intersection of San Miguelito and Sudden Roads. The original substation site is characterized by a large swale (seasonal wetland) dominated by brownheaded rush (*Juncus phaeocephalus*) and disturbed by cattle grazing. The feature occurs on a tributary of San Miguelito Creek (tributary to Santa Ynez River), which is an intermittent stream. Scattered individuals of common rush and California buttercup were also identified within the swale. Because the feature was dominated by hydrophytic plants, exhibited hydric soils, and was associated with a tributary to a True Navigable Water, it was determined to be within USACOE jurisdiction. The feature also conforms to the definition of a wetlands and riparian habitat pursuant to the CDFG code and Santa Barbara County guidelines.

Northeast of the originally proposed substation site, the feature continues via a culvert. The feature starts as a large shallow basin that narrows significantly downstream (to the northeast) where it forms an incised, but heavily degraded, channel. The feature occurs in the annual grassland plant community, dominated by a perennial juncus, brass buttons, California buttercup, and non-native grasses. Because the feature supports hydrophytic plants, hydric soils, and indicators of hydrology sufficient to support a wetland community, this feature was determined to be a wetland subject to USACE jurisdiction under Section 404. The feature also conforms to the definition of a wetlands and riparian habitat pursuant to the California Department of Fish and Game and Santa Barbara County guidelines.

The final feature investigated occurs southwest of the intersection of Sudden and San Miguelito Roads, within the site of the proposed O&M facility. The feature is characterized by a narrow, shallow channel exhibiting an eroded bank caused by a trail used as a cattle crossing. Soils consisted of gleyed hydric soils that formed streaks within the sandy loam. The stream gradually widens as it flows downstream. The area occurs in the annual grassland plant community and is flanked by riparian vegetation dominated by arroyo willow, blackberry, poison oak, and common rush. Wetlands species include plantain and lily. Several coyote brush and non-native grasses were observed in more upland areas. Due to the presence of hydrophytic vegetation, gleyed soils, and wetland hydrology, this feature would be subject to jurisdiction under Section 404. The feature also conforms to the definition of a wetlands and riparian habitat pursuant to the CDFG and Santa Barbara County Environmental Thresholds and Guidelines Manual.

3.5.5.3 Freshwater Seeps, Springs, and Ponds within the WTG Corridors

Vegetation mapping was completed for this project and included the mapping of communities dominated by hydrophytic species, and the authors described features that may be subject to USACE, CDFG, or Santa Barbara County jurisdiction based on the presence of wetland plants (Rindlaub and Olson 2006). A number of seeps and springs are scattered through the Project area, particularly at high elevations in Middle and South WTG corridors. Because of the steep terrain these areas exhibit seasonally saturated soils but generally lack surface water. A small pond is also located on the western slope of the northern part of Middle Corridor, where a landslide apparently created a small basin that collects rainwater runoff. In addition, freshwater marshes develop only in very small areas in the rather steep terrain on the Project sites below the South Corridor ridgeline and around a spring-fed cattle trough on the access route to North Corridor. These features are described in detail in Section 3.5.2.5.

Project-specific plant community mapping provides a conservative measurement of areas subject to jurisdiction by CDFG and Santa Barbara County, because these approaches rely principally on the predominance of hydrophytic species. As a result of mapping, approximately 13 acres of rush seep, riparian scrub, and native grassland seeps occur within the WTG corridors, all of which would likely be subject to regulation by Santa Barbara County and CDFG. Of the 13 acres of features that occur within the WTG corridor, none occur directly within the existing conceptual site layout plans for WTG placement.

3.5.6 Regulatory Framework

3.5.6.1 Federal Regulations

Endangered Species Act of 1973

The federal Endangered Species Act (ESA) and implementing regulations, Title 16 United States Code (USC) §1531 et seq. (16 USC 1531 et seq.), Title 50 Code of Federal Regulations (CFR) §17.1 et seq. (50 CFR §17.1 et seq.), include provisions for the protection and management of federally listed threatened or endangered plants and animals and their designated critical habitats. Section 7 of the ESA requires a permit to take threatened or endangered species during lawful project activities.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 USC §§703711) includes provisions for protection of migratory birds, including the nonpermitted take of migratory birds, under the authority of the USFWS.

Bald and Golden Eagle Protection Act

The Bald Eagle Protection Act of 1940 (16 USC 668-668d, 54 Stat. 250) provides for the protection of the bald eagle (the national emblem) and the golden eagle by prohibiting, except under certain specified conditions, the taking, possession, and commerce of such birds.

3.5.6.2 State Regulations

California Endangered Species Act of 1984

CESA and implementing regulations in the Fish and Game Code, §2050 through §2098, provide for the protection of rare, threatened, and endangered plants and animals, as recognized by CDFG, and prohibit the taking of such species without its authorization. CESA expanded upon protection afforded to rare, threatened, and endangered plants under the earlier California Native Plant Protection Act of 1977.

California Species Preservation Act 1970 (California Fish and Game Code §§900 – 903)

This law includes provisions for the protection and enhancement of the birds, mammals, fish, amphibians, and reptiles of California, and is administered by the CDFG.

California Fully Protected Wildlife Species (California Fish and Game Code §§3511, 4700, 5050, and 5515)

These sections of the Fish and Game Code prohibit the take or possession of any fully protected bird, mammal, reptile/amphibian, or fish.

California Fish and Game Code §§3503, and 3503.5

These sections of the Fish and Game Code prohibit the take, possession, or destruction of any birds in the orders *Falconiformes* or *Strigiformes* (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird.

California Native Plant Protection Act of 1977

This act and implementing regulations in Section 1900 et seq. of the Fish and Game Code include provisions that prohibit the taking of listed rare or endangered plants from the wild and establish a salvage requirement for landowners.

3.5.6.3 Santa Barbara County Plans, Policies, and Regulations

Projects within the County are subject to a number of plans, policies, and ordinances intended to protect biological resources, including those contained in the Comprehensive Plan elements,

including the Conservation Element, Environmental Resource Management Element, and Land Use Element. Refer to Section 3.10 for a discussion of the consistency of the Project with these plans and policies.

Additionally, the Santa Barbara County Oak Tree Protection and Regeneration Ordinance[7] was adopted with the goals of sustaining and enhancing oak resources within the county with no net loss of native oak trees and of increasing the number of valley, blue, and live oaks within the county. It provides guidelines and lists permit requirements for oak tree removal and replacement for agricultural and nonagricultural purposes (County, 2005).

3.5.7 Project Impacts, Mitigation, and Residual Impacts

3.5.7.1 Impact Assessment Methodology

The significance of impacts to biological resources was assessed by comparing the potential changes resulting from the Project to the County significance thresholds, taking into consideration such factors as:

- Type of impact (Would the Project directly or indirectly adversely affect wildlife through mortality, injury, displacement, and habitat loss or adversely impact vegetation through native tree removal or destruction of a sensitive plant population?)
- Timing (Would the impact occur at a critical time in the life cycle of a special-status plant or animal, such as breeding, nesting, or flowering periods?)
- Whether the impact is temporary or permanent

Additionally, the potential for bird and bat fatalities resulting from collisions with WTGs and the significance of such an impact were based on the review of numerous reports on bird and bat baseline and monitoring studies, as well as risk and fatality assessments for various wind farms across the United States (Curry and Kerlinger, 2001; Erickson et al., 2000; Erickson et al., 2001; Johnson et al., 2000a; Johnson et al., 2000b; Johnson et al., 2002; Orloff and Flannery, 1992; Thelander and Rugge, 2001; West, Inc., 2002; West, Inc., 2004; Young et al., 2002; and W.P. Erickson, Personal Communication). These reports identified standards for bird impact assessments across the United States. The following guidelines also were reviewed to identify methods of mitigating potential Project-related impacts to bird and bat species:

- California Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development (California Energy Commission and CDFG, 2007, Final Committee Report)
- Guidelines for Assessing and Minimizing Impacts to Bats at Wind Energy Development Sites in California (California Bat Working Group, 2006)
- Avian Protection Plan (APP) Guidelines (Avian Power Line Interaction Committee [APLIC] of the Edison Institute and USFWS, 2005)
- Interim Guidance on Avoiding and Minimizing Wildlife Impacts from Wind Turbines (USFWS, 2003)

7 Updated January 24, 2006.

- Mitigation Toolbox (National Wind Coordinating Collaborative [NWCC] and Jennie Rectenwald, 2007)

3.5.7.2 Thresholds of Significance

The County of Santa Barbara Environmental Thresholds and Guidance Manual (County, 2006) includes thresholds of significance for biological resources. According to this manual, disturbance to habitats or species (including impacts to birds and bats) may be significant, based on substantial evidence in the public record, if it would substantially affect significant resources in the following ways:

- Substantially reduce or eliminate species diversity or abundance
- Substantially reduce or eliminate quantity or quality of sensitive species nesting areas
- Substantially limit reproductive capacity through losses of individuals or habitat
- Substantially fragment, eliminate, or otherwise disrupt foraging areas and/or access to food sources
- Substantially limit or fragment the geographic range or dispersal routes of species
- Substantially interfere with natural processes, such as fire or flooding, upon which the habitat depends

Project-related impacts to biological resources would be considered less than significant where there is little or no significance attached to a given habitat. For example, disturbance to cultivated agricultural fields or small acreages of non-native, ruderal habitat would be considered less than significant, as would disturbance of small acreages of non-native grassland where wildlife values are low; individuals or stands of non-native trees if not used by important animal species such as raptors; and small pockets of habitats that are already significantly fragmented or isolated and degraded or disturbed.

Based on Appendix G of the CEQA Guidelines, the Project also would result in a significant impact if it would have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status in local or regional plans, policies, or regulations, or by the CDFG or USFWS.

The Environmental Thresholds and Guidelines Manual also contains habitat-specific impact assessment guidelines.

For wetlands, the following types of impacts may be considered significant:

- Net loss of important wetland area or wetland habitat value, either through direct or indirect impacts to wetland vegetation, degradation of water quality, or threatening the continuity of wetland-dependent animal or plant species
- Substantial interruption of wildlife access, use, and dispersal in wetlands areas
- Loss of wetlands function and value due to changes in hydrology
- For riparian areas, the following types of impacts may be considered significant:
- Direct removal of riparian vegetation
- Disruption of riparian wildlife habitat, particularly animal dispersal corridors and/or understory vegetation

- Intrusion into the upland edge of the riparian canopy (generally within 100 feet in rural areas), leading to potential disruption of animal migration, breeding, etc. through increased noise, light and glare, and human or domestic animal intrusion
- Disruption of a substantial amount of adjacent upland vegetation where such vegetation plays a critical role in supporting riparian-dependent wildlife species (for example, amphibians), or where such vegetation aids in stabilizing steep slopes adjacent to the riparian corridor, thereby reducing erosion and sedimentation potential
- Construction activity that disrupts critical time periods (nesting, breeding) for fish and other wildlife species

For purposes of resource evaluation in Santa Barbara County, native grassland is defined as an area where native grassland species comprise 10 percent or more of the total relative cover[8]. Removal or severe disturbance to a patch or patches of native grasses less than 0.25 acres, which is clearly isolated and is not a part of a significant native grassland or an integral component of a larger ecosystem, is usually considered less than significant.

For oak woodlands and forests, the following types of impacts may be considered significant:

- Habitat fragmentation
- Removal of understory
- Alteration to drainage patterns
- Disruption of the canopy
- 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

For individual native trees, the following type of impact may be considered significant:

- The loss of 10 percent or more of the trees of biological value on a project site.

3.5.7.3 Project Impacts

Overview of Construction Impacts

Direct impacts to biological resources from construction activities include the potential for wildlife injury and mortality, the temporary and permanent loss of individual plants, and the loss of habitat used by wildlife species. Approximately 127 acres would be temporarily disturbed by construction with an additional 43 acres permanently disturbed by roads, turbine foundations, underground power collection cables, and facilities including substation and O&M facilities. Although the exact placement of WTGs and power poles is not known (Figure 3.5-2), most of the area that would be disturbed is composed of annual grasslands; therefore, most impacts would occur to this vegetation community, although others could be affected as well, depending on the final placement of facilities. Plant communities that are considered wetland and non-wetland Waters of the U.S. and

8 The CDFG uses the 10 percent relative cover figure in determining acreages of remaining native grasslands. (Relative cover is the cover of a particular species as a percentage of total plant cover of a given area). Native grasslands that are dominated by perennial bunch grasses tend to be patchy (the individual plants and groups of plants tend to be distributed in patches). Where a high density of small patches occurs in an area of 1 acre, the whole acre should be delineated if native grassland species comprise 10 percent or more of the total relative cover, rather than merely delineating the patches that would sum to less than one acre.

County of Santa Barbara County wetlands would be affected at several proposed creek crossings, proposed O&M facility siting location, and potentially within the WTG corridor if the current configuration changes. Additionally, a small percentage of the soil seed bank would be lost to construction, grading, and paving. Areas that were disturbed during construction but would not be permanently used for Project components would be revegetated. Some temporarily impacted areas, particularly in annual grassland on flat terrain, likely would be returned to near pre-Project conditions fairly quickly. Other areas where temporary impacts would result from excavation, such as around WTG footings and along road cuts in shrubby vegetation or rocky terrain, would probably require more time to recover compared to the annual grassland. Indirect impacts to biological resources during construction could result from increased human activity, the introduction of non-native, invasive species, night lighting, dust, noise, and vehicle emissions.

Overview of Operation and Maintenance Impacts

Direct impacts include the loss of individual animals during the O&M phase primarily as a result of (1) collisions by birds and bats with power line poles, lines, WTGs, and WTG blades; and (2) being struck by vehicles. Direct impacts to vegetation include the minor, temporary loss of individual plants during road maintenance and facility repairs. Additionally, some tree trimming may be required in the vicinity of power lines. Indirect impacts during the O&M phase would be similar to those occurring during construction, but would be less severe because less disturbance and vehicular traffic would occur, and fewer people would be present.

Impact No.	Impact Description	Phase	Impact Classification
BIO-1	Approximately 127 acres of vegetation and wildlife habitat will be temporarily impacted by construction, with an additional 43 acres being permanently disturbed (e.g., by construction of roads, pads, facilities sites). The temporarily disturbed areas would be available to be revegetated upon completion of construction. Although most of the habitat is relatively common in the region, the affected habitat includes areas that qualify for special regulatory protection, including Central Coast riparian scrub and may include areas with a prevalence of native perennial grasses and other native grassland species.	Construction	Class II
	Only minor disturbances to common vegetation are expected during O&M.	Operations	Class III

Impact BIO-1: Vegetation and Wildlife Habitat. Construction of the Project would cause both short-term and long-term impacts to vegetation and wildlife habitat. Long-term disturbances are associated with installation of turbines, foundations, roads, and facilities including the O&M facility and the substation. Short-term disturbances are associated with additional clearing or disturbance to existing vegetation and wildlife habitat during construction of project facilities, installation of underground power collection cables, and preparation of staging areas that would be revegetated or allowed to recover upon completion of construction. Temporary and long-term impacts on vegetation are summarized in the Table 3.5.7-1 below.

Table 3.5.7-1
Summary of Temporary and Long-term Impacts of Construction on Vegetation and Wildlife Habitat

Habitat Type	Total on Property	Temporary disturbance		Long-term disturbance	
	(acres)	(acres)	(% of Total)	(acres)	(% of Total)
Agricultural Field	59.4	0.4	0.7%	0.6	1.0%
Annual Grassland	1,581.3	101.0	6.4%	41.1	2.6%
Central Coast Scrub	856.1	17.7	2.1%	4.8	0.6%
Cent. Coast Riparian Scrub	87.5	0.6	0.7%	0.1	0.1%
Eucalyptus	36.2	0.1	0.2%	<0.1	0.1%
Central Coast scrub/grassland Mosaic	138.3	6.8	4.9%	1.6	1.2%
Native Grassland	5.1	0.0	0.0%	0.0	0.0%
Oak Woodland	197.6	<0.1	<0.1%	0.1	<0.1%
Total	2,961.5	126.6	4.3%	42.9	1.6%

In addition to the impacts identified above, approximately 33.2 acres would be disturbed by power pole installation (184 poles assumed) with 1.33 acres of this constituting permanent disturbance. Most impacts to vegetation and wildlife habitat including development and use of staging areas would occur in grazed grasslands, which are dominated by introduced annual grasses and are relatively easy to revegetate. Portions of the WTG corridors, power line corridor, O&M facility, and roads also would be located in areas containing Central Coast scrub and Central Coast riparian scrub. Areas vegetated by riparian scrub may fall under federal, state, or local regulatory jurisdiction as discussed under impacts BIO-3 and BIO-4.

Annual grassland is the most abundant habitat type mapped on the site (Table 3.5.7-1, above) and is also the most heavily impacted habitat on the site. Approximately 6.4 percent of the mapped grassland on site would be temporarily affected by construction with approximately 2.6 percent affected by permanent structures including roads, foundations, and facilities. In a number of areas, native perennial grasses and herbs are interspersed with invasive, non-native grasses, which are the dominant cover type. Some areas, however, support more diverse and numerous populations of native perennial grasslands and herbs (particularly in the southwest portion of the Signorelli property). In such cases, native grassland species may comprise a minimum of 10 percent of the cover and, thus, have higher habitat value. Based on the County Environmental Thresholds and Guidelines Manual, areas of native grasslands over 0.25 acres in size qualify for special protection. Approximately 5.1 acres of native grasslands have been previously mapped on the site. With the current layout, impacts on previously mapped native grasslands are not identified (Table 3.5.7-1). Given the uncertainties in recognizing native grassland over large areas (for example they may be difficult to recognize if they have recently been grazed); there is some likelihood that additional unmapped areas that could qualify as native grassland under the County definition may occur on site. Should this be the case they would be accounted for and mitigation applied as described below. It is expected that any impact on native grassland would represent a relatively small proportion of the native grasslands on site, given that less than 6.4 percent and 2.6 percent of all grasslands on site would be subject to temporary and long-term disturbance, respectively. Pre-construction surveys would be conducted in the actual proposed project footprint during the appropriate season. Such surveys have the potential to identify additional native grasslands or cause previously identified boundaries to be adjusted. In such a case, impacts would be quantified and mitigation applied as described in this document (see Section 3.5.7.5).

Because of the magnitude of the disturbances to native vegetation and wildlife habitat, the propensity to erosion related to the steepness of the terrain in many parts of the site, and the role of the habitat in supporting wildlife, including declining native wildlife species dependent on open grassland habitats, the impacts of construction on vegetation and wildlife habitat are classified as significant but mitigable (Class II Impact).

Only minor disturbances to common vegetation are expected during O&M; impacts from these would be adverse, but less than significant (*Class III*).

Impact No.	Impact Description	Phase	Impact Classification
BIO-2	Tree trimming or removal may be required during transport of WTGs or power line installation. A small portion of the proposed roadway network would affect tree-dominated vegetation; power line construction would occur close to wooded areas.	Construction	Class II
	Only minor disturbances to common vegetation are expected from ongoing vegetation clearances for fire management and safety.	Operations	Class III

Impact BIO-2: Woodland and Forest. Construction activities in the WTG area generally would avoid tree-dominated vegetation, although a small portion of the roadway alignment proposed for the Larsen property would affect such an area. Tree trimming along San Miguelito Road may be required during transport of the WTGs to the Project site, especially where trees overhang the road. Depending on final load sizes and transport vehicles selected, some trees at the tighter curves along San Miguelito Road may need to be removed.

Power line construction would occur close to wooded areas, particularly at lower elevations, where it would run along the margins of oak woodland in the lower east-facing, unnamed drainage and along San Miguelito Road. Where feasible, power poles would be placed to avoid tree removal, and in some areas, including Larsen Ranch and San Miguelito Canyon, lines would be strung over dense oak stands in order to minimize both impacts to trees and trampling of vegetation by construction vehicles. However, some oak trees may need to be removed to allow power line installation.

Tree trimming, when performed by qualified personnel, likely would not result in the loss of oak trees or a significant loss of habitat values; however, excessive pruning could damage the trees. It is not likely that 10 percent of the trees of biological value on the Project site would be removed, but depending on the number of trees that would be removed during power line and roadway (Larsen) construction or to facilitate truck passage, the Project could result in habitat fragmentation and disruption of the canopy. The removal of oak trees during power line installation and excessive tree trimming could result in a significant, but mitigable impact (*Class II*).

Ongoing vegetation clearances for fire management and safety would include maintaining a 10-foot radial clearance of flammable fuels around the base of each wood power pole during fire season, as required under Public Resources Code Sec. 4292, and a minimum 15 feet of clearance between vegetation and conductors is required for safety and to minimize tree-related outages. Only minor

disturbances to common vegetation are expected during vegetation clearances for fire management, which would result in an adverse, but less than significant impact (*Class III*).

Impact No.	Impact Description	Phase	Impact Classification
BIO-3	Direct loss of wetlands and seeps would occur at creek crossings and the proposed O&M facility. Direct loss of wetlands and seeps within the WTG corridor are not expected; however, there is potential for loss should the project configuration change. Additionally, soil erosion or spills could reduce water quality during construction.	Construction	Class II

Impact BIO-3: Wetlands, Seeps, and Springs, and Features Subject to Regulation by the USACE, Santa Barbara County, or CDFG. The direct loss of jurisdictional wetlands and seeps would occur in association with proposed crossings over tributaries to Honda Creek, and with the siting of the O&M facility. An estimated 0.045 acre of habitat within the footprint of the proposed crossings was determined to be Santa Barbara County defined wetlands and federally jurisdictional (non-wetland) Waters of the U.S. These areas would also be regulated under Section 1600 of the CDFG code as State wetlands and be subject to a Streambed Alteration Agreement. Approximately 0.19 acre of Federal wetlands would be lost associated with the siting of the proposed O&M facilities (Sapphos MFR 16, Appendix B). This loss also represents an impact to Santa Barbara County wetlands and features subject to regulation under CDFG code. Wetland features in the vicinity of the proposed staging area and substation would be avoided based on current facility siting and construction plans. No formal wetland delineations were completed for the WTG corridors and proposed configurations for specific WTG locations because these areas may be modified in the future as part of the final site layout process. However, plant community mapping was completed for this project and included the mapping of communities dominated by hydrophytic species, which would likely be subject to jurisdiction by the State and Santa Barbara County. Approximately 13 acres of rush seep, riparian scrub, and native grassland seeps occur within the WTG corridors. However, based on the approximated current WTG configuration, direct impacts to wetland features within the corridor would not occur and all regulated wetland areas could be avoided as part of the final WTG layout. Nonetheless, without mitigation, there is a potential for direct impacts to wetlands to occur as a result of construction and siting activities.

In addition to the direct loss of wetland habitat associated with proposed creek crossings and the O&M facility, and potential direct loss of wetland features within the WTG corridor, erosion from construction and siting in the vicinity of sensitive habitats could deposit sediment within or near wetlands, seeps, and springs, thereby reducing water quality, degrading plant communities, and reducing the overall function and value of these areas. Accidental spills of hazardous materials used during construction, including but not limited to fuels, concrete wash-water, or other materials, could also diminish surface water quality.

Because the direct loss of wetland features and other Waters of the U.S. would occur, and there is a potential for indirect impacts resulting from sedimentation and alteration of water quality, impacts would be significant, but mitigable (*Class II*). No additional impacts are expected during O&M.

Impact No.	Impact Description	Phase	Impact Classification
BIO-4	A minor amount of riparian vegetation (several square feet) would be removed during bridge construction at Honda Creek; soil erosion would result in minor impacts on water quality.	Construction	Class III

Impact BIO-4: Riparian Vegetation. An incidental amount of riparian vegetation would need to be removed during construction of the bridge over Honda Creek, and construction activities have the potential to cause soil erosion, resulting in minor impacts to riparian vegetation such as exposing roots or burying annual plants. All construction would occur outside of the riparian zone; however, incidental removal of vegetation associated with construction could occur nonetheless. Additionally, a small amount of riparian vegetation would be removed associated with the siting of the O&M facility. The loss of vegetation at these locations is also addressed under impact BIO-3. These potential impacts to the riparian community from the bridge construction are considered adverse, but less than significant (*Class III*) because of the limited disturbance (several square feet and the temporary nature of the impacts. Any disturbed vegetation would quickly re-colonize. Impacts to riparian vegetation as it pertains to Section 1600 of the CDFG code are addressed under Impact BIO-3. No additional impacts are expected during O&M.

Impact No.	Impact Description	Phase	Impact Classification
BIO-5	Construction would result in 10.3 acres (8.1 % of site total) of permanent and 22.3 acres (17.4% of site total) of temporary loss or disturbance to Gaviota tarplant and its habitat.	Construction	Class II
	Occasional disturbance to small areas of Gaviota tarplant habitat may occur as a result of operations or maintenance activities involving clearing or vehicle operation in occupied habitat.	Operations	Class II

Impact BIO-5: Gaviota Tarplant. The construction of WTGs in portions of Middle Corridor, Sudden Corridor, North Corridor, and Signorelli Corridor could result in the loss or disturbance of Gaviota tarplant, as could construction of new roads or the widening of existing roads, particularly in the North Corridor parcel. Construction of the O&M facility and the nearby Project Substation also could similarly affect Gaviota tarplant, as could power line construction, depending on the placement of individual power poles in the vicinity of the site of its known location.

Of approximately 128 acres known to be occupied by Gaviota tarplant onsite, the Project would temporarily disturb about 22.4 acres (17.4% of the total) and permanently disturb an additional 10.3 acres (8.1 % of the total) (see Figure 3.5-3).

The Project would not substantially eliminate access to food sources or habitat for pollinators of the tarplant because the undisturbed habitat that would surround the finished Project components would continue to support a mixture of grassland, shrubland, and woodland habitats, and would thus continue to provide habitat for pollinators. The Project also would not substantially reduce or

eliminate species diversity or abundance on a regional level. Recent surveys of the distribution of this species on private land conducted in 2002 near Point Sal, near Orcutt, on both north and south VAFB, and on the Bixby Ranch, documented new, large populations and demonstrated that the plant is probably distributed more-or-less continuously on suitable habitat between Point Sal and Gaviota (Olson and Rindlaub, 2006). Nonetheless, depending on the placement of individual Project structures, the Gaviota tarplant habitat would become more fragmented due to the elimination or disturbance of some populations, which would be a significant, but mitigable impact (*Class II)*.

Occasional disturbance to small areas of Gaviota tarplant habitat could occur from time to time during the operations phase of the Project if maintenance and repairs necessitate work beyond permanent disturbance areas. This would be adverse and significant (*Class II*) if damage to the plants or habitat occurs. Operation of a light truck or automobile on dry soil outside the growing season of the tarplant would have less than significant (*Class III*) impacts.

Impact No.	Impact Description	Phase	Impact Classification
BIO-6	A number of other special-status plant species may be present onsite or in the power line corridor and could be lost during construction.	Construction	Class II

Impact BIO-6: Other Special-status Plant Species. Besides Gaviota tarplant (discussed above, Impact Bio-5), no other federally-listed plant species, including Gambel's water cress, Lompoc yerba santa, or seaside bird's beak, is known or expected from the site and no impacts on these species are anticipated from construction or operation of the Project.

As shown on Table 3.5-5, a number of special-status plant species that are not federally or state-listed have been found on the LWEF site, and some of these may be present in the power line corridor. Additionally, conditions on the site are favorable to lichen growth and it is possible that lichen species recognized as rare may be present within the project footprint. Although construction may avoid special status vascular plants and lichen species, if populations were lost during construction, impacts would be significant, but mitigable (*Class II).* No additional impacts are expected during O&M.

Impact No.	Impact Description	Phase	Impact Classification
BIO-7	Individual animals could be injured or killed by vehicles, equipment, explosives, or large holes during construction.	Construction	Class III

Impact BIO-7: Common Wildlife. Impacts associated with potential collisions with WTGs, meteorological towers, and power lines are described under Impact BIO-11 and BIO-12. Individual animals could also be injured or killed through collisions with vehicles and equipment during construction and maintenance activities. Due to the limited occurrence of wetland and aquatic habitats in the Project area, direct loss of fish is not expected, and direct loss of amphibians would involve a small number of common species, such as Pacific treefrog. Reptiles, birds, and mammals could be injured or killed by moving vehicles and construction equipment. Those most susceptible to such effects are common terrestrial species, including Botta's pocket gopher, California ground

squirrel, and brush rabbit. If explosives were required to construct WTG foundations, rock could be projected several hundred feet and injure or kill wildlife in the immediate area. Additionally, the large holes dug for the WTG foundations constitute potential pitfalls for wildlife that could become entrapped and perish. The Project site is composed primarily of annual grassland and coastal sage scrub, and the amount of habitat that would be disturbed would be small (Table 3.5.7-1). Temporarily disturbed habitat would amount to an estimated 126.6 acres (approximately 4.3 percent of the total habitat on the property) whereas permanently disturbed habitat would amount to an estimated 42.9 acres (1.6 percent of the total habitat on the property). Impacts would be adverse, but less than significant (*Class III*), because the Project would not substantially reduce local populations or substantially disrupt foraging areas and/or access to food sources.

Impact No.	Impact Description	Phase	Impact Classification
BIO-8	Nesting birds could potentially lose nests through destruction or abandonment.	Construction and Operations	Class II

Impact BIO-8: Nesting Birds. Ground- and tree-nesting birds, as well as those nesting in shrubs, could potentially lose nests through destruction or abandonment as a result of construction and maintenance activities occurring during the nesting season (generally between February 1st and August 31st). Similarly, some nests in trees could be lost if construction or maintenance required removal or trimming of trees. Nesting birds are considered a sensitive resource, because they are protected under the MBTA and several CDFG codes that prohibit their take. If construction or maintenance occurred during the nesting season, impacts to nesting birds could be significant, but mitigable *(Class II*).

Impact No.	Impact Description	Phase	Impact Classification
BIO-9	Direct and indirect impacts may occur to special-status wildlife species. Those with higher potential for injury or fatalities by vehicles or equipment, loss of habitat, or disturbance of burrows and nests include reptiles, raptors, and passerines (*Class II*) and mammals (*Class III*).	Construction and Operations	Class II/Class III

Impact BIO-9: Construction and Maintenance Impacts to Special-status Wildlife Species. **Over 30** endangered, threatened or otherwise recognized sensitive wildlife species have the potential to occur in the Project area, as described in Section 3.5.4 and the tables therein. Based on site surveys and review of previously collected information, several species are not expected to occur in the Project area or may occur on rare to infrequent occasions. Due to the scarcity of expected occurrences, the Project is not expected to significantly affect the following species:

- California tiger salamander – Not expected in the Project area due to very limited amount of habitat and distance to nearest known occurrence.
- California red-legged frog – Not expected in the Project area due to a lack of suitable habitat.
- Steelhead - Not known or expected to occur on or in proximity to the site.
- Unarmored threespine stickleback – Not expected in the project area due to lack of permanent water and suitable habitat onsite.

- Southwestern pond turtle – Not expected in the Project area due to a lack of permanent water.
- Western spadefoot toad – Not expected in the Project area due to limited amount of habitat and distance to nearest known occurrence.
- Two-striped garter snake – Potential occurrence is limited due to limited habitat and distance to nearest known occurrence.
- California condor – Expected in the project area only on rare occasions, if at all, due to distance from habitats used for foraging and breeding. Any occurrence would most likely be an overflight with no contact with project construction activities.
- Sharp-shinned hawk – Expected to occur only on an uncommon basis as a migrant and winter resident at the margins of grassland and woodland. Not expected to nest in the Project area.
- Mountain plover – Expected as a scarce visitor to the project site. Does not breed in the region.
- Ferruginous hawk – Expected to occur on a rare to uncommon basis during migration and winter. Not expected to nest in the Project area.
- Merlin – Expected to occur only on rare occasions during winter months. Not expected to nest in the Project area.
- Vaux's swift – Expected to fly over site infrequently during migration. Does not nest in the project region.
- Southwestern Willow flycatcher – Expected to occur only on an uncommon basis as a migrant due to lack of suitable habitat on site.
- Yellow-breasted chat – Expected to occur in riparian habitat on an infrequent basis. Not expected to nest in project footprint.
- Bell's sage sparrow – Potential occurrence is limited because the Project area lacks Burton Mesa chaparral, the vegetation type in which most observations of this species have been made.
- Western mastiff bat – Expected to occur in the Project area only on rare occasions during foraging.
- Townsend's big-eared bat – Due to a lack of cave habitat, this species is expected to occur only on an occasional basis during foraging.

The following describes potential impacts to other special-status species with a higher likelihood of occurrence, focusing on the potential for injury or fatalities resulting from collisions with vehicles or equipment, loss of habitat, disturbance of burrows, or impacts to nests. Impacts specifically associated with potential collisions with WTGs, meteorological towers, and power lines are described under Impacts BIO-10 and BIO-11.

Invertebrates - Construction of WTGs, related facilities, and new roads as well as the widening of existing roads could result in the loss or disturbance of El Segundo blue butterfly (ESBB) habitat and mortality to individuals. Approximately 5.5 acres of the 30.8 acres of potential ESBB habitat identified on the site would be directly affected by construction in the short term, with approximately 0.07 acres permanently lost. The affected habitat is concentrated in the southern portion of the Project property. The anticipated short- and long-term losses represent approximately 16 percent and 0.2 percent of the total habitat on the property, respectively. For comparison, it is estimated that 17,470 acres of ESBB habitat exist on VAFB, which borders the Project property. Based on the fact that the adjacent property on VAFB is occupied by ESBB, it is assumed that the habitat on the Project site is occupied by ESBB and it is likely that an

undetermined number of individuals (larvae, pupae, adults, eggs) of this sedentary species would be affected by construction.

During operations, occasional disturbance to small areas of El Segundo blue butterfly habitat may occur as a result of operations or maintenance activities involving clearing or vehicle operation in occupied habitat. Impacts of construction and operations on this species and its habitat would be significant, but mitigable (*Class II*).

Vernal pool fairy shrimp could possibly occur on site in temporary ponded water (e.g., in depressions and slumps). Such seasonal wetland features are absent from the ridgelines where most of the project facilities would be sited. Project plans call for avoidance of recently discovered seasonal wetlands, which could possibly contain this species, near the substation and O&M facility sites. Should it be impossible to avoid wetlands and water-related features under federal, state, or County jurisdiction, appropriate permits state or federal permits and approval from the County would be necessary and documentation of the findings of site-specific surveys conducted during the appropriate season would be required for consideration in the approval process (see Mitigation Measure BIO-9).

Reptiles – Potential impacts to California horned lizards, silvery legless lizards, and coast patch-nosed snake include direct loss of individuals through collisions with vehicles or equipment and the temporary and permanent loss of habitat. The amount of grassland or scrub habitats that would be temporarily or permanently disturbed (approximately 130.6 acres or 4.4 percent of the total habitat on the site and 47.4 acres or 1.6 percent, respectively) would be small in relation to that in the overall area. The Project would not substantially reduce habitat, but could lead to habitat fragmentation and substantially reduce local populations. Impacts would be significant, but mitigable (*Class II*).

Raptors – Several special-status raptor species either were observed or have the potential to occur in the Project area, including white-tailed kite, golden eagle, peregrine falcon, Cooper's hawk, northern harrier, long-eared owl, and western burrowing owl. The loss of nests and disruption of nesting behavior are not likely, because these species are not known to nest in the Project area. Additionally, most golden eagle nests are built in large trees, rock outcrops, or overhanging ledges. There are few wooded or outcrop areas that would be disturbed from the construction and operation of this Project. Potential impacts to these species include direct loss of individuals due to strikes by vehicles and equipment, and the permanent and temporary losses of foraging habitat. Additionally, these birds may be displaced, and foraging behavior may be altered. Potential impacts to burrowing owls could result from crushing while in burrows. Such impacts to these species would be significant, but mitigable (*Class II*).

Passerines – Several special-status passerine species were either observed or have the potential to occur in the Project area, including California horned lark, loggerhead shrike, California rufous-crowned sparrow, grasshopper sparrow, yellow warbler, and tricolored blackbird. Potential impacts to these species include direct loss of individuals due to strikes by vehicles and equipment, and permanent and temporary losses of foraging habitat due to construction. Additionally, these birds may be displaced, foraging and nesting behavior may be altered, and active nests may be destroyed during construction and maintenance. Impacts to these species would be significant, but mitigable (*Class II*).

Shorebirds – Several long-billed curlews were observed on the project site during the 2008 Sapphos surveys and during the 2008 SAIC site visits. This species is often observed foraging in open grassland habitat and could be expected regularly on the site in low numbers. Potential impacts to these species include direct loss of individuals due to strikes by vehicles and equipment, and permanent and temporary losses of foraging habitat due to construction. Impacts to this species would be significant, but mitigable (*Class II*)

Mammals – Three special-status mammal species may be present in the Project area. Pallid bats (*Antrozous pallidus*) may be present, but given the occasional use of the area by this species, they are not expected to be affected by construction and maintenance activities. Collisions with vehicles and equipment are not expected, nor is the loss of roost sites. Foraging behavior may be altered during construction.

San Diego desert woodrats and American badgers also may be present in the Project area. Potential direct impacts to these species during construction include loss of individuals due to strikes above-ground by vehicles and equipment, as well as crushing of burrows and loss of individuals in the burrows. Noise and ground disturbance from construction activities also could flush these animals from work areas and reduce woodrat and badger activity near construction sites. Loss of habitat also would occur. A potential indirect impact to badgers would be the loss of prey if ground squirrels were trapped and removed from the Project area to reduce raptor collision threats.

Although no live-trapping was done as part of the surveys for this Project, San Diego desert woodrats potentially occur in Coastal Scrub habitat, particularly where overhanging rocks and rock outcrops occur. This type of habitat was noted along the lines of WTGs that included West Corridor and South Corridor – West. This species is likely to use the area along the drainage that separates the Signorelli and Scolari Benches, the slope that connects Scolari and Signorelli Corridors, and possibly along the North Corridor East and West roads. Populations are expected to be low, however. Based on survey results, badgers occur in the Project area, but in low densities. The Project would not have a substantial adverse effect on these species because of the low likelihood of their occurring onsite, and the amount of habitat lost would be small in relation to that available in the surrounding area. Direct impacts would be adverse, but less than significant (*Class III*).

Considerable amounts of similar habitat are available for badgers and woodrats in adjacent areas, however, and the Project would not result in a substantial reduction in local populations of either species. Indirect impacts from their implementation would be adverse, but less than significant (*Class III*).

Impact No.	Impact Description	Phase	Impact Classification
BIO-10	Unknown numbers of special status and non-sensitive birds and bats are at risk of dying through collisions with the WTGs over the duration of the Project.	Operations	Class I

Impact BIO-10: Avian and Bat Collisions with WTGs. Wind power has been associated with avian fatalities caused by collisions with WTGs and other wind plant structures (Orloff and Flannery, 1992; Erickson et al., 2000; Erickson et al., 2001; Johnson et al., 2002; Bio Resource, 2004). Studies indicate that raptors and passerines appear to be the most susceptible to WTG collisions in the United States (AWEA, 1995). Although avian mortality associated with wind power development

has been of primary concern, recent studies have found that bat mortality also occurs at wind plants (Erickson et al., 2000).

Groups of birds potentially at risk include raptors, migrating passerines, migrating seabirds, waterfowl, nocturnal species, and other resident species. Factors that affect the risk of the various groups to wind energy facilities, particularly WTGs, are:

- Relative level of use by avian species. (For example, in areas with greater raptor use, the risk to those species is higher.)
- Availability of prey species (such as the availability of California ground squirrels for golden eagles and red-tailed hawks).
- Availability of potential perches on the WTGs – Older style WTGs with structures that could be used as perches by raptors may increase the susceptibility of raptor fatalities.
- WTG size and rotor height – Older style WTGs were shorter with rotors that were lower to the ground, which brought a greater percentage of raptors foraging in the area into the same height as the rotors. Larger, modern WTGs are taller with rotors higher off the ground; thus, foraging raptors are less likely to collide with rotors.
- Rotor blade tip speed and rotational speed – Newer WTGs with slower speeds may be associated with lower avian fatality rates.
- Lighting—Nighttime lighting of turbines and met towers as well as exterior lighting at facilities may attract or disorient birds and increase mortality rates.
- Operating time – Although not tested quantitatively, more continuous operating time would seem to increase the risk of avian species fatalities.
- Overall number of WTGs and design of placement – The modern, larger WTGs result in fewer WTGs overall, which reduces the number of potential bird collisions with WTGs. Because there are fewer WTGs, they are spaced at wider intervals, further reducing the number of potential collisions.
- Power line height and electrocution – Power lines hang within the foraging and flying altitudes of raptors and bats and may result in electrocution should these species contact the lines. Additionally, the poles may serve as perches or nest sites for raptors and other avian species.

Based on results of surveys and literature and database review conducted for this study, bird species put most at risk by the Project are raptors (primarily red-tailed hawks, and American kestrels), migrating passerines, and other year-round resident species. Due to a lack of suitable habitats, such as ponds and wetlands, some groups of birds, including waterfowl and shorebirds, are not expected to be significantly affected.

Migration - The Gauthreaux Nexrad radar study conducted to characterize patterns of nocturnal bird migration over the project area and region (Appendix B) concluded that the overall level of nocturnal migration above the project site in both fall and spring migratory seasons in 2006-07 was very low compared to approximately 70 other U.S. sites previously analyzed by the authors. The maximum bird density recorded over the LWEP Site was 86 birds per cubic kilometer (km3) on one day in May, 2006. Density was much lower on most days during the peak migration period.

In terms of regional migration, the Gauthreaux study reports that the highest densities of birds observed in the region flew at high altitude (e.g., 2,000 to 5,000 feet) and followed trajectories just west of the Sierra Madre and San Rafael Mountains which would mean that the majority of the

spring and fall migration along the Pacific Flyway was occurring approximately 20 to 40 miles east of the LWEP Site. Regional observed bird densities were typical of the Pacific Coastline but are low compared to other regions of the U.S. analyzed by the authors: maximum densities exceeding 100 birds per km3 were detected on only 22 occasions during the four migratory periods analyzed. By comparison, peak bird densities observed in other studies described in the report ranged from 400 to 1,148 birds per km3.

The results indicated that most overland migration in Santa Barbara County follows an inland route, cutting diagonally north-northwest from the Gaviota coast, rather than following the coastline around Point Conception or above the coastal ridges and project site.

Adverse weather conditions (e.g., fog, overcast, low ceiling, drizzle, and rain) could lead to resulted in migration at lower altitudes over the project area, low enough for birds to potentially collide with wind turbines. However, the analysis also indicated that on days with adverse weather, little or no migration occurred. Of the 142 nights with adverse weather, bird densities of 25 birds per km3 or greater were detected on only 27 occasions.

The most relevant results from the Nexrad data analysis were that (1) most of the nocturnal migration events occurring in the general LWEP Site region was located 20 to 40 miles inland of the project site; (2) a majority of those birds that did fly directly over the LWEP site did so at altitudes too high to be affected by WTGs; and (3) adverse weather conditions may cause birds to fly lower over the site, but those same weather conditions also substantially reduced the amount of flyovers. The Gauthreaux report concludes: "Based on the analysis presented in this report, the Lompoc Wind Energy Project should have minimal impact on migrating birds."

Raptors – Sapphos 2007 and 2008 reports eight species of hawks, two species of falcons, four species of owls, and turkey vultures all being observed in various abundances on the LWEP site. Most of the sightings during the Olson and Sapphos surveys were of turkey vultures, red-tailed hawks, and American kestrels. Other species of raptors were observed less frequently. The red-tailed hawk, American kestrel, great horned owl, and red-shouldered hawk all nested on or in the vicinity of the Project area during the 2002 and 2008 surveys. Although red-shouldered hawks were found nesting in the vicinity of the Project area, they were only infrequently observed during surveys. Red-tailed hawks and kestrels are the raptors with the highest potential to collide with WTGs or wires.

Summarizing the data included in the 2006 Olson report focusing on the Point Count Survey results, Olson reports observing an average of 1.46 raptors for every 20 minutes of survey, which equals an adjusted rate of 2.19 raptors per 30-minute survey. This data was collected in only one season (winter) for only one year; raptor counts in this portion of southern California are typically elevated during the fall and winter, likely making the Olson average higher than a typical yearly average; therefore, some caution is warranted using these results. Out of the 11 windfarm sites that were included in Appendix G: "Estimating Impacts to Raptors Using Bird Count and Fatality Data from Existing Projects" of the CEC Guidelines that used standardized methods to collect data and were located in the western United States, the LWEP site is on the high end of the comparative values (the LWEP site has more raptor observations per 30-minute survey than nine of the eleven sites used in Table 3.5.7-2 and more than 27 out of 29 wind energy sites depicted in Figure 4 of the Appendix). For the 11 Site Comparisons in Table 3.5.7-2, the range of raptor observations was from 0.15 to 5.25 raptors per 30 minute count. Only two sites (High Winds, California and Diablo Winds,

California) have substantially higher raptor counts (High Winds = 5.25 and Diablo Winds = 4.35 raptors per 30 minute count). These two sites represent the two highest fatality rates per MW for raptors in the analysis.

The CEC Guidelines caution that the specific species mix at a particular site could alter expected mortality rates. The LWEP Site has a large percentage of raptor observations made up of turkey vulture sightings. This species is reported to have less vulnerability to collisions with towers. Removing turkey vultures from the analysis lowers the raptor use value, but the LWEP Site remains on the high end of the relatively low-fatality sites that were analyzed.

The CEC Guidelines include a regression plot which compares raptor use to adjusted fatality rates. However, this regression plot uses only 11 sites (relatively small sample size) and there is a large separation between the high raptor-use sites and the low raptor use sites, meaning this comparison should only be used to make general statements about predicting raptor mortality at a site. Using this regression plot, the LWEP Site falls in the high end of the low-use raptor sites with a range of 0.10 to 0.15 raptor fatalities per MW per year (or approximately 10 to 15 raptor fatalities each year for the 65 WTGs, slightly lower than that if consideration is made that only winter data was used).

Based on the December 2006 point count surveys, the red-tailed hawk was the second-most abundant raptor in the Project area (after turkey vulture) and, during winter months, is the raptor most at risk to collide with WTGs relative to other species, especially along the Sudden Bench/ Quarry Ridge, Middle Corridor, and Signorelli Corridor/South Corridor areas (Figure 2-2).

Studies show that species such as the turkey vulture, red-tailed hawk, red-shouldered hawk, and ferruginous hawk, among others, may be in the Project area in higher numbers during the winter (Root, 1989). In many areas of California, the density of birds is greater during fall and winter than during spring and summer; and avian assemblages during the winter are typically different from other seasons. This variation in species composition can be especially true of raptors. Raptor populations take advantage of the high prey populations found in the more temperate climates during the winter. Some raptors use the Project area only during migration or winter. Raptor numbers are augmented during those time periods by individuals traveling from elsewhere and include species like sharp-shinned hawk and Ferruginous hawk. Great horned owls, burrowing owls, and western screech owls were all recorded by Sapphos 2007 winter or 2008 spring surveys.

Peregrine falcons, golden eagles, and Cooper's hawk are expected to be present on the site regularly but in low numbers, and rare during breeding season. Nesting golden eagles have been reported in recent years in the vicinity of the Project. Recent observations have included up to four pairs.

An additional concern is that California condors (*Gymnogyps californianus*) have been released both south in Ventura County and north at the Pinnacles in San Benito County. There is a possibility that condors could be found in the Project vicinity while traveling between the two population areas or while foraging, especially during fall and winter.

As noted above, mortality risk to raptors at newer wind energy projects may be lower than earlier projects due to newer WTG design and placement (Erickson et al., 2001; Young et al., 2002). Given the results of surveys for this Project and a review of the literature for newer projects with designs applicable to the Project, estimates of raptor mortality loss could be substantial with up to roughly ten individuals a year. Most of the raptor fatalities at the Altamont Pass Wind Resource Area

consisted of red-tailed hawk, American kestrel, and golden eagle. The kestrel was three times more likely to be killed than predicted by abundance, the red-tailed hawk, six times more likely, and the golden eagle, nine times more likely to be killed than predicted. Other studies have shown species of passerines to be most frequently killed, with raptors quite low in fatalities (BioSystems Analysis, 1992). However, take of species protected by the Migratory Bird Treaty Act and California Fish and Game Code 3503.5 is prohibited. Golden eagles are protected under the Bald Eagle Protection Act of 1940.

Red-tailed Hawk: Red-tailed hawks were recorded on every one of the 27 survey dates and three to four pairs were observed to nest at the LWEP property. A count of four birds was regularly recorded with counts up to seven individuals being observed during the SAIC site visit. Birds were reported to fly below, within, and above wind turbine blade heights, with an appreciable percentage (>30 percent) within wind turbine blade heights of approximately 130 to 400 feet. Red-tailed hawks occurred over all habitats throughout the LWEP site. They prefer foraging in open and semi-open habitats or along woodland and forest edges; they may roost in eucalyptus groves, oak woodland, or other tall closed habitats at the LWEP site. The red-tailed hawk is common to abundant in appropriate habitat throughout Southern California and North America. An appreciable percentage of red-tailed hawks flew within wind turbine blade swept heights of 130 to 400 feet at the LWEP site; therefore this species is at risk of suffering injuries or fatalities resulting from collisions with WTGs.

American Kestrel: Single female American kestrels were repeatedly recorded at the LWEP property during all surveys of the project site. Observations during the 2008 spring declined from winter counts. Kestrels were observed to fly below and within wind turbine blade swept heights with fewer than 20 percent of individuals within wind turbine blade swept heights of 130 to 400 feet. Breeding activities was not observed at the LWEP Site during April and May, 2008. American kestrels occurred over all habitats throughout the LWEP site, although females in particular prefer foraging in open and semi-open habitats and may occur in other habitats depending on their activities at the LWEP site. This species is at risk of suffering injuries or fatalities resulting from collisions with WTGs.

Turkey Vulture: Turkey vultures were recorded on every one of the 27 survey dates in April and May. The largest number of 15 birds, less than the maximum number of 25 birds in winter, formed nocturnal roosts at the largest (or second largest) eucalyptus grove near the western boundary of the LWEP site, adjacent or close to VAFB. The largest number of birds observed foraging in a single flock on the LWEP property was 10 to 11 birds, also less than the 14 to 17 birds in winter. Birds flew below (<135 feet), within (135 to 400 feet), and above wind turbine blade heights (> 400 feet), with an appreciable percentage (>30 percent) within wind turbine blade heights of 135 to 400 feet. They prefer foraging in open and semi-open habitats, although they roost in eucalyptus groves or other closed habitats and a few pairs may nest in closed or dense habitats at the LWEP site. This species is reported to have less vulnerability to collisions with WTGs than other raptors, so the threat to this species would not be substantial.

Sensitive Species - Eleven special status species and eleven species of local concern (or CDFG Watch List species) were observed during the avian surveys within the LWEP Site.

Of the total of four federally or state listed species that were determined to have the potential to be present within the LWEP property as a result of the literature review, only the peregrine falcon was

observed to be present on the proposed project site. The remaining three listed species (yellow-billed cuckoo, willow flycatcher, and least Bell's vireo) have only a low potential to be present at the proposed project site.

The eleven special status species observed during the avian surveys included: peregrine falcon, golden eagle, northern harrier, white-tailed kite, Vaux's swift, olive-sided flycatcher, yellow warbler, yellow-breasted chat, loggerhead shrike, burrowing owl, and grasshopper sparrow.

Peregrine Falcon: This species was regularly observed in low numbers (one to two individuals) during all of the surveys and site visits. One adult bird was observed hunting on May 29, 2008, at various heights above ground (40–500 feet) over the North Ridge. These individuals were probably local breeding residents from VAFB, which is adjacent to the LWEP property. Peregrine falcons do not nest at the LWEP site, but several pairs nest at VAFB. Peregrine falcons may occur over all habitats throughout the LWEP site for foraging, although they generally avoid closed forest and are most frequently detected foraging over open habitats such as non-native grassland. Peregrine falcons fly within wind turbine blade heights of 130 to 400 feet at the proposed LWEP site; therefore, this species is at risk of suffering injuries or fatalities resulting from collisions with WTGs.

Golden Eagle: Single birds (immature, sub-adult, age unknown) were regularly observed over the LWEP Site, over non-native grasslands and central coast scrub at heights below and within the rotor sweep altitudes (130–400 feet). Golden eagles occurred over all habitats throughout the LWEP site, depending on their activities, but were most frequently detected foraging over open habitats such as non-native grassland. Golden eagles may fly within wind turbine blade heights of 130 to 400 feet at the LWEP site, and under certain foraging conditions, such as when suitable prey like California ground squirrels are concentrated. Golden eagles are at risk of suffering injuries or fatalities resulting from collisions with WTGs.

Northern Harrier: Four single northern harriers were observed hunting at low heights above ground (< 100 feet) within the proposed project boundary on April 8, April 10, May 3, and May 4, 2008. These birds were probably overwintering individuals rather than spring migrants. About 12 pairs of northern harriers are known to nest nearby at VAFB, but no birds were detected within the LWEP site after early May. Northern harriers may fly over all habitats throughout the LWEP site, although they prefer foraging in open and semi-open habitats and generally avoid forested closed habitats. Although this species is expected on the site in low numbers for much of the year, northern harriers are at risk of suffering injuries or fatalities resulting from collisions with WTGs.

White-tailed Kite: One white-tailed kite was observed perched on a fence post in a pasture on April 22, 2008 and other individuals have occasionally been observed during previous surveys of the site. White-tailed kites may fly over all habitats throughout the LWEP site, although they prefer foraging in open and semi-open habitats and generally avoid forested closed habitats. The white-tailed kite is listed as a fully protected species by the California Department of Fish and Game (CDFG). Listing as a fully protected species means that white-tailed kites may not be taken at any time and no licenses or permits may be issued for their take. This species is expected on the site in low numbers for much of the year, and are at risk of suffering injuries or fatalities resulting from collisions with WTGs.

Vaux's Swift: One Vaux's swift was observed on April 16, 2008, and a flock of three birds was observed on April 30 flying over the LWEP property at various heights above ground elevation

(40–500 feet). Vaux's swifts may fly over all habitats throughout the LWEP site (2,950 acres). Vaux's swift, an aerial insectivore, frequently migrates at altitudes (135–400 feet) that could result in collisions with wind turbine blades. Vaux's swift is primarily a diurnal (not nocturnal) migrant, so it is less vulnerable to collisions with wind turbine blades during migration events.

Olive-sided Flycatcher: One olive-sided flycatcher was observed in a willow thicket and eucalyptus grove on May 30, 2008, within the proposed project boundary. Olive-sided flycatchers during spring migration may occur in all wooded habitats on the LWEP site, particularly where snags are present in well-wooded canyons. This species is expected in relatively low numbers and in habitat not affected by WTGs and is unlikely to be affected by collisions with WTGs.

Yellow Warbler: This species has been observed in the willow riparian habitat on the LWEP Site but rarely flies at altitudes high enough to be affected by WTGs. This species is expected in relatively low numbers and in habitat not affected by WTGs and is unlikely to be affected by collisions with WTGs.

Yellow-breasted Chat: This species has been observed in the willow riparian habitat on the LWEP Site. One singing male was present along lower Honda Creek on the LWEP property at the boundary with VAFB on May 14 and 15, 2008. This species is expected in relatively low numbers and in habitat not affected by WTGs and is unlikely to be affected by collisions with WTGs.

Loggerhead Shrike: This species has been observed in low numbers, predominantly during the winter. Shrikes typically fly at heights lower than the rotor sweep area and therefore, due to their low numbers and typical flight behavior, are not likely to be affected by collisions with WTGs.

Burrowing Owl: Two burrowing owls were observed during the Sapphos winter surveys from February 26 through March 12, 2008. This species was observed in annual grassland on the North Ridge within approximately 100 feet of a proposed WTG site. Two burrows showed evidence of repeated activity. This species is not known to nest on the property. Although this species is expected in low numbers during the winter, the proximity of a proposed WTG to known wintering habitat, and the fact that this species has been recorded as being susceptible to collisions at other windfarm sites, this species is at risk of suffering injuries or fatalities resulting from collisions with WTGs.

Grasshopper Sparrow: Many grasshopper sparrows occurred in non-native grasslands, annual grasslands, and grassland coastal scrub mosaic habitats at the LWEP site during April through June, 2008. Like other scrub species, the grasshopper sparrow rarely flies above 30 feet. This species is expected unlikely to be affected by collisions with WTGs.

Seven locally important species were observed during the avian surveys within and/or near the boundary of the proposed project: Cooper's hawk, sharp-shinned hawk, horned lark, rufous-crowned sparrow, Bell's sage sparrow, Swainson's thrush, and blue grosbeak. Only one Swainson's thrush was observed on the LWEP Site and is therefore not expected to be impacted by collisions with WTGs.

Cooper's Hawk: Adult breeding individuals of Cooper's hawk were observed in Sapphos 2008 surveys in central coast riparian scrub and evergreen forest and woodland habitats. Individual birds were recorded flying at both low heights above ground for foraging and at higher altitudes

during male display flights. Cooper's hawks occurred over all habitats throughout the LWEP site during foraging. Nest sites of Cooper's hawk were observed over 2,000 feet away from proposed wind turbine locations at the LWEP site. Due to its location downslope along Honda Creek and 2,000 feet away from the WTC boundary and approximately 2,200 feet from the nearest proposed wind turbine, impacts to active Cooper's hawk nest within the LWEP property are not anticipated as a result of construction, operation, and maintenance of the proposed project. However, Cooper's hawks do fly at altitudes within the rotor sweep area of the WTGs and are therefore, are at risk of suffering injuries or fatalities resulting from collisions with WTGs.

Sharp-shinned Hawk: Single birds were observed hunting on two days (April 15–16, 2008) at low heights above ground (< 100 feet) in the Honda Creek valley. The single birds were adults. Like Cooper's hawk, sharp shinned hawks occurred over all habitats throughout the LWEP site during foraging. Although this species is expected on the site in low numbers for much of the year, sharp-shinned hawks are at risk of suffering injuries or fatalities resulting from collisions with WTGs.

Horned Lark: Horned larks were widely distributed along all surveyed ridgelines on proposed impact areas (except for the northern portion of the Larsen landholding). The largest flock size in spring, 2008 was less than 10 birds, a sharp decline from the maximum flock size of 41 in winter, and flock formation ceased after early April. The number of horned larks remaining in spring at the LWEP site was greater than documented previously. Except for one singing male temporarily on territory in the largest arable field, the horned lark was recorded only on non-native annual grassland and grassland-central coast scrub mosaic habitats. Horned larks are susceptible to collisions with wind turbines, especially breeding males during display flights; therefore, this species is at risk of suffering injuries or fatalities resulting from collisions with WTGs.

Blue Grosbeak: Several pairs of this species were observed in old field edges of central coast scrub, central coast riparian scrub, and agricultural field habitats in April through June 2008. This species typically flies below the rotor sweep zone of the WTGs and is unlikely to be substantially affected by collisions with WTGs.

Rufous-crowned Sparrow: Three singing males were recorded at three sites within the proposed project boundary on April 10, April 21, and May 5, 2008; two of these three birds were not recorded thereafter. These two birds may have nested in the vicinity, but because they did not remain at these sites for any length of time, they are likely dispersing individuals. Rufous-crowned sparrows will typically occur within central coast scrub habitat (< 852.7 acres). All three occupied areas, on steep hillsides that contain rocky knolls, are located away from proposed project impact areas. Like other scrub species, the rufous-crowned sparrow rarely flies above 30 feet. The low number, behavior, and habitat specificity of rufous-crowned sparrow where they do not occur within proposed project impact areas suggests that implementation of the proposed project is not anticipated to result in significant impacts to this species.

Bell's Sage Sparrow: This species was observed in chaparral and coastal scrub mosaic habitats near the LWEP site during previous surveys of the site (Sapphos did not report seeing this species during the 2007-2008 surveys). Like other scrub species, the sage sparrow rarely flies above 30 feet. Due to the lack of this species' preferred habitat, this species is not expected to be substantially affected by collisions with WTGs.

Passerines – Passerines have comprised the vast majority of fatalities at previously studied wind energy projects (Erickson et al., 2000; Johnson et al., 2000; Young et al., 2002). At some sites, passerines have accounted for more than 80 percent of all fatalities. Horned larks (*Eremophila alpestris*) were the most commonly observed fatality at the Vansycle and Foote Creek Rim projects (Erickson et al., 2001; Young et al., 2002). Passerines made up a majority of sightings during surveys for this Project. Horned larks were quite common in the heavily grazed annual grassland (Olson and Rindlaub, 2006). During the December 2006 point count surveys, the western bluebird, yellow-rumped warbler, white-crowned sparrow, and golden-crowned sparrow represented the largest numbers of passerines (Olson, 2007).

Other migratory passerines, such as the Say's phoebe and Western bluebird may increase in numbers during the winter months. Say's phoebe were observed in high, open points with non-native grassland or Central Coast scrub on West and Scolari ridges during winter and were absent during breeding season. The Western bluebird increased in flock size over winter and was also observed during nesting season (Olson, 2007). This species was observed in mostly grassland areas near ridge tops (Signorelli and South Ridge) and "saddles" between ridges. Large flocks of golden-crowned and white crowned sparrows (up to 76 and 86 individuals, respectively) were observed during point count surveys in December 2006, sometimes in mixed flocks of both species. Sightings occurred on Sudden Bench, Quarry Ridge, Scolari Ridge, and West Ridge (Olson, 2007). Numbers of lark sparrows increased in winter, suggesting use of the area by migrating individuals. Up to 38 individuals were observed per survey along the grassland hillsides on Scolari and West Ridges. This species is known to nest in the area, but in smaller numbers. The Western meadowlark is a common nesting species in the project area, but was also observed in flocks during the December 2006 point count survey and in September 2002 and August 2005 (Olson 2007). This species was often observed on grassland hillsides, sometimes on grassland ridgetops and saddles (Sudden, Middle, Quarry, Signorelli, and South Ridges).

Limited observations of the American pipit were made in December 2006 as incidental sightings only (not during the timed counts). This species was observed in grassy areas that were crossed by small drainages with a small amount of standing water, especially in the North Ridge area. This species was not observed during nesting season, indicating that it may be a transitory species in the area (Olson, 2007).

As such, fatalities of passerines in general and of California horned larks (*Eremophila alpestris actia*), in particular, are expected during the operation phase.

Bats – At least ten species of bats (including four sensitive species) were recorded in the project area during the 1997/1998 surveys on VAFB. Three of these species were again recorded during the 2008 bat surveys on the LWEP. Pallid bats are the most likely sensitive species to be present on the site with any regularity.

WTGs can cause bat fatalities; however, the potential for bat collisions varies among locations (Johnson et al., 2003 and 2004; Johnson, 2004), and the reasons for the collisions are poorly understood (Kunz, 2004). Bat mortality at wind farms has been documented in 11 states (Johnson, 2004 and 2005) with the highest rate of mortality occurring in the Eastern United States. Migratory species, such as hoary bat, red bat, and silver-haired bat, have comprised the vast majority of bat fatalities at previously studied wind energy projects; susceptibility appears to be highest in the fall. WTGs located on and near ridgelines or in areas that would support bat foraging which is typically

associated with open water (stockponds) or riparian areas that would have large concentrations of invertebrates, would have the greatest potential to cause impacts to bats.

Studies at the Foote Creek Rim and Vansycle Ridge projects yielded estimates of 1.5 and 0.7 bat fatalities per WTG per year, respectively (Erickson et al., 2000; Young et al., 2002). A recently released monitoring report for the High Winds project in Solano County has documented 279 bat fatalities between 2004 and 2005 (Kerlinger et al., 2006). The actual number of fatalities at the Project could be lower or higher depending on use of the area, particularly by migrating bats.

Night lighting on the WTGs may disorient or distract nocturnal avian species and bats. Additionally, lighting may attract insects, which in turn, may attract bats to forage upon the insects, increasing the potential for collisions with the WTGs.

Impact Significance – As discussed in Section 3.5.3, a number of federal and state regulations prohibit the nonpermitted take of any migratory birds, golden eagles, white-tailed kites, or threatened or endangered species. Several bats are considered California species of special concern and are given consideration during the environmental review process by CDFG. Because unknown but potentially substantial numbers of protected birds and bats are at risk of dying through collisions with the WTGs over the duration of the Project, and currently there is no proven method to prevent such collisions, this impact is considered significant and unavoidable (*Class I*).

Impact No.	Impact Description	Phase	Impact Classification
BIO-11	Birds and bats may collide with power poles and meteorological towers.	Operations	Class II

Impact BIO-11: Avian and Bat Collisions with Power Lines and Meteorological Towers. Birds may collide with power poles and meteorological towers, resulting in fatalities, or they may collide with power lines and become electrocuted. The susceptibility of bats to such collisions is not well understood. Collisions with power lines can occur when bat roosts are located nearby. Apparently, the strikes occur when bats first come out of the roost in large numbers (H. Johnson, Personal Communication). Because substantial losses could occur over the Project duration, the loss of birds and bats due to collisions with the power lines would be a significant, but mitigable impact (*Class II*).

Impact No.	Impact Description	Phase	Impact Classification
BIO-12	Birds with habitat within 200 feet of WTG towers may be displaced.	Operations	Class III

Impact BIO-12: Avian Displacement from WTGs. Studies conducted in the United States, particularly at Buffalo Ridge, Minnesota, have shown displacement of some groups of birds at distances of 100 to 180 meters from WTGs. The birds affected included shorebirds, waterfowl, woodpeckers, and some passerines (Olson and Rindlaub, 2006; Leddy et al., 1999; Johnson et al., 2000a). Beyond the 100- to 180-meter distance, densities of birds evened out again. With a few exceptions such as mountain plovers (*Charadrius montanus*), no group of birds appeared to be displaced by the construction and operation of the Foote Creek Rim wind energy plant (Johnson et al., 2000b). Based on review of previous studies, displacement impacts to some groups of birds utilizing grassland and chaparral habitats, including passerines, are expected to be limited to areas within several

hundred feet of the WTGs. The loss of avian and bat aerial habitat surrounding each wind turbine would include the loss of foraging habitat for raptors and other avian species, the loss of sensitive species habitat, and the potential impacts on natural wildlife movement corridors.

The loss of aerial habitat to any particular bird or bat is the amount of space no longer available for that bird or bat due to the presence of any individual WTG or any group of WTGs. It is expected that different bird and bat species will react differently to the presence of an obstacle in their flight trajectory, especially with the different angles birds or bats might approach the turbines, the difference in topography throughout the site, and with the variety of different weather conditions possible on the site that could influence direction and height of bird or bat flight.

Although the turbines are expected to predominantly face the direction of the prevailing winds from the north-west, the turbines can move in a complete circle around the tower axis. The aerial loss of habitat would include the area in front of, behind, and on both sides of every WTG that a bird or bat would have to avoid in order to avoid a collision with the turbine. If an individual bird was to alter its course above, below, or around a turbine tower it would need to alter its course several hundred feet (approximated at 200 feet) before that obstacle in order to avoid collision without flying at an acute angle. To avoid a collision if the bird was flying on a trajectory in the same plane as the turbine blades approximately 130 feet long, the bird would have to alter its course several hundred feet before the tip of the rotor sweep area.

At present, there is no generally accepted method or model to compute the loss of aerial habitat at wind farms. For purposes of this analysis, we assume that the loss of aerial space for each WTG is represented as a column of air around each WTG roughly 400 feet in diameter. This calculation includes a buffer zone to compensate for the loss of aerial habitat that results when several WTGs are located in a string (as proposed), creating a "wall effect" that could cause birds to fly around the end of the WTG string. These assumptions are conservative, in that the entire vertical air column, including a buffer zone around each WTG, is counted as lost aerial habitat[9].

Base on this approach, the loss of aerial habitat on the LWEP site has been estimated as follows:

pi x r^2 = the area of a circle.

3.14 x $(400)^2$ = 70,650 square feet

= 2.88 acres per turbine

x 65 turbines

= a loss of 187.2 acres.

This loss of aerial habitat would interfere with normal avian and bat behavior and impede wildlife movement of species of birds and bats that fly through the LWEP Site including several sensitive species. The estimated 187 acres of lost aerial habitat comprises approximately 6.3 percent of the total aerial habitat (2,950 acres) available to bird and bat species on the project property. The surrounding area, including VAFB property on the south and west and sparsely populated rural areas to the north and east, offers abundant aerial habitat for bird and bat species. According to the applicable thresholds (Section 3.5.7.2), the loss of aerial habitat would be considered significant if it

9 The area calculation is very sensitive to assumptions on the buffer area dimensions, as area equals pi x r^2 .

would substantially fragment, eliminate, or otherwise disrupt foraging areas and/or access to food sources, or substantially limit or fragment range and movement. The reduction in aerial habitat is a minor change, given the amount of similar habitat in the vicinity. Therefore, the impacts are considered to be adverse but less than significant (Class III).

Impact No.	Impact Description	Phase	Impact Classification
BIO-13	Indirect impacts to wildlife during construction would result from a variety of sources, which could result in temporary displacement. During operations, increases to impacts compared to pre-Project levels would be minor.	Construction and Operations	Class III

Impact BIO-13: Indirect Impacts (Wildlife). Indirect impacts during construction would result from a variety of sources, including increases in human activity, noise, dust, and vehicle emissions, that could potentially result in the displacement of wildlife species. However, impacts would be temporary and localized and would not result in a significant disruption to wildlife, which would be expected to return upon the completion of construction. Temporary lighting may be required if construction occurred during nighttime hours. Impacts from lighting would continue into the O&M phase with required lighting and/or flashing beacons placed on top of WTGs and met towers. Lighting is known to disorient nocturnal species of migrating birds. Spills of hazardous materials, such as diesel, oil, grease, and ethylene glycol, and eroded soil may be deposited into nearby surface water sources after rainfall events, leading to impacts to wildlife that depend on these sources of water. Construction equipment and O&M trucks would be properly maintained to minimize leaks of motor oils, hydraulic fluids, and fuels. Major vehicle maintenance would be performed offsite at an appropriate facility. Gasoline and diesel powered vehicles and equipment would be refueled onsite at designated locations by a mobile fuel service truck using spill containment measures. Handling of hazardous liquids would be subject to a Hazardous Materials Management Plan and Fire Protection Plan approved by the County Fire Department. Additionally, the environmental compliance program would cover avoidance of sensitive areas during construction, waste handling and storage, stormwater management, spill prevention and control, and other components required by state and county regulation.

These potential impacts would continue into the O&M phase; however, following construction, on site activities during Project O&M would be relatively minor. Thus, increases compared to pre-Project levels would be minor.

Indirect impacts would be adverse, but less than significant (*Class III*), because they would not substantially reduce or eliminate species diversity or abundance.

Impact No.	Impact Description	Phase	Impact Classification
BIO-14	Invasive species carried from other work sites may establish on site and displace native plant species or interfere with revegetation; and topsoil removal and equipment operation may reduce the ability of soils to support vegetation.	Construction and Operations	Class II

Impact BIO-14: Indirect Impacts (Vegetation). Equipment and vehicles brought onto the Project site during construction and maintenance activities may harbor seeds of invasive plant species from other work sites, which may result in the introduction of these species to the Project site. These invasive species may displace native plant species and lower habitat values for wildlife. Topsoil also would be removed from some areas and be compacted in others resulting in reduced capacity to support vegetation or revegetation. These impacts would be significant, but mitigable *(Class II)*.

3.5.7.4 Mitigation Assessment Methodology

Mitigation measures for impacts to biological resources were developed by reviewing the type of impacts identified (direct versus indirect and temporary versus permanent) and the timing of actions that would result in an impact to biological resources. Applicant-proposed mitigation measures are considered part of the Project description, but they have been refined and augmented to reflect the County Standard Conditions of Approval and Mitigation Measures (Santa Barbara County, 2002), including the addition of plan requirements, timing, and monitoring actions that will be required. In addition, avoidance and protection measures to be implemented by PG&E during the design, construction, and operation of the 115 kV power-line are provided in Section 2.8.5.

Project-specific mitigation measures are described in Section 3.5.7.5 followed by a discussion of residual impacts remaining after mitigation are included in Section 3.5.7.6.

3.5.7.5 Mitigation Measures

Mitigation measures are organized into the following categories: (1) education and awareness, (2) vegetation and habitat, (3) wetland and riparian habitat, (4) general wildlife (5) special-status wildlife, and (6) avian and bat aerial habitat loss and mortalities. The plan requirements, timing, and monitoring are identified for each measure. The measures shall be implemented by a County-approved biologist or botanist, or both, with demonstrated experience in construction monitoring and familiarity with the sensitive resources of concern at the Project site.

Education and Awareness Mitigation Measure

Mitigation Measure BIO-1: Worker Education and Awareness Program. The Applicant shall fund a County-approved biologist to develop and implement a worker education and awareness program (WEAP) specific to the Project. The program shall be presented to all individuals involved in the construction and O&M phases of the Project. The program shall include information focused on sensitive habitats and species and shall include, but not be limited to, the following:

- The natural history, including sensitive species and habitats, shall be described as well as the current status, reasons for decline, and protection measures relevant to the species and habitats.
- Contact points shall be provided for workers to report sightings of sensitive biological resources such as Gaviota tarplant, active bird nests, badger dens, and roosting bats and raptors in the vicinity of Project facilities.
- Workers shall be provided with photographs of sensitive biological resources including sensitive wildlife and plant species, den and burrow entrances, and nest structures. Qualified biologists, familiar with El Segundo blue butterfly (ESBB) and Gaviota tarplant, will provide a brief educational program for all

personnel prior to initiation of any construction activities within the project site. The program will include identification of ESBB, its host plant, coast buckwheat, and Gaviota tarplant; the general provisions and protections afforded to ESBB and Gaviota tarplant by the Endangered Species Act; and measures to be implemented during the Project to avoid and minimize adverse effects to ESBB and Gaviota tarplant.

- Workers shall be informed verbally and in writing of the various Project tasks that require biological surveys and monitoring for resource protection.
- Workers shall be provided with a photograph or description of the markers for active bird nests, trees, salvaged topsoil piles and windrows, or other mitigation areas, so that they shall know these are not to be disturbed without a biological monitor present.
- Workers shall be provided with photographs of invasive weeds and instructed to report to the biologist any new populations observed near Project facilities.
- Workers shall be informed not to litter. All trash and litter shall be picked up and removed from the construction sites at the end of each day.
- Workers shall be informed to obey a speed limit of 15 miles per hour while traveling on the Project site to avoid collisions with wildlife.
- Workers shall avoid driving over or otherwise disturbing areas outside the designated construction areas.

Plan Requirements: The Applicant shall submit the WEAP to the County for review and approval 30 days prior to implementation. All workers, contractors, and visitors shall attend the WEAP prior to entering the Project site and performing any work. The Applicant shall provide copies of the training attendance sheets to County staff as a record of compliance with this measure on a monthly basis. Trained crew members shall receive a sticker for their hardhat from the County EQAP Inspector demonstrating WEAP training.

Timing: The WEAP shall be reviewed and approved by the County prior to zoning clearance. Implementation of WEAP training shall occur prior to the start of construction and as new crew members are added to the project.

MONITORING: The County will ensure compliance with the WEAP throughout all phases of construction and operation by review of attendance sheets and hardhats, inspection of the site, and interviewing workers, as appropriate. *This mitigation addresses all impacts related to initial habitat disturbances, which encompasses Impacts BIO-1 through BIO-9, and BIO-14.*

Vegetation and Habitat Mitigation Measures

Mitigation Measure BIO-2: Ground Disturbance. The Applicant shall minimize the amount of disturbance to the extent feasible including areas devoted to WTGs; power line poles; temporary and permanent access roads; stockpiles; staging, parking and lay down areas; areas where spoil shall be used to control erosion; and areas for associated facilities. Construction activities shall avoid sensitive areas, such as riparian zones, forests, etc., where feasible. Construction shall avoid all wetlands regulated by Santa Barbara County, CDFG, and USACE (see Mitigation Measure BIO-9) where feasible. Parking, lay down, storage areas, and other sites of superficial disturbance shall be located in previously disturbed areas or in annual grassland (except in Gaviota tarplant habitat) and will be mowed, versus graded, where feasible to keep root structures in place; thereby, facilitating future revegetation. Permanent access roads shall follow routes used for construction access to reduce the

amount of new road construction. Vehicles and equipment access shall follow marked routes. Indiscriminant cross-country vehicle travel shall not be allowed.

Plan Requirements: The detailed plans, showing the limits of the grading, ground disturbance, and installation of facilities will be reviewed and approved by County staff.

Timing: The plans shall be approved by the County prior to zoning clearance for the first and all subsequent construction phases.

MONITORING: County staff will inspect the Project plans and site, as well as review the restoration plan to ensure compliance with this measure as appropriate. County staff will monitor construction and revegetation activities to ensure the plan is fully implemented. *This mitigation addresses all impacts related to initial habitat disturbances, which encompasses Impacts BIO-1 through BIO-9 and BIO-14.*

Mitigation Measure BIO-3: Site Restoration and Revegetation Plan. The Applicant shall retain a County-approved botanist to prepare and implement a site restoration and revegetation plan. The plan shall include the following requirements and other provisions as appropriate:

- Top soil, and the seed bank it contains, shall be conserved on areas where soil is excavated such as WTG sites, access roads, and transmission pole locations. Salvage shall be accomplished by:
- Woody material shall be removed from the soil surface and piled in an area that will be out of the way during construction. The upper 6 to 8 inches of soil shall be scraped from the disturbance footprint and piled into a windrow in an area that will not be disturbed during construction.
- Topsoil stockpiles shall be clearly marked for avoidance.
- Windrows shall be immediately protected from wind erosion by covering them or hydromulching them to protect the pile from wind erosion. Wind erosion protection shall be renewed as needed.
- Salvaged topsoil shall be respread on areas that will be revegetated following construction. Salvaged topsoil versus subsoil shall be used for this purpose unless the location is very weedy.
- At final grade, the last few inches shall not be compacted to more than 75 percent to facilitate penetration by plant roots. Salvaged topsoil shall be spread over the finish grade. The grade shall not be completely smoothed. Small ridges shall be provided for seedling wind protection and to collect moisture from rain and fog. Hydroseed with soil stabilization seed mixture shall be applied between October 1 and mid-November. The hydroseed mix shall contain a mulch and binder to retard wind erosion by providing a crust over the soil surface. Native plant seeds shall be added to the hydroseed mixture or hand broadcasted onto the site just prior to hydroseeding. Care shall be taken to avoid premature germination of native species caused by prolonged immersion in the hydroseeder. On slopes, the Applicant shall augment the erosion control seed mixture with seed of native coastal scrub species native to the site and collected from the Project region. Appropriate seed mixtures for use on grassland and coastal scrub areas shall be developed in consultation with and approved by CDFG and County staff using seed of native species originating from the area between the Santa Ynez River and Hollister Ranch, and inland as far as California State Highway 1. Recommendations from USDA Natural Resources Conservation Service for reseeding of agricultural grazing areas will be sought and incorporated as approved by the above agencies. The use of non-native species considered detrimental to agricultural grazing will be avoided.
- For localized areas dominated by weedy species not palatable to livestock, the plan should consider a "grow-kill" approach that would include cycles of irrigation followed, after a suitable delay, by physical or chemical weed control methods to reduce the seedbank of weedy species by germinating them and killing the resulting seedlings prior to final seeding of the treated area.

- Where central coast scrub or central coast scrub/grassland mosaic has been removed by construction, revegetation will include coast buckwheat in the seed mix.
- The restoration areas shall be monitored for a minimum of 3 years by a qualified botanist. Weed control shall be started within 3 months of planting, or earlier if weeds have begun to flower. Weeding shall proceed as frequently as necessary to prevent weeds from spreading off the Project site into the adjacent area and to prevent seed set. An effort shall be made to cut weeds before they develop seeds to minimize the spread of invasive weeds. Cut mustard shall be hauled off the site and disposed of where the toxins in the stems shall not affect other plants. Any new weed species not present in the Project area prior to construction shall be eradicated. At the end of the three year monitoring period the qualified biologist shall prepare a monitoring report detailing the success of the restoration efforts and shall provide recommendations, if needed. This monitoring report shall be submitted to the County for review and approval.

Plan Requirements: The detailed grading plan, showing the limits of the grading, will be reviewed and approved by the County staff prior to approval of the tentative Project map. The Applicant shall prepare a restoration plan and submit it to County staff for approval. The plan shall be designed to address restoration during all phases of development of the site and shall include success criteria to determine whether restoration is proceeding as expected. The Applicant shall file a performance security with the County to complete restoration.

Timing: The plan shall be approved by the County prior to zoning clearance for the first and all subsequent construction phases. The plan shall be implemented during and after construction of the first and all subsequent Project phases. Seed application using a hydroseeder shall occur between October 1 and mid-December. Other methods of applying native seed (e.g., drill seeding, broadcast seeding followed by incorporation) can be implemented at other times, however it is preferable to apply the seed to coincide with the onset of the fall-winter rainy season. The monitoring report shall be submitted to the County at the end of the three year monitoring period.

MONITORING: County staff will inspect the Project plans and site as well as review the restoration plan and final monitoring report for compliance with this measure as appropriate. County staff will monitor construction and revegetation activities to ensure the plan is fully implemented. *This mitigation addresses all impacts related to the loss of habitat, which encompasses Impacts BIO-1 through BIO-6.*

Mitigation Measure BIO-4: Tree Protection and Replacement Plan. The Applicant shall retain a County-approved botanist or arborist to design and implement a tree protection and replacement plan in order to protect existing native trees and minimize adverse effects of grading and construction. No ground disturbance, including grading for buildings, access ways, easements, and subsurface grading, shall occur within the critical root zone of any native tree unless specifically authorized by the approved tree protection and replacement plan. The tree protection and replacement plan shall include the following measures:

a. The plan shall show the location, diameter at breast height (DBH), and critical root zone of all native and specimen trees that are potentially subject to disturbance due to Project construction and operational activities, including transport of large loads on San Miguelito Road or onsite access roads.

b. The tree protection plan shall clearly identify any areas where grading, trenching, or other construction related activities would encroach within the critical root zone of any native or

specimen tree and within 6 feet of the drip line for blue oaks and valley oaks. All encroachment is subject to review and approval by the County.

c. Fencing of all native and specimen trees shall be installed to protect the critical root zone. (All onsite oaks shall be fenced outside of the critical root zone and all blue oaks and valley oaks shall be fenced at least 6 feet beyond the drip line). Fencing shall be at least 3 feet in height of chain link or other material acceptable to the County and shall be staked every 6 feet. The Applicant shall place signs stating "tree protection area" at 15-foot intervals on the fence. Fencing and signs shall be shown on the tree protection exhibit, shall be installed prior to zoning clearance, and shall remain in place throughout all grading and construction activities.

d. Any encroachment within the critical root zone of native trees and within 6 feet of the drip line for blue oaks and valley oaks shall adhere to the following standards:

   i Any paving shall be of pervious material (gravel, brick without mortar, or turf block).

   ii Any trenching required within the critical root zone of a protected tree shall be done by hand.

   iii Any roots 1 inch in diameter or greater encountered during grading or trenching shall be cleanly cut and sealed.

e. Construction equipment staging and storage areas shall be located in designated staging and lay-down areas depicted on Project plans submitted for zoning clearance. No construction equipment shall be parked, stored, or operated within the protected areas. No fill soil, rocks, or construction materials shall be stored or placed within the protected area.

f. All utility corridors and irrigation lines shall be shown on the tree protection exhibit. New utilities shall be located within roadways, driveways or a designated utility corridor such that impacts to trees are minimized.

g. Any tree wells or retaining walls shall be shown on the tree protection plan exhibit as well as grading and construction plans and shall be located outside of the critical root zone of all native trees and 6 feet beyond the drip line for blue oaks and valley oaks unless specifically authorized by the County.

h. Access routes for equipment shall be checked for clearance prior to bringing any equipment onto the site. All trees and shrubs that require limbing or pruning shall be prepared at least 2 days prior to the arrival of the equipment and adhere to the following standards:

   i All limbing shall be done under the supervision of a licensed arborist or qualified biologist.

   ii Any inadvertently broken limbs shall be cleanly cut under the direction of a licensed arborist or qualified biologist.

   iii In the event that damage to a native tree is so severe that its survival is compromised, the tree shall be replaced in kind as mentioned below for native trees.

i. Only trees designated for removal on the approved tree protection plan shall be removed. Any native trees which are removed, relocated, or damaged (more than 20 percent encroachment into the critical root zone or drip line for blue oaks and valley oaks) shall be replaced on a 10:1 (15:1 for blue oak and valley oak trees) basis with 1 gallon size saplings of the same species

grown from seed obtained from the same watershed as the Project site. Where it is necessary to remove a tree and feasible to replant, trees shall be boxed and replanted. A drip irrigation system with a timer shall be installed. No permanent irrigation shall occur within the critical root zone of any native or specimen tree and within 6 feet of the drip line of blue oak and valley oak trees. Drainage plans shall be designed so that tree trunk areas are properly drained to avoid ponding. Trees shall be planted, irrigated, and maintained until established (up to 5 years). The plantings shall be protected from predation by wild and domestic animals and from human interference by the use of staked, chain link fencing, and gopher fencing during the maintenance period.

j. Any unanticipated damage that occurs to trees resulting from construction activities shall be mitigated in a manner approved by the County. This mitigation shall include, but is not limited to, posting of a performance security, replacing native trees on a 10:1 (15:1 for blue oak and valley oak trees) ratio, and hiring a County-qualified arborist/ biologist to evaluate all proposed native tree and shrub removals within 25 feet of potential ground disturbances. The arborist/biologist report shall present biologically favorable options for access roads, utilities, drainages, and structure placement, taking into account native tree and shrub species, age, and health with an emphasis on preservation. All development and potential ground disturbances shall be designed to avoid the maximum number of native trees feasible. The required mitigation shall be undertaken immediately under the direction of the County, and a specific and detailed plan for replacement of all affected trees, including location and timing, shall be approved by the County prior to any further work occurring on site. Any performance securities required for installation and maintenance of replacement trees shall be released by the County after its inspection and approval of such installation.

Plan Requirements: This requirement shall be recorded with the final Project plans. The Applicant shall submit grading plans, building plans, and the tree protection and replacement plan to the County for review and approval. All aspects of the plan shall be implemented as approved. The Applicant shall post a performance security that is acceptable to the County to guarantee tree replacement.

Timing: The Tree Protection and Replacement Plan shall be approved by the County, and evidence of having obtained the performance security shall be provided to the County prior to zoning clearance for the first and all subsequent Project phases. Timing on each measure shall be stated where applicable; where not otherwise stated, all measures must be in place throughout all grading, construction, and operational activities.

MONITORING: The County will inspect the plans and site throughout all phases of development to ensure compliance with and evaluation of all tree protection and replacement measures. *This mitigation addresses all impacts related to the loss of trees, which includes Impacts BIO-2 and BIO-4.*

Mitigation Measure BIO-5: Pre-construction Plant Surveys. The Applicant shall retain a County approved botanist to conduct appropriately timed pre-construction surveys for sensitive native plant species, including lichens, in all areas to be disturbed, including power line pole locations and access roads. In the unlikely event that a federally listed plant species is found on or near an area to be disturbed by the project, the FWS will be notified and the project will be adjusted to avoid impact and other species protection measures recommended by the Service will be implemented. If a substantial portion of a "stand" of CNPS-listed or locally rare species shall be removed for the Project and

adjustment of the disturbance area boundaries to avoid the impact is not feasible, the loss will be mitigated by collection of seeds or other propagules from the plants during the appropriate time of the year. The seed or propagules shall be used for restoration in the immediate area (if suitable habitat continues to be present) or on a nearby, suitable location. In the case of lichens having regional significance, the lichenologist shall make recommendations of feasible methods to relocate and re-establish the lichens at a suitable nearby site, if avoidance is not feasible. Methods may include collecting, moving, and emplacing a sample of substrate supporting the lichen at a suitable site nearby. The upper 3 to 6 inches of soil (topsoil and seedbank) shall be salvaged in all areas where the terrain allows it. Topsoil shall be windrowed and marked to keep it separated from other spoil. Topsoil piles shall be stabilized by covering the windrows or by spraying with hydromulch and binder to protect the soil from wind erosion. Salvaged topsoil shall be spread over all restored areas.

Plan Requirements: The detailed grading plan, showing the limits of the grading, shall be reviewed and approved by County staff prior to approval of the tentative Project map. If surveys indicate that replacement of sensitive native plants is necessary, the Applicant shall prepare a detailed mitigation plan and submit it to the County for approval. The Applicant shall file a performance security with the County to complete restoration.

Timing: The mitigation plan shall be approved by the County prior to zoning clearance for the first and all subsequent construction phases.

MONITORING: County staff will inspect the Project plans and site as well as review the mitigation plan to ensure compliance with this measure as appropriate. County staff will monitor construction and revegetation activities to ensure the plan is fully implemented (*This mitigation addresses Impact BIO-5, and 6)*.

Mitigation Measure BIO-6: Gaviota Tarplant Disturbance. The Applicant shall retain a qualified botanist approved by CDFG and the County to address impacts to Gaviota tarplant and oversee flagging of the perimeter of all approved work areas in Gaviota tarplant habitat. Gaviota tarplant habitat will include all areas of previously identified habitat plus any additional areas that are discovered during preconstruction surveys prior to ground disturbance. Gaviota tarplant will be assumed to be present within all areas where it had been previously mapped even if it is not evident during preconstruction surveys (because seedbank may be present that could germinate and establish under different environmental conditions). The Project design shall continue to be refined to minimize Gaviota tarplant habitat disturbance, the size of temporary excavation areas, and the size of areas where permanent loss shall occur. A determination shall be made of the total areas of (1) permanent habitat loss, (2) temporary excavations, and (3) surface disturbance for the construction phase of the Project. Mitigation measures shall be developed, in consultation with CDFG botanists, to minimize the extent of habitat disturbance and to minimize potential "take" of individuals of this species which is protected under the California Endangered Species Act (CESA). Measures and procedures shall be developed that address potential future impacts during the operations phase of the Project. Areas of temporary disturbance shall be mitigated at 1:1 ratio using the measures described below. A CESA permit from CDFG and a mitigation monitoring and reporting plan meeting the requirements of CESA will be required.

Where construction activities may impact occupied Gaviota tarplant habitat during the growing season (between the first rain and the middle of September), standing drying plants that still have

ripening seed during the late fall of the year shall be collected prior to construction. Plants shall be collected by hand or in a basket mounted behind a mower. The collected material shall be dried immediately and stored dry to preserve the seeds. The salvaged plant material shall be spread on restored habitat prior to final soil stabilization. The "triple-lift topsoil salvage" procedures described below shall be employed to conserve the soil profile and soil seed bank. All topsoil handling in Gaviota tarplant habitat shall be monitored by a qualified botanist approved by CDFG and the County to work with Gaviota tarplant. Seedbank material shall be developed using the following procedures:

a. All woody vegetation shall be cleared and stockpiled separately in a location where it shall be out of the way during construction.

b. A 3- to 6-inch lift of soil shall be scraped from the area of Gaviota tarplant habitat where soil shall be excavated. The seedbank shall be stored in a location where it shall be out of the way during construction. The seedbank stockpile shall be clearly marked for identification and avoidance.

c. A second 6- to 8-inch lift of the sandy soil horizon (shallower if bedrock or other soil type is encountered, such as clay) shall be scraped from the area. The topsoil lift shall be stockpiled in a location where it shall not be disturbed during construction and shall be clearly marked for identification and avoidance. The stockpiles shall be shaped to maximize water runoff.

d. The stockpiled seedbank shall be kept dry and protected from wind erosion and disturbance per the measures for topsoil conservation throughout construction and until it is replaced on the restored sites. The stockpiles will be covered or treated with hydromulch and binder to form a crust over the soil and reduce loss to wind erosion, but the spray shall not be heavy enough to soak into the pile (to avoid soaking seeds and triggering seed germination).

e. If the salvaged seedbank is being eroded by the wind, it shall be stabilized by spraying it with an organic soil binder used for hydroseeding.

f. Following excavations and other types of temporary ground disturbance in Gaviota tarplant habitat, the soil profile shall be rebuilt using salvaged and stockpiled materials by replacing them in reverse order as described below. The salvaged and dried Gaviota tarplants shall be spread on top. Procedures to be followed are:

    i The layers beneath the final seedbank layer shall be well compacted.
    ii The seedbank layer shall be more loosely compacted by spreading it dry or with minimal water. Tracking, rather than spraying, shall be used to pack the seedbank layer into place.
    iii Soil stabilization shall follow immediately.
    iv The replacement of seedbank and topsoil stockpiles shall be monitored by a botanist acceptable to CDFG and the County for work with Gaviota tarplant.
    v Restored Gaviota tarplant sites shall be stabilized with a hydraulically applied mixture of biodegradable soil binder and wood fiber. The mulch shall be minimized so that light shall not be blocked from the tarplant seeds in the salvaged and replaced seed bank. No seed is required since the top layer on the restored site shall be composed of salvaged seed bank.

    Permanent Gaviota tarplant habitat loss shall be mitigated by continuing to contribute toward the understanding of the taxonomy and ecology of this species by:

a) Contributing to the accumulation of additional data on the range and size of subpopulations.

b) Contributing to taxonomic research to clarify limits and relationships of Gaviota tarplant populations versus close relatives.

c) Requesting that CDFG review the status of this species in light of recent discoveries of extensive populations.

d) Contributing to baseline ecological research, such as germination or pollinator studies, that shall be useful for future management decisions.

Plan Requirements: The detailed grading plan, showing the limits of the grading shall be reviewed and approved by County staff prior to approval of the final plans. The Applicant shall prepare a detailed mitigation plan that conforms to the above requirement and submit it to the County for approval. The Applicant shall file a performance security with the County to complete restoration. A separate mitigation plan for Gaviota tarplant is likely to be required by the CDFG. That mitigation plan should address ongoing impacts during the operations phase of the Project as well as the more extensive impacts that will result from Project construction.

Timing: The mitigation plan shall be approved by the County prior to zoning clearance for the first and all subsequent construction phases.

MONITORING: County staff will inspect the Project plans and site as well as review the mitigation plan to ensure compliance with this measure as appropriate. County staff will ensure the flagging of the perimeter of all approved work areas in Gaviota tarplant habitat prior to ground disturbance and will monitor construction and revegetation activities to ensure the plan is fully implemented (*Addresses Impact BIO-5 and 14*).

Mitigation Measure BIO-7: Kellogg's and Mesa Horkelia Habitats. For Kellog's and Mesa Horkelia habitats identified during pre-construction surveys (see Mitigation Measure BIO-5, above), the Applicant shall track over Kellogg's and Mesa Horkelia habitat, where the terrain shall safely allow it, rather than widening roads beyond the permanent road width to minimize plant removal. The seedbank shall be salvaged and stockpiled separately from other spoil along roads and adjacent to other facilities constructed in Kellogg's and Mesa Horkelia habitat as described for Gaviota tarplant. Salvaged stockpiles shall be covered or sprayed with hydromulch and binder to crust the surface to minimize soil loss to wind erosion. Salvaged seedbank shall be spread over restored areas as described for Gaviota tarplant except that a normal mixture of mulch and binder shall be used. If the area is within Gaviota tarplant habitat, methods for the latter shall be used.

Plan Requirements: The detailed grading plan, showing the limits of the grading will be reviewed and approved by County staff prior to approval of the tentative Project map. If surveys indicate that replacement of Horkelia is necessary, the Applicant shall prepare a detailed mitigation plan and submit it to the County for approval. The Applicant shall file a performance security with the County to complete restoration.

Timing: The mitigation plan shall be approved by the County prior to zoning clearance for the first and all subsequent construction phases.

MONITORING: County staff shall inspect the Project plans and site as well as review the mitigation plan to ensure compliance with this measure as appropriate. County staff shall monitor

construction and revegetation activities to ensure the plan is fully implemented (*Addresses Impact BIO-6)*.

Mitigation Measure BIO-8: Native Perennial Bunchgrass. The Applicant shall retain a County-approved botanist to resurvey the potentially affected area during the appropriate season and determine the total area with at least 10 percent cover by native grassland species on the site (=native grassland habitat). If the total area of native grassland habitat that would be permanently removed is less than 10 percent of the total area of native grassland habitat within the Project area, loss of native grasses shall be mitigated by seedbank salvage and replacement as described for Horkelia.

If the total area of native grassland habitat that would be permanently removed for the Project exceeds 10 percent of the total area of native grassland habitat within the Project area, seed shall be collected from the populations of native grasses and native grassland species on the Project sites prior to the start of construction. The seed shall be stored dry and included in the seed mixture applied to the restored areas. Drill seeding shall be performed for mixtures that include native grass seed.

Plan Requirements: The detailed grading plan, showing the limits of the grading will be reviewed and approved by County staff. If surveys indicate that replacement of native perennial bunchgrass is necessary, the Applicant shall prepare a detailed mitigation plan and submit it to the County for approval. The Applicant shall file a performance security with the County to complete restoration.

Timing: The mitigation plan shall be approved by the County prior to zoning clearance for the first and all subsequent construction phases.

MONITORING: County staff will inspect the Project plans and site as well as review the mitigation plan to ensure compliance with this measure as appropriate. County staff will monitor construction and revegetation activities to ensure the plan is fully implemented (*Addresses Impact BIO-1)*.

Wetland and Riparian Habitat Mitigation Measures

Mitigation Measure BIO-9: Protection of Creeks, Springs, and Wetlands. The Applicant shall make every effort to minimize the area and degree of impact to State and Federal wetlands and other Waters of the U.S. associated with placement of bridges, siting of the O&M facility, and other construction-related tasks. Additionally, all potential jurisdictional areas that may be disturbed by construction shall be delineated following all applicable standards associated with features regulated by the State of California, Santa Barbara County, and USACE for regulated wetlands, including documentation of specific surveys for presence of listed plant, invertebrate, or wildlife species that may occur there. The delineations shall apply the Arid West Supplement to the USACE Wetland Delineation Manual guidelines and shall map all features using a sub-meter dGPS. Based on the delineation, the Applicant shall consult with a wetland hydrologist and botanist to design construction, so that direct loss of wetland communities shall be minimized and hydrological conditions supporting the wetland shall be conserved to the maximum extent feasible consistent with project objectives. All final construction design plans and mapped wetland features shall be clearly presented in a wetland avoidance plan for approval by the County. The avoidance plan for the WTG corridor shall be included as part of the wetland restoration and avoidance plan for other project components and shall also present an approach for the restoration of lost and/or disturbed

features associated with bridge crossings and siting of the O&M facility including calculations, proposed restoration locations, cattle or other disturbance barriers, plant mixes, quantitative restoration goals (maximum criteria for weedy species and minimum criteria for native hydrophytic plants), and temporal and native plant composition success criteria. At a minimum, any temporarily disturbed wetlands associated with bridge crossings or siting of the O&M facility shall be restored to its former condition at an aerial ratio of 1:1 with a clearly defined temporal goal and success criteria. If any jurisdictional feature is permanently lost, it shall be mitigated by the creation of the same type of wetland in the Project area at an aerial ratio of 2:1. Additionally, all wetland areas within 50 feet of ground disturbance shall be protected from siltation by placement of silt fence, straw bales (composed of certified weed-free straw), or other barriers. Barriers shall be in place prior to ground disturbance.

No fueling of vehicles or equipment shall occur within 100 feet of the top of any creek bank or within 100 feet of any seep or spring. Further, spill containment measures shall be implemented at all refueling sites. In the event that petroleum products escape into a creek, seep, or spring, every effort will be made to immediately remove the material using plastic sheets, absorbent blankets, or other materials, as necessary.

Runoff from fresh concrete shall be directed away from the top of any creek bank and from any seep or spring into a plastic-lined hollow. Any washout from concrete trucks shall be collected within a designated contained and lined area and removed from the site. Dried concrete scraps shall be removed and all trash and litter shall be picked up and removed from the construction sites at the end of each day.

Plan Requirements: The detailed wetland avoidance/restoration plan and grading plan, showing the limits of the grading will be reviewed and approved by County staff prior to approval of the tentative Project map. The wetland delineation and grading plan shall be submitted to the County for approval prior to any project construction that may affect wetlands. The Applicant shall also file a performance security with the County to complete restoration. This condition shall be printed on all Project plans.

Timing: Any proposed removal or temporary disturbance to jurisdictional features shall be approved by the County, CDFG, and the USACE prior to any construction that may affect wetland features. Site-specific wetland creation/restoration plans shall be developed and approved by the County, in consultation with CDFG, and USACE as appropriate, prior to final land use clearance . The applicant shall independently consult with CDFG and USACE as necessary. The plan shall be implemented within one year of the disturbance and in consultation with CDFG and County staff. This measure shall be implemented throughout the first and all subsequent Project phases.

MONITORING: County will inspect the Project plans and site, as well as review the mitigation plan to ensure compliance with this measure as appropriate. A biological/wetland monitor shall be present for all activities that have the potential to directly or indirectly affect regulated wetland features and County staff will monitor construction and revegetation activities to ensure the plan is fully implemented (*Addresses Impact BIO-3 and 4*).

Mitigation Measure BIO-10: Riparian Habitat Restoration. During consultation with the USACE and CDFG for impacts to Honda Creek (and other crossings, if applicable), a determination shall be made regarding whether a riparian habitat restoration plan will be required. If so, the Applicant shall

retain a qualified ecologist to prepare and implement a site-specific creek restoration plan. The plan shall include, but not be limited to, the following elements:

- Restoration shall include native riparian species from locally obtained plants and seed stock.
- The new plantings shall be monitored for a period of 2 to 3 years to ensure successful establishment. Dead plants shall be replaced in kind.
- The new plantings shall be irrigated with drip irrigation on a timer and shall be weaned off of irrigation when root zones are established.
- Removal of native species in the creek shall be prohibited.
- Non-native species located in the work area shall be removed from the creek.

Plan Requirements: The Applicant shall submit a creek restoration plan if required to County, CDFG, and USACE staff for review and approval. The Applicant shall file a performance security with the County to complete restoration.

Timing: The plan shall be approved by the County, CDFG, and USACE prior to final land use clearance for the first and all subsequent Project phases.

MONITORING: County staff will inspect the Project plans and site as well as review the restoration plan for compliance with this measure as appropriate. The County staff will monitor plan implementation to ensure compliance. Permit compliance signature is required for performance security release (*Addresses Impact BIO-4 and 14*).

General Wildlife Mitigation Measures

Mitigation Measure BIO-11a: Pre-construction Wildlife Surveys. The Applicant shall retain a County-approved biologist to perform a wildlife survey prior to the excavation of the WTG sites. The biologist shall survey the surrounding area out to a 300-foot radius from the WTG site, the WTG footings, access roads, and staging, parking, and lay down areas prior to grading or the use of any explosives. Surveys shall be completed within 3 days before the start of initial vegetation clearance or ground disturbance in any affected area. If any wildlife species are found, they shall be relocated to similar habitat at least 300 feet away from construction activity.

Plan Requirements: This condition shall be printed on all Project plans. On a monthly basis, the Applicant shall report compliance with this measure in writing to County staff on survey and relocation activities.

Timing: This measure shall be implemented throughout all ground disturbances for the first and all subsequent construction phases.

MONITORING: County staff will inspect the Project plans and site, as well as review the monthly reports to ensure compliance with this measure, as appropriate (*Addresses Impact BIO-7, 8, 9, and 13*).

Mitigation Measure BIO-11b: Fencing. To minimize the amount of disturbance to wildlife habitat, the Applicant shall clearly define in the field: the project construction areas, including areas devoted to WTGs; power line poles; temporary and permanent access roads; stockpiles; staging, parking and

lay down areas; areas where spoil shall be used to control erosion; and areas for associated facilities. Project boundaries shall be clearly marked with fencing or staking that shall be replaced as needed.

Plan Requirements: The detailed fencing plan, showing the location of required fencing shall be reviewed and approved by County staff prior to approval of the tentative Project map. This condition shall be printed on all Project plans.

Timing: The detailed fencing plan, showing the location of required fencing shall be reviewed and approved by County staff prior to approval of the tentative Project map.

MONITORING: County will inspect the Project plans and site, to ensure compliance with this measure as appropriate. County staff will monitor construction monitoring reports to ensure the plan is fully implemented (*Addresses Impacts BIO-1, 7, 8, 9, and 13 and supplements BIO-2 through 6*).

Mitigation Measure BIO-11c: Biological Monitoring. The Applicant shall fund a County-approved, Environmental Monitor during Project construction to monitor construction activities and to ensure compliance with all mitigation measures. The Environmental Monitor shall be present onsite during all vegetation removal and during all of the initial ground disturbance activities for all aspects of the project, and shall regularly inspect the project site as needed after the initial ground disturbances to ensure that all mitigation measures are being implemented. The biologist shall ensure that wildlife do not become entrapped in the excavations during installation of the WTGs and associated underground collection system from the WTGs to the substation (i.e., open trenches). Safeguards shall be implemented during daytime periods of non-activity and overnight, such as a placing a platform over the entire excavation site, flush with the ground surface, or exclusionary fencing. A form of egress (such as a ramp) shall be placed within the excavated area to provide an exit to accidentally trapped wildlife. The biologist shall be responsible for ensuring these safeguards are in place on a daily basis.

Plan Requirements: The Environmental Monitor shall work closely and cooperatively with County staff and County's consultants on a daily basis or as needed.

Timing: The Environmental Monitor shall be designated prior to the start of construction and shall be retained throughout all construction phases.

MONITORING: County staff will confirm that the Environmental Monitor is employed prior to start of construction and continues throughout all construction phases . *This mitigation addresses all impacts related to initial habitat disturbances, which encompasses Impacts BIO-1 through BIO-9, and BIO-14.*

Mitigation Measure BIO-11d: Monitoring Report. On a bi-weekly basis, the County-approved, Environmental Monitor shall provide the County a Construction Monitoring and Biological Resources Mitigation Report. This report shall include a description of the activities that have occurred onsite, wildlife species encountered, relocation efforts, wildlife mortalities and injuries, violations or issues with construction activities, and any project-related resolutions.

Timing: The Environmental Monitor shall submit the Construction Monitoring Report on the first and third week of each month to detail the previous two week's activities. This report may be submitted electronically.

Plan Requirements: The Applicant shall consult and obtain any necessary permits from the appropriate regulatory agencies and provide copies to County staff. On a bi-weekly basis, the Applicant shall report compliance with this measure in writing to County staff on survey and monitoring activities.

MONITORING: County staff will confirm that the Environmental Monitor is submitting the required Construction Monitoring Report throughout all construction phases. *This mitigation addresses all impacts related to initial habitat disturbances, which encompasses Impacts BIO-1 through BIO-9, and BIO-14.*

Mitigation Measure BIO-12: For Impacts to Nesting Birds and Roosting Bats (for Impact BIO-8)

Mitigation Measure BIO-12a. Schedule ground disturbance to avoid nesting season. All construction-related activities that include vegetation removal and initial ground disturbances in habitats where biological monitor does not have a clear view of the ground, shall be scheduled, as feasible, to avoid the bird nesting season (February 1 through August 31) to reduce impacts to nesting birds in the project vicinity. If construction activities are scheduled to begin during the nesting season, the applicant shall still attempt to remove or mow vegetation before the onset of nesting season to reduce the threat of violating the Migratory Bird Treaty Act.

Plan Requirements: This condition shall be printed on all Project plans. The Environmental Monitor shall be designated to monitor the implementation of this mitigation and shall be retained throughout all construction phases.

Timing: Construction-related activities that include vegetation removal and initial ground disturbances shall be scheduled, as feasible, from August 31 through February 1.

MONITORING: County staff will inspect the Project plans and review the monthly reports for compliance with this measure as appropriate (*Addresses Impact BIO-8).*

Mitigation Measure BIO-12b. Buffer Zones. If ground disturbance or vegetation removal is scheduled to occur during the avian nesting or bat roosting season (from February 1 through August 31) the Applicant shall fund a County-approved biologist to survey for active avian nests and roosting bats immediately prior to the start of construction in a given area (including removal or trimming of trees and shrubs). The survey shall occur at the sites of construction activity, as well as up to 500 feet away. If an active raptor nest is found, no construction activity shall occur within 500 feet of the nest unless otherwise directed by CDFG. The County-approved biologist shall conduct a study to collect more detailed information on nesting raptors in the Project area. Areas of dense vegetation, including the riparian corridors along Miguelito Creek, the eucalyptus groves onsite, and mixed evergreen forest within 500 feet of Project facilities shall be surveyed at weekly intervals to collect data on nesting activities.

If any other active avian species nest or roosting bats are found, construction activity shall not occur within 150 feet of the area or as directed by the County-approved biologist unless otherwise directed by CDFG. The CDFG shall be consulted prior to any disturbance of bat maternity roosts. During the breeding season (February 1 through August 31) efforts shall be made and directed by the biological monitor to dissuade birds from using facilities and construction equipment. Active nests and roosts shall be temporarily marked with flagging to warn workers; and monitored by a

biologist to ensure that construction activities do not impact these sites. The applicant shall provide all workers on the site an updated map of active nests so that construction activities within the buffers can be avoided. Construction activities and timing shall be modified to avoid impacts to nesting avian species, and bat maternity roosts. Buffer areas shall be maintained until fledglings have left the nest and the biological monitor has cleared the area.

Plan Requirements: The Applicant shall consult and obtain any necessary permits from the appropriate regulatory agencies and provide copies to County staff. On a bi-weekly basis, the Applicant shall report compliance with this measure in writing to County staff on survey and monitoring activities.

Timing: The Environmental Monitor shall submit the Monitoring Report on the first and third week of each month to detail the previous two week's activities. This report may be submitted electronically.

MONITORING: County staff will inspect the Project site as well as review the bi-weekly reports to ensure compliance with this measure as appropriate (*Addresses Impact BIO-8)*.

Special-status Wildlife Mitigation Measures

Mitigation Measure BIO-13: Pre-construction Surveys and Conservation of El Segundo Blue Butterfly (ESBB). The applicant shall retain a qualified, County-approved entomologist to conduct directed surveys for the ESBB during the flight season (approximately mid-June to August) within all areas of coast buckwheat known on the LWEP site, including areas that would be affected by construction, operation, or maintenance of the project. The surveys shall be documented including a description of methodology, description and maps of the surveyed areas, and identification of locations of any ESBB observed within the proposed Project area (including maps and GPS coordinates). Conditions the sites where ESBB are located shall be described by the entomologist including vegetation, soils, exposure, and other factors that may influence the occurrence of ESBB at that site.

A plan to restore and/or enhance ESBB habitat shall be prepared by a County-approved botanist with input from a County-approved entomologist. The goal of the plan shall be to establish coast buckwheat with other Central coast scrub species on areas having sandy soils and judged suitable for this type of restoration or enhancement by the project biologist and County-approved entomologist. The restoration or enhancement would preferably occur in or adjacent to an area of existing habitat supporting coast buckwheat on sandy soils or it could occur in an area disturbed by the project. The plan shall identify sites to be restored or enhanced and the approach to restoration and enhancement, including proposed density of coast buckwheat plants, which shall be generally consistent with the density of coast buckwheat in occupied ESBB habitat in the Project region and performance criteria shall reflect that density. Restoration or enhancement will be conducted on an acre-for acre- basis. If ESBB has been found on the site, the plan shall be submitted to USFWS for approval, prior to implementation.

Suitable ESBB habitat adjacent to construction areas shall be clearly marked for avoidance (e.g., by orange plastic construction fencing). The delineation shall be directed and approved by a county-approved biologist.

Plan Requirements: This condition shall be printed on all Project plans. On a monthly basis, the Applicant shall report compliance with this measure in writing to County staff on surveying and monitoring activities.

Timing: This measure shall be implemented during the first and all subsequent Project phases.

MONITORING: County staff will inspect the Project plans and site as well as review the monthly reports for compliance with this measure as appropriate (*Addresses Impact BIO-9 and supplements Mitigation Measure BIO-3 (Site Restoration and Revegetation Plan)*

Mitigation Measure BIO-14: For impacts to Sensitive Wildlife Species

Mitigation Measure BIO-14a: California Horned Lizard. The Applicant shall fund a County-approved biologist to survey construction areas, including the sites of footings for WTGs and power poles, access roads, and staging, parking, and lay down areas, for California horned lizards. Surveys shall be completed within 3 days before the start of initial vegetation clearance or ground disturbance in any affected area. The survey may be done in conjunction with surveys for ground-nesting birds. However, the survey for horned lizards shall be performed regardless of season of the year. If horned lizards are found, they shall be relocated to similar habitat at least 300 feet away from construction activity.

Plan Requirements: This condition shall be printed on all Project plans. On a monthly basis, the Applicant shall report compliance with this measure in writing to County staff on survey and relocation activities.

Timing: This measure shall be implemented throughout the first and all subsequent construction phases.

MONITORING: County staff will inspect the Project plans and site, as well as review the monthly reports to ensure compliance with this measure, as appropriate (*Addresses Impact BIO-9)*.

Mitigation Measure BIO-14b: Silvery Legless Lizard. The Applicant shall retain a County-approved biologist to survey for silvery legless lizards that could potentially occur in areas with Central Coast scrub and annual grassland with a shrub component. The biologist shall work with the equipment operator during initial vegetation clearance to identify those areas that would require legless lizard mitigation, and then to salvage and relocate exposed animals. The following technique shall be employed to avoid impacts to the silvery legless lizard:

- Following initial vegetation clearance in pre-identified areas, grading shall be done in two consecutive 6-inch layers.
- With each lift, the biologist shall check the areas for possible relocation of silvery legless lizards. If any are found, they shall be moved to similar habitat near shrubs at least 100 feet from the construction sites.
- Monitoring for legless lizards shall be discontinued when grading reaches depths greater than 12 inches.

Plan Requirements: This condition shall be printed on all Project plans. On a monthly basis, the Applicant shall report compliance with this measure in writing to County staff on monitoring and relocation activities.

Timing: This measure shall be implemented throughout the first and all subsequent construction phases.

MONITORING: County staff will inspect the Project plans and site as well as review the monthly reports to ensure compliance with this measure as appropriate (*Addresses Impact BIO-9)*.

Mitigation Measure BIO-14c: San Diego Desert Woodrat. The Applicant shall retain a County-approved biologist to survey the locations of WTGs and access routes prior to construction, as well as for a distance of 50 feet away for signs of the San Diego desert woodrat. The following technique shall be employed to avoid impacts to the San Diego desert woodrat:

- If signs of this species are found at or near the areas to be disturbed (such as a small stick nest within a rock overhang), it shall be evaluated for potential impact due to construction activities.
- If disturbance to a nest is likely to occur, the animal shall be live-trapped and relocated to a distance of 300 feet from Project activities and within similar habitat.

Plan Requirements: This condition shall be printed on all Project plans. On a monthly basis, the Applicant shall report compliance with this measure in writing to County staff on survey and relocation activities.

Timing: This measure shall be implemented throughout the first and all subsequent construction phases.

MONITORING: County staff will inspect the Project plans and site as well as review the monthly reports to ensure compliance with this measure as appropriate (*Addresses Impact BIO-9)*.

Mitigation Measure BIO-14d: American Badger. The Applicant shall retain a County-approved biologist to survey, prior to construction, for badger dens in the Project area, including areas within 250 feet of all Project facilities, WTG sites, and access roads. The survey shall be performed regardless of season of the year. If badger dens are found, each den shall be classified as inactive, potentially active, or definitely active.

Inactive dens shall be excavated by hand and backfilled to prevent reuse by badgers.

Potentially and definitely active dens shall be monitored for 3 consecutive nights using a tracking medium (such as diatomaceous earth or fire clay) at the entrance. If no tracks are observed in the tracking medium after 3 nights, the den shall be excavated and backfilled by hand. If tracks are observed, the den shall be progressively blocked with natural materials (rocks, dirt, sticks, and vegetation piled in front of the entrance) for the next 3 to 5 nights to discourage the badger from continued use. The den shall then be excavated and backfilled by hand to ensure that no badgers are trapped in the den.

Plan Requirements: This condition shall be printed on all Project plans. On a monthly basis, the Applicant shall report compliance with this measure in writing to County staff on survey and burrow excavation activities.

Timing: This measure shall be implemented throughout the first and all subsequent construction phases.

MONITORING: County staff will inspect the Project plans and site as well as review the monthly reports to ensure compliance with this measure as appropriate (*Addresses Impact BIO-9)*.

Mitigation Measure BIO-14e: Sensitive Avian Species. The County-approved biologist shall conduct a study in the spring season prior to the onset of construction activities to assess the density of special status passerines and other ground-nesting birds in areas of the project site potentially subject to disturbance. Plots shall be established in various habitats and checked at weekly intervals to monitor for new nests of ground-nesting birds that are sensitive species, including California horned lark, California rufous-crowned sparrow, grasshopper sparrow, and burrowing owls. The surveys shall be conducted as long as birds are nesting in the Project area between February 1 and August 31. The surveys shall be discontinued when it is apparent that nesting has ceased for the season. Surveys for burrowing owls shall be conducted prior to construction in the Project area, including areas within 300 feet of all Project facilities, WTG sites, and access roads. The survey shall be performed regardless of season of the year due to this species' being present in the winter.

If construction is to occur between February 1 and August 31, all sites to be disturbed shall be surveyed for ground-nesting and shrub-nesting birds immediately prior to construction in a given area. The emphasis shall be on California horned lark, western burrowing owl, California rufous-crowned sparrow, and grasshopper sparrow. The survey shall occur at the sites of construction activity, as well as up to 300 feet away. If an active nest is found, no construction activity shall occur within 300 feet of the nest or as determined by the biological monitor and updated maps showing active nesting locations shall be distributed to the biological monitors, EQAP inspector, and crew foreman on a weekly basis. The nest shall be monitored to record any potential construction-related effects. Construction activities and timing may be modified as directed by the County to avoid impacts to nesting passerines or other ground-nesting birds.

Frequent disturbance (every few days) may be initiated in some Project areas just prior to the nesting season to discourage nesting in the construction corridor.

During both the construction and O&M phases, a speed limit of 15 mph shall be established and enforced. The speed limit shall reduce the potential for loss of bird species, including passerines, due to collisions with vehicles.

Plan Requirements: This condition shall be printed on all Project plans. On a bi-weekly basis, the Biological Monitor shall report compliance with this measure in writing to County staff on survey results and buffer area design.

Timing: This measure shall be implemented throughout the first nesting season from February 1 through August 31 for nesting species and year-round for western burrowing owls and all subsequent nesting seasons during the construction phases. The Environmental Monitor shall submit the Monitoring Report on the first and third week of each month to detail the previous two week's activities. This report may be submitted electronically.

MONITORING: County staff will inspect the Project plans and site as well as review the bi-weekly reports to ensure compliance with this measure as appropriate (*Addresses Impact BIO-8 and 9)*.

Avian and Bat Operational Impacts Mitigation Measures

Mitigation Measure Bio-15: Bird and Bat collisions with turbines, power lines, or met towers (for Impacts Bio-10 and Bio-11)

Mitigation Measure Bio-15: Bird and Bat Collisions with WTGs, Power Lines, or Meteorological Towers (for Impacts Bio-10 and Bio-11)

Mitigation Measure BIO-15a: Siting. The turbines shall be sited so that each tower is located at least 500 feet away from critical biological resources identified in preconstruction surveys, specifically: active raptor nest sites, active state or federally listed species' nests, open water which would attract birds or bats (including stock-ponds), thicker riparian habitat in Canada Honda and Miguelito creeks, eucalyptus tree groves, or vernal pools, if present. The turbines shall be sited so that each tower is located at least 250 feet from the un-named intermittent tributaries containing Central Coast Riparian Scrub habitat located up-gradient of major streams. Preconstruction surveys (described in MM Bio-11a) shall identify existing raptor nests and other sensitive resources. The Applicant shall, in consultation with the CDFG, attempt to dissuade raptors from building new nests within 500 feet of any turbine.

Plan Requirements: This measure shall be printed on all Project plans.

Timing: During the preconstruction and construction phases, the Applicant shall provide the County with weekly written survey results and buffer area design, which may be provided electronically. This measure shall be implemented throughout the first and all subsequent construction phases.

MONITORING: County staff will inspect the Project plans and site and review the monthly reports to ensure compliance with this measure as appropriate (*Addresses Impact BIO-10 and 11)*.

Mitigation Measure BIO-15b: Appropriate WTG and Project-Element Design. To minimize the likelihood of collisions of birds with WTGs and onsite power poles and collection lines[10], the design features of all WTGs and project related facilities shall include the following:

a) Underground (rather than overhead) collection lines shall be used to minimize perching locations and electrocution hazards to birds, except where undergrounding would create potential for serious erosion (e.g., crossing steep canyons) or other serious impacts that could be avoided with overhead lines.

b) All overhead collection lines shall be spaced to minimize the potential for raptor electrocution using the latest APLIC (2006) guidelines for line spacing. Further, construction and work procedures shall be consistent with the APLIC guidelines "*Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006*."

c) WTGs with low rotational speed (approximately 10 to 23 revolutions per minute [RPM]) and tubular towers shall be used. WTG blades shall not rotate when the WTG is not in operation.

[10] Note: These provisions are applicable only to 34.5 KV collection lines at the project site. Avoidance and Protection Measures for the proposed 115 KV PG&E power line are covered separately in Section 2.8.5.

d) All permanent meteorological towers shall be unguyed.

To reduce impacts from lighting on WTGs and facilities Mitigation Measure LU-1 requires compliance with FAA regulations but also requires that lighting shall not exceed those requirements and regulations.

Plan Requirements: These measures shall be printed on Project plans. The Applicant shall provide the County final plans including design element plans for review and approval.

Timing: This measure shall be implemented throughout the first and all subsequent construction phases.

MONITORING: County staff will inspect the Project plans and site to ensure compliance with this measure as appropriate (*Addresses Impact BIO-10 and 11)*.

Mitigation Measure Bio-16: Monitoring and Adaptive Management Plan (for Impacts Bio-10, Bio-11, Bio-12):

A Monitoring and Adaptive Management Plan is required, due to the uncertainty of the project's operational impacts on protected and special-status bird and bat species. The Plan shall be developed and implemented in an effort to provide maximum feasible mitigation for those impacts. Monitoring studies of bird activity and fatalities at the site shall be required to collect information on bird activity and fatalities caused by wind farm operations. In addition, an Adaptive Management Plan (AMP) shall be implemented if the bird or bat mortalities trigger specified thresholds.

The County will enforce the following measures unless CDFG adopts them as part of a Sec. 2081 incidental take permit or Sec. 1602 streambed alteration agreement.[11,12] In reviewing and approving the final plan and applying the required measures, the County will consult with CDFG and USFWS, as appropriate.

The Plan shall be prepared by a County-approved biologist and be subject to County approval. The Plan shall include outlined in subsections 16.a to 16.d below, which comprise the following components:

- **Before-after/Control-impact (BACI) Study.** Required study to compare pre- and post-construction bird use on the site.
- **Bird/Bat Mortality Study.** Required study to estimate bird and bat mortality rates during wind farm operations and to identify WTGs causing unanticipated levels of mortalities.
- **Reduce Prey Base Near Turbines.** Program to reduce the densities of burrowing mammals in the Project area, for the purpose of reducing the attraction of raptors to the Project area.
- **Adaptive Management Program.** Additional mitigation measures to be required if specific thresholds of bird or bat mortality are reached.

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11 Section references are to sections of the California Fish and Game Code.

12 If CDFG, as a Responsible Agency, enforces Mitigation Measure Bio-Wildlife-15, the County would not be involved in oversight or monitoring. The measure is written assuming it is under County jurisdiction, but if CDFG assumes responsibility references to the County would be replaced with CDFG.

Mitigation Measure BIO-16a: Before-After/Control-impact (BACI) Study.

Conduct BACI surveys under direction of a County-approved biologist. The purpose of the BACI surveys is to compare pre- and post-construction bird use on the site; to assess the effects of the project on avian species; to assist in determining whether additional mitigation elements are necessary; and to collect research data to better understand wind power industry impacts and provide regulatory agencies with data for future projects. Study reports shall include estimates of average bird usage on the site and information on the location of species within the site, flight elevations and patterns of activity, and WTG avoidance behavior. The study data and reports shall be provided to the County for review. The surveys shall be conducted from the time of project approval through each project construction phase and for two years following first delivery of power for that phase.

The methodology shall include methods for interpreting and summarizing the data, and the contents, format and schedule for reports. The methodology should follow the recommendations of the CEC Guidelines (2007)[13], insofar as feasible without causing delays to the project construction schedule or start of operations. The methodology may incorporate the Applicant's current BACI methods as appropriate and explain any substantive changes between the studies currently being conducted by the Applicant and the methodology proposed for approval. The methodology could be modified during the course of the BACI study, with concurrence of the County and project operator.

Mitigation Measure BIO-16b: Bird/Bat Mortality Study.

Conduct a bird and bat mortality study under direction of a County-approved biologist. The purpose of mortality surveys is to estimate mortality rates for different species on the site attributable to collisions with WTGs and to identify individual WTGs or groups/strings of WTGs that cause unanticipated levels of mortality. The information will be used to determine whether the mortality thresholds of the Adaptive Management Plan (see AMP, below) have been reached. In addition, the collected data will add to the body of knowledge to provide regulatory agencies with data for future projects. Brief quarterly reports including tabulated search data and annual reports including analysis of the year's data shall be prepared. The study data and reports shall be provided to the County for review. Monitoring shall be conducted for the first full 2 years after all WTGs are in operation for each project construction phase. Additional years of monitoring could be required if the mortality of special status bird and bat species exceeded thresholds (see AMP, below).

The general design of the study should follow recommendations of the CEC Guidelines (2007), or improved methodologies if appropriate, including methods for carcass search surveys, scavenger studies, evaluation of researcher efficiency, data analysis and reporting methodology. Specifically, carcass searches shall occur once every two weeks at 30% of the WTGs, as recommended in the CEC Guidelines. Reports shall include mean estimated fatalities and 90% confidence intervals for species or appropriate bird and bat groups. The plan shall include training of project operations staff in handling and reporting avian fatalities encountered in the course of their regular activities. The selection of which WTGs to monitor may be adjusted from year to year (or as appropriate).

[13] California Guidelines for Reducing Impacts To Birds And Bats From Wind Energy Development (2007)

Sampling methodology and sample locations to be approved by the County. If the AMP were triggered by excess fatalities, the frequency or design of carcass searches could be modified, as provided in the AMP.

Mitigation Measure BIO-16c: Reduce Prey Base Near Turbines.

Conduct a program under direction of a County-approved biologist to reduce the densities of California ground squirrels, rabbits, and other small mammals in the Project area. Limiting the number of burrowing mammals is intended to reduce the attraction of raptors to the Project area, and thus lower the potential for mortality resulting from collisions with WTGs and power lines on the project site. The program plan should emphasize, but not be limited to existing, mapped small mammal colonies. The plan shall be subject to County approval. Brief quarterly reports including the study data shall be provided to the County for review. The reports may be provided electronically. The program shall begin during the construction phase and continue for 2 years of Project operation. The County could modify or discontinue the program if new information indicates it is ineffective or harmful.

Minimum program elements:

a) Monitoring within the permanent disturbance area around WTGs and collection line pad locations for small mammal (including California ground squirrel) activity. If burrows are found at the pads, those holes shall be filled. Pad overhangs shall be filled with soil. Gravel shall be placed in a perimeter at least 5 feet out from the edges of the pad to discourage small mammals from burrowing.

b) Removal of accumulated material under and near WTGs and collection line power poles, such as piles of rocks from construction and extra equipment or parts. Such accumulated material may attract prey for raptors such as California ground squirrels and brush rabbits.

c) Implementation of other feasible measures to control small mammal populations could be required, based on recommendations of the biologist and results of the Bird/Bat Mortality Study, described below.

Mitigation Measure BIO-16d: Adaptive Management Plan (AMP).

Develop an Adaptive Management Plan (AMP) to be activated in the event that bird or bat mortality exceeds specified threshold levels. The AMP provides a structured framework to guide response, in case project operations result in excessive mortality that was unforeseeable at the time of EIR certification and project approval. The AMP defines two impact categories and corresponding response options, as described below. Table 3.5.7-2 summarizes the thresholds that will trigger Level 1 and Level 2 actions by the County. Level 2 actions may also be triggered by annual mortality statistics, as described below.

Level 1 – First Alert and Enhanced Survey.

If recorded bird or bat fatalities reach the threshold criteria for Level 1 (Table 3.5.7-2), the project operator shall notify the County within 24 hours and make any required notifications to CDFG and USFWS.

The carcass search frequency shall be increased in the vicinity of the specific WTG(s) suspected of being responsible, to determine whether WTG(s) are at cause and to better understand the causal factors and circumstances contributing to the fatalities. Carcass search patterns and extent may be modified, survey frequency may be increased up to twice per week, and supplementary field observations may be required for up to six months, if necessary to assess the pattern or frequency of fatalities. The additional information would facilitate a more informed response in the event that mortality levels reach Level 2. The project operator shall provide wind velocity data for the area of the fatalities if the County determines that the data are important for assessing the cause of fatalities or for designing enhanced search patterns.[14] Details of the enhanced monitoring program will be subject to County approval.

Mortality monitoring shall conclude if fatalities remain below Level 2 thresholds for 2 consecutive years. If Level 2 thresholds are reached or exceeded, the County may require additional year(s) of monitoring until fatalities fall below Level 2 thresholds.

Level 2 – Response Options.

If recorded bird or bat fatalities reach the threshold criteria for Level 2 (Table 3.5.7-2), the project operator shall notify the County within 24 hours and make any required notifications to CDFG and USFWS. The Level 2 thresholds might also be reached based on the annual mortality statistics, which would be reported in the annual reports of the mortality study.

The cause of bird and bat fatalities at wind farms is often indeterminate, due to the condition of the carcasses, activity of scavengers, and wide radius of land-fall. The County shall require Level 2 response options only if it determines with reasonable certainty that the fatalities are caused by wind farm operations and which WTGs are at cause. The determination must be based on substantial evidence. Changes in bird use of the site observed in the BACI studies should be taken into account in the evaluation of impacts and response options.[15] Measures required must be reasonable, feasible, and specifically targeted to reduce fatalities at the particular problem WTG(s).

The following Level 2 response options should be considered by the County, in consultation with CDFG, and implemented if determined to be feasible and likely to reduce or compensate for further fatalities similar to those that triggered the Level 2 response. Such measures shall not be undertaken without appropriate environmental review, if applicable. Less extreme, less costly measures shall be exhausted before more extreme or costly measures are required.[16]

1. Habitat modifications to make the site less attractive to impacted species, including intensified efforts to reduce the prey base (e.g., ground squirrels), weed control, grazing management.

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14 The data may be provided as hourly average wind speed and direction in the project area, or as otherwise agreed with the County. If the data is considered proprietary, it may be provided under a confidentiality agreement with the County.

15 One of the primary objectives for operations monitoring stated in the CEC Guidelines is to determine whether the avoidance, minimization, and mitigation measures implemented for the project were adequate or whether additional corrective action or compensatory mitigation is warranted.

16 If excessive fatalities of endangered or protected bird or bat species, as determined by CDFG or USFWS, were to occur, these agencies could require curtailment of operations of the offending WTG(s). In such a case, any negotiations with the Applicant or possible enforcement actions would be the responsibility of CDFG and USFWS, and not the County.

2. Project modifications. Modifications must have a sound scientific basis, but need not be proven definitely effective, such as installing "dummy towers" at end of WTG rows; painting of WTG blades on selected WTGs to increase their visibility; audible warnings on towers; or other new or experimental technologies to divert birds/bats or react to the presence of at-risk species. If appropriate, a modification may be implemented as a controlled experiment to test efficacy in reducing mortality.
3. Implementation of a mitigation research component at the LWEP site at an appropriate department of a local college or university (e.g., Environmental Science or Wildlife Biology department); species-related research to improve knowledge of a species and conservation needs.
4. Contribution to a program to enhance recovery of the special status species impacted by the project; contribution to research program on wind project impacts to birds and bats.

If any of these measures are implemented, the project operator, in consultation with the County, should implement an effectiveness evaluation program to assess the intended and unintended effects of the measure. The measure should be reversed, discontinued, or modified if little or no reduction in mortality is demonstrated within a reasonable time or if it leads to unintended, adverse consequences, as determined by the County.

Plan Requirements and Timing: Approval of the entire Plan by the County, in consultation with CDFG, is required prior to land use clearance for the first and subsequent project phases.

MONITORING: The County will ensure that the BACI, mortality monitoring, and prey base reduction measures are implemented. The County will review all monthly, quarterly, and annual reports provided pursuant to the Avian and Bat Mitigation Plan and ensure that appropriate adaptive management measures are undertaken if AMP thresholds are reached (*Addresses Impact BIO-10, 11, and 12)*.

These thresholds apply to the actual numbers of carcasses attributable to project facilities or operations recovered in the regular weekly carcass searches. However, incidental finds of carcasses attributable to the project of federally or state listed bird or bat species or California FPS shall also count toward the thresholds. The numbers assume the carcass searches comprise a 30% random sample of the 65 WTG locations, or 20 WTGs. If the number of WTGs constructed is substantially different or a different number of WTGs is sampled, the thresholds shall be adjusted accordingly.

TABLE 3.5.7-2.
Adaptive Management Threshold Criteria (Actions required if number of fatalities caused by WTGs reaches these thresholds in any consecutive 12-month period)

	Level 1	**Level 2**
	• Notify County • Increase carcass search frequency in specified area(s)	• Notify County • Adaptive measures to reduce fatalities
Federal or Calif. listed species or Calif. Fully Protected Species	1 fatality	2 fatalities
Non-listed Sensitive Species (CSC, WL, and Local Species of Concern)	2 fatalities (birds) 2 fatalities (bats)	3 fatalities (birds) 3 fatalities (bats)
Non-sensitive Raptors	3 fatalities	5 fatalities

Alternative Level 2 Threshold Criteria Based on Annual Mortality Statistics

In addition, Level 2 measures shall be triggered if the estimated, project-wide mortality rates of non-listed sensitive species, for fatalities attributable to the project, adjusted for searcher efficiency and scavenger removal, exceed 0.08 per WTG per year (at the 90% confidence level[17]) in any 12-month period. The equivalent Level 2 trigger for non-sensitive raptors shall be 0.15 fatalities per WTG per year. Level 2 measures shall also be triggered by large-scale mortality of non-sensitive bird or bat species at thresholds of 4 and 12 fatalities per WTG, per year, respectively.

Basis of Thresholds

Given the current state of the science, mortality rates of birds and bats at proposed wind sites cannot reliably be predicted, except in the case of new wind farms nearby existing ones in similar settings. Mortality of passerines due to collisions with WTGs is not strongly correlated with bird usage of a site, and many interrelated and species-dependent factors contribute to raptor mortalities, apart from number of birds at the site. The relationship between bat usage and fatalities is not understood. (CEC Guidelines, 2007)

Listed and Sensitive Species

The Level 1 threshold for federally or state listed species and California FPS was set at one individual fatality, due to the required coordination with CDFG or USFWS in case of a single fatality. A second fatality within a year would trigger Level 2. The necessary additional mitigation would be provided by adaptive management options, which the County would require, as appropriate. Thresholds for non-listed sensitive birds or bats were set higher than for listed species, in keeping with their lower protection status.

Non-Sensitive Raptors

The estimated average raptor mortality rate for wind farms in the U.S. is 0.006 per WTG per year; the overall average rate in the U.S. is 0.033 per year.[18] Maximum raptor mortality for modern wind farms in the U.S. outside California is estimated to be 0.07 raptors in the Northwest. Raptor mortality at wind farms in California ranges from 0.01 to 0.24 fatalities per WTG per year (average of 0.15 per WTG or 1.37 per MW per year).[19] This data is based on older wind farms, which include large numbers of small-sized WTGs (hence the high mortality rate expressed on a per-MW basis). The high raptor mortality at these facilities is associated with high raptor use. The results of the winter 2006-07 avian survey at the Lompoc Wind Energy project site indicate raptor use of the site may be slightly higher than that of most wind projects in U.S., but much lower than projects in Solano County and the Altamont Pass Wind Resource Area.[20] However, raptor mortality rates may prove to be lower than expected on the basis of observed raptor use at LWEP, because the most

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17 The estimates of adjusted mortality involve complex statistics due to the small sample sizes and uncertainty in adjustments for searcher efficiency and scavenger removal bias. The estimated rates are approximate and involve uncertainty that can be estimated as a confidence interval using Monte Carlo methods or other appropriate statistical approach. (For example, see Stateline Wind Project Wildlife Monitoring Final Report, FPL Energy, Stateline Technical Advisory Committee, 12/04. p.4 *et seq*.) The Level 2 Thresholds shall be triggered by estimates of the annual, site-wide mortality rate only if the stated threshold rate is exceeded with 90% confidence, based on a 1-sided statistical hypothesis test.

18 Erickson, W.P., et. al, *Avian Collisions with Wind Turbines: A Summary of Existing Studies and Comparisons of Avian Collision Mortality in the United States*, 10/01, pp. 2 & 39.

19 National Wind Coordinating Committee, Wind Turbine Interactions with Birds and Bats: A summary of research results and remaining questions, 11/04, p.4.

20 CEC Guidelines, 2007, Appendix G, Figures 1 and 4.

frequently observed raptors at the site are turkey vultures, which are known to have low mortality rates at wind farms.

Based on this information, it is expected that raptor mortality rates at the project will be less than 0.10 fatalities per WTG per year. This amounts to approximately 6-7 raptor fatalities per year expected for the entire site (65 WTGs), or 2 for a random sample of 20 WTGs. The Level 1 threshold for non-sensitive raptors is set at 3 fatalities per year for the 20 WTGs sampled. The Level 2 threshold is set at 1½ times the Level 1 threshold, which rounds to 5 fatalities per year for the 20 WTGs sampled.

3.5.7.6 Residual Impacts

Implementation of mitigation measures described above would reduce most impacts to biological resources to less than significant levels, with the exception of Impact BIO-10, Avian and Bat Collisions with WTGs, which is considered significant and unavoidable *(Class I)*.

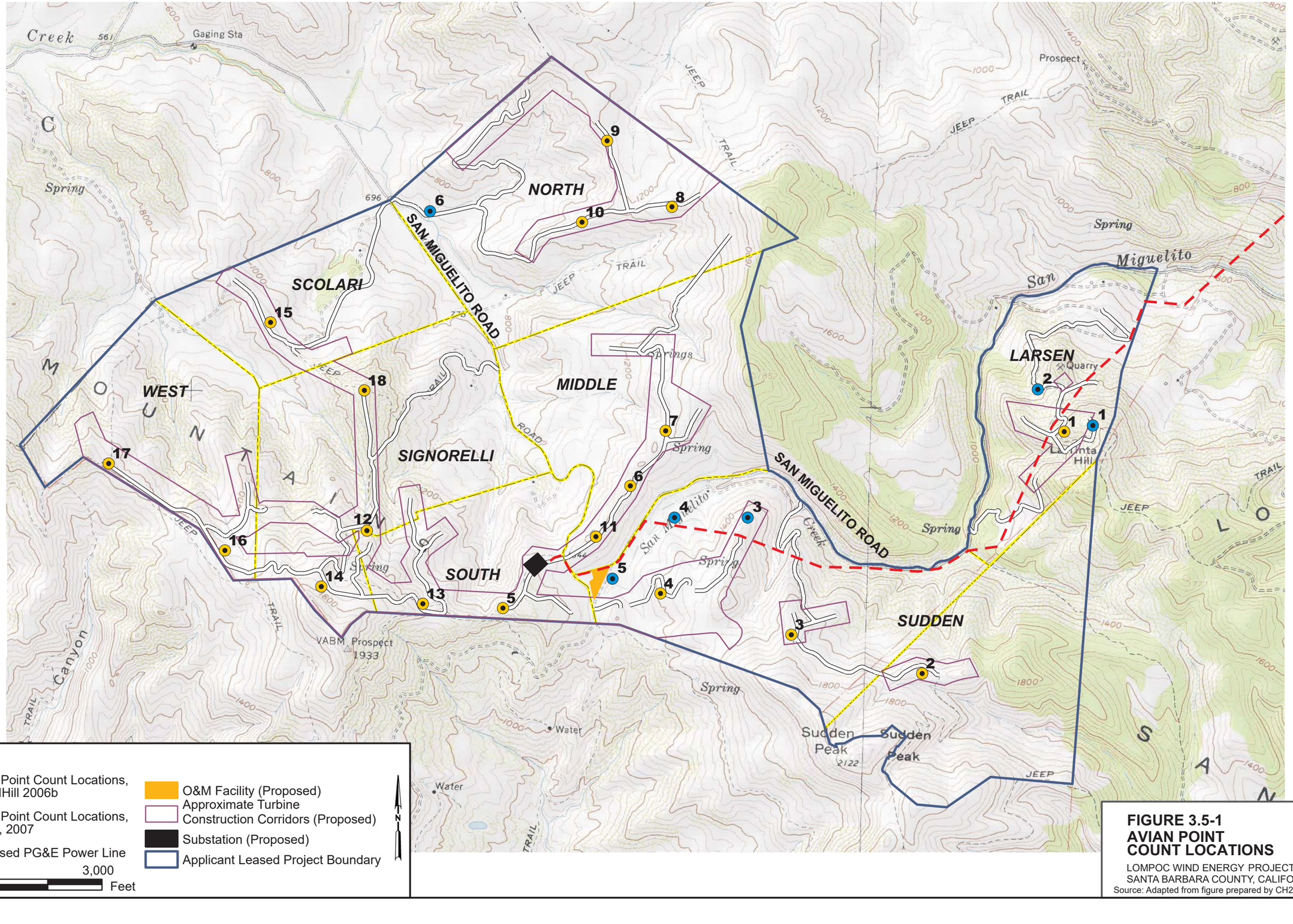

FIGURE 3.5-1
AVIAN POINT COUNT LOCATIONS

LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA
Source: Adapted from figure prepared by CH2MHill

Agricultural Field
Central Coast Scrub
Central Coast Riparian Scrub
Eucalyptus
Annual Grasslands
Mosaic
Native Grasslands
Oak Woodlands

NORTH
SCOLARI
WEST
MIDDLE
SIGNORELLI
SOUTH
LARSEN
SUDDEN
SAN MIGUELITO ROAD
SAN MIGUELITO ROAD
Gaging Sta
Spring
JEEP TRAIL
Prospect
Miguelito
Canyon
VABM Prospect 1933
Water
Peak 2122
SAN LUCIAN

LEGEND

- Proposed PG&E Power Line and 100' Buffer
- Roads (Proposed)
- Lot Boundary Lines
- State Coastal Zone Boundary
- Turbine Temporary Impact
- O&M Facility (Proposed)
- Staging Areas (Proposed)
- Approximate Turbine Construction Corridors (Proposed)
- Substation (Proposed)
- Applicant Leased Project Boundary
- Stream Corridor

0 3,000 Feet

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FIGURE 3.5-2
PLANT COMMUNITIES AND WILDLIFE HABITAT WITHIN THE PROPOSED LWEF SITE
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA
Source: Adapted from figure prepared by Sapphos (2008).

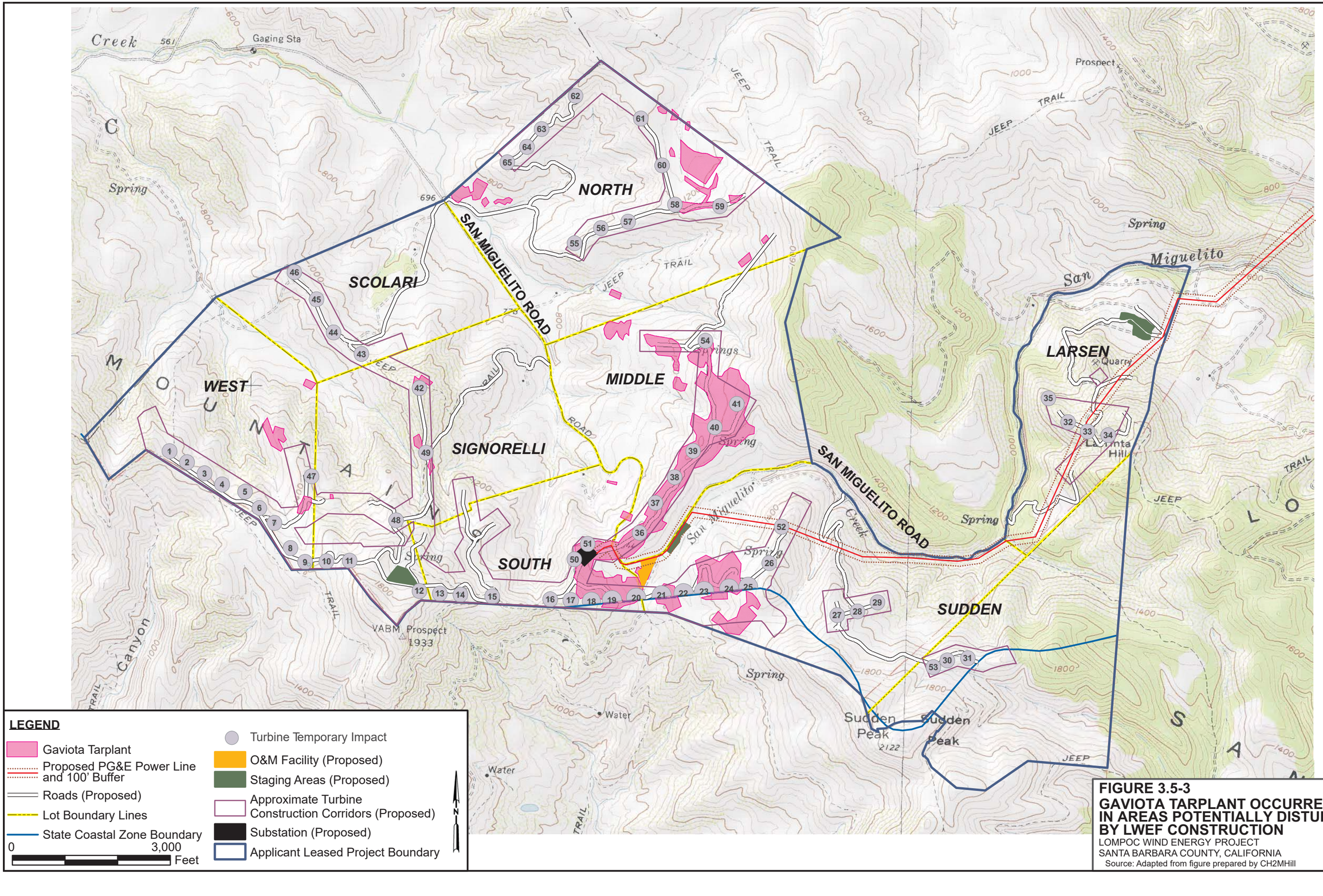


FIGURE 3.5-3
GAVIOTA TARPLANT OCCURRENCE IN AREAS POTENTIALLY DISTURBED BY LWEF CONSTRUCTION
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA
Source: Adapted from figure prepared by CH2MHill

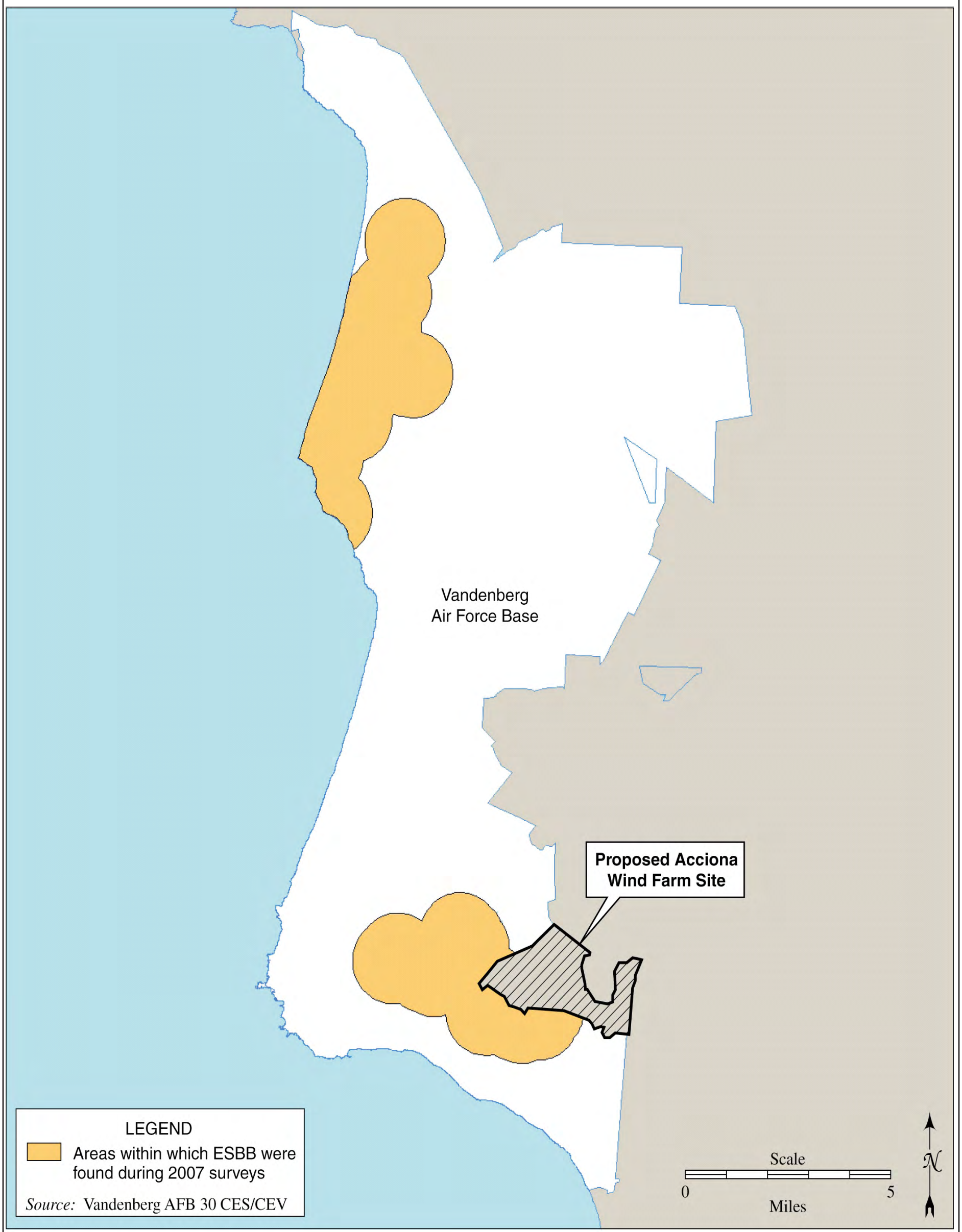


FIGURE 3.5-4
AREAS WITHIN WHICH EL SEGUNDO BLUE BUTTERFLIES (ESBB) WERE DOCUMENTED ON VANDENBERG AIR FORCE BASE DURING THE 2007 FLIGHT SEASON

LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

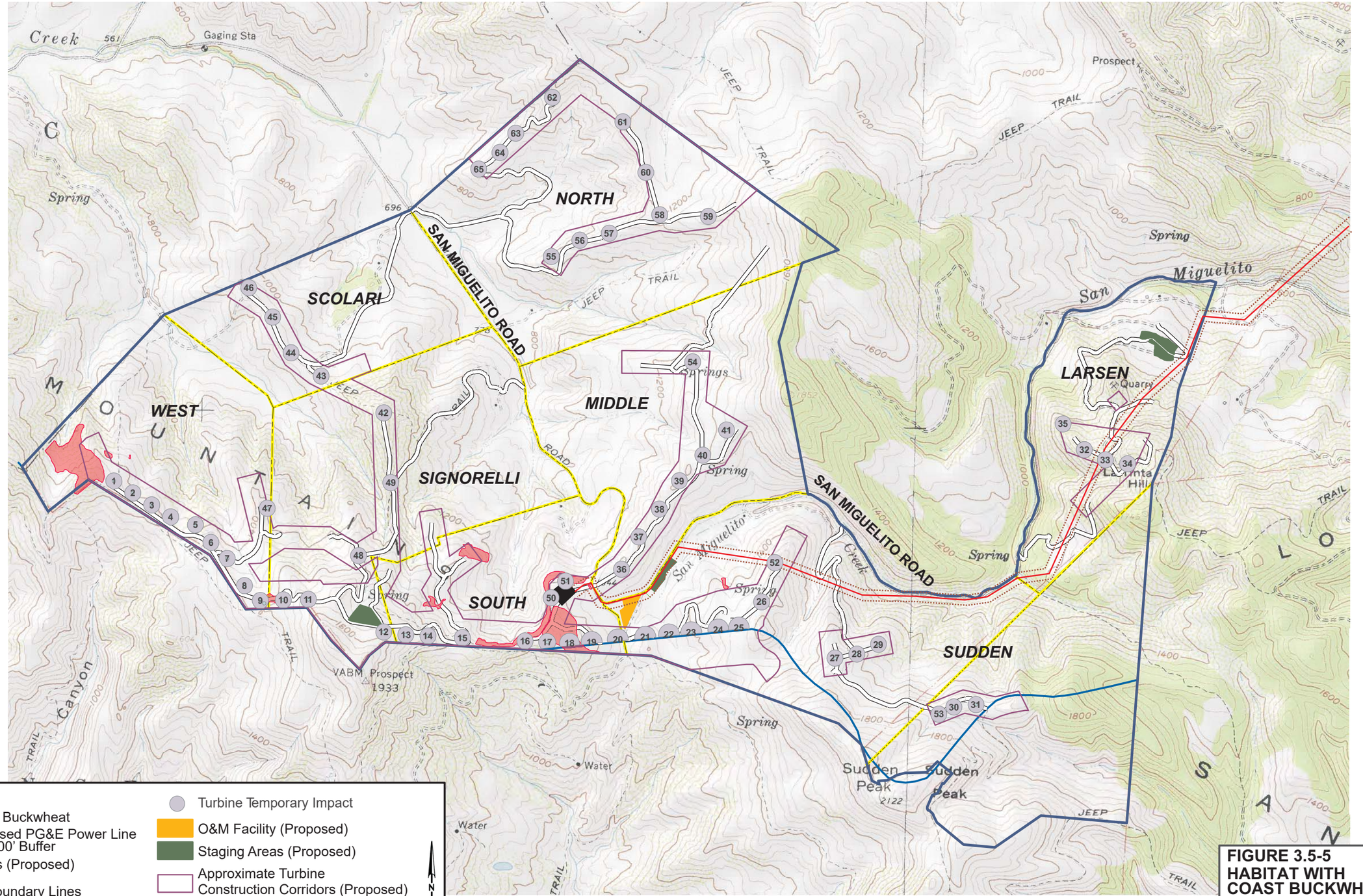


FIGURE 3.5-5
HABITAT WITH COAST BUCKWHEAT (*ERIOGONUM PARVIFOLIUM*)

LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA
Source: Adapted from figure prepared by Sapphos (2008).

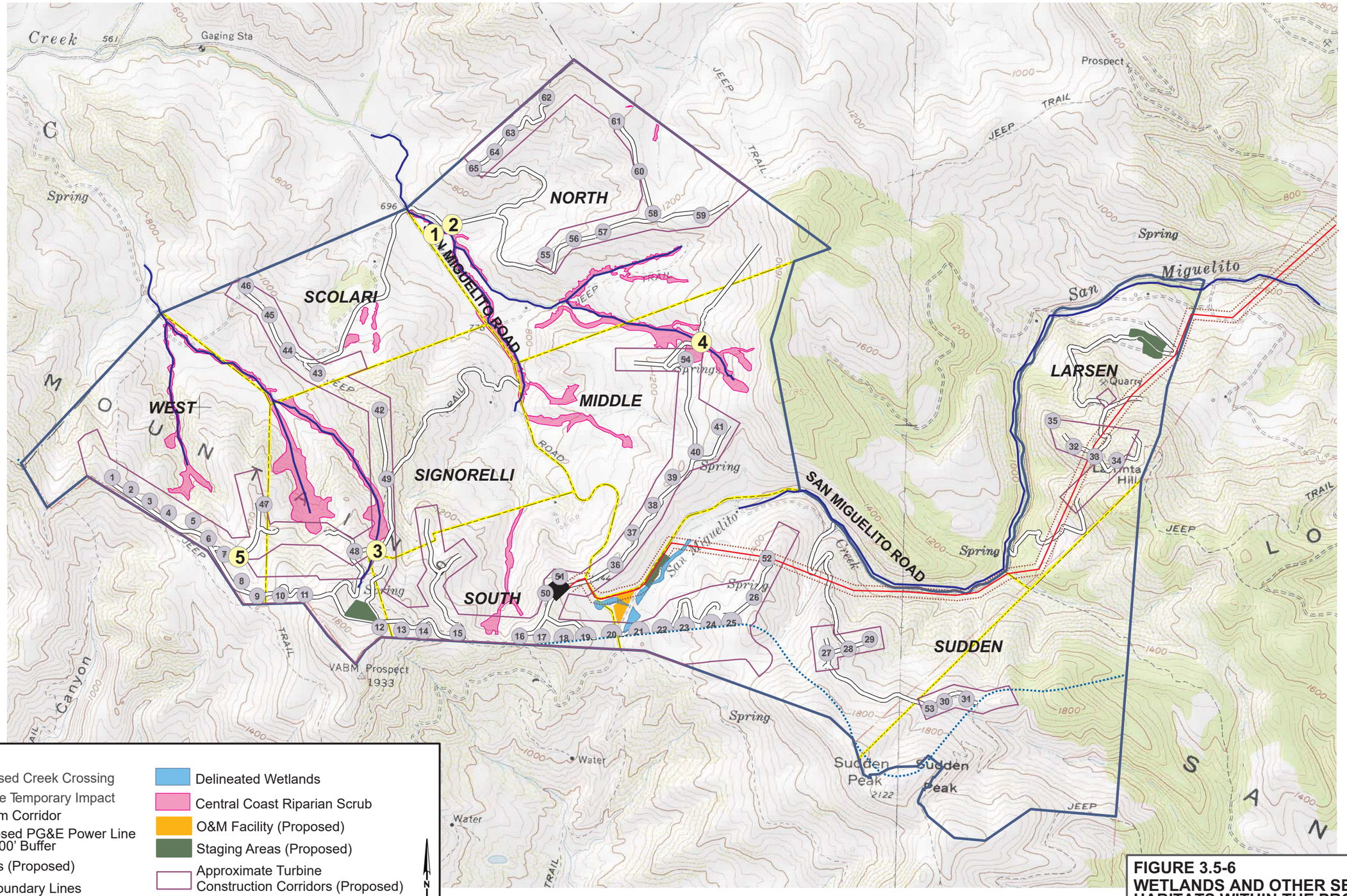


FIGURE 3.5-6
WETLANDS AND OTHER SENSITIVE HABITATS WITHIN THE PROJECT AREA
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA
Source: Adapted from figure prepared by Sapphos (2008).

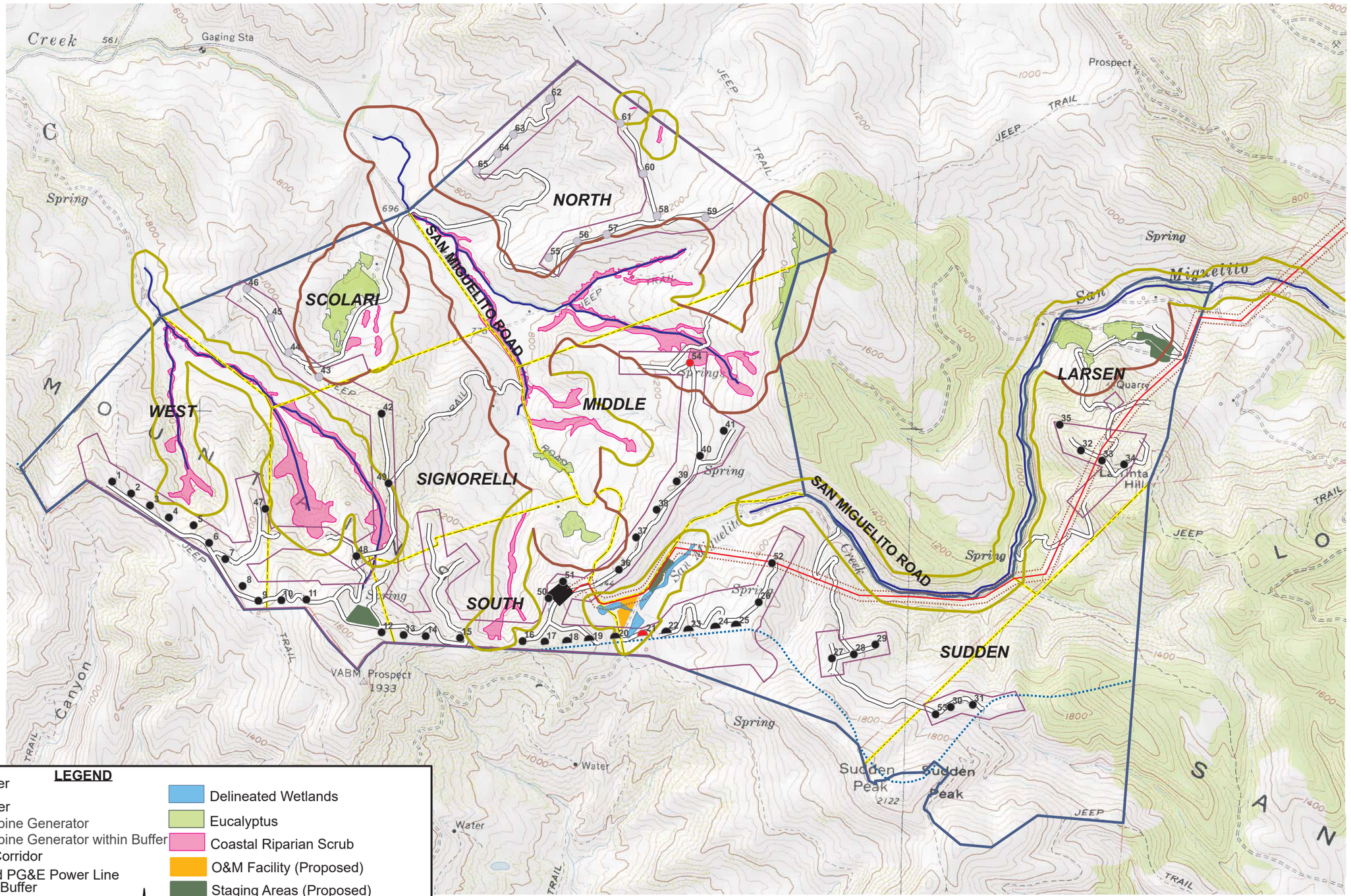


FIGURE 3.5-7
BIOLOGICAL BUFFERS AROUND SENSITIVE BIOLOGICAL FEATURES
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

3.6 Cultural Resources

Cultural resources are historic and prehistoric archaeological sites, historic architectural and engineering features and structures, and sites and resources of traditional cultural significance to Native Americans and other groups. A cultural resource inventory was conducted to identify and document potentially significant cultural resources within the area of potential effect (APE) for both the Lompoc Wind Energy Facility (LWEF) and the 115-kV power line. The APE includes areas where ground disturbance would occur, including the wind turbine generator (WTG) sites and associated access roads, areas that would be trenched to accommodate electrical lines, Project Substation, Operations and Maintenance (O&M) facility, power pole locations, and staging areas estimated to ~~comprise~~ disturb approximately 196 ~~53.57~~ acres. The inventory involved: (1) a background literature search of the Project area, including review of a previous cultural resources investigation conducted for the Project (Spanne, 2005); (2) identification and documentation of pre-1960 resources within the Project area through pedestrian surveys; and (3) a preliminary assessment of the potential significance of identified resources according to California Environmental Quality Act (CEQA) criteria. Cultural resources surveys took place in June, July, and August of 2002; June, July, and August of 2005; ~~and~~ September of 2006; and January 2008, in compliance with Section 5024.1(g) of the California Public Resources Code. This section synthesizes the results of the inventory and draws heavily from Spanne, 2005.

3.6.1 Existing Conditions

3.6.1.1 Prehistoric Setting

The creeks, river valleys, and floodplains in the vicinity of the Project, including the fringing coastline, have supported a continuous cultural occupation for at least the last 9,000 years. An early Holocene occupation, which reflects the early emergence of nonagricultural, village-based groups in the region, has been identified in the archaeological record. Current archaeological evidence suggests that a relatively small population existed in these areas, but by 2,000 years before present (B.P.), populations appear to have expanded considerably into resource-rich coastal and near-shore, estuarine environments (Dillon, 1990). Accounts by Juan Rodríguez Cabrillo (Wagner, 1929) and Sebastian Vizcaino (Bolton, 1930) indicated that by the time of European contact to this area of the California coast, some of the large, coastal villages had hundreds of occupants and were engaged in both terrestrial and maritime long-distance trade.

Paleoindian Period

The San Dieguito Complex, which extends from roughly 12,000 B.P. to 7,000 B.P. (Wallace, 1978; Warren, 1967), is found throughout Southern California and includes nonfluted points such as leaf-shaped projectile points and various leaf-shaped, bifacial tools. Unfortunately, there are few reliable published radiometric dates from this period, with most of the artifacts identified as isolated find spots.

One fluted-point fragment is known from the Santa Barbara area. The artifact, consisting of a basal fragment from a fluted point, was found at CA-SBA-1951 on the coastal plain to the west of Santa Barbara (Erlandson et al., 1987; Erlandson, 1994).

The Millingstone Period

The Millingstone Period extends to at least 6,000 B.P. and probably as far back to 8,500 or more B.P. (Wallace, 1955; Warren, 1968). Hard seed processing became one of the major components of subsistence during this period. Overall, the economy was based on plant collecting, but was supplemented by fishing and hunting, and general exploitation of marine and estuarine resources (Wallace, 1955). Large, heavy, ground stone milling tools such as deep basin metates and wedge-shaped manos, and large core/cobble choppers and scrapers, typify the Millingstone Period.

In the northern Channel Islands, two sites have produced fairly reliable early Holocene dates. Radiometric dates have been obtained from shells at Daisy Cave, on San Miguel Island (Erlandson et al., 1996; Rick et al., 2001), and human remains were found in a secure early Holocene context on Santa Rosa Island at Arlington Springs (the so-called Arlington Woman). Both sites did not have extensive archaeological remains, but nevertheless, these dates put humans on the Channel Islands by at least 9750 B.C., and possibly earlier (circa 11000 B.C. for the Arlington Woman).

Along Santa Barbara coastal areas, Millingstone sites are common on terraces and knolls, typically set back from the current coastline (Erlandson, 1994; Glassow et al., 1988). The larger sites usually contain extensive midden deposits, possible subterranean house pits, and cemeteries. Most of these sites probably reflect intermittent use over many years of local cultural habitation and resource exploitation. Erlandson has noted that the typical Millingstone manos/metates are not common on contemporaneous Channel Island sites, possibly reflecting an alternate insular resource exploitation (Erlandson, 1994).

The Intermediate Period

The Intermediate period has also been called the "Hunting Period" or "Middle Horizon." About 5000 years B.C., the Millingstone traditions, with their heavy reliance on vegetal food sources, began to gravitate more toward animal proteins and marine resources. Procurement of plants for caloric intake was not necessarily replaced in kind by game hunting, but rather the local Millingstone dietary regimen began to transition toward alternate resources. Mortars and pestles predominate the tool kit, rather than manos and metates. Glassow has hypothesized that, in the Santa Barbara geographic setting, this could reflect greater use of acorns (Glassow et al., 1988). In the Santa Barbara area, the reliance on shellfish probably declined during the Intermediate Period, as the maritime and coastal marine exploitations expanded into the aforementioned terrestrial resources (Erlandson, 1988).

The Late Prehistoric Period

The Late Prehistoric Period probably began sometime around the B.C./A.D. transition, but expanded culturally around A.D. 500 with the introduction of bow and arrow technology (Meighan, 1954). The end of the period is recognized as the end of the 18th Century, when full implementation of the Spanish Mission system took effect on the native populations.

The Santa Barbara coastal areas, along with the western areas of Ventura and the Los Angeles Basin, were occupied during the Late Prehistoric Period by the so-called "Canaliño" culture (Rogers, 1929). During this period, the coastal populations expanded greatly and probably took advantage of a wide variety of ecological niches, especially marine resources. Small projectile points, frequently side-notched, are typical in the bow

and arrow-based toolkit. Specialty items such as basketry, ollas or large water vessels, shell and stone beads, and shell and bone fish hooks appear, as does elaborate rock painting (Grant, 1965). Anthropologists believe that the Chumash are directly descended from the Canaliño culture of the archaeological record.

During the Late Prehistoric Period, a highly advanced fishing and hunting strategy developed that included the exploitation of a wider variety of fish and shellfish. These new subsistence strategies, coupled with the appearance of the bow and arrow, enabled a substantial increase in local populations, the development of permanent settlements, and a "money" economy based on the shell trade.

3.6.1.2 Ethnographic Setting

During the late prehistoric period and early in historic times, the study area was part of the territory occupied by the Purismeño branch of Chumash-speaking people (Kroeber, 1925). The Chumash were an unusually sophisticated group of hunter-gatherer people who occupied the coastline, adjacent interior, and offshore islands from Malibu in the south to the vicinity of Estero Bay in the north. More detailed information on the Chumash is available in Gibson (1991), Grant (1965), Hudson and Blackburn (1979-1986), King (1971) and Landberg (1965). At the time of early Spanish exploration of this area, several Chumash villages were located within a few miles of the Project site in all directions. The villages nearest the Project area were Lompo' (translated as "stagnant water") located in the lower Lompoc Valley, Sipuc (translated as "elbow") located a few miles east of the City of Lompoc along the Santa Ynez River, Nocto (translated as "eel") located along the coast several miles to the southwest, and Shilimqshtush (no translation) located at Jalama Beach County Park (Applegate, 1975). During the Spanish Mission period and subsequent Mexican Rancho period, the Project area was used for grazing livestock, a practice that has continued up to the present day. This area was also once part of the original Mexican Land Grant Rancho Lompoc.

The Late Prehistoric Period Chumash, with a Hokan linguistic stock, lived in large villages along the coast and the wide valleys leading into the California interior. This was an ethnohistoric boundary group situated between the Chumash to the northwest and the Gabrieliño to the south and east. In the archaeological record, the Gabrieliño material culture (Bean and Smith, 1978; Blackburn, 1963; Johnston, 1962) is often (but not always) indistinguishable from the Chumash (Grant, 1965, 1978a,b; Landberg, 1965).

The Chumash were highly sea-oriented. Given the presence of earlier sites on the offshore islands, this evidence suggests that there was a maritime tradition at least partially carried over from the Millingstone and Intermediate Period cultures (Harrington, 1978). By at least 1,000 B.P., the Chumash were relying on blue-water vessels in an exploitation strategy partially based on deep-sea fishing and marine mammal hunting.

Although a number of archaeological studies have taken place in the vicinity of the Project over the past 20 years, the archaeology and prehistory of the general area are still not well understood. This is due, in part, to the fact that most studies have been conducted at the Phase 1 Cultural Resource survey level, such as the current one, with few excavations. The notable exceptions are a number of excavations carried out on nearby Vandenberg Air Force Base (VAFB) over the last 25 years or so. These studies indicate that people have probably

inhabited this general area for about 9,000 years or more (Applied Earthworks, 2001). The development of prehistoric ways of life in this region culminated with the appearance of the complex culture of the Chumash people during the last thousand years or so.

3.6.1.3 Historic Setting

The first known European entry into the area was the expedition of Juan Cabrillo who sailed north along the California coast from Mexico in 1542. His two ships reached the Santa Barbara Channel in October 1542, and after several tries, were able to round Point Conception and sail as far north as San Francisco Bay (Chesnut, 1993).

A second Spanish expedition arrived in the area in 1602, which consisted of two ships under the command of Sebastian Vizcaino. His aim was to follow Cabrillo's route and reassert Spanish claims to the area. Naming local landmarks after saints' days on which they were discovered, he named the harbor of Santa Barbara on Saint Barbara's feast day (December 4), and Point Conception on the Feast of the Immaculate Conception (December 8). Vizcaino sailed as far north as Monterey Bay, eventually returning to Acapulco.

In the 1760s, the Spanish government decided to establish a series of military establishments called presidios and missions along the California coast between the two great natural harbors of San Diego and San Francisco (Weber, 1982, 1992). These establishments countered against feared occupation of the coast by Russian or English forces.

As a function of this effort by the Spanish government to establish military presence on the West Coast, an expedition left the colony at San Diego in the summer of 1769 under the command of Don Gaspar de Portola, the governor of Baja, California. The objective was to locate an overland route to Monterey Bay and prospect for presidio locations along the route. Portola's expedition passed through the area on its return to San Diego (Chesnut, 1993).

Following Portola's expedition, Spanish visits and activity increased. An expedition led by Juan Bautista de Anza passed through the area in spring of 1776. A presidio was established at Santa Barbara in 1782 to fill the gap between the previously established presidios in Monterey and San Diego. This established a permanent European presence in the area, and was shortly followed by the establishment of the Missions at Santa Barbara in 1786. This mission had a strong effect on the Chumash in the vicinity of the Project.

It seems certain that a number of the Chumash left for the missions, though chapels were built for those remaining in rancherias in the Goleta area. The Chumash who did move to the missions worked in agriculture or herding, and steps were taken to assimilate them to European styles of life. This also proved to be dangerous to the health of the Chumash populations, as they were exposed to European diseases to which they had no immunity. During this period, Chumash populations went into a steep decline.

When Mexico gained its independence from Spain in 1821, Alta California became part of the new country. Approaches to church control changed as government control devolved to Mexico City and to the Mexican territorial and state governors.

It had never been the intention of the Spanish and the successor Mexican government that the missions would remain as permanent entities controlling the economy of the frontier

areas (Weber, 1982). With independence, the Mexican government began a process of secularization of mission properties that was concluded in 1833. Missions were turned into parish churches, and regional commissions were established to dispose of the properties and resettle the Indians affiliated with the missions. Mexican government policy was to give mission properties and other unclaimed land to prominent citizens who would be required to build homes and facilities and develop the properties. The period of California history known as the Rancho Period, began as a class of wealthy landowners known as "rancheros" controlled the state. They built large ranches based on cattle hide and tallow production.

Approximately 40 of these land grants were made in Santa Barbara County during this period (Avina, 1973; Chesnut, 1993; Tompkins, 1976, 1987).

The United States and Mexico went to war in 1846 over the annexation of Texas. With the end of the war in 1848, the Treaty of Guadalupe-Hidalgo ceded California to the United States (Weber, 1982). The annexation of California dislocated the dominant Hispanic culture due to the change in government control and the influx of large numbers of Anglo-Americans. Land titles were a major source of conflict between the two cultures. In 1851, a land act was passed that required the Mexican and American courts to confirm Spanish land grants. Many of the ranchos were broken up, as owners were unable to produce sufficient documentation to satisfy the courts.

During the Spanish Mission period and subsequent Mexican Rancho period, the Project area was used for grazing livestock, a practice that has continued up to the present day. This area was also once part of the original Mexican Land Grant Rancho Lompoc.

3.6.2 Resources Inventory

Inventory methods for the Project consisted of archival research, a pedestrian survey, and consultation with the Native American Heritage Commission (NAHC).

3.6.2.1 Background and Archival Research

Records and literature searches were conducted at the Central Coast Information Center of the California Historical Resources Information System (CHRIS) for this Project by Larry Spanne in 2002 and 2005 (Spanne, 2005) and Clint Helton of CH2M HILL on January 17, 2007. The latter records search was conducted to account for the addition of the power line and additional turbines and access roads in the Larsen Corridor. The records search provided information regarding both historic and prehistoric cultural resources. The search of the power line corridor included a 0.5-mile buffer on either side of the centerline ~~for the entire 7.85-mile length~~. The results of both searches revealed that numerous archaeological sites had been previously recorded within 2 miles of the LWEF site and power line corridor, although only seven of these sites are located within or at the boundaries of these areas. Very few surveys have been conducted within the LWEF site and power line corridor, which probably explains the low number of archaeological sites previously recorded here. Nevertheless, the presence of a higher density of archaeological sites on nearby VAFB property suggests that the Project area is archaeologically sensitive.

3.6.3 Field Survey

Pedestrian field survey of all Project elements was conducted in 2002, ~~and~~ 2005, and 2008 by Laurence W. Spanne (Spanne, 2005; Spanne, 2008), and in September 2006 by Clint Helton, RPA, of CH2M HILL. The Phase 1 Archaeology Study (Spanne, 2005) and Supplemental Phase 1 Study (Spanne, 2008) conducted by Mr. Spanne was part of a Phase 1 Study requested by the Project Applicant, Pacific Renewable Energy Generation, LLC. The Phase 1 Study conducted by Mr. Helton was requested by the County of Santa Barbara.

Field methods remained consistent for all episodes of field investigation, including the ~~final~~ investigation by CH2M HILL in September 2006. The entire building envelope, including the WTG locations, O&M facility, Project Substation, access road corridors, staging areas, power line route and power pole locations, and surrounding buffer zones ~~comprising a total of about 1,036 acres,~~was surveyed intensively on foot along parallel transects at intervals no greater than 50 feet. In the case of road corridors, an area at least 50 feet wide was covered on each side of the road. In cases where there was no existing road, a wider corridor was surveyed to ensure that the actual proposed alignment of the road was covered and to accommodate future minor changes in alignments. For power pole angle structure locations, at least a 100- by 100-foot area, centered on the center of the location of the angle structure, was surveyed. Areas of steep slope (25 percent or greater) and impenetrable vegetation within the areas surveyed were generally not examined, except for rock outcrops and possible rock shelters.

A close examination of the ground surface was accomplished along each of the parallel survey transects. All vegetation-free areas were carefully observed in order to identify artifacts or other culturally derived materials that might have been present. The surface visibility generally ranged from fair to good at the time of the survey. Some very small archaeological sites might have been overlooked in areas of particularly dense ground cover, and other sites may have been destroyed or buried by slope failure in the form of landslides and slumps, particularly in areas of steep slope or unstable soils. No other problems were encountered that might have affected the results of the investigation.

3.6.4 Results of Field Surveys

As a result of the field surveys, ~~11~~ 13 previously unrecorded archaeological sites were documented. Seven previously recorded archaeological sites are present within the APE, and the boundaries of two of these were expanded based on new observations. All of these sites appear to be prehistoric, although their age is not known. In addition, 11 archaeological isolates (isolated artifacts), some of which may be archaeological sites, were recorded. Descriptions of each of these archaeological sites and archaeological isolates are found in the following subsection. Official State of California Site Record Forms, both Primary and Archaeological are provided as part of the Confidential Cultural Resources Technical Appendix C of this Environmental Impact Report (EIR). This appendix is composed of Appendix C.1, Supplemental Cultural Resources Inventory Report prepared by CH2M HILL in June 2007, and Appendix C.2, Phase I Archaeological Survey Report and Supplemental Phase 1 Archaeological Survey prepared by Laurence W. Spanne in August 2005 and 2008, respectively. This appendix has been submitted confidentially under separate cover.

All of the archaeological sites within the Project area contained exclusively lithic waste and stone tools. No faunal remains, evidence of fires or ovens, features indicative of dwellings, rock art, or human remains were observed at any of the ~~18~~ 20 archaeological sites. Ten of the sites appear to have functioned primarily as lithic workshops, while ~~four~~ five appear to have functioned as chert (tool stone) quarries. ~~Four~~ Five of the sites, all located near water sources and featuring heavier concentrations of artifacts, with some indication of plant food preparation, may have also functioned as overnight camps. One of these may be associated with a prehistoric trail.

A list of archaeological sites recorded within the Project area along with brief descriptions of key characteristics and other information is presented below. Results are discussed separately below for the WTG corridors and associated elements, and for the power line component of the Project.

3.6.4.1 Turbine Corridors, Access Roads, Staging Areas, Substation, and Other Turbine-related Facilities

A brief description for each site follows below. Newly recorded sites were given a unique identification number beginning with "LWF" (Lompoc Wind Facility [for example, LWF-1]). Previously recorded sites are referred to using their state Smithsonian trinomial number (for example, CA-SBA-2756). Smithsonian trinomial numbers are considered permanent site identifications that do not designate eligibility or ineligibility.

LWF-1/CA-SBA-2756 (Prehistoric with Potentially High Significance)

This archaeological site was recorded in the field as LWF-1, and it was determined to be related to CA-SBA-2450, a small site at its southernmost boundary. It was later discovered that a portion of the site had also been earlier recorded as CA-SBA-2756. However, the LWF-1 boundaries observed during the current Project greatly exceeded those recorded in 1995. This was due to the fact that Wahoff and others did not have permitted access to most of the area of the site.

CA-SBA-2756 is the largest archaeological site in the Project area with dimensions of approximately 1,815 feet by 1,155 feet. These site boundaries are in part based on maps in the original site record that were derived from information from subsurface testing carried out by Parsons Engineering (1996) in support of a project on nearby VAFB. CA-SBA-2756 features a medium to high surface density of cultural material including shatter, macro or primary reduction flakes, secondary thinning flakes, a relatively small proportion of tertiary or retouch flakes, numerous broken bifaces, a small bipointed projectile point, quartzite hammerstones, and ground stone including bifacially and edge-ground manos or handstones. The flaked stone artifacts consist exclusively of variegated Monterey chert in a wide range of colors. Similar artifacts and materials were noted during the 1996 Parsons investigation. The highest artifact densities are in the area west and northwest of the small stream channel. The author had occasion to view this site in the late 1950s after a major rainstorm; at that time, there were numerous ground stone artifacts and complete large bifaces exposed by stream erosion in the area of the small channel above the existing spring. A depth of approximately 5 feet is indicated in a cut bank.

Site CA-SBA-2756 may have some considerable antiquity, as suggested by the presence of manos. The grayish sandy soil, the variety of artifacts present, greater depth high artifact

density, and location near a water source, all suggest that this may be a short-term habitation site or campsite where plant food processing took place. A primary function of the site appears to have been lithic reduction for the purpose of chert biface production. Human remains could be present in this cultural deposit. It is not unlike CA-SBA-1823, a site recently subjected to test excavations and located not far from the Project area on nearby VAFB (Harro, Lebow, and McKim, 2001). CA-SBA-1823 may date to the Early Period or Early Holocene. CA-SBA-2756 is considered to be highly significant due to its unusual type, excellent state of preservation, and data potential based on its use in lithic reduction and for possible short-term habitation. However, a Phase 2 Archaeological Investigation would be required to more reliably establish the significance of CA-SBA-2756.

LWF-2 (Prehistoric with Potentially Low Significance)

This archaeological site (LWF-2) measures approximately 840 feet by 500 feet and has a somewhat amorphous shape. It features a very low surface density of cultural material consisting of Monterey chert artifacts including mostly secondary thinning flakes, shatter, a few tertiary retouch flakes, two utilized flakes, and two cores. All of these artifacts are variegated orange, root beer, cream, tan, and dark gray Monterey chert. Four isolated chert flakes were found up the ridge and a short distance beyond the northern boundary of the site. These are treated as isolates (Isolates 8 through 11) and described below. The site deposit at LWF-2 is estimated to be no more than 1 to 2 feet in depth.

LWF-2 is tentatively categorized as a lithic reduction site or workshop. There is no compelling evidence that it was anything but a day-use location. Although it is not considered to be highly significant, its potential to yield data on lithic reduction techniques suggests the site may be somewhat significant. A more reliable significance determination would require a Phase 2 Archaeological Investigation with subsurface testing.

LWF-3 (Prehistoric with Potentially Low Significance)

This archaeological site (LWF-3) measures about 305 feet by 160 feet and has a roughly teardrop shape. The site features a low surface density of cultural material that consists mostly of secondary thinning flakes and shatter of banded, variegated orange, root beer, cream, tan, and dark gray colored Monterey chert. No formal artifacts were observed on the surface of this site. Although difficult to estimate without a subsurface test, this site is probably only 1 to 2 feet in depth.

LWF-3 is tentatively classified as lithic workshop or reduction site. There is no compelling evidence that it was anything but a day-use location. Therefore, the site is considered to have low significance due to its limited data potential. However, a Phase 2 Archaeological Investigation would be required for a more reliable significance determination.

LWF-4 (Prehistoric with Potentially Medium Significance)

This archaeological site (LWF-4) measures about 835 feet by 530 feet and is somewhat crescentic in shape. It features a medium surface density of cultural material including mostly secondary thinning flakes with small quantities of primary reduction flakes, tertiary retouch flakes, and shatter. The lithic material is variegated orange, root beer, yellowish-tan, cream-white, and dark gray Monterey chert along with a single piece of reddish Franciscan chert. Other artifacts observed included many large and medium sized, broken bifaces, and chert cores. Based on the dark soil color, location near water, and greater variety of artifact content, it is estimated that this site may be up to 3 feet or more in depth.

LWF-4 appears to have functioned primarily as a lithic workshop or reduction site, but again, based on the dark soil color, location near water, and variety of artifacts; it may also have been used on occasion for short-term or overnight occupation. This site has medium significance based on its data potential as a short-term campsite and excellent state of preservation. A Phase 2 Archaeological Investigation would be required to more reliably establish the significance of LWF-4.

LWF-5 (Prehistoric with Potentially Medium Significance)

This archaeological site (LWF-5) measures approximately 815 feet by 400 feet, and its shape bilobal and curvilinear. It features a light to locally heavy surface density of cultural material consisting of primary reduction flakes and secondary thinning flakes, shatter, cores, broken and whole bifaces, and chunks of Monterey chert. This lithic material ranges in color from orange and root beer to dark gray. Definition of the eastern boundary of the site is made difficult due to the presence of a large block of landslide material that originated near the top of a high ridgeline to the east. Artifacts from an unrecorded archaeological site at that location are incorporated into the displaced slide material that was transported down slope to the vicinity of LWF-5. Based on the dark soil, location near water, and greater variety of artifact content, this site may have a depth of up to 3 feet or more.

LWF-5 appears to have functioned primarily as a lithic workshop or reduction site, but again, based on the dark soil, variety of artifacts present, and location near water, this site may also have functioned as a short-term occupation site or campsite. This site is tentatively assessed as having medium significance due to the data potential and excellent state of preservation. A Phase 2 Archaeological Investigation would be required to more reliably establish the significance of LWF-5.

LWF-6 (Prehistoric with Potentially Low Significance)

This archaeological site (LWF-6) measures approximately 825 feet by 545 feet and is roughly rounded-triangular in shape. The site is characterized by a light surface density of cultural material consisting of primary reduction flakes, secondary thinning flakes, shatter, chunks, biface fragments, and cores of Monterey chert. All of the chert is variegated and orange, root beer, and dark gray in color. This site is estimated to be relatively shallow and no more than 1 to 2 feet in depth.

LWF-6 appears to have functioned as a lithic workshop or reduction site. The site is tentatively assessed as having only low significance potential due to loss of integrity from erosion. A Phase 2 Archaeological investigation would be required in order to establish a more reliable significance assessment of the site.

LWF-7 (Prehistoric with Potentially Low Significance)

This archaeological site (LWF-7) has dimensions of approximately 1,050 feet by 520 feet and it is ovoid in shape. The site is characterized by a medium surface density of cultural materials consisting of shatter, chunks, large primary reduction flakes, cores, and broken bifaces of Monterey chert. The chert is mostly orange and root beer colored. There are also siltstone cobbles strewn about the site. The depth of LWF-7 is estimated to be 1 to 2 feet or less.

LWF-7 appears to have functioned as a lithic procurement site and lithic workshop. Chunks of Monterey chert derived from a primary deposit near the top of the high ridge to the east may have been transported down the slope by gravity or small slides. LWF-7 is tentatively assessed as having only low significance potential due to loss of integrity from heavy erosion. A Phase 2 Archaeological Investigation would be required to more reliably establish the significance of this resource.

LWF-8 (Prehistoric with Potentially Medium Significance)

This archaeological site (LWF-8) measures approximately 500 feet by 415 feet and is triangular in shape. The site features cultural materials in a low surface density of shatter, chunks, primary reduction flakes, and utilized flakes of variegated Monterey chert of orange, root beer, and dark gray colors. The depth of the site is estimated to be no more than 1 to 2 feet. Erosion caused by former cultivation and heavy grazing has affected the integrity of this site, but not nearly to the extent seen in LWF-6 and LWF-7.

LWF-8 appears to have functioned as a lithic workshop and possible overnight campsite. The site is tentatively assessed as having medium significance potential due to its perceived ability to yield data on lithic workshops and overnight campsites. A Phase 2 Archaeological Investigation would be necessary to more clearly establish site significance.

LWF-9 (Prehistoric with Potentially Medium Significance)

This archaeological site (LWF-9) has dimensions of 575 feet by 280 feet and is rounded triangular in shape. The site is characterized by a low surface density of cultural materials consisting of primary reduction and secondary thinning flakes, shatter, chunks, a utilized flake shaped like a spokeshave, and a basal fragment of a small, serrated, concave-based point of cream-gray chert. All of the material on the surface is derived from variegated Monterey chert in cream, light gray, orange, and root beer colors. The depth of the site is unknown, but could approach 3 feet. Erosion, caused by former cultivation and heavy grazing, have somewhat affected the integrity of this site.

LWF-9 appears to have functioned as a lithic workshop and possible rest stop along a prehistoric trail that may have connected the Lompoc Valley with Honda Canyon via Sloan's Canyon. Dora Salzman Byllings, the great aunt of Mr. Spanne and an early resident in San Pasqual Canyon, told him in the 1970s that she and her family had occasionally seen "Indians" walking up and down the canyon as late as the 1880s. LWF-9 is tentatively assessed as having medium significance due to its mostly excellent state of preservation and potential to yield information on what may be less well-known prehistoric activities. A Phase 2 Archaeological Investigation would be necessary to confirm this potential.

LWF-10 (Prehistoric with Potentially High Significance)

This site (LWF-10) covers an area of 815 by 420 feet and is ovoid in outline. The site is characterized by a medium to high surface density of lithic artifacts including primary macro flakes, secondary thinning flakes, chunks, shatter, cores, blades, and broken bifaces. All of the chert is orange to root beer colored. The depth of the site is unknown. The northernmost area of the site has been disturbed and mostly destroyed by bulldozing in and around an inactive rock quarry.

LWF-10 appears to have functioned as a chert quarry and biface production site. The site is tentatively assessed as having high sensitivity because it is relatively undisturbed and has

the potential to yield data about a type of prehistoric activity that in this region that is not well understood. A Phase 2 Archaeological Investigation would be necessary to more reliably assess the sensitivity of this site.

LWF-11 (Prehistoric with Potentially High Significance)

This site's (LWF-11) dimensions are unknown due to the fact that the site exists as a subsurface deposit. The dimensions, as described by Spanne (2005), are simply an estimate assuming that the site underlies most of the bench. The dimensions of the bench are approximately 320 feet long by 100 feet in width. An east-west trending fence crosses the site just north of the location where gravel was quarried. A small, shallow pit about 20 feet in diameter appeared to have been recently quarried, just exposing the top of a dense layer of artifacts. This deposit was observed 3 to 5 feet below the surface of the bench. The artifacts consisted of tabular and chunky pieces of Monterey chert, primarily orange to root beer colored, with smaller amounts of dark gray material. Some of the chert chunks were unmodified, but there were numerous macro flakes, cores, large bifaces, and shatter type debitage in high density within and around the exposed deposit.

While examining existing ranch access roads for the Project, a number of locations were observed on the Signorelli Ranch where shale gravel had been spread on their surface, ostensibly to improve vehicle traction. Closer inspection revealed that chert artifacts were present in these gravels, which appeared to be of local origin. Later, when attempting to determine the boundaries of LWF-5, the source of these gravels was inadvertently discovered. Approximately 250 feet northeast and above LWF-5, the terrace or bench described above was found. Since it was beyond the Project area at the time of discovery, the site was not recorded. LWF-11 was assigned more recently when design changes expanded the Project area to the vicinity of this site.

Shale gravel from LWF-11 was apparently used in the past to surface ranch roads at selected locations. However, this practice of spreading artifacts throughout the Signorelli Ranch might have the undesirable effect of creating deposits that might be mistakenly identified as archaeological sites at some future date. It would be advisable not to use the quarry as a source of gravel for future road repairs.

An examination of geologic maps of the area produced by Thomas Dibblee (1988) reveals the presence of a fairly large landslide at the location of the quarry. Further observation revealed that cultural material from LWF-11 was apparently transported down slope by the landslide into the vicinity of LWF-5. What is not clear is whether the landslide occurred before, during, or after the unrecorded prehistoric quarry was in use. It is possible that the landslide exposed chert deposits that were subsequently quarried and later partially buried beneath colluvial deposits. It is also possible that the entire quarry site was displaced from higher on the slope to a lower elevation during the landslide. A closer examination of the site by a geomorphologist would be necessary to more accurately establish the relationship between the two archaeological sites and the landslide.

The chert quarry at LWF-11 may be quite large in size and could have served as a major source of the root beer colored Monterey chert that appears at many sites within the vicinity of the Project. Its relatively undisturbed condition (since it is buried) makes it an ideal site for recovery of information on quarrying and distribution practices.

CA-SBA-2450 (Now Incorporated within the Boundaries of CA-SBA-2756)

This site, previously recorded by Osland and Berry (1991), was incorporated within the boundaries of LWF-1 (CA-SBA-2756) on the basis of surface observations during the current investigation. (See description of LWF-1.)

CA-SBA-2754 (Prehistoric with Potentially Medium Significance)

This previously recorded site (CA-SBA-2754) has dimensions of approximately 530 by 390 feet and is ovoid in shape. A low surface density of lithic artifacts was observed during the present and past investigations. These artifacts included both primary and secondary flakes, biface fragments, and shatter of orange to root beer colored Monterey chert. A projectile point fragment of Franciscan chert, as well as chalcedony and andesite flakes, were noted by earlier investigators (Parsons, 1996). The depth of the cultural deposit appears to be 2.7 feet based on the Parsons testing and earlier testing by McDowell (1994).

CA-SBA-2754 appears to have functioned as a lithic workshop or reduction area. It is located near LWF-10, which was likely the source of the chert found here. This site is assessed as having medium sensitivity because it is relatively undisturbed and has the potential, in conjunction with LWF-10, to yield information lithic production activities. A Phase 2 Archaeological Investigation would be necessary to reliably establish this potential.

CA-SBA-2757 (Prehistoric with Potentially Medium Significance)

This previously recorded site (CA-SBA-2757) has dimensions of approximately 815 by 225 feet and is roughly rounded rectangular in shape. Limited subsurface testing was previously conducted at the sites (Parsons, 1996). The Parsons Archaeological Site Record describes the site as a "light scatter of flaked lithics" including over 100 primary and secondary flakes of light brown banded Monterey chert and two early stage biface fragments. The depth of this site is unknown.

CA-SBA-2757 appears to have functioned as a lithic workshop. Because of its proximity and possible relationship to Site LWF-10, as well as its potential for yielding information on lithic production, this site is assessed as having medium sensitivity. However, a Phase 2 Archaeological Investigation would be required for an adequate evaluation of the resource.

CA-SBA-2873 (Prehistoric with Potentially High Significance)

This site (CA-SBA-2873) was originally recorded during a base wide survey of VAFB. The portion of the site located on VAFB was recently subjected to subsurface testing by Applied Earthworks (Lebow, Coleman, and Harro, 2003). The investigators did not have access to the part of the site located on private property.

CA-SBA-2873 occupies the top and slopes of a terminal southwest trending ridgeline. The dimensions from Lebow's updated site record are approximately 575 by 512 feet. The depth of the cultural deposit is recorded as approximately 68 inches. Lebow et al. describe the VAFB portion of the site as a "moderately dense scatter of flaked stone" without bones, marine shell, or archaeobotanical remains. Stone tools recovered were apparently used for "scraping, cutting, grooving, and planing tasks." They further note that tools used to work plants were prevalent. They postulate that the site functioned as a location for gathering and processing plants and other resources. They also note that SBA-2873 appears to be eligible for nomination to the National Register of Historic Places (NRHP) (Lebow, Coleman, and Harro, 2003).

Recent observations at the site provide additional information. There are a number of bedrock mortar holes within sandstone outcroppings on the Scolari portion of CA-SBA-2873. In addition, fragments of ground stone artifacts are present (handstones, manos) on the ridgeline near the VAFB boundary fence. The presence of the bedrock mortars and ground stone tend to reinforce the conclusion that the site functioned as a location for gathering and processing plants and other resources. Additionally, there are historic artifacts on the private property side including the remains of old vehicles and farm equipment. CA-SBA-2873 is considered to be highly significant based on the evaluation by Lebow, et al. and observations of the portion of the site as part of the current evaluation. Subsurface testing would only be required if the limits of project disturbance were moved closer to the site (Lebow, Coleman, and Harro, 2003).

3.6.4.2 Lompoc Wind Energy Power Line

A records and literature search was conducted for a 1-mile-wide corridor along the entire power line alignment, revealing the presence of three previously documented prehistoric sites (CA-SBA-1751, CA-SBA-2066, and CA-SBA-2465), all located either slightly within or adjacent to the centerline of the power line route.

~~Intensive~~ A pedestrian field survey of the proposed power line route ~~and at least a 100- by 100-foot pad, centered on each angle structure location,~~ was ~~also~~ conducted. Areas subjected to intensive archaeological survey included proposed angle point locations within the power line corridor, a corridor along the southern edge of San Miguelito Road where the exact pole locations remain undetermined and an access road proposed for widening near the northeastern terminus of the project. However, steep, brushy sections of the power line corridor between pole locations were not surveyed, as there is no disturbance proposed for these areas and access to the pole locations would be along existing ranch roads. The pedestrian survey identified two new archaeological sites along the power line corridor, which were given temporary designations of LWF-A-1 and LWF-A-2.

~~An architectural reconnaissance of the power line corridor was also completed in order to identify the potential presence of any historic standing structures that may qualify as historical resources under CEQA. No previously undocumented prehistoric, historic, or architectural resources were documented as a result of the field survey of the roughly 8-mile power line corridor.~~

A short segment of the power line corridor along the shoulder of San Miguelito Road passes through a small residential area comprised of mostly 1960s to 1980s single-story ranch and Spanish revival style homes. All are modern residential buildings and none meets any of the eligibility requirements to be considered historical resources under CEQA or NRHP.

~~Prehistoric archaeological sites CA-SBA-1751, CA-SBA-2066, and CA-SBA-2465 are described in greater detail below.~~

CA-SBA-1751 (Prehistoric with Potentially Low Significance)

This previously recorded prehistoric archaeological site (CA-SBA-1751) was documented in 1982 and consists of a light surface scatter of lithic waste. No other artifacts or features were present. The site has been heavily disturbed from modern development and agricultural activity. CA-SBA-1751 is located near, but well outside of the power line corridor, and is not expected to be impacted. No further work is recommended.

CA-SBA-2066 and CA-SBA-2465 (Prehistoric with Potentially Low Significance)

These two previously recorded sites (CA-SBA-2066 and CA-SBA-2465) are acknowledged to be a single large prehistoric lithic quarry site. The site consists of large outcrops of Monterey chert, procured prehistorically for the production of lithic tools. The site record was recently updated in 1999. This site remains unevaluated, but is tentatively assessed as having only low significance potential due to loss of integrity from the impact of highway construction through the site, modern quarrying of bedrock materials, and erosion. A Phase 2 Archaeological Investigation would be required to more reliably establish the significance of this resource.

LWF-A-1 (Prehistoric with Potentially High Significance)

This site appears to be a prehistoric chert quarry and reduction location located along the top and flanks of a steep, brushy secondary ridge where chert-bearing Monterey Shale exposures are present. Cultural remains observed at the site consisted of large primary Monterey Chert flakes, chert cores, discarded blocks of chert, and discarded cortical shale rubble. All of the chert observed was dark orange-brown or root beer in color. No temporally diagnostic artifacts were seen at the site. A graded jeep trail passes though this site. A Phase 2 Archaeological Investigation would be required to more reliably establish the significance of this resource.

LWF-A-2 (Prehistoric with Potentially High Significance)

This site appears to be a prehistoric lithic workshop where secondary reduction or thinning of Monterey Chert tool stone was accomplished. It is located at the terminus of one or more relatively gently sloping, broader secondary ridge tops and may spill over into the adjoining secondary drainages. Cultural remains observed consist of large primary and secondary reduction flakes of dark orange-brown, root beer, or striated grayish in color. No temporally diagnostic artifacts were seen at the site. A Phase 2 Archaeological Investigation would be required to more reliably establish the significance of this resource.

3.6.4.3 Archaeological Isolates

Additionally, a total of 11 archaeological isolates were identified during the intensive field survey conducted for this Project. Archaeological isolates are one or two artifacts or other culturally derived items of prehistoric or early historic age located within 65 feet of each other, or at least the same distance from the boundaries of an archaeological sites. Isolates are not considered nonunique resources and do not meet any of the eligibility criteria for either the California Register of Historical Resources (CRHR) or NRHP and are, therefore, considered not significant.

3.6.5 Native American Consultation

The NAHC was contacted by letter on January 5, 2007, by CH2M HILL, requesting a search of the NAHC Sacred Lands file and information about traditional cultural properties, such as cemeteries and sacred places in the Project area. The NAHC record search of the Sacred Lands file failed to indicate the presence of Native American cultural resources in the immediate Project area. The record search conducted at the Central Coastal Information Center CHRIS also failed to indicate the presence of known Native American traditional cultural properties. Additionally, the NAHC also responded with a list of Native Americans

interested in consulting on development projects. In May 2007, each of these individuals or groups was contacted by letter. No responses have been received to-date.

3.6.6 Evaluation of Results

Given the fact that ~~18~~ 20 archaeological sites and 11 archaeological isolates were found during the current Phase 1 Investigation, the Project area is considered highly sensitive in terms of archaeological resources.

3.6.7 Regulatory Framework

3.6.7.1 Archaeological and Historic Resources

The Project falls under state legislative jurisdiction. California state law regarding cultural resources is primarily included in the CEQA Guidelines, as amended. According to CEQA, if:

> *… a project may affect an archaeological resource, the agency shall determine whether the effect may be a significant effect on the environment. If the project may cause damage to an important archaeological resource, the project may have a significant effect on the environment.*

CEQA has established principles for preservation of for cultural resources and criteria for the identification of important resources. Section 15064.5 of the CEQA Guidelines provides definitions of significance and types of impacts to archaeological and historic resources. As cited in this section, the lead agency shall consider a resource to be "historically significant" if the resource meets the CRHR criteria for eligibility or is listed in a local historic register or deemed significant in a historical resources survey. According to CRHR criteria, a significant historic resource is one which:

a. Is associated with events that have made a significant contribution to the broad patterns of California history and cultural heritage

b. Is associated with the lives of persons important in our past

c. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values

d. Has yielded, or may be likely to yield, information important in prehistory or history

Further, CEQA emphasizes that evaluations take into consideration a resource's historic integrity, combining location, design, setting, materials, workmanship, feeling, and association.

Additionally, historic sites are defined as "any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California" (Public Resources Code Section 5020.1).

Inventory methods for the Project area consisted of archival research, a pedestrian survey, architectural reconnaissance, and Native American consultation. Methods were consistent with the plans and policies outlined in Section 3.10.4.

3.6.8 Project Impacts, Mitigation, and Residual Impacts

3.6.8.1 Thresholds of Significance

Where a project may adversely affect a unique archaeological resource, Section 21083.2 of CEQA requires that the lead agency (that is, Santa Barbara County) treat that effect as a significant environmental impact. When an archaeological resource is listed in or eligible to be listed in the CRHP, Section 21084.1 of CEQA requires that any substantial adverse effect to that resource be considered a significant environmental impact.

Additionally, the County Environmental Thresholds and Guidelines Manual contains three elements: Historical, Ethnic, and Archaeological. The Historical Element pertains to historical structures and buildings. The Ethnic Element of the Guidelines outlines procedures and policies for identifying, evaluating, and mitigating potential impacts on archaeological resources and stipulates a variety of steps that shall be undertaken if the site is important to Native Americans and other ethnic groups. The Archaeological Element, most relevant to this project, contains a framework for developing research questions to improve the understanding of Santa Barbara County prehistory (County, 2006). Santa Barbara County Cultural Resource Guidelines also provide direction to archaeologists on what types of research topics and research questions are appropriate to determine the significance of an archaeological site (County, 1993).

3.6.8.2 Project Impacts

The records and literature search and field survey failed to identify any known or previously unrecorded historic archaeological sites, such as remains of sites no longer in use or maintained, and having clearly defined archaeological potential (that is, associated artifacts, features, ecological evidence), or historic nonarchaeological sites (buildings, sites, structures, objects, and districts that in general are still used or maintained). No impact to historic sites is anticipated. A total of ~~18~~ 20 prehistoric archaeological sites have been documented within the Project sites. Section 3.2, Aesthetic/Visual Resources, discusses the potential impacts of the proposed Project on La Purisima Mission, including the Mission's historic "sense of place."

Impact No.	Impact Description	Phase	Impact Classification
CULT-1	Construction activities could result in significant impacts to ~~18~~ 20 prehistoric archaeological sites.	Construction and (potentially) Operations	Class II

Impact CULT-1: Known Prehistoric Archaeological Sites. A total of ~~18~~ 20 prehistoric archaeological sites were identified during the present cultural resources evaluation. All of these sites appear to have characteristics that may qualify them as significant historical resources according to CEQA. The greatest potential for impacts to these sites would occur during the construction phase of the Project, although impacts could occur during operation and maintenance of the facilities if ground disturbance occurred. Ground-disturbing activities, including the operation of heavy equipment, could result in significant but mitigable impacts (*Class II*) to cultural resources, but impacts to individual sites cannot be precisely identified until the final locations of substations, turbines, access roads, and other facilities are determined, and detailed engineering plans are completed. In many cases,

direct impacts may be avoided through minor design modifications. Project design would incorporate measures to completely avoid as many of these sites as possible. Because the cultural resources survey methodology included inventory of a wide corridor for the explicit purpose of allowing for design flexibility, avoidance would be possible in many cases.

Impact No.	Impact Description	Phase	Impact Classification
CULT-2	Impacts to unidentified subsurface archaeological resources may occur as a result of earth-disturbing activities.	Construction	Class II

Impact CULT-2: Unidentified Archaeological Resources. Impacts to unidentified subsurface archaeological resources may occur as a result of ground-disturbing activities, including the operation of heavy equipment. If Project activities disturbed a previously undiscovered CRHR-eligible cultural resource, the impact would be significant but mitiga~~a~~ble (*Class II*).

Impact No.	Impact Description	Phase	Impact Classification
CULT-3	Impacts to known and unidentified archaeological resources may occur as a result of increased public access to archaeological sites via new or improved roads.	Construction and Operations	Class II

Impact CULT-3: Unauthorized Artifact Collection. Archaeological sites could be exposed during construction, and workers could have increased knowledge of and access to artifacts. Additionally, long-term access to archaeological sites would be enhanced by the construction of new access roads and improvement of existing roads. Unauthorized collection of artifacts would contribute to the destruction of site integrity, which would be a significant but mitigable impact (*Class II*).

3.6.8.3 ~~Applicant-proposed~~ Mitigation Measures

The following mitigation measures incorporate appropriate provisions of the Applicant-proposed mitigation measures listed in Section 2.8.4, with revisions as needed to ensure maximum feasible mitigation in accordance with Santa Barbara County policy.

~~The following Applicant-proposed mitigation measures are considered part of the project description. They have been combined and refined where appropriate to reflect the County Standard Conditions of Approval and Mitigation Measures (Santa Barbara County, 2005), including plan requirements, timing, and monitoring actions that would be required. Specific County Phase 2 archaeological survey requirements also are addressed.~~

Mitigation Measure ~~A-~~CULT-1: Additional Archaeological ~~Surveys~~Investigations. If it is determined that a Project element requiring ground disturbance cannot be located at least ~~100~~500 feet from the mapped boundaries of an archaeological site, ~~a new Phase 1 survey of that specific location shall be conducted. If this survey confirms that ground disturbance would occur within 100 feet of a site boundary,~~ then an Extended Phase 1 investigation shall be conducted by employing a small number of shovel test units (STU). These STUs would be used to determine the actual subsurface boundary of the archaeological site relative to

the proposed disturbance, and therefore verify whether or not the site would be affected by the disturbance. The STUs should be 20 inches in diameter and excavated in arbitrary 8-inch levels.

If the presence of cultural materials is confirmed in areas that would be disturbed by Project construction, then Project construction activities should be reviewed and redesigned, to the greatest extent feasible, consistent with project objectives, to avoid impacts on confirmed cultural resource sites (see Mitigation Measure CULT-7).

If a recorded archaeological site can not be avoided through Project redesign, then Phase 2 subsurface testing shall be conducted to evaluate the nature, extent, and significance of the cultural resources. This evaluation program shall be designed to assess each archaeological site consistent with County Archaeological Guidelines and shall involve the following:

a. Controlled hand excavation and surface collection of a representative sample of the site deposit determined by a County-approved archaeologist

b. A detailed analysis of the material recovered

c. An assessment of cultural resource integrity

d. Preparation of a final report with recommendations for impact mitigation if necessary.

Should this program determine that the affected archaeological sites are significant, Phase 3 mitigation in the form of data recovery excavation shall be implemented consistent with County Archaeological Guidelines.

Plan Requirements and Timing: All work shall be funded by the Applicant. The scope of work for the study(s) shall be prepared by the County or by the County- approved archaeologist and reviewed by the County. The study(s) shall be performed prior to final design so that any necessary modifications can be incorporated into the plans. The County-approved archaeologist shall submit a final report to the County detailing the results of the study(s) prior to zoning clearance. Any subsequent modifications resulting from the study(s) shall be incorporated into the final plans and be subject to review and approval by the County prior to zoning clearance for the first phase of construction and prior to zoning clearances for subsequent project phases.

MONITORING: The County will review results of study, determine the course of action, and ensure that approved recommendations are carried out *(Addresses Impact CULT-1).*

Mitigation Measure ~~A-~~CULT-2: Archaeological Isolates. In the case where ground disturbance is proposed within ~~30~~ 100 feet of Archaeological Isolates LWF Iso-1, Iso-8, Iso-9, Iso-10, and Iso-11, a single STU shall be excavated within 3 feet of the isolate in order to determine if there are subsurface deposits present. If the isolate cannot be relocated, the STU shall be placed in the general vicinity of its mapped location. If subsurface cultural deposits are identified, they shall be assessed and characterized in accordance with Mitigation Measure A-CULT-1.

Plan Requirements and Timing: The Applicant shall fund the above referenced study. The scope of work for the study shall be prepared and accepted by the County in consultation with a County- approved archaeologist. The findings of the study shall be submitted to the

County to determine if additional protective measures shall be required. The study shall be performed prior to the zoning clearance for the first phase of construction and prior to the zoning clearances for subsequent Project phases for disturbance in this area.

MONITORING: The County will review results of study and determine course of action *(Addresses Impact CULT-1)*.

~~Mitigation Measure A-CULT-3: Road Preparation. Where existing graded ranch roads pass through an archaeological site, such roads may be used and widened through the site area by surfacing them with a 6-inch layer of imported gravel or soil that is free of cultural materials and recognizably different from the site soils. Surfacing the road with gravel shall also occur for a distance of 100 feet beyond the mapped boundary of a site, except in cases where the boundary has been established through subsurface testing. Gravel from site LWF-111 shall not be used for this purpose because it contains cultural material.~~

~~**Plan Requirements and Timing:** The required data collection program shall be conducted by a County- approved archaeologist and funded by the Applicant. The results of the program shall be reviewed and approved by the County prior to the zoning clearance for the first phase of construction and prior to the zoning clearances for subsequent Project phases. All recommendations in the report shall be implemented as approved.~~

~~**MONITORING:** County staff will review the program and ensure that approved recommendations are carried out in the field *(Addresses Impact CULT-1)*.~~

Mitigation Measure ~~A-~~CULT-~~3~~4: Unanticipated Discoveries. Should human remains, historic or prehistoric artifacts, or other potentially important cultural materials be unearthed or otherwise discovered at any time during activities associated with the development of the Project area, work in the immediate vicinity of the discovery shall be suspended until a County- approved archaeologist and Native American representative are retained by the Applicant to evaluate the significance of the find pursuant to Phase 2 investigations as specified in the County Guidelines (County, 1993). If the cultural resources are found to be significant, they shall be subject to a Phase 3 mitigation program consistent with County Cultural Resource Guidelines and funded by the Applicant. In the event that suspected human remains are discovered, the County Coroner shall be contacted in accordance with state law.

Plan Requirements and Timing: This condition shall be printed on all building and grading plans prior to zoning clearance for the first phase of construction and prior to zoning clearances for subsequent project phases.

MONITORING: The County will check plans prior to zoning clearance for the first phase of construction and prior to zoning clearances for subsequent phases to confirm that this measure is printed on the plans and shall spot check that this measure is noted on the plans in the field *(Addresses Impact CULT-2)*.

Mitigation Measure ~~A-~~CULT-~~4~~5: Archaeological and Native American Monitors. A County-approved archaeologist and Native American monitor shall monitor all ground disturbances ~~in all areas containing known archaeological materials~~ to ensure that any previously unidentified cultural resources are recorded.

Plan Requirements and Timing: Prior to start of construction, a contract or Letter of Commitment between the Applicant and the County-approved archaeologist, consisting of a project description and scope of work, shall be prepared. The contract shall be executed and submitted to the County for review and approval prior to the issuance of the zoning clearance for the first phase of construction and prior to the issuance of the zoning clearances for subsequent project phases.

MONITORING: County staff will confirm monitoring by the County- approved archaeologist and County grading inspectors will spot check field work *(Addresses Impacts CULT-1 and CULT-2).*

Mitigation Measure ~~A-~~CULT-5~~6~~: Pre-construction Workshop. The County shall conduct a pre-construction workshop with cultural resource specialists, Native American monitors, and construction workers and personnel, stressing the importance of cultural resources and discussing penalties for their illicit disturbance.

Plan Requirements and Timing: Training shall occur prior to commencement of any construction-related activity and all construction personnel must receive training. The Applicant shall keep training records onsite for review by the County, if requested.

MONITORING: The County will review the training material prior to any trainings, spot check construction staff to ensure compliance with this requirement, and request training attendance records, if determined necessary *(Addresses Impact CULT-3).*

~~3.6.8.4 Additional Mitigation Measures~~

~~The following additional mitigation measures shall be implemented, in addition to the Applicant-proposed mitigation measures listed above, to provide adequate protections for cultural resources.~~

Mitigation Measure CULT-6~~1~~: Avoidance of Cultural Resources. Avoidance of cultural resource sites is the preferred measure, and all impacts to CRHR eligible sites shall be avoided to the greatest extent ~~possible~~ feasible, consistent with project objectives.

Plan Requirements and Timing: As Project design plans are being finalized, the County and its qualified archaeologist shall review 1 inch to 400 feet (1":400') or better scale orthotopo maps of the areas of known Project impacts and provide an assessment of direct adverse effects to CRHR-eligible or unevaluated cultural resources. Recommendations for plan adjustments to avoid all eligible resources to the extent feasible shall be made and design adjustments may be necessary. Final Project layout (for example, WTG placement, access road alignment, power pole locations, and staging areas) shall include measures to avoid eligible sites where feasible. All work shall be completed as part of final design, and any necessary modifications shall be incorporated into the final plans. The County shall confirm that this measure has been conducted prior to zoning clearance for the first phase of construction and prior to zoning clearance for subsequent Project phases.

MONITORING: County will shall check plans prior to zoning clearances and shall spot check in the field during ground disturbing activities *(Addresses Impact CULT-1).*

Mitigation Measure CULT-7~~2~~: Final Plan Notification. The Applicant shall include a note on a separate informational sheet to be recorded with the final plans for each construction phase

designating the known archaeological sites as unbuildable areas, unless the archaeological site is formally evaluated by a County- approved archaeologist as ineligible for the CRHR or a Phase 3 data recovery program has been implemented. The areas shall not be identified as archaeological sites on the informational sheet.

Plan Requirements and Timing: The informational sheet shall be submitted prior to zoning clearance for the first phase of construction and prior to zoning clearance for subsequent Project phases.

MONITORING: The County will spot check to ensure compliance *(Addresses Impact CULT-1)*.

Mitigation Measure CULT-~~8~~3: Temporary Fencing. Known unevaluated or determined significant archaeological sites and 50-foot buffer areas shall be temporarily fenced with chain link flagged with color or other material authorized by the County where ground disturbance is proposed within ~~100~~500 feet of the site and a buffer.

Plan Requirements and Timing: The fencing requirement shall be shown on approved grading and building plans. Plans are to be approved prior to zoning clearance for the first phase of construction and prior to zoning clearances for subsequent project phases; and fencing is to be in place prior to start of construction. The areas shall not be identified as archaeological sites on the informational sheet.

MONITORING: County staff will verify installation of fencing by reviewing photo documentation or by site inspection prior to prior to zoning clearances and ensure fencing in place throughout grading and construction through site inspections *(Addresses Impact CULT-1)*.

3.6.8.5 Residual Impacts

With implementation of the Applicant-proposed mitigation measures and additional mitigation measures outlined above, residual impacts to cultural resources would be less than significant.

3.7 Energy/Electric Utilities

3.7.1 Existing Conditions

The Pacific Gas and Electric Company (PG&E) provides electrical power to the northern portion of Santa Barbara County (County). (The southern portion of the County is served by Southern California Edison [SCE]). PG&E and SCE have formed a partnership to support the Santa Barbara County Energy Watch, a new residential and nonresidential program to assist and facilitate residents and businesses and other City and County government officials in understanding, managing, and reducing their energy use and costs, and to position the partners as leaders in the region in energy management practices. PG&E provides limited funding and services to assure that any customer receiving PG&E electric service is offered the full range of energy efficiency options suitable for that customer.

PG&E maintains a number of facilities in the general Project area, including distribution lines serving residences, commercial and industrial facilities, and agricultural operations; a 115-kilovolt (kV) power line serving the Celite facility; and the Cabrillo Substation in the City of Lompoc. These facilities are linked by transmission lines with other PG&E facilities located to the north and east, including the Morro Bay Substation, Atascadero Substation, Templeton Substation, and Divide Substation.

PG&E obtains power from a number of sources (PG&E, 2006), including:

- Natural Gas – 42 percent
- Nuclear – 24 percent
- Large Hydroelectric – 20 percent
- Renewable – 12 percent
- Coal – 1 percent
- Other – 1 percent

PG&E's renewable energy sources are further broken down as follows (PG&E, 2006):

- Biomass – 38 percent
- California-eligible Hydroelectric – 33 percent
- Geothermal – 19 percent
- Wind – 10 percent
- Solar – Less than 1 percent

No utility-scale wind energy facilities are currently present in the County, although PG&E and SCE both purchase wind power from other sources in California. Approximately 95 percent of all of California's wind energy is generated by turbines located in three primary regions: Altamont Pass (east of San Francisco), Tehachapi (southeast of Bakersfield), and San Gorgonio (near Palm Springs, east of Los Angeles). Wind energy also is produced in Solano County and the Tehachapi Ranges. An average California household uses 6,500 kilowatt-hours (kWh) of electricity per year; thus, the 3.5 billion kWh of electrical power generated each year from wind resource in the state can power over 530,000 homes (CEC, 2006).

3.7.2 Regulatory Framework

3.7.2.1 Federal

The United States Department of Energy has established a goal of generating 5 percent of the electricity generated in the country by the year 2020 from wind power, which will require an installed capacity 15 times greater than that which currently exists (an estimated 62,000 additional turbines) (GAO, 2005).

3.7.2.2 State

California's Renewable Portfolio Standard (RPS), established under Senate Bill (SB) 1078 (SB 1078, Chapter 516, Statutes of 2002), requires certain retail sellers of electricity, including PG&E, to increase the amount of renewable energy they procure each year by 1 percent until the renewable energy content of their electricity portfolios equals 20 percent. Retail sellers of electricity originally were to meet this 20 percent level by December 31, 2017. SB 107 accelerated the RPS target year from 2017 to December 31, 2010. (SB 107, Chapter 464, Statutes of 2006).

Additional recent relevant legislation is described below:

- SB 1107 is one of a series of budget trailer bills that made various changes in areas of natural resources and environmental protection and provided support for other related state agencies. Specific to the California Energy Commission (CEC), this bill contains a provision that requires the Secretary for the California Environmental Protection Agency (CalEPA) to coordinate the state's climate change activities. (SB 1107, Chapter 230, Statutes of 2004).
- SB 1368 prohibits any load-serving entity, as defined, and any local publicly owned electric utility, from entering into a long-term financial commitment, as defined, unless any baseload generation, as defined, complies with a greenhouse gases emission performance standard. (SB 1368, Chapter 598, Statutes of 2006).
- "Assembly Bill 32 (AB 32), the California Global Warming Solutions Act of 2006 requires that California's greenhouse gas emissions be reduced to 1990 levels by 2020. The California Air Resources Board (ARB) must evaluate several factors, including but not limited to: impacts on California's economy, the environment, and public health; equity between regulated entities; and electricity reliability prior to imposing regulations. The California Energy Commission and California Public Utilities Commission recently recommended (in CPUC Decision 08-03-018, March 13, 2008) that ARB adopt a three-pronged approach involving cost-effective energy efficiency, going beyond the RPS requirements, and developing an emissions cap and trade system for the electricity sector."

3.7.2.3 Local

The Energy Element of the Santa Barbara County Comprehensive Plan contains long-range planning guidelines and mechanisms to encourage energy efficiency and alternative energies in the County. The Project's consistency with specific policies included in the Energy Element is addressed in Section 3.10, Land Use.

3.7.3 Project Impacts, Mitigation, and Residual Impacts

3.7.3.1 Impact Assessment Methodology

The analysis considers Project impacts in the context of the regulatory environment. The thresholds of significance used to determine Project significance are provided in Section 3.7.3.2.

3.7.3.2 Thresholds of Significance

The following significance thresholds were developed because CEQA does not provide such thresholds for Energy/Electric Utilities, nor does the County's Environmental Thresholds and Guidelines Manual. The Project would have a significant impact on Energy/Electric Utilities if one or more of the following occurred.

- The Project would be inconsistent with federal goals and state legislation related to the use of renewable energy.
- The Project would use nonrenewable energy resources in a wasteful and inefficient manner.
- The Project would result in a need for new systems or substantial alterations to existing power utilities.

3.7.3.3 Project Impacts, Mitigation, and Residual Impacts

Project Impacts

Impact No.	Impact Description	Phase	Impact Classification
EEU-1	The Project could generate up to 285 ~~350~~ million kWh of electricity annually.	Operations	Class IV

Impact EEU-1: Federal and State Renewable Energy Goals. The Project would include 65 ~~60 to 80~~ wind turbine generators (WTGs) rated at 1.5 MW and would have a maximum electrical generating capacity of 97.5 ~~120~~ megawatts (MW). The Project Company has contracted with PG&E to deliver 82.5 MW of renewable energy and capacity under a long-term power purchase agreement via a direct interconnection to PG&E's transmission grid. The remainder of the planned capacity would be developed and installed upon securing long-term power purchase agreements with PG&E or others. Based on ~~According to~~ the revised Project application (65 turbines rated at 1.5 MW), the Project could generate up to 285 ~~350~~ million kWh of electricity annually.

The Project would support both the United States Department of Energy goal of increasing the overall use of wind power to generate electricity and California's RPS target. Additionally, the electricity produced by the Project would potentially replace the same amount of electricity generated by fossil fuels or other more polluting sources, which would support the state's legislation related to greenhouse gas emissions. The Project would have a beneficial impact (*Class IV*) related to federal and state renewal energy goals.

Impact No.	Impact Description	Phase	Impact Classification
EEU-2	Construction and operation of the Project would result in consumption of diesel fuel and gasoline.	Construction and Operations	Class III

Impact EEU-2: Nonrenewable Energy Resources. Construction and operation of the Project would result in the consumption of diesel fuel and gasoline through trucks delivering materials and construction equipment to the Project areas, use of construction equipment and large trucks, use of construction worker and operator vehicles, and use of maintenance vehicles associated with Project operation. Construction would be short-term and would not require unusually high amounts of energy resources, nor would energy be used in a wasteful or inefficient manner. Moreover, the maintenance vehicles during operation of the Project would be used infrequently and would not consume unusually high amounts of fuel. Impacts would be adverse, but less than significant *(Class III*).

Impact No.	Impact Description	Phase	Impact Classification
EEU-3	Temporary and long-term modifications to the PG&E system would be required to implement the Project, including ~~a temporary power line and~~ upgrades to PG&E's existing electrical system.	Construction and Operations	Class III

Impact EEU-3: New/Altered PG&E Facilities. Certain temporary and long-term modifications to the PG&E system would be required to implement the Project. Temporary power would need to be provided to the six to eight temporary site office trailers at the intersection of San Miguelito Road and Sudden Road, and power would need to be provided to the Operations and Maintenance Building and the WTGs. ~~Additionally, PG&E could need to build a temporary power line in order to continue to service to the Celite facility while the double circuit portion of the 115-kV power line was being constructed.~~ Power lines are already present in the Project area, and the changes to the LWEF site are not considered substantial alterations~~, nor is the construction of a temporary power line to serve the Celite facility~~.

Other upgrades to the PG&E electrical system would need to be made in order to integrate the power generated by the Project to PG&E's existing power grid. These upgrades include reconductoring a 2,000-foot segment of the existing Divide-Cabrillo No. 2 115-kV power line; installing relays and appropriate communication equipment to trip the circuit breaker at the Atascadero Substation; and replacing existing protective relays and installing a new relay protection scheme that would include transfer trips, reclosing relays, and reclosing blocking equipment at the Divide Substation near Orcutt. All upgrades would modify existing facilities located in previously disturbed areas, would require no ground disturbance, and would not result in environmental impacts; therefore, they are not considered substantial alternations to existing power utilities.

Impacts from the need for new or altered facilities would be adverse, but less than significant (*Class III*).

3.7.3.4 Mitigation Measures

No mitigation measures are required because no significant impacts to Energy/Electric Utilities would occur.

3.7.3.5 Residual Impacts

Adverse impacts would be less than significant.

3.8 Fire Hazards and Emergency Services

This section addresses potential Project impacts associated with fire and police protection and other emergency services, including paramedic services. The Project would not result in increased population as discussed in Section 3.16.5, Population/Housing, and Section 6.5, Growth-inducing Impacts. Therefore, population-based impacts to service ratios for fire and emergency services would not occur, and service ratios are not discussed further in this section.

3.8.1 Existing Conditions

3.8.1.1 Fire Hazards

The Lompoc Wind Energy Facility (LWEF) site and portions of the 115-kilovolt power line corridor are located within an Extreme Fire Hazard Area. High winds and brush in the Project area make it particularly susceptible to wildfires. Previous fires in the vicinity of the Project include the Sudden Fire in 2002, which burned approximately 7,500 acres and was caused by downed power lines resulting from high winds; the Oak Mountain Fire in 1981, which burned approximately 7,800 acres and was caused by a spark or ember flame from equipment; and the Honda Canyon fire in 1977, which burned approximately 9,040 acres and was caused by power lines (D. Neels, Personal Communication). Lightning strikes can cause fires but are relatively rare in the Project area. As shown in the flash density map in Figure 3.8-1, the Project area is a low lightening-prone area, but lightning strikes of power lines and equipment can occur (Santa Maria Times, 2006).

Controlled burns have been conducted on the Larsen Ranch and on surrounding properties (such as Cojo-Jalama Ranch) as a fire prevention measure in the past (D. Campbell, Personal Communication). The local residences and ranches have access to stored water and groundwater in the LWEF area, but existing water service or fire protection infrastructure is limited.

3.8.1.2 Fire and Ambulance Services

Departments and Stations

The Santa Barbara County Fire Department (SBCFD) provides fire protection and paramedic services to the unincorporated portions of the Project area. The SBCFD staffs a total of 15 fire stations throughout the unincorporated portions of the County and selected incorporated areas. The SBCFD maintains mutual aid agreements with the City of Lompoc Fire Department and the Vandenberg Air Force Base (VAFB) Fire Department. These agreements enable the fire departments to share resources and respond to emergencies in a timely manner. The SBCFD would be designated as the first responder for all Project-related incidents in unincorporated areas. Emergency calls would be directed to SBCFD, but may also be routed to VAFB or the City of Lompoc depending on the location and severity of the incident; either one of these agencies could be first on the scene (G. Fidler, Personal Communication).

Station No. 51 is the SBCFD fire station nearest to the Project area, located approximately 10 miles north of the Larsen property at 749 Burton Mesa Boulevard in Vandenberg Village (Figure 3.8-2). SBCFD Station No. 51 has the following fire-fighting and emergency

equipment and personnel: one engine, one reserve engine, one captain, two engineers and two firefighters/paramedics. The station includes a paramedic unit as well as a four-wheel drive brush truck used to fight brush fires.

The City of Lompoc Fire Department provides fire protection services within city limits, but the SBCFD also responds to all structure fires (C. Hahn, Personal Communication). Two fire stations are located within the city, at 115 South G Street (Station No. 1) and 1100 North D Street (Station No. 2) (Figure 3.8-2). Station No. 1 is closest to the Project area (approximately 5 miles north of the Larsen property) and would likely be the first responder to an incident, although the SBCFD would also respond. Fire Station No. 1 includes the following equipment and personnel: one engine, aerial ladder truck in reserve, four personnel, and one chief, although the staffing fluctuates with three or four personnel on duty.

The City of Lompoc Fire Department does not employ paramedics, relying instead on a private ambulance company (American Medical Response [AMR]) and the SBCFD for emergency paramedic services. The AMR station that serves the city is and is located at 701 E. North Avenue in the City of Lompoc (Figure 3.8-2). The two ambulances assigned to the AMR station are not used exclusively within the City of Lompoc and respond to calls throughout the County. One unit is typically based out of the Lompoc AMR station, and the second is a "roamer" in the City until an emergency call is received. The goal is to maintain at least one unit within the city limits (R. Kovach, Personal Communication). In addition, AMR has an additional 14 units at various locations that are accessible to the City of Lompoc and the County depending upon fluctuations in need and call volume (J. Eaglesham, Personal Communication).

Response Times

The SBCFD strives to meet a 5-minute response time to fires and paramedic calls within its coverage area (G. Fidler and M. Johnson, Personal Communication). Response time refers to the time needed for a unit to arrive at the scene and set up the initial equipment. No response time has been established for rural areas like the LWEF site. In such areas, onsite fire protection systems such as sprinklers, water storage facilities, and fire hydrants are considered as important as a first response to a fire (G. Fidler, Personal Communication). The SBCFD response time to the closest portion of the LWEF (the Larsen property) is estimated to be 20 minutes (M. Johnson, Personal Communication), and the response time to the operations and maintenance (O&M) facility would be approximately 6 to 10 minutes longer. The response time would be longer in the farther reaches of the LWEF site and shorter along the power line corridor.

The City of Lompoc Fire Department strives to meet a 5-minute response time within the city limits (R. Kovach and S. Hart, Personal Communication). The response time for AMR equipment is about 8 minutes 90 percent of time for urban areas and about 20 minutes 90 percent of the time for rural areas such as the LWEF site (J. Eaglesham, Personal Communication). The estimated response time to the nearest portion of the LWEF site is estimated to be approximately 10 minutes for fire services (S. Hart, Personal Communication) and 12 to 17 minutes for paramedic services (J. Eaglesham, Personal Communication). Response time to the more distant portions of the LWEF would be longer, and the response time to the power line would be shorter.

3.8.1.3 Police Services

The Project area historically has had a relatively low level of calls for service. They have included alcohol and drug-related calls in the area of Miguelito County Park and infrequent calls related to trespassing on the local ranches (D. Allen, Personal Communication).

Departments and Stations

The Santa Barbara County Sheriff's Department (SBCSD) has jurisdiction over an area of 2,744 square miles including 118 miles of coastline that includes approximately half of the total County population (189,000 residents). The Sheriff's Department is staffed with nearly 300 sworn deputy sheriffs, over 175 sworn corrections officers, and nearly 200 civilian employees (SBCSD, 2006).

Although the SBCSD does not maintain formalized mutual aid agreements with other law enforcement agencies, it may rely on other agencies to assist in responding to a call as needed. For major public disasters, the process is more formalized, and the Santa Barbara County Office of Emergency Services (SBC OES), would be involved to coordinate a large-scale, multiagency response (D. Allen, Personal Communication).

The Project areas located within the unincorporated portion of the county would be served by the SBCSD Lompoc Station located at 751 E. Burton Mesa Boulevard. The station is located approximately 10 miles north of the Larsen property (Figure 3.8-2) and includes the following equipment and personnel: five black and white units including a four-wheel drive truck and a sport utility vehicle supervisor's unit; and 13 law enforcement personnel including eight patrol deputies, four supervisors (two senior deputies and two sergeants), and one detective (D. Allen, Personal Communication).

The City of Lompoc Police Department is located at 107 Civic Center Plaza (Figure 3.8-2). The station includes the following personnel and equipment: 50 sworn officers, 11 black and white units, and one DARE Jeep (D. Clement, Personal Communication).

Response Times

No response times have been established for rural areas.

3.8.2 Regulatory Framework

3.8.2.1 Federal

The National Fire Protection Agency (NFPA) provides codes and standards (including the National Electric Code [NEC]), research, training and education for fire protection.

3.8.2.2 State

The Project would be required to comply with the relevant portions of the California Fire Code (CFC).

3.8.2.3 Local

A Fire Protection Certificate would be required by the SBCFD. All Project components would need to comply with the relevant SBCFD Standards and Codes such as Santa Barbara County Code, Chapter 15, Fire Prevention. The Fire Protection Certificate would be issued with the Project building permits and would ensure compliance with fire code requirements

(such as building sprinklers and water storage requirements). In addition, the County Comprehensive Plan and Land Use & Development Code include relevant policies and requirements related to fire protection and emergency services. These are discussed in Section 3.10, Land Use.

3.8.3 Project Impacts, Mitigation, and Residual Impacts

3.8.3.1 Impact Assessment Methodology

Project impacts were assessed based on review of the Project components, including standard requirements, and input from the agencies responsible for fire and emergency services.

3.8.3.2 Thresholds of Significance

The County Environmental Thresholds and Guidelines Manual does not include thresholds of significance for fire and police protection services. The following significance thresholds are based, in part, on Appendix G of the California Environmental Quality Act Guidelines. Impacts would be significant if the Project would:

- Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, such as where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands
- Result in unsafe fire department, paramedic, or police response times
- Introduce development into an area without adequate water pressure, fire hydrants, adequate access for fire fighting, or other requirements and infrastructure to control and fight fires
- Result in development that would hamper fire prevention techniques such as controlled burns or backfiring in high fire hazard areas?
- Impair implementation of, or physically interfere with, an adopted emergency evacuation/response plan

3.8.3.3 Project Impacts

Impact No.	Impact Description	Phase	Impact Classification
FPES-1	The Project could result in an increased risk of wildland fires that could spread to more developed areas. Fire risks include vehicle exhaust, sparks, welding, parking on dry grass, fuel tanks,	Construction	Class II

Impact FPES-1: Increased Fire Risk (Construction). The immediate Project area is sparsely developed, but the Project could result in an increased risk of wildland fires during construction and operations that could spread to more developed areas. During construction, fires could be caused by a variety of factors, including vehicle exhaust, sparks associated with grading activities, welding activities, and parking on dry grass. The fuel tanks on board some construction equipment can contain fuel volumes ranging from 100 to 500 gallons. Accidental ignition could result in a fire, which, depending on the location,

could spread. All such equipment is required to have fire suppression equipment on board or at the work site to ensure the availability of an adequate onsite supply of water with all-weather access for fire-fighting equipment and emergency vehicles. Therefore, adherence to County codes and requirements during construction would reduce the potential for significant fire hazard impacts. Location of construction equipment such as bulldozers and motor graders onsite would help in the control of any fire that may start during construction activities. Nonetheless, because much of the Project area is the located within an Extreme Fire Hazard Area and the consequences of a fire could be severe, construction impacts would have a significant but mitigable impact (*Class II*).

Impact No.	Impact Description	Phase	Impact Classification
FPES-2	Although the Project contains many elements that would reduce potential for severe fires, fire risks would be increased through operation of the WTGs, Project Substation, power lines, and access roads. The O&M facility would include fire suppression infrastructure.	Operations	Class II

Impact FPES-2: Increased Fire Risk (Operations). Operation of the Project would increase the potential for fires, although a number of measures are proposed that would reduce risks, and the Project would comply with SBCFD requirements. In addition, fire prevention and control would be included in employee training and standard operating procedures.

Wind Turbine Generators (WTGs)

There is some potential for fire inside the WTGs, although malfunctions leading to fires in the type of WTG that is proposed are extremely rare. The Project would be controlled by an integrated, automatic control system capable of monitoring all operational parameters and starting and stopping each WTG. This system would interface with a fire detection system. In the event of a fire fault or excess vibration or temperature, the WTG would be halted immediately. An alarm condition that can send a page or message to a cell phone of the on-call operators or the local fire district (first responders), as required, would be activated in the control system. In addition, a fail-safe system would cause a shutdown in the event of power failure. The WTGs would also be equipped with an engineered lightning protection system.

Project Substation

Transformers at the Project Substation could present a potential fire risk. Because personnel would be onsite during daylight working hours and in frequent communication with central operations, any fires seen would be noted immediately and reported to local authorities. Some fire-fighting equipment would be located at the Project Substation site. Vegetation around the Project Substation would be cleared regularly.

O&M Facility

The O&M facility would not in itself be expected to increase fire risks, and it would include fire suppression facilities/infrastructure, including a 5,000 gallon fire water tank that would be hooked up to a fire hydrant and a sprinkler system in the O&M facility. The fire water

tank would not be used for anything except for fire water storage. The 5,000 gallon water tank for O&M operations also could be used for fire water. The entire system would be subject to the approval of the SBCFD and could benefit residences and other structures in the Project area, as well as the LWEF. The Fire Protection Certificate that would be required for the Project would address required water pressure and other infrastructure requirements such as water storage, sprinklers and fire hydrants. Some fire-fighting equipment would be located at the maintenance yard and in vehicles.

Power Lines

Fires associated with the power lines could also be an issue, stemming from such factors as high winds and avian collisions. Routine inspections would be performed periodically in accordance with good utility practice of all electrical connections, and any faulted cables or damaged insulators would be replaced as needed for the underground/overhead collection system within the Project area. Pacific Gas and Electric Company (PG&E) would operate and maintain the interconnection facilities between the Project Substation and their high voltage grid in accordance with good utility practices. Should events such as severe storms, earthquakes, or accidents result in downed power lines or poles, procedures outlined in the emergency response plan and the standard operating procedures would be applied. Vegetation would be cleared around the power line in compliance with PG&E requirements.

Access Roads

Access roads throughout the LWEF site could act as firebreaks, and the new and improved roads would allow increased access by firefighting equipment. Portions of some access roads have slopes greater than 30 percent, however, which could limit the types of emergency vehicles that may use them.

Conclusion

Although the Project contains many elements that would reduce the potential for severe fires, it still would increase fire risks. Because it is located primarily in an Extreme Fire Hazard Area, and there are scattered residences in both the vicinity of the WTGs as well as along the power line route, there is the likelihood of exposing people or structures to the risk of loss, injury, or death involving wildland fires. Impacts would be significant but mitigable (*Class II*).

Impact No.	Impact Description	Phase	Impact Classification
FPES-3	The Project would have the potential to increase demand for fire protection services.	Construction and Operations	Class II

Impact FPES-3: Fire Department Response Times. The Project would have the potential to increase demand for fire protection services during both construction and operations. Fire department/paramedic response times to the LWEF would be a minimum of 10 minutes and could be considerably more, depending on the location of the incident. Temporary blockage of San Miguelito Road by trucks carrying large loads would potentially increase response times during Project construction. The Project could result in response times that

would be considered unsafe in an Extreme Fire Hazard Area, and this impact would be significant, but mitigable (*Class II*).

Impact No.	Impact Description	Phase	Impact Classification
FPES-4	The influx of workers may temporarily increase the need for paramedic services during construction, although only about 10 staff would be required during operations.	Construction and Operations	Class III

Impact FPES-4: Emergency Services Response Times. The LWEF would not be readily accessible to the public, which would minimize the need for police services during both construction and operations. The site is located in a remote area at the end of a road on private property, and VAFB is located along the south and west sides of the LWEF; thus, no public access would be possible from these areas. All WTGs would be locked, and the Project Substation would be fenced and locked to prevent unauthorized entry. These measures would further minimize the need for police surveillance and response.

During construction, the influx of 50 to 100 workers may temporarily increase the need for paramedic services, although only about 10 staff would be required during operations. By restricting site access to properly trained personnel and through the implementation of security programs, the likelihood of accidents or trespassing, and thus the need for increased emergency services, would be minimized.

Impacts to emergency service response times would be adverse, but less than significant (*Class III*).

Impact No.	Impact Description	Phase	Impact Classification
FPES-5	The Project would introduce tall towers and a new power line into an Extreme Fire Hazard Area. In the event that controlled burns are required in the Project area, fire fighters would need to take the new structures into consideration.	Construction and Operations	Class II

Impact FPES-5: Interference with Fire Prevention Techniques. The Project would introduce tall towers and a new power line into an Extreme Fire Hazard Area. Controlled burns already take place in some areas within the County that contain power lines, and accommodations are in place to address their presence (C. Hahn, Personal Communication). In the event that controlled burns are required in the Project area, fire fighters would need to take the new structures into consideration, and if the smoke or heat could affect the WTGs or other structures, this could hamper fire prevention techniques (D. Campbell, Personal Communication). The Project would include regular vegetation clearance around the Project Substation, transformers, riser poles, and the O&M facility; and vegetation clearances for fire management and safety associated with the power line would comply with applicable PG&E procedures. This impact would be significant, but mitigable (*Class II*).

Impact No.	Impact Description	Phase	Impact Classification
FPES-6	For security and safety reasons, the Applicant may request that Sudden Road and upper Miguelito Canyon Road become a private road, which would be required to have a lock that could be opened by fire and other emergency service providers.	Construction and Operations	Class III

Impact FPES-6: Emergency Evacuation/Response. For security and safety reasons, the Applicant may request that the County close ~~abandon~~ Sudden Road and Miguelito Canyon Road beyond their intersection to their terminus at the VAFB property line. ~~in the area of the O&M facility and Project Substation~~. The resulting closed ~~private~~ road would serve VAFB and the property owners that have access rights off of these roads ~~Sudden Road~~, all of which are Project participants. At the end of the Project life, the roads would be re-opened to the public. If the road were gated, it would be required to have a lock that could be opened by fire and other emergency service providers. Impacts would be adverse, but less than significant (*Class III*).

3.8.3.4 ~~Applicant-proposed~~ Mitigation Measures

The following mitigation measures incorporate appropriate provisions of the Applicant-proposed mitigation measures listed in Section 2.8.4, with revisions as needed to ensure maximum feasible mitigation in accordance with Santa Barbara County policy.

~~The following Applicant-proposed mitigation measures are considered part of the Project description. They have been refined to reflect the County Standard Conditions of Approval and Mitigation Measures (Santa Barbara County, 2005), related to adding plan requirements, timing, and monitoring actions that would be required.~~

Mitigation Measure ~~A.~~ FPES-1: Fire Protection Plan. The Applicant shall prepare a Fire Protection Plan that meets SBCFD requirements. The plan shall contain (but not be limited to) the following provisions:

a. All construction equipment shall be equipped with appropriate spark arrestors and carry fire extinguishers.

b. A fire watch with appropriate fire fighting equipment shall be available at the Project site at all times when welding activities are taking place. Welding shall not occur when sustained winds exceed that set forth by the SBCFD unless a SBCFD-approved wind shield is onsite.

c. A vegetation management plan shall be prepared to address vegetation clearance around all WTGs and a regularly scheduled brush clearance of vegetation on and adjacent to all access roads, power lines, and other facilities.

d. Operational fire water tanks shall be installed prior to construction.

e. Provisions for fire/emergency services access if roadway blockage occurs due to large loads during construction and operation.

f. Cleared, maintained parking areas shall be designated; no parking shall be allowed in non-designated areas.

g. The need for and/or use of dedicated repeaters for emergency services.

Plan Requirements: The Fire Protection Plan shall be provided to the SBCFD and the County for approval.

Timing: The plan shall be approved prior to zoning clearance for the first phase of construction.

MONITORING: The onsite monitor shall confirm that appropriate measures are implemented during construction. County fire inspectors verify that operations measures and shall periodically spot check for compliance during operations (*Addresses Impacts FPES-1, FPES-2, FPES-3, and FPES-5*).

Mitigation Measure ~~A-~~FPES-2: Smoking and Open Fires. Smoking and open fires shall be prohibited at the Project site during construction and operations.

Requirements: A copy of the notification to all contractors regarding prohibiting smoking and burning shall be provided to the County.

Timing: The notification shall be provided prior to zoning clearance for the first and subsequent phases of construction.

MONITORING: The County staff shall verify the notification prior to zoning clearances for each phase of construction, and the onsite monitor shall confirm compliance during construction (*Addresses Impacts FPES-1, FPES-2, and FPES-3*).

Mitigation Measure ~~A-~~FPES-3: Install Gravel around Substation. Gravel shall be placed around the perimeter of the Project Substation as a fire prevention measure.

Requirements: This requirement shall be noted on building plans.

Timing: Gravel shall be installed prior to the start of operations.

MONITORING: The County shall verify that gravel has been installed (*Addresses Impacts FPES-2*).

~~3.8.3.5 Additional Mitigation Measures~~

~~The following mitigation measures shall be implemented, in addition to the Applicant-proposed mitigation measures, to mitigate impacts to fire protection and emergency services to the extent feasible.~~

Mitigation Measure FPES-~~4~~1: Access Roads. Access roads shall remain passable by emergency vehicles for the duration of the Project. ~~To the extent practicable, no access roads shall exceed a 12 percent grade. In the event an access road is unable to meet this requirement, the access road shall be constructed such that the portion of the roadway segment that exceeds the 12 percent grade is as short as possible. All roadways exceeding a 10 percent grade shall be paved or covered with aggregate acceptable to SBCFD.~~ Turn-around requirements at the terminus of access roads shall be included in roadway designs. The final design shall be approved by the SBCFD, and the final access road map (including topographic map) shall be provided to both the SBCFD and the City of Lompoc Fire Department.

Plan Requirements: The approved access road design shall be included on the final plans with a note that the roads shall remain passable at all times.

Timing: The plans shall be approved prior to zoning clearance for the first phase and all subsequent phases of construction.

MONITORING: County staff shall verify the approval of the access road design plan prior to construction approval and confirm compliance upon completion of construction. SBCFD inspectors shall periodically verify that the access roads are maintained in an acceptable condition (*Addresses Impact FPES-2*).

Mitigation Measure FPES-5: Water Supply. The Applicant shall demonstrate to the County that sufficient water can be obtained from the new shallow well or existing spring on the property and/or by trucking in from off-site supplies to adequately supply the O&M facility needs while maintaining 5,000 gallons of stored water for fire-fighting purposes.

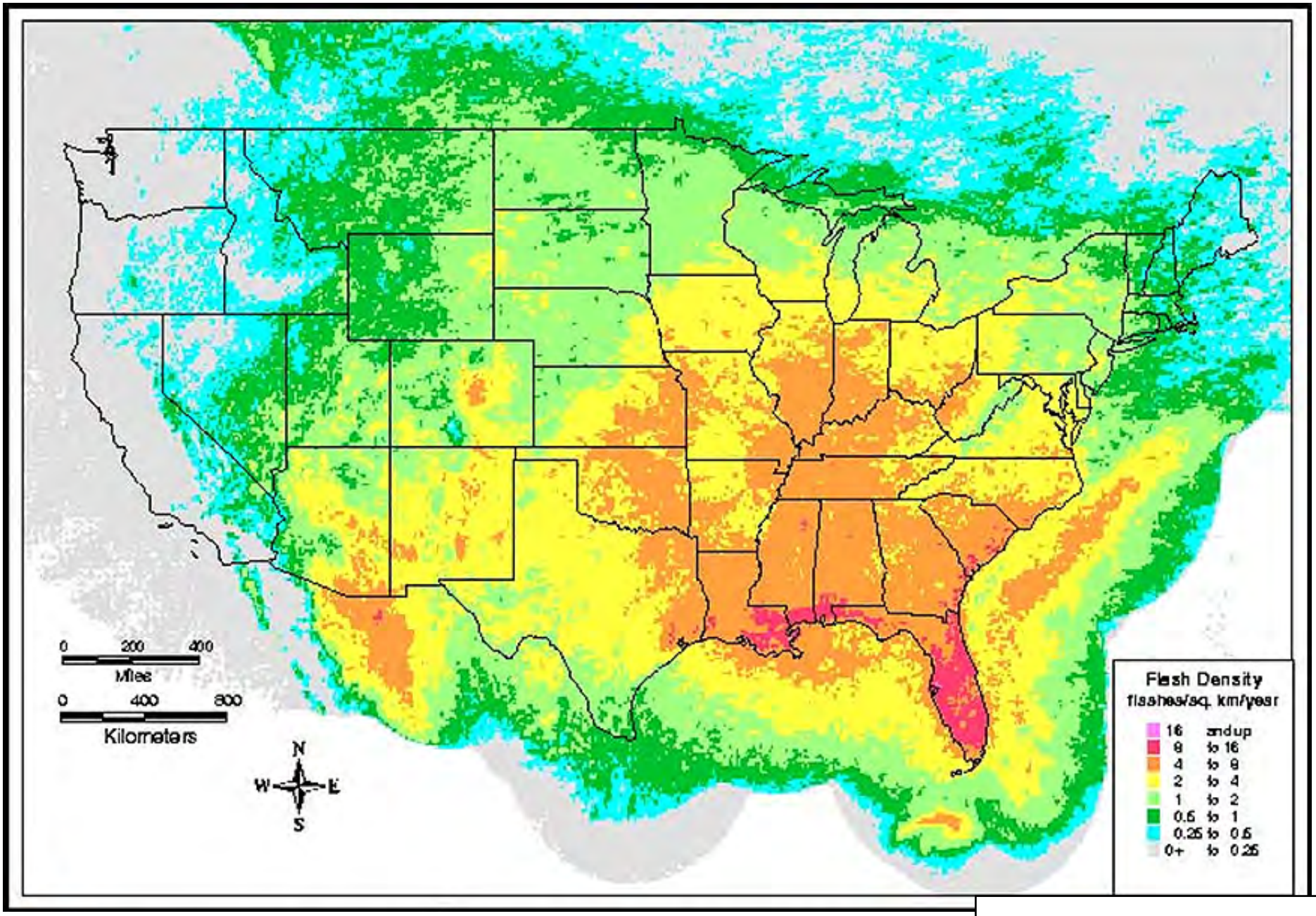
Plan Requirements: Evidence demonstrating adequate supply shall be submitted to the County for review and approval.

Timing: Evidence demonstrating adequate supply shall be submitted for review and approval prior to zoning clearance for the first phase of construction.

Monitoring: County inspectors shall confirm compliance during operations (*Addresses Impact FPES-2*)

3.8.3.5 Residual Impacts

With the implementation of the identified mitigations measures, residual impacts would be less than significant.



SOURCE: Global Atmospherics, Inc.

FIGURE 3.8-1
1996-2000 FLASH DENSITY MAP
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

CH2MHILL

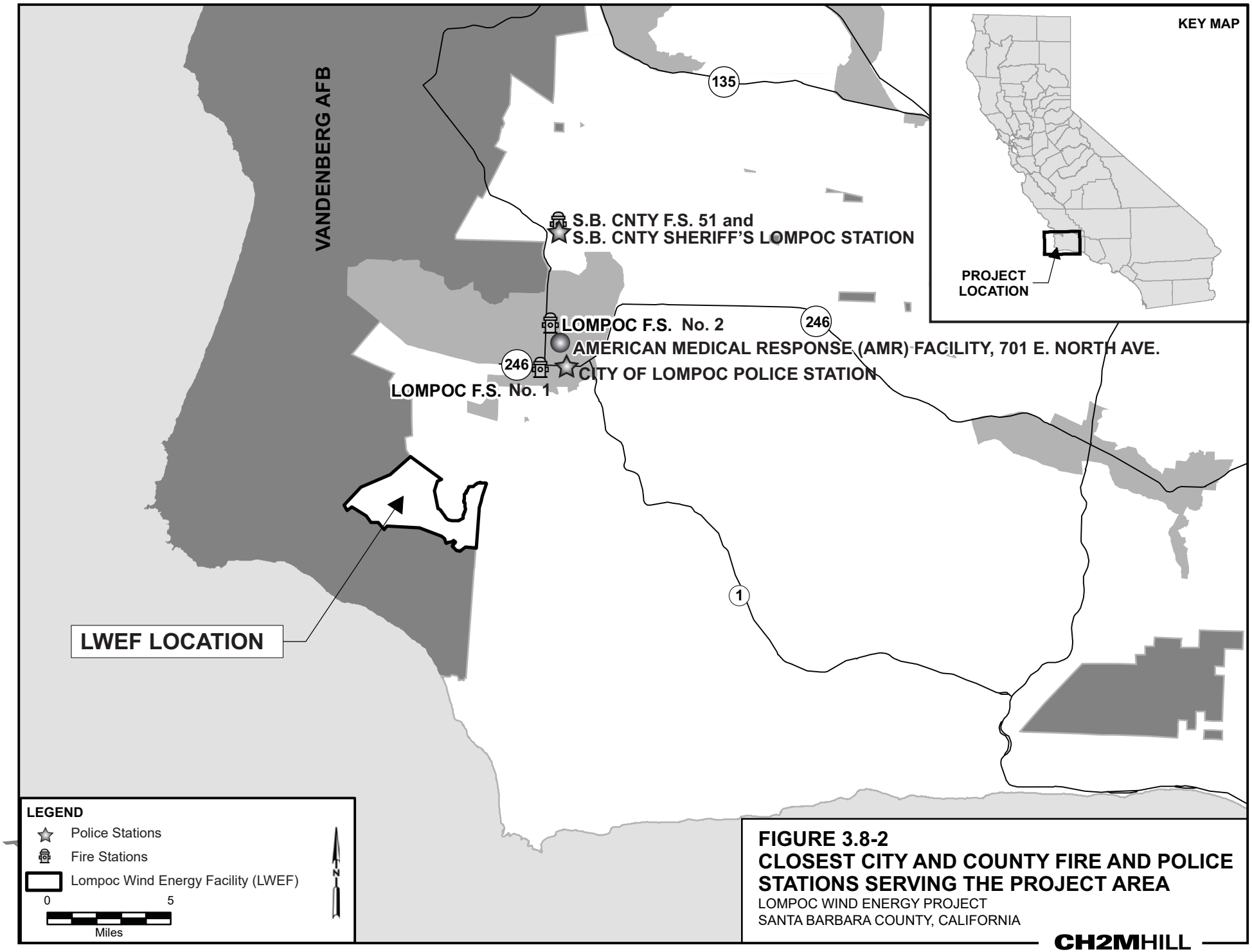


FIGURE 3.8-2
CLOSEST CITY AND COUNTY FIRE AND POLICE STATIONS SERVING THE PROJECT AREA
LOMPOC WIND ENERGY PROJECT
SANTA BARBARA COUNTY, CALIFORNIA

CH2MHILL

Comment Set ACC

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COUNTY OF SANTA BARBARA
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PLANNING AND DEVELOPMENT
DEPARTMENT - ENERGY DIVISION

John Day, PhD
Santa Barbara County Planning and Development
Energy Division
123 E. Anapamu St.
Santa Barbara, CA 93101

Re: Applicant comments on the County EIR No. 06EIR-00000-00004 (State Clearinghouse No. 2006071008), Public Draft Environmental Impact Report on the Lompoc Wind Energy Project

Dr. Day;

Pacific Renewable Energy Generation LLC, a subsidiary of Acciona Wind Energy USA LLC, is pleased to submit comments on the Draft Environmental Impact Report for the Lompoc Wind Energy Project, prepared by the County of Santa Barbara.

As a world leader in the field of development, design, and manufacturing of wind energy technology, Acciona is pleased to bring our global experience and successes to bear on California's need for cleaner energy. In 2006, Acciona Energy produced 6,128 GWh (million kilowatt-hours) of electricity from renewable energy sources of which 93% were generated from wind power. Nearly six million tons of CO_2 emissions were avoided by this clean power generation. This represents a cleaning effect on the atmosphere equivalent to 300 million trees through the photosynthesis process.

Over the last 5 years, wind technology has improved dramatically which has resulted in lower noise levels, fewer avian fatalities, and less visual impacts. Acciona designs and builds our own turbines. Our new West Branch manufacturing plant in Iowa will be providing the Lompoc Wind Energy Project with the most technologically advanced and environmentally friendly turbines in the industry. With current technology we can replace approximately 20 of the turbines constructed in 1980 with only one constructed today. We can produce more electricity with less turbines resulting in a project that produces usable amounts of electricity with minimal environmental and social impacts.

Acciona staff is aware of the issues and impacts of developing wind energy facilities. It is without argument that all development projects will have some impact. As stated in the Draft Environmental Impact Report, this project will have several *Class I impacts* based on the County's current levels of significance. However, impacts from the Lompoc Wind Energy Project will have fewer and, orders of magnitude, less impacts than other conventional sources of energy generation. For each Megawatt of wind energy that is produced by this

Comment Set ACC, continued

project, 2,000 tons of carbon dioxide greenhouse gases, 10 tons of sulfur dioxide, and 6 tons of nitrogen dioxide are avoided.

Acciona applauds your efforts to move forward on sustainable clean energy sources and looks forward to assisting the County of Santa Barbara in meeting future energy needs.

Sincerely yours,

K. Harley McDonald
Project Manager

Comment Set ACC, continued

Acciona Energy North America Corporation September 3, 2007

EIR SECTION	COMMENT	
Executive Summary	ES-1, Par 1 - The Project is in the Third Supervisory District, not the Fourth.	ACC-1
	[redacted]	ACC-2
	ES-3, Par 2, Item 2 - Please add the following to the end of this Item. "However, Applicant Proposed Alternative Powerline Route Mitigation Measure ALT-VIS-1 would reduce this impact to a less than significant level of impact".	ACC-3
	ES-4&5, Environmentally Superior Alternative - The Applicant believes that the Environmentally Superior Alternative should be the full development Project as submitted. This Alternative allows for the construction of up to 120 megawatts of Renewable Energy which is critically needed to help reduce green house gases in California. The incremental increase in the levels of impact from the two Class 1 Impacts associated with the project in the areas of Visual and Biology between the proposed Environmentally Superior Alternative and the Full Project Development Alternative are more than offset by the increased supply of alternative renewable energy available under the Full Project Development Alternative. Additionally, adoption by the County of the proposed Environmentally Superior Alternative, most likely will result in making the Project uneconomical to develop because the best wind resources are located in the areas that the proposed Environmentally Superior Alternative proposes to remove from the Project.	ACC-4
	ES-6-35 Impact Summary Table - The Applicant will comment on these impacts in the appropriate Sections of the Draft EIR.	
1.0 Introduction	1-3, Par1, Item 5 - Please insert the following after Santa Barbara County ", school districts, and special districts, including the Lompoc Hospital with additional tax revenues".	ACC-5
2.0 Project Description	2-3, Table 2-1 - This Table needs to be updated as one of the parcels (083-090-004) has been sold. The new owners are Joseph A. Signorelli, Jr. and Gus Tom Signorelli. Remove this parcel from the Peter and Etelvina Signorelli Family Trust column and create a new ownership line for the transferred parcel.	ACC-6
	Par 1 - The first sentence of this paragraph should be re-written as follows to be correct. "PG&E proposes to reconductor (replace wires and possibly poles) along the Celite 115 kV power line for a distance of 2,000 feet running north from the southern terminus of the existing Divide-Cabrillo Number 2 115 kV line located on a pole adjacent to the Cabrillo Substation on San Julian Street. (Figure 2-3)."	ACC-7
	Sec 2.3.1, Par 4 – The generation voltage is stated at 6kv to 12kv. It should be 600 volts to 12 kv, or 600 volts to 12,000 volts.	ACC-8
	Sec 2.3.2, Par 1 – This paragraph states that 40 ft roads would be restored to 24 ft. It is more likely the road would be restored back to 16-18 ft	ACC-9
	Sec 2.3.2, Par 5 – This paragraph states that signs would be placed on roads as directed by County. I believe this should read that the County would direct placement of signs on PUBLIC roads. Site roads are on private property and the Applicant will place signs as required by site safety plan and EIR requirements.	ACC-10
	2-11, Par 4 - This paragraph should be changed to read as follows: "For security reasons the Applicant may request that the County close either or both of Sudden Road and Miguelito Canyon Road beyond their intersection to the public. These roads would continue to provide access to VAFB and the private ranches that abut it. The ranches that abut these roads are project participants. This action is considered to be an administrative process and would occur outside of [redacted] the scope of this environmental review.	ACC-11
	2-11, Par 6 – Please strike the last part of sentence two: "and in all cases be constructed within the WTG corridors as shown on Figure 2-2". Not all of the access roads are within corridors and there will be power lines constructed along and under these roads that are outside of corridors.	ACC-12
	2-11, Par 2, Sentence 3 - This sentence needs to be re-written as follows. "Water for the O&M facility	ACC-13

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Comment Set ACC, continued

Acciona Energy North America Corporation September 3, 2007

	operations will be obtained from a new shallow well on the property or from an existing spring on the property. (Trucking of potable water is no longer proposed per discussions with Santa Barbara County Environmental Health Department.)"	ACC-13, Cont.
	2-16, Table 2-3 - This Table needs to be revised as the Applicant intends to request that the proposed work schedule include working on some Saturday's and some State holidays in order to meet the tight construction time frame in order to be operational by October of 2008.	ACC-14
	2-19, Table 2-5 - This Table needs to be revised as follows and reference to Total Disturbance Areas through out the document changed accordingly. The 2.95 acres of disturbance shown for the Staging area on the Larsen property should be 0 as the Larsen site is located on an already disturbed gravel pad that is part of an old rock quarry.	ACC-15
	[redacted]	ACC-16
3.0 Environmental Setting, Impacts, and Mitigation	[redacted]	ACC-17
	3.2-3, Par 4, last sentence - Please add after Tranquillion Mountain the following: "and Sudden Peaks the most pronounced peaks in the area". (Sudden Peak actually has more tracking facilities on it than does Tranquillion Mountain.	ACC-18
	3.2-3, Par 5 - The reference to oak woodland should be eliminated as there are no oak woodlands in the Project development area. There is one located on the eastern side of the Joe Signorelli property, but it is in the Coastal Zone and is not proposed to be in developed area.	ACC-19
	3.2-3, Par 2, Jalama Coast and Vandenberg Air Force Base - Please add at the end of this paragraph the following: "There is no public access west of Jalama Beach, thus visual impacts would only be to occasional boaters. This area also has limited pleasure boating activity due to the treacherous waters offshore."	ACC-20
	3.2-3, Par 1, last sentence - This sentence is incorrect in that there is lighting along the ridges at Sudden Peak, at the radar telemetry site adjacent to the project on the north, and at the numerous VAFB facility locations to the west of the project including the very large launch complexes. All of this gives the viewer the feeling of being in a developed area at night.	ACC-21
	[redacted]	ACC-22
	3.2-8, Par 1 - At the end of the first sentence, please add the following: "except that the individual project components will not be visible since this area is over 20 miles from the site." Also other statements in this paragraph are misleading. Such as the ocean is two miles away at the closest spot. While this is technically correct this is on VAFB and there is no public access, and boating north of Pt. Conception is very dangerous. Thus visual impacts will be minimal in this area. Also referring to visual impacts to the City of Santa Maria is disingenuous at best. Santa Maria is over 20 miles away with intervening topography.	ACC-23
	3.2-13, Par 6, last sentence - Please delete the reference to the power line crossing SR-1 at the southern entrance to the City, since there is already a 115 kV line crossing at the identical location or explain that the existing crossing will only be reconductered.	ACC-24
	3.2-17, Table 3.2-2, Summary of Visual Impacts - Figure 4 Jalama Beach. [redacted] The project area that is visible from Jalama Beach takes up only 23 degrees of the 360 degree view shed from Jalama Beach, and most of the turbines are partially blocked by the intervening ridges. Also the predominant view at Jalama Beach is outward toward the Ocean. Additionally because of the distance 4.5 to 5.2 miles the scale of the turbines is reduced. Please see the analysis under KOP 6 which states that at 5.5 miles "the turbines would be visible. They would be proportionally so small that they would not impair views, significantly silhouette the skyline, or provide contrast to the surrounding landscape". This location was classified as a low impact severity.	ACC-25
	3.2-17, Par 1 - This paragraph discusses the impacts of the power line on SR-1. It should reference somewhere in the paragraph that the Applicant has proposed an alternative that would reduce impacts to less that significant. Otherwise, the reader is left with the impression that impacts will remain	ACC-26

4

Comment Set ACC, continued

Significant Class 1 Impacts. Not every reader will work their way back to the Alternatives section of the Draft EIR.

3.2-17, KOP 4 Jalama County Park - There are several problems with this discussion. First the visible project is 4.5 to 5.2 miles west of the park. The park does not face the Channel Islands. The Channel Islands are mostly south-east and east of the Park at a distance of 30 miles. Only San Miguel could be seen on a very clear day. Classifying the sensitivity as high just because visitors stay longer is purely subjective. First, as discussed above, the Project only takes up 23 degrees of the horizon and at a distance that surely does not "dominate the landscape" thus causing impact severity to be high according to Table 3.2-1 (Sinclair-Thomas Model. In fact, the longer the visitors stay at the park, the more they will become accustomed to the turbine locations. The EIR attempts to use the Sinclair-Thomas Model as objective science, whereas it is merely a fairly insensitive tool that relies on subjective analysis. Again the dominant visual experience at the Park is associated with Ocean and immediate coastal beach views. One has to look back at the 23 degree view of the project area to even see the partially shielded turbines that are dominated by the extent of the ridge area and ocean views. [redacted]

3.2-23, KOP 4 Jalama Beach County Park (night time views) – Please see the discussions above on general impacts to the park. The simulation of night time views is inaccurate as it shows white lights on the towers instead of red thus falsely increasing the sense on impact. Again the 23 degree of horizon does not "dominate" the setting, or significantly change the character of the night time views. At night there are many lights from the campers tents and RV's. Also there is very little use of the beach area at night due to the very cold windy nature of the site, even in the summer. Much of the year the area is also covered in fog from late afternoon until late morning. [redacted]

3.2-23, Impact VIS-2 - All of the above comments on impacts to Jalama Beach apply to this section as well. Additionally construction impacts that would be visible to beach users would only be very short term in duration. Just the crane work during erection of the turbines, which usually takes one to two days per turbine would be visible. [redacted]

3.2-26 & 27, Synthesis of Project's Contribution to Cumulative Impacts & Mitigation Measure VIS-1 - Again the Draft EIR uses the subjective analysis that visual impact of the project to Jalama Beach causes a Class I cumulative impact by degradation of scenic resources in the coastal zone area of the Lompoc Valley and northern Santa Barbara County. Please see previous comments on Impacts to Jalama Beach.

After 3.2-28, KOP 4 - Jalama Beach Visual Simulations and Night Time Visual Simulations in General - The visual simulation site for Jalama Beach is located on the beach instead of in the campground where most persons spend most of their time. This has the affect of creating a feeling of a more pristine view than really exists. It also has the affect at night of eliminating the lighting from the tents, RV'S, and store/restaurant. Additionally the night lights on the turbines show white in the simulation making them appear larger and closer than they really are. This happens in all of the night time simulation. Look at Figure 3.2-26 KOP 9, and note the red car tail lights. That is what the turbine lights should look like except much smaller and much dimmer at a distance.

3.3-3, Table 3.3-3 - LWEP Agricultural Land Acreages - This Table is incorrect. There are 2,950 acres in the project area, plus the Power Line route. Not a total of 387.3 acres.

3.4-7, Par 5 - Second to last sentence - This sentence should read: "Nevertheless, anticipated GHG emissions and **benefits** from the Project warrant qualitative discussions".

3.5-59, Par 2 - Second to last sentence - The Applicant did not propose any language that would restrict construction activity within 300 feet of a passerine nest. According to our Biologist passerines can move their nests several times during a nesting season, so disturbance of a nest is not as critical as it would be with a raptor nest. Please delete reference to this proposed mitigation, because it could have a significant adverse impact on the construction schedule, which is tight at best.

3.5-62, first sentence - Live trapping is not an applicant proposed mitigation measure. It is expensive and no person or entity wants to move ground squirrels on their property because of the disease that they carry and the damage that they to the land. Please remove this reference from the Proposed Mitigation Measures.

3.5-65, A-BIO-15 - Native Perennial Bunch Grass - There seems to be some confusion in this proposed Mitigation Measure. Bunchgrass and native grasslands are used interchangeably. The Applicant's intent is to mitigate if the project disturbs 10% of total native grass lands found on the 3,000 acre project site, not 10% of just bunchgrass.

ACC-26, Cont.

ACC-27

ACC-28

ACC-29

ACC-30

ACC-31

ACC-32

ACC-33

ACC-34

ACC-35

ACC-36

Comment Set ACC, continued

Acciona Energy North America Corporation September 3, 2007

3.5-65, A-BIO-17, Tree Protection and Replacement Plan - The Applicant proposed protection and replacement measures are for native oak trees. The Applicant is unaware of any Board of Supervisors adopted policies that require protection and replacement of all native trees. Please remove the reference to native trees in favor of oak trees. **ACC-37**

3.5-69, A-BIO-19, Protection of Creeks, Springs, and Wetlands, second sentence – The applicant did not propose to "consult with a wetlands hydrologist", so this is not an Applicant Propose Mitigation Measure. We will certainly consult with our Biologists and Fish & Game regarding avoidance and mitigation. Because of the very limited impact on these areas, bringing in a Wetlands Hydrologist is an unnecessary expense. The requirement should be that for road construction or improvements that cross any drainage features should be reviewed and approved by a road engineer or fluvial hydrologist. **ACC-38**

After 3.5-75, Figure 3.5-1, Avian Point Count Locations - 90% of these locations are incorrectly mapped. **ACC-39**

Within the planning stages of this project the state-of-the-science was evolving with regard to raptor and bat surveys specific to wind generation. This science continues to evolve and methods and protocols for pre- and post-construction monitoring are ever-improving. As indicated by all formal publications regarding standard methods to evaluate and quantify avian and bat impacts, this project will use adaptive management and coordination to implement mortality mitigation as an ongoing process. **ACC-40**

3.6-17, A-CULT-1, Additional Archeological Surveys - Mitigation Measures in this Section are out of order in terms of sequencing of events. The Applicant has already conducted Phase 1 Cultural Work. The next step will be to analyze the potential impacts of the existing sites on proposed Project construction activities. Then the Applicant and the County would see what sites can be avoided. Following that, the Applicant and the County will decide which sites can be capped in order to avoid impacts. Finally, the Applicant will conduct Phase 2 and Phase 3 investigations on sites that cannot be avoided or capped. Some Phase 2 work might be needed to determine avoidance and capping extent. Phase 3 work will only be done on sites that cannot be avoided or capped. Please restructure this section to reflect this sequence of events. **ACC-41**

3.7-4, Impact EEU-3, New/Altered PG&E Facilities - PG&E will not have to build any temporary facilities to keep the Celite facility in operation. Delete the third sentence, "Additionally...constructed." **ACC-42**

Sec 3.8, FPES-1 Access Roads - The mitigation measure proposes that access roads be limited to 12% maximum slope and roads exceeding 10% shall be paved or covered with aggregate approved by the Fire Department. While the project designers strive to limit the grades to as low as possible, less than 12% may not be achievable on portions of this site. The civil designers will design the roads based on existing terrain, runoff, slope stability, equipment capabilities, and other factors to design the most cost effective, least environmental impact, and longest lasting route for site access. In some cases slopes may exceed 12%. Paving is not generally a good solution because of the heavy equipment using the site. The Applicant suggests removing the maximum slope of 12% requirement and any reference to paving and approval by the Fire Department. **ACC-43**

3.8-8, Impact FPES-6, Emergency Evacuation/Response - The first and second sentences should read: "For security reasons, the Applicant may request that the County close Sudden Road and Miguelito Canyon Roads beyond their intersection to their terminus at the VAFB property line. The resulting closed road would serve VAFB and the property owners that have access rights off of these roads, all of which are Project participants." Add the following sentence: "At the end of the Project life, the roads would be re-opened to the public. **ACC-44**

3.8-8, Mitigation Measure FPES-1: Access Roads - Restriction on degree of slope should be deleted from this Section, as the Fire Department has informed the applicant that since there are no habitable structures on the ridges, they are not concerned with the degree of slope. Obviously, the Applicant intends to keep the degree of slope as flat as possible because of the large loads that need to access the turbine sites, and the need for long term maintenance access. **ACC-45**

[redacted] **ACC-46**

3.10-14 Policy 4, Par 2 - Water from the O&M facility operations will be obtained from a new shallow well on the property or from and existing spring on the property. (Trucking of potable water is no longer proposed per discussions with Santa Barbara County Environmental Health Department.) **ACC-47**

Sec 3.11, NOI-1 Construction Hours – The County proposes construction hours be limited to Monday **ACC-48**

Comment Set ACC, continued

Acciona Energy North America Corporation September 3, 2007

	thru Friday from 7am to 6pm and no work on State Holidays. Due to the tight construction schedules, the Contractor will need the flexibility to plan work for some weekends and work after 6pm, in order to meet delivery schedules and weather conditions. While this would most likely not be the normal schedule, wind conditions are such that certain work must be done during periods of calm winds for safety reasons. Also prohibiting work on State Holidays should not be a requirement for the same reason. Contractors do not recognize many State Holidays and will have to pay for manpower and equipment even though they can't work. Given the site is in remote areas and not near residences or businesses, extended work hours should have no impact on the surrounding area. Sec 3.11, xx – The noise model used in this report presents a worst-case-scenario. In the actual build out of the project, the Applicant will not be using as many turbines as is represented in the model, the turbines will be quieter than those in the model, and the model does not take into account the topography or the noise reducing benefit of the vegetation and trees. The Applicant expects the noise impact of the project will be within the County's regulations that are identified in the report. In addition, the Applicant currently plans on using a turbine with a noise rating of 106 dBA; however, if a different turbine with a higher noise rating (for example, 112 dBA) is used, the Applicant will ensure that the noise on the properties will remain within the County's threshold.
4.0 Cumulative Impacts	[redacted]
5.0 Alternative Analysis	LWEF Alternative 1 (Limit WTGs on South/West Corridors) - This proposed Alternative would have a significant adverse impact on the economics of the entire project, and would make it infeasible to develop, if it were adopted by the County. Tranquillion Ridge has the highest capacity factor in the entire project. It carries other turbine locations that would not be developed as stand alone areas. [redacted] The County needs to balance the need for renewable energy versus the impacts to visual resources. 5-13, Alternative 2 (Phase 1 Only) - This Alternative has an even worse economic impact to the Project. Not only are the most productive turbines eliminated but the total production is limited to 82.5 megawatts. The Lompoc Project is very expensive to develop because of the rough terrain. Unlike oil and gas projects, wind projects operate on a very thin economic margin. Even with the Federal Production Tax Credit most projects do not start to break even economically for 8-10 years. Anything that adversely impacts the economics of the project must be carefully weighed against any environmental benefit to be gained. Even though the Applicant proposes to possibly build only 82.5 megawatts, as a Phase 1, that Phase will certainly contain all of the Turbines located on Tranquillion Ridge. The more megawatts that a Project can develop the more the operational costs can be spread over a greater amount of production, making the project more economical. The statement that Alternative 2 may be feasible because the Applicant is proposing it is incorrect because it does not take into account the fact that this Alternative eliminates a large number of the most productive turbines. 5-29 & 30, Environmentally Superior Alternative - The domino effect is in place in the Draft EIR's selection of the Environmentally Superior Alternative. First the report subjectively finds that there is a Class I Adverse Visual Impact to Jalama County Beach. Next the report concludes that the solution to this perceived problem is to propose a totally uneconomic solution by eliminating the most productive turbines in the Project. It then goes on to make an incorrect assumption that since the Applicant has proposed a Phase 1 of 82.5 megawatts, then any turbines making up 82.5 megawatts are a viable Alternative. Through this tortured logic the report makes it way to naming this alternative the Environmentally Superior Alternative. The Applicant strongly disagrees with this Alternative being named the Environmentally Superior Alternative. [redacted] The report could evaluate, as an Alternative, an 82.5 megawatt project that includes all Tranquillion Ridge turbines, which would meet the Project Objectives. It might qualify as the Environmentally Superior Alternative, as it would include fewer turbines and their resulting impacts. The Applicant believes that the Environmentally Superior Alternative should be the proposed project with all 120 megawatts of turbines. All though this would incrementally result in more environmental impact than just 82.5 megawatts of turbines including those on Tranquillion Ridge, it would result in 37.5 additional megawatts of renewable energy being developed, thus outweighing the incremental impact of developing the additional turbines.
6.0 Other CEQA Considerations	

ACC-48, Cont.

ACC-49

ACC-50

ACC-51

ACC-52

ACC-53

7

Response to Comment Set ACC

ACC-1: The Executive Summary has been corrected to clarify that the Project, including its power line, are mostly in the 3rd Supervisorial District, except for the northern portion of the power line that enters into the 4th District as it traverses southern Lompoc.

ACC-2: This comment has been retracted by the Applicant.

ACC-3: The following text has been added to the noted paragraph to clarify the roles of Applicant proposed Power Line Alternative 1 with applicable Avoidance and Protection Measures (Section 2.8.5):

> "However, implementation of Applicant proposed Power Line Alternative 1 (reroute power line to minimize visibility from SR-1) and Avoidance and Protection Measure PL-5 (longer spans, shorter poles, etc.) would reduce this impact to a less than significant level of impact."

ACC-4: In accordance with CEQA, the selection of the Environmentally Superior Alternative was based on a comprehensive comparison of the potential construction and operation impacts associated with the Proposed Project and each of the alternatives analyzed. This comparison concluded that the LWEF Alternative 2 would have the least impacts when compared to the Proposed Project and other alternatives analyzed, except the No Project Alternative. Given that the Applicant now proposes 65 turbines rated at 1.5 MW, rather than 60 to 80 turbines rated up to 3.0 MW, the maximum electrical generation capacity for the Proposed Project is now 97.5 MW. Impact EEU-1 has been revised to reflect that the current Proposed Project would have a maximum electrical generating capacity of 97.5 MW versus 120 MW. Impact EEU-1 acknowledges that the Project would support both the U.S. Department of Energy goal of increasing the overall use of wind power to generate electricity and California's Renewable Portfolio Standard target, resulting in a beneficial impact for the project. Section 5.3.1.2 also now acknowledges that the LWEF Alternative 2 would only generate 82.5 MW as opposed to up to 97.5 MW that the Proposed Project could provide. However, since LWEF Alternative 2 is also consistent with the noted U.S. Department of Energy and California goals, the Alternative would also result in a beneficial impact. It is noted that the magnitude of the benefit would be 15% to 22 % less than that of the Proposed Project. Please also see Response to Comment ACC-52.

ACC-5: The noted addition has been made.

ACC-6: Table 2-1 has been updated to reflect the noted land transaction.

ACC-7: The noted edits have been made.

ACC-8: The noted edit has been made.

ACC-9: The noted edit has been made.

ACC-10: The noted clarification has been incorporated.

ACC-11: The noted edits have been made.

ACC-12: The noted edit has been made.

ACC-13: The noted edits have been made. Mitigation Measure FPES-5 has been added requiring the Applicant to demonstrate that sufficient onsite water resources can be obtained from a new shallow well or existing spring on the property to adequately supply the O&M facility needs while maintaining 5,000 gallons of stored water for fire-fighting purposes.

ACC-14: The following footnote has been added to Table 2-3:

> "Additional construction days/month may be added in accordance with Mitigation Measure NOI-1."

Please also see Response to Comment ACC-48.

ACC-15: Table 2-5 has been updated to reflect the reduced size of the Sudden staging area and acknowledgement that the Larsen staging area would be located within an existing gravel pad.

ACC-16: This comment has been retracted by the Applicant.

ACC-17: This comment has been retracted by the Applicant.

ACC-18: The noted edits have been made.

ACC-19: The noted reference refers to the entire 2,950 acre project area, not the portions just to be developed. Section 3.5, Biological Resources, addresses the specific project impacts to oak woodlands.

ACC-20: The noted edit has been made.

ACC-21: The noted paragraph has been revised to clarify that there is minimal ambient light along the Jalama coast.

ACC-22: This comment has been retracted by the Applicant.

ACC-23: The noted paragraph has been revised to more accurately reflect the visibility of the proposed project from surrounding areas.

ACC-24: The noted clarification has been made.

ACC-25: The discussion of KOP 4 in Section 3.2.5.5 notes that Jalama Beach County Park provides recreational opportunities including beach and ocean recreation, overnight camping, and amenities, and that it is 4.5 miles south of the Project area. The discussion also notes that "while the primary views are toward the ocean, the whole scene is one of almost undisturbed

natural beauty. The mixture of dramatic bluffs and varied vegetation contrasted with the Pacific Ocean are the major contributing factors." Given the visibility of up to 13 WTGs from this recreational location within an existing natural setting, the impact severity for KOP 4 was determined to be high. By contrast, KOP 6 is located in east Lompoc on 7th Street at Tangerine. This area is a developed residential neighborhood with fragmented views dominated by foreground objects and structures. In addition, there are no designated recreational areas at this location. Therefore, the impact severity for this location was determined to be low.

ACC-26: The noted clarification has been made.

ACC-27: The discussion has been clarified to state that the Park faces the "Pacific Ocean" rather than the "Channel Islands." Assessment of visual impacts was based on multiple approaches (see Section 3.2.4, Impact Assessment Methodology). Please also see Response to Comment ACC-25.

ACC-28: Jalama Beach County Park provides overnight camping facilities. As depicted in Figure 3.2-22, clear nights do occur at the Park. The nighttime discussion for KOP 4 has been clarified to note that the beacons would most likely be synchronous flashing red beacons, not white. Please also see Response to Comment ACC-25.

ACC-29: It is acknowledged that construction activities would be temporary; however, with the start of construction at the WTG sites that can be viewed from Jalama Beach County Park, heavy equipment including cranes for the erection of towers will be visible. These construction activities will be immediately followed by the permanent presence of the subject WTGs, regardless if they are initially in operation or not. With the start of operation, the movement of the WTG blades will further exacerbate the visual presence of these structures. Since Impact VIS-2 addresses the life of the subject WTGs (construction through operation), this impact is considered to be significant and unavoidable (*Class I*). Please also see Response to Comment ACC-25.

ACC-30: Throughout Section 3.2, it is acknowledged that existing Vandenberg Air Force Base related facilities are visible along the Project area ridgelines and peaks from portions of Lompoc Valley and Jalama Beach County Park. Further, it is acknowledged that the Vandenberg facilities are visible during the day and at night. The introduction of the Proposed Project into this already disturbed environment is a further cumulative degradation of the visual quality of the area and therefore, Impact VIS-2 is considered to be significant and unavoidable (*Class I*).

ACC-31: The nighttime discussion for KOP 4 acknowledges that the WTG beacons would be at a distance of 4.5 miles and "while proportionately small in comparison to the lights from adjacent structures such as the restroom visible in the simulation, they would change the character of the nighttime views." Further, it is unrealistic to expect that overnight campers would restrict themselves to their camp sites; they would likely take evening walks along the beach since it is the beach that was their destination. Please also see Responses to Comments ACC-25 and ACC-28.

ACC-32: Table 3.3-3 applies to the power line route only. The table title has been edited to clarify this distinction and reflect the acreages of the revised power line alignment. Section 3.3.1.1 discusses the size of the Project parcels and their zoning.

ACC-33: The noted edit has been made.

ACC-34: The commenter suggests deleting a mitigation measure that would restrict construction activity within 300 feet of a passerine nest.

Mitigation Measure BIO-12b now requires that buffer areas for passerine species be limited to 150 feet. Although, as stated in the comment, passerines "can move their nests several times during the nesting season," any construction-related activity that impacts a nest would be a violation of the Migratory Bird Treaty Act and would therefore, require avoidance or mitigation.

ACC-35: The commenter suggests deleting a mitigation measure that proposes live trapping of rodents as a mitigation measure.

Mitigation Measure 16c has been altered deleting the live-trapping requirement; however, other feasible measures to control small mammal populations could still be required if other mitigation (i.e., habitat alteration, burrow removal) is not successful.

ACC-36: The commenter suggests clarifying the difference, if any, between the terms "bunch grass" and "native grasslands" in a proposed mitigation measure that would limit disturbance to native grasslands.

Measure BIO-8 has been revised and clarified to conform to the Santa Barbara County definition of native grasslands. The revised measure includes mitigation by seedbank salvage and replacement for instances in which less than 10 percent of the native grasslands on the property are permanently impacted.

ACC-37: The commenter suggests that the Tree Protection and Replacement Plan address only native oak trees instead of all native trees.

The measure encompasses native oak trees and other native trees (such as tanbark oaks, which are present on the site and very rare in the County). Currently no tanbark oaks are in areas proposed to be impacted by the project. This measure applies to native oak trees that occur in the proposed Project WTG corridors and other disturbance areas. Measures for riparian habitat protection and protection of creeks, springs, and wetlands address trees on the property that are not oak trees.

ACC-38: The commenter suggests deleting a mitigation measure that proposes consulting with a wetlands hydrologist, viewing this as an unnecessary expense. The commenter proposes instead that any construction or improvements that cross drainage features should be reviewed and approved by a road engineer or fluvial hydrologist.

The text has been modified, but includes a requirement for all wetland delineations and avoidance/minimization plans for the WTG corridors, including turbine sites, roadways, and collection networks, to be reviewed by a wetland scientist and approved by the County. All proposed crossings that could affect State or Santa Barbara County jurisdictional features and wetland features associated with O&M facility, staging areas, and substation would be subject to the same requirement to allow for independent review and ensure the maximum avoidance on sensitive habitats possible.

ACC-39: The commenter points out that 90% of the Avian Point Count Locations are incorrectly mapped. Figure 3.5-1 has been corrected with data provided by Acciona.

ACC-40: The commenter states that raptor and bat survey methods specific to wind generation are evolving, and further states that "this project will use adaptive management and coordination to implement mortality mitigation as an ongoing process."

Mitigation Measure 16 allows for the requested adaptive management and coordination concerning raptor and bat survey methods. Survey methods for all BACI and mortality surveys would require the concurrence of the County prior to implementation.

ACC-41: This section was rewritten to show the following sequence of events:

- Extended Phase 1 Surveys to determine if cultural material would be affected by the project,
- Project Redesign if the Extended Phase 1 studies determined cultural material would be affected,
- Phase 2 if the project could not be redesigned to avoid cultural resources impacts, and
- Phase 3 if a site was determined significant during the Phase 2 study.

The need for additional Phase 1 Surveys was deleted. Note that although capping is a potential method to avoid direct impacts to a site, it may not necessarily eliminate the need for a Phase 2 study; although direct impacts to the site would be avoided, indirect impacts would occur because the site would no longer be available for further study.

ACC-42: The noted corrections have been made.

ACC-43: The Santa Barbara County Fire Department was contacted regarding their requirements for access roads for the LWEF. As stated by County Fire, since the access roads don't access inhabitable structures or combustible facilities, they won't be placing any access requirements on the roadways other than emergency ingress/egress. Mitigation Measure FPES-4 has been revised accordingly.

ACC-44: The noted edits have been made.

ACC-45: Please see Response to Comment ACC-43.

ACC-46: This comment has been retracted by the Applicant.

ACC-47: The noted clarification has been made. Mitigation Measure FPES-2 has been added requiring the Applicant to demonstrate that sufficient on site water resources can be obtained from a new shallow well or existing spring on the property to adequately supply the O&M facility needs while maintaining 5,000 gallons of stored water for fire-fighting purposes.

ACC-48: Mitigation Measure NOI-1 has been revised to read as follows:

> "All Project construction activities, including those that involve use of heavy equipment (i.e., greater than 2-axle vehicles) along San Miguelito Road, shall be limited to between the hours of 7:00 a.m. to 10:00 p.m., except that construction at the project site within 1,600 feet of non-participating residences shall be limited to 7:00 a.m. to 6:00 p.m. Work may occur within the WTG sites on weekends and holidays, subject to written authorization from the County, and shall be limited to 8:00 a.m. to 5:00 p.m. Requests for weekend and holiday work shall be submitted to the County for approval and shall include a description of the activity to occur, including equipment usage and duragion. All complaints received regarding weekend and holiday work shall be immediately submitted to the County."

ACC-49: The Applicant expects the Project to comply with Santa Barbara County noise standards, namely the County's Comprehensive Plan policy of 65 dBA Ldn for exterior noise exposure at noise-sensitive uses. The current plans to use a turbine rated at 106 dBA would result in lower noise impacts than the range of turbines up to 112 dBA that was analyzed in the Draft EIR. The "worst case" modeling assumptions are discussed in Section 3.11.3.1. Mitigation Measures NOI-6 and NOI-7 include performance standards and monitoring requirements to ensure that the project would comply with the thresholds established in the Draft EIR.

ACC-50: This comment has been retracted by the Applicant.

ACC-51: The Applicant's current proposal is for the installation and operation of 65 turbines rates at 1.5 MW providing a maximum electrical generating capacity of 97.5 MW (rather than 60 to 80 turbines rated from 1.5 MW up to 3.0 MW, providing a maximum electrical generating capacity of up to 120 MW, as presented in the Draft EIR). Under LWEF Alternative 1, the installation of up to 13 WTGs along the southwestern border of the LWEF and the one WTG visible from within Miguelito County Park would be prohibited, resulting in a reduction of the maximum electrical generating capacity of 97.5 to 76.5 MW, a 22% reduction. However, as noted in Section 5.3.1.1, "it is expected that the Applicant would be able to demonstrate through performance measures that the installation of fewer WTGs could be prohibited as long as no portions of the tower or nacelle would be visible above the ridgeline from Jalama Beach County Park (only the tops of the WTG blades would be allowed to be visible)." There is also the potential to relocate WTGs on other portions of the Project site. If the relocation of WTGs were to occur within areas not considered within the Project EIR, additional environmental review would be required.

As presented in Section 1.3, the Applicant's second objective of the project is "to develop an economically viable wind energy project that will support commercially available financing." As presented in Section 5.1, Section 15126.6(a) of the CEQA Guidelines states that an EIR

"shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project, but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives." Section 5.3.1.1 demonstrates that LWEF Alternative 1 would indeed reduce the impacts associated with the Proposed Project while still achieving a beneficial energy impact; however, this benefit would be reduced by 0% to 22% depending on the ability to site the WTGs in such a way that only the blades would be visible from Jalama Beach and/or relocate WTGs within the Project sites.

The comment submitted provides no specifics to justify why the LWEF Alternative 1 "would have a significant adverse impact on the economics of the entire project, and would make it infeasible to develop." It is recommended that the Applicant develop the required financial analysis and present it to the County decision makers.

ACC-52: Under LWEF Alternative 2, the maximum electrical generating capacity would be limited to 82.5 MW or 55 WTGs versus the 65 WTGs currently proposed by the Applicant. LWEF Alternative 2 would also require the elimination of WTGs visible from Jalama Beach County Park and Miguelito County Park. This requirement could require the relocation of up to four WTGs within other portions of the Project sites to achieve the 82.5 MW maximum electrical generating capacity. Section 5.3.1.2 demonstrates that LWEF Alternative 2 would indeed reduce the impacts associated with the Proposed Project while still achieving a beneficial energy impact; however, this benefit would be reduced by 15% to 22% depending on the ability to relocate four WTGs. If the relocation of WTGs were to occur within areas not considered within the Project EIR, additional environmental review would be required. Please also see Response to Comment ACC-51.

ACC-53: Please see Responses to Comments ACC-4, ACC-25, ACC-29, ACC-31, ACC-51, and ACC-52.

Comment Set EDC2

From: Brian Trautwein [btraut@edcnet.org]
Sent: Wednesday, March 05, 2008 10:42 AM
To: Day, John; kdrude@co.santa-barbara.ca.us
Cc: kkraus@edcnet.org
Subject: Lompoc Wind Energy EIR - new information regarding lichens & request for surveys
Attachments: Lichens (5.15 KB); reply to lichens in Santa Barbara County (3.29 KB)

Dear John and Kevin,

During the Lompoc Wind Energy site visit on Feb. 8, 2008, EDC staff observed numerous lichen species in areas where turbines are proposed. This is new information about the project that was not available during the public comment period on the draft EIR. The presence of lichen species at the project site was unknown to EDC prior to our direct observations during the site visit.

In response to our question during the site visit, the applicant's agent stated that no lichen surveys had been undertaken for the draft EIR. During a Feb. 21, 2008 meeting with the applicant and EIR consultants, when questioned about lichen surveys the applicant did not commit to undertaking lichen surveys.

As a follow up to the site visit and Feb. 21 meeting, EDC contacted lichenologists to explore the potential for impacts to lichens within the project site.

Based on the EDC staff's observations from the site visit, two leading lichenologists, Kerry Knudsen, the Lichen Curator from UC Riverside's Herbarium and Cherie Bratt from the Santa Barbara Botanic Gardens have identified a need to conduct lichen surveys to ensure the Lompoc Wind Energy Project EIR's baseline and impact analyses are complete, and to ensure that any potentially significant impacts to lichens are avoided or mitigated.

EDC2-1

Correspondence from Kerry Knudsen and Cherie Bratt is attached in support of EDC's request for lichen surveys to inform the Lompoc Wind Energy Project environmental analysis. Please note that the County's Preserve at San Marcos EIR identified a potentially significant impact to lichens and set forth a specific mitigation measure to reduce those impacts to a less than significant level.

Please let us know whether the County would like referrals to lichenologists that can perform the necessary surveys.

Thank you for your attention to this request.

Sincerely,

Brian Trautwein,
Environmental Analyst
Environmental Defense Center
906 Garden Street
Santa Barbara, CA 93101
btraut@edcnet.org
(805) 963-1622 X 108
(805) 962-3152 fax

Response to Comment Set EDC2

EDC2-1: The commenter suggests conducting lichen surveys in the Project area in order to ensure that the DEIR's impact analysis is complete.

Text was added to the introduction and Section 3.5.4.2 of the Setting Section describing lichens and their sensitivity. They are also covered in the impact analysis and mitigation measures.

Comment Set G&CB

Day, John

From: sunset@verizon.net
Sent: Wednesday, August 08, 2007 4:33 PM
To: Day, John; Drude, Kevin
Subject: [Fwd: wind generation project]

>From: sunset@verizon.net
>Date: 2007/08/08 Wed PM 06:30:26 CDT
>To: jday@co.santa-barbara.ca.us, kevin@co.santa-barbara.ca.us
>Subject: wind generation project

>This is a dear John letter:
>
>John my name is George Bedford. My wife Cheryl and I live at 4026 San Miguelito Cyn Rd. Lompoc.
>
>We are very concerned about the wind generation project proposed for the CYN. Our home is located on a ridge at 1750 ft elev. We were unable to attend the work shop on the 6th but wanted to make sure out voices were heard.
>
>We feel that with the height of the towers the will be major visual impact, secondly the tip speed of the blades will create a noise problem, thirdly Miguelito Cyn Rd is a very narrow country road that will need major improvements to make habitable. This road also winds with Miguelito Creek making widening very difficult.
>Please forward and correspondence to sunset@verizon.net

G&CB-1

1

Response to Comment Set G&CB

G&CB-1: Please see Response to Comment EB1-2 regarding the Project's potential noise and visual impacts. Other than tree trimming along the boundaries of San Miguelito Road, no other roadway improvements are proposed as a result of the Project. Any damage to San Miguelito Road due to construction traffic will be repaired and the road restored to pre-construction condition (Mitigation Measure TC-3).

Comment Set JB

Enclosure not received
J. Day 9/5/07

Sept 1, 2007

RECEIVED
COUNTY OF SANTA BARBARA
SEP 05 2007
PLANNING AND DEVELOPMENT
DEPARTMENT - ENERGY DIVISION

To whom it may concern:

Re: Lompoc Windfarm Proposed Project

I agree with the enclosed letter to the Lompoc Record. Why not have an additional windfarm on the 74,000 Vandenberg Air Force Base where the wind really blows?

In addition our home, directly across from the Larson property is an acoustical bowl created by the surrounding hills. We can hear anything over at the Larson Barn, Benhart's property and the Bakewell's. I doubt that your engineers have taken this into consideration in the planning because you have to live here to know this. The noise from those 7 locations would just whirl around in this bowl making everyone that lives here extremely unhappy and unhealthy. **JB-1**

Also the sight of those huge windmills certainly will destroy the scenic view! In short this part of the project will not only be very disturbing but also will significantly decrease our property value. **JB-2**

If you will be making adjustments to the folks at Jalama Beach – why not us that will have to live with it? And – will you be compensating us for lost property values??? **JB-3**

Granted we need power but please keep it out of sight and sound for the local people!

Sincerely,

Jean Beattie 805-736-4420
3765 San Miguelito Rd
Lompoc, Ca 93436

Response to Comment Set JB

JB-1: Please see Response to comment EB1-2 for information on the threshold of significance and the monitoring and corrective action that would be required to ensure that the baseline noise level would not increase by more than 10 dBA CNEL on adjacent, nonparticipating properties.

JB-2: Since the publication of the Draft EIR, additional visual simulations have been prepared for the end of San Miguelito Road (KOP 11), San Miguelito Road at the entrance to Miguelito County Park (KOP 12), and inside Miguelito County Park (KOP 13) to better reflect the presence of the Project to local residents and other users of San Miguelito Road. The revised Aesthetic/Visual Resources analysis, as presented in Section 3.2, concluded that the visual impacts from these locations would be significant and unavoidable (*Class I*).

As presented in Section 3.10.1.2, "most of the LWEF site, including all areas where development would occur, are zoned Agriculture II, 100 or more acre minimum parcel size (AG-II-100) (Figure 3.10-1). The purpose of the AG-II-100 district is to establish agricultural land uses for prime and nonprime agricultural lands located outside of Urban, Inner Rural, and Rural Neighborhood areas, as shown on the Santa Barbara County Comprehensive Plan Land Use Element Maps. The intent is to preserve these lands for long-term agricultural use. The County Land Use & Development Code (LUDC) (Chapter 35.57) specifically allows for large wind energy projects on agricultural land, subject to a Conditional Use Permit (CUP)." Subject to the approval of a CUP, the proposed Project is an allowed use under current zoning. Figure 3.10-1 also illustrates the zoning of lands along San Miguelito Road, including the project area.

JB-3: Please see Response to Comment JB-2.

Comment Set LPAS1

La Purisima Audubon Society
Post Office Box 2045
Lompoc, California 93438

Serving the Lompoc, Santa Maria, and Santa Ynez Valleys

Santa Barbara Audubon Society, Inc.
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August 9, 2007

Mr. John Day
Santa Barbara County P&D
Energy Division
123 E. Anapamu St.
Santa Barbara, CA 93101

Re: Lompoc Wind Energy Project DEIR

Dear John:

The La Purisima Audubon Society is a California non-profit 501(c)(3) corporation. Our mission is to engage in projects relative to conserving and restoring natural ecosystems, interact with other organizations with similar concerns, and provide educational opportunities to the local community to increase their awareness, appreciation, and involvement in their environment.

The Santa Barbara Audubon Society is a California non-profit 501(c)(3) corporation. The Santa Barbara Audubon Society educates members of our community about birds and their habitats, advocates responsible legislation and public policies which help preserve our natural resources, and administers science-based projects using birds as indicators of environmental health.

Los Angeles Audubon is a California non-profit 501(c)(3) corporation established in 1911. The mission of Los Angeles Audubon is to promote the enjoyment and protection of birds and other wildlife through recreation, education, conservation and restoration. Los Angeles Audubon supports renewable energy provided that decisions about the placement and operation of the infrastructure are based on sound science to substantially limit adverse impacts on birds, wildlife and their habitat. Since 2003, we have been working to resolve the conflicts between wind energy and birds, including a year of effort with the California Energy Commission and California Department of Fish & Game to create guidelines in California to site wind projects to reduce the impacts on birds and bats.

LPAS1-1

Comment Set LPAS1, continued

While the actual number of birds killed by wind turbines is unknown, estimates have been made in the range of 30,000 to 60,000 per year at the current level of wind development. The wind industry is prepared to increase the number of turbines 30 fold over the next 20 years, in order to fulfill the President's request that renewable energy projects supply 20% of the nation's energy needs by 2030. At the current estimated mortality rate, the wind industry will be killing 900,000 to 1.8 million birds per year. While this number is a relatively small percentage of the total number of birds estimated to live in North America, many of the bird species being killed are already declining for other reasons, and losses of more than a million birds per year would exacerbate these unexplained declines. Data from the FWS Migratory Bird Management and Breeding Bird Survey by the US Geological Service indicate that at least 223 species of our native bird species are in significant decline (about 1/4 of all species in US). The mortality at wind farms is significant, because many of the species most impacted are already in decline and all sources of mortality contribute to the continuing decline." [1]

National Audubon analyzed Christmas Bird Counts and citizen science bird population data from 1967 for release in a 2007 report titled Common Birds in Decline. The report found that "populations of some common birds nosedived over the past forty years, with several down nearly 80 percent".[2] "In California, Northern Pintail, Horned Lark, and Loggerhead Shrike topped the list with declines between 96 and 75%, mirroring national trends in the same species".[3] The dramatic national declines are attributed to habitat loss and fragmentation. Both Horned Lark and Loggerhead Shrike are recorded on project site, as are other declining species.

Our comments on the DEIR follow:

LPAS1-1, Cont.

1. The pre-construction risk assessment of birds and bats is inadequate.

- 26 days of surveys for birds over a five year period is inadequate

  In 3.5.14 Wildlife and Bird Surveys the DEIR reports "wildlife surveys of the WTG corridors, including surveys for birds, were conducted on 6 separate dates in the spring, summer, and fall of 2002, and on 7 separate dates in the spring and summer of 2005.[4] Additionally, "Additional reconnaissance-level surveys were conducted on 4 separate dates in September 2006," also "Olson (2007) conducted avian point count surveys during three, 3-day periods in December 2006 at 18 potential WTG sites."[5] This totals 26 days of survey over a five year period.

  California Energy Commission and California Fish & Game draft guidelines recommend that developer "Conduct BUCs (Bird Use Counts) for 30 minutes once every week (emphasis added) during the seasons of interest, which for most projects in California includes all four seasons. Sequence observation times to cover most daylight hours (for example, alternate each week with morning and afternoon surveys) and different weather conditions, such as windy days."[6]

  Following these minimum guidelines over only a one year period would have produced 52 days of survey, twice the level of effort presented by the lead agency in the DEIR.

  The DEIR fails to disclose the scientific basis for lead agency's decision to conduct or allow such minimal surveys. The failure to disclose this basis is an omission in the DEIR.

- The surveys are inadequate as they did not include wildlife professionals

  "Pre-development evaluations should be conducted by a team that includes Federal and/or State agency wildlife professionals with no vested interest (e.g., monetary or personal business gain) in the sites selected."[7]

LPAS1-2

[1] Testimony of Donald Michael Fry, PhD, Director, Pesticides and Birds Program, American Bird Conservancy, The House Subcommittee on Fisheries, Wildlife and Oceans Oversight Hearing on: "Gone with the Wind: Impacts of Wind Turbines on Birds and Bats," May 1, 2007, Room 1324 Longworth House Office Building.
[2] National Audubon Society, Common Birds in Decline, July, 2007
[3] Audubon California, Common Birds in Decline, July, 2007
[4] DEIR, 3.5.-14
[5] Ibid
[6] California Energy Commission and California Department of Fish & Game, California Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development, Committee Draft Report, July 2007, CEC-700-2007-008-CTD, p.45, beginning line 1478
[7] U.S. Fish & Wildlife Service, Interim Guidance on Avoiding and Minimizing Wildlife Impacts from Wind Turbines memorandum, May, 2003, p.2

Comment Set LPAS1, continued

The DEIR fails to disclose lead agency's basis for not including wildlife professionals from state and federal agencies with no vested interest in the site selection, or for not including wildlife professionals from state and federal agencies in the surveys and study design.

LPAS1-2, Cont.

- The scope of the surveys is inadequate to assess the project site for risk to birds

The DEIR states "Most of the 2005 surveys were conducted in the afternoon, but some took place in the mornings." *Bird activity is lowest in the afternoon, and highest in the mornings despite coastal fog that might limit visibility of* observers but not the activity nor song of birds. The DEIR fails to disclose why lead agency chose not to identify bird species by song and only by sight.

LPAS1-3

The DEIR fails to disclose how the dates of the surveys were chosen, nor whether "observers" were also conducting plant surveys (especially in 2002) while conducting bird surveys. This could effect observer bias and call into question the adequacy of those surveys, reducing even further the level of effort by developer.

LPAS1-4

The DEIR fails to disclose if habitat was prioritized for potential for the presence of more populous and diverse populations of birds for the bird surveys. Although the various habitat on the site is described in the DEIR along with some species of birds that were observed in that habitat, the habitat types more productive for birds such as riparian habitat or habitat with water sources or grassland were given no priority in the avian surveys.

Additionally, birds in the most productive habitats – coastal sage scrub, riparian habitats, or oak woodland - were surveyed from afar and only during flight, excluding terrestrial species or species that prefer the insides of bushes *and vegetation rather than the outside.*

LPAS1-5

- The pre-construction surveys are inadequate to site the turbines to reduce the impacts on birds and bats

The DEIR is inadequate in discussion of importance of siting to minimize impacts on birds and bats, and omits discussion of wildlife and landscape issues in determining turbine placement.

"Assessing the impacts of turbine siting and determining appropriate turbine placement requires a thorough understanding of the distribution and abundance of birds and bats at a proposed site and site-specific knowledge of how wildlife interacts with landscape features at the site. Orloff and Flannery (1992 and 1996), Smallwood and Thelander (2004 and 2005), and Smallwood and Neher (2004) all estimated associations between bird fatalities and attributes of wind turbine locations relative to topography and other factors. They concluded that wind turbine siting contributes substantially to bird mortality and that careful siting of new wind turbines could substantially reduce fatalities;"[8]

LPAS1-6

- *The pre-construction surveys are inadequate to compare with post-construction monitoring.*

Lead agency wishes to mitigate for unavoidable impacts with post-construction monitoring, but the pre-construction data is scientifically inadequate to do so. These pre-construction surveys do not rise to the level of BACI (Before – After, Control – Impacts) study methodology recommended by *the National Wind Coordinating Committee for* monitoring wind project sites.

"The BACI design is the most reliable design for sustaining confidence in scientific conclusions. Data should be collected for two or more time periods before and again two or more time periods after construction of the wind plant on both the assessment area (wind plant) and multiple reference areas."[9]

If lead agency plans a monitoring survey of 2 years of weekly surveys as suggested in Mitigation Measure BIO-3: Avian Monitoring later in the document, then pre-construction efforts should match this effort for scientific comparison.

LPAS1-7

[8] California Energy Commission and California Department of Fish & Game, California Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development, Committee Draft Report, July 2007, CEC-700-2007-008-CTD, p.64, beginning line 2306

[9] National Wind Coordinating Committee, Studying Wind Energy/Bird Interactions: A Guidance Document, Prepared for the Avian Subcommittee and NWCC, December 1999

Comment Set LPAS1, continued

Surveys were conducted in 2002 and then again 2005, and 2006. This five year span would have been more than enough time to collect data from adequate surveys by avian biologists and wildlife professionals.

LPAS1-7, Cont.

- The surveys are inconsistent, not comparable, are conducted with different methodologies that are not compatible, and cannot serve as good scientific baseline comparisons for post-construction monitoring.

The DEIR itself reports this discrepancy. "These surveys were performed by CH2M HILL biologists using a methodology similar to that used in 2002 and 2005."[10]

LPAS1-8

"Similar" methodology is not consistent with good, scientific data for comparison.

- The surveys fail to assess nocturnal movements of birds and bats.

There are no nocturnal studies or assessments of these animals even though they are both recognized as potentially on site.

Most songbirds, waterfowl, shorebirds, herons, and egrets migrate at night (Kerlinger and Moore, 1989). Nocturnal migrants generally take off after sunset, ascend to their cruising altitude between 300 and 2,000 feet (90–610 meters), and return to land before sunrise (Kerlinger, 1995). For most of their flight, songbirds and other nocturnal migrants are above the reach of wind turbines, but they pass through the altitudinal range of wind turbines during ascents and descents and may also fly closer to the ground during inclement weather or when negotiating mountain passes (Able, 1970; Richardson, 2000).

Recent published scientific reports indicate that greater than 10% of nocturnal migrating songbirds migrating over ridges fly at elevations putting them within the area of rotating turbines (Mabee et al. 2006. WILDLIFE SOCIETY BULLETIN 34(3):682–690). It is not known whether these birds are at risk of being struck by turbines blades, whether they can adequately avoid them, and whether inclement weather might increase the collision risk, as it does with communications towers."[11]

LPAS1-9

While most turbines are placed in open grazed habitat, the turbines to be placed at La Tinta Hill and Sudden Peak are of special concern due to their proximity to more productive habitat, and their elevation, and Middle, Sudden, Quarry, and Signorelli ridges. These sites require a more thorough investigation of the presence of birds, especially nocturnal migrating birds in fall and spring migration periods.

"Since most movement occurs early in the evening, bird collisions are more likely to occur during the first two to three hours after sunset (18:00 to 20:00)."[12]

Even if no migratory songbirds were seen in the afternoons or mornings on site by observers in the 20 days of surveys, these birds may pass through the project site after sundown and prior to sunrise.

The site is on the Pacific Flyway, a migratory pathway in California.

There were no nocturnal assessments of risk to migratory birds, only point counts in the afternoon for birds that were noticed to be on the site during brief surveys, as little as one day per migratory period. Migratory birds travel in unpredictable "pushes" of great density, and may appear on site on any day during peak migratory periods (generally March 1 through May 30 and August 1 through October 30), and not on the one or two days during that peak migratory period that proponent's observers may have chosen to have been there. A more robust search is certainly required to disclose the risks to migratory songbirds. The intention of such an inadequate search for migratory birds seems to be to avoid or omit disclosure of those risks.

2. The DIER does not adequately assess the impacts to species of bats

LPAS1-10

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[10] DEIR, 3.5-3

[11] California Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development, California Energy Commission and California Department of Fish & Game, Committee Draft Report, July 2007, CEC-700-2007-008-CTD, p. 51, beginning line 1769.

[12] Nocturnal Avian Migration Assessment of the San Gorgonio Wind Resource Study Area, Fall 1982 (McCrary, et al (1982), p.65.

Comment Set LPAS1, continued

The DEIR states "The actual number of fatalities at the Project could be lower or higher depending on use of the area, particularly by migrating bats.[13]

This is an extremely general statement, and admits that the use of the area by migrating bats has not been studied by lead agency, an important inadequacy in the DEIR.

This admission in the DEIR combined with the disclosure that up to six species of bats might be expected to be on the site, or are present near the site, suggests that a nocturnal study of migrating bats is more than important for this site in order to assess risk, compare pre-construction with post-construction data, to determine use by species, to evaluate mortality of species in monitoring, and to disclose the true impacts that the project may have on bats.

LPAS1-10, Cont.

The DEIR omits a discussion of the basis for making the decision not to study migrating bats with nocturnal assessments, or how they could arrive at a scientific estimation of mortality of bats without conducing nocturnal assessment, or how they plan to compare pre-construction studies with post-construction studies of migrating bats without conducting nocturnal assessments, nor what mitigation including compensation would be appropriate for fatalities of bats at and above the level predicted.

3. The DIER is inadequate in assessing the impacts to raptors

We disagree with the following conclusion in the DEIR.

"Given the results of surveys for this Project and a review of the literature for newer projects with designs applicable to the Project, estimates of raptor mortality loss are expected to be low. Avian mortality studies at the Buffalo Ridge, Nine Canyon, and Vansycle wind energy generation sites found that raptor mortalities made up less than 2 percent of the bird species recovered during carcass removal (Erickson et al., 2000, Erickson et al., 2003; Johnson et al., 2000)."[14]

LPAS1-11

Comparisons of raptor mortality in other parts of the country with very different habitat are not adequate. California's coastal habitat is unique. Studies at Altamont Wind Energy Resource Area or at Solano Wind Resource Area are more appropriate, and higher in fatalities, than the wind energy sites compared above. Publishing the conclusion above in the DEIR may be an attempt to avoid disclosure of the true risks of the project by diluting the disclosure of risk with citations from projects outside of California.

"Data on wildlife use and mortality collected at one wind energy facility are not necessarily applicable to others; each site poses its own set of possibilities for negative effects on wildlife."[15]

Lead agency should make every effort to assess the risk to raptors by adequate pre-construction surveys, especially in winter, rather than literature citations from projects outside California.

- The DEIR is inadequate and possibly intentionally deceptive by including possibly unproven claims about risk factors of various groups of birds to wind energy facilities.

Impact BIO-10: Avian and Bat Collisions with WTGs includes a section of "Factors that affect the risk of the various groups (of birds) to wind energy facilities, particularly WTGs"

LPAS1-12

Some of these claims are controversial and have not been verified by controlled scientific studies conducted, published, and peer reviewed by other scientists.

Lead agency should not omit references and scientific sources for each of these controversial claims nor should a DEIR be a forum for publication of controversial claims by lead agency, if unsubstantiated or not backed by science.

For example:

[13] Ibid, 3.5-53
[14] Ibid, 3.5-52
[15] U.S. Fish & Wildlife Service, Interim Guidance on Avoiding and Minimizing Wildlife Impacts from Wind Turbines memorandum, May, 2003

Comment Set LPAS1, continued

"WTG size and rotor height – Older style WTGs were shorter with rotors that were lower to the ground, which brought a greater percentage of raptors foraging in the area into the same height as the rotors. Larger, modern WTGs are taller with rotors higher off the ground; thus, foraging raptors are less likely to collide with rotors. [16]

This claim omits the increased hazard to migratory songbirds and passerines of higher turbines.

"Rotor blade tip speed and rotational speed – Newer WTGs with slower speeds appear to be associated with lower avian fatality rates."[17]

This claim has not been proven through scientific research, and, in fact, blade tips may be faster.

"Overall number of WTGs and design of placement – The modern, larger WTGs result in fewer WTGs overall, which reduces the number of potential bird collisions with WTGs. Because there are fewer WTGs, they are spaced at wider intervals, further reducing the number of potential collisions."[18]

This claim has not been proven, and in fact, may increase the number of potential bird collisions due to size and placement.

LPAS1-12, cont.

5. The DEIR does not adequately describe or mitigate for the impacts of loss of habitat due to construction and installation

As shown in Table 2-5, approximately 54 acres would be temporarily disturbed, and approximately 34 acres would be permanently disturbed. Although the exact placement of WTGs and power poles is not known, as shown on Figures 3.5-2 and 3.5-3, most of the area that would be disturbed is composed of annual grasslands; therefore, most impacts would occur to this vegetation community, although others could be affected as well, depending on the ultimate placement of facilities." [19]

This is a very general statement and does not characterize or predict the impacts of the project on habitat other than annual grassland, not even within a scientifically predictive range.

Developer could place the turbines almost anywhere and be within this inadequate prediction.

Recent estimates and aerial views of habitat loss to construction of wind turbine sites show that up to four acres of habitat is damaged or lost per turbine installed.[20] With 80 turbines, that potential amounts to an estimated loss of ten times the predictions of the DEIR, or 240 acres, just for the installation of the turbines without considering the habitat lost to construction of roads, power lines, transmission lines or other components of the project.

Additionally, the DEIR is intentionally vague about placement of the turbines and about the habitat that may be disturbed. The purpose of a DEIR is to disclose potential impacts to the environment to the best ability of the lead agency. If the agency is unsure of those impacts, or unsure of the placement of the project, it is unfair to the public and possibly a violation of CEQA to underestimate those impacts and offer vague and general disclaimers as to the real size and impacts of the project.

Additionally, there is no provision in the DEIR for mitigation in the probable event that more than 54 acres would be temporarily disturbed, or more than 34 acres would be permanently disturbed.

LPAS1-13

6. Mitigation Measure BIO-3:Avian Monitoring is inadequate

- Lead agency has not established mitigation for discovery of sensitive or endangered species on site, raptor nests, increased migratory movements or fallouts, or other discoveries that may be made during Avian Monitoring.

LPAS1-14

7. Mitigation Measure BIO-4: Avian and Bat Mortality Study is inadequate.

- Lead agency's reliance on carcass searches and point counts is inadequate to assess mortality of birds and bats

LPAS1-15

[16] DEIR, 3.5-51
[17] Ibid
[18] Ibid
[19] Ibid, 3.5-42
[20] Boone, Dan, "Using GIS Technology to Evaluate Forest Habitat and Public Land Impacts of Wind Energy Development, Wildlife & Wind Energy Conference, Kutztown University, Pennsylvania, December 2, 2006

Comment Set LPAS1, continued

"The study shall follow the guidelines developed by the National Wind Coordinating Committee (Anderson et al., 1999) and include periodic (at least biweekly) searches for bird and bat carcasses at and near WTGs, power poles, and meteorological towers."[21]

These guidelines were published in 1999, and are outdated.

In the DEIR and in the mortality study lead agency fails to discuss or has omitted 1) current technologies available for monitoring fatalities of groups of birds such as raptors, migratory birds, and bats. These technologies include *mobile radar, acoustic monitoring, and other affordable* technologies currently available for monitoring avian mortality (see below); 2) the relevance of avian monitoring to and the importance of adequate pre-construction studies for comparison to mortality monitoring.

LPAS1-15, Cont.

Additional affordable technologies are available that can assure lead agency's compliance with its own county statutes in addition to carcass searches, but are not discussed. Since wind energy developer is from Spain, that company should be familiar with monitoring advancements in that country. The U.S. especially California, and especially Santa Barbara County, in complying with its own statues and guidelines, should employ the most up to date methods available for monitoring fatalities or disclose the scientific process that has eliminated them.

Additionally, preventive modern technology is not discussed. Real-time radar is currently operational in Spain, the country of project developer, to prevent collision mortality to migrating birds of prey. *Acoustic monitoring is available.* Marine radar is available and in fact can show if migratory birds are avoiding turbines.

Lead agency should disclose the basis for rejecting these feasible monitoring technologies.

- Lead agency technical advisory committee is inadequate.

There are no powers, triggers, nor process outlined for this body to take mitigation or adaptive management actions. Lead agency has the only vote that can determine action, and no time frame is suggested for trigger, response or mitigation to "excessive mortality" at a particular turbine.

There is no discussion of prevention of "excessive mortality"

"The committee shall be composed of County staff; the biologist in charge of implementing the mortality study; a representative of the Project owner or operator; and other experts the County deems necessary, which could include *representatives of state and federal agencies.*"[22]

LPAS1-16

This technical advisory committee is inadequate and does not include an independent biologist that is free of financial influence of the lead agency or the developer, nor does it guarantee the participation of state and federal agency wildlife professionals.

The deliberations of this body and the data reviewed therein may not be publicly available for review and does not contribute to the overall body of knowledge on wind development in California. Full disclosure serves the public interest, or lead agency should discuss why information and data should be privileged.

Lead agency should disclose any confidentiality agreements that have been entered into between developer and biologists and environmental consultants, and between lead agency and biologists or environmental consultants.

8. Mitigation Measure BIO-5: Additional Measures to Protect Birds and Bats is inadequate

- The DEIR is inadequate in defining "excessive mortality" by comparison of project to other projects.

"The annual death rate attributable to the Project for all birds combined, or raptors considered separately, or bats, is more than twice the average rate documented for other comparable wind projects. (The mortality rate shall be expressed as death per megawatt (MW) of WTG nameplate electrical generation capacity, adjusted for searcher efficiency and scavenger removal. The average rate shall be based on projects in California for which data is available at the time an assessment for this Project is conducted. *Comparable wind project means a project with*

LPAS1-17

[21] DEIR, 3.5-73
[22] Ibid, 3.5-75

Comment Set LPAS1, continued

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over 50 MW generating capacity, using modern WTGs with a nameplate electrical generation capacity greater than 1 MW, operating at approximately 15 to 25 RPM, with total WTG height greater than approximately 300 feet.)"[23]

For purposes of monitoring and mitigation, "excessive mortality" for the project should be defined in comparison to the *mortality rates of comparable turbines, not projects.*

This will allow lead agency to take operational adaptive management or other mitigation measures such as seasonal shutdown or removal of turbines that offend with an excessive mortality rate, rather than conceal the offending turbine within an average of the site. There are no other adaptive management or mitigation measures for *offending* turbines other than shutdowns or removal.

LPAS1-17, Cont.

9. The DEIR **is inadequate in failing** to consider "cumulative impacts" of wind energy on populations of birds.

LPAS1-18

10. The DEIR fails to provide for adequate mitigation for impact BIO-10 which is considered significant and unavoidable.

We urge the County of Santa Barbara as lead agency in this DEIR to require the wind developer of the Lompoc Wind Project to go to the fullest extent of available science and technology to understand, disclose, and minimize the considerable impacts on birds and bats of this project as presented.

LPAS1-19

Thank you for the opportunity to comment on this project.

Sincerely,

Tamarah Taaffe
Treasurer
La Purisima Audubon Society

Stephen J. Ferry
Conservation Chair
Santa Barbara Audubon Society

Garry George
Executive Director
Los Angeles Audubon Society

[23] Ibid

Response to Comment Set LPAS1

LPAS1-1: The commenter states that the pre-construction risk assessment for birds and bats is inadequate. The commenter specifically cites amount of wildlife and bird surveys carried out over the last five years, which amounts to 26 survey days.

A total of 51 additional field days of surveys and a NEXRAD Radar migration analysis has occurred and is reported in the EIR. Additional BACI surveys are required that will also increase the body of knowledge on avian and bat species on the project site. Please also see Response to Comment DFG-1.

LPAS1-2: The commenter states that the surveys that were performed are inadequate because they did not include Federal and/or state agency wildlife professionals with no vested interest in the sites surveyed.

Dr. Sidney Gauthreaux, is a third-party consultant, with no vested interest in the sites surveyed conducted the NEXRAD Radar analysis. SAIC biologists also have no vested interest in the site. SAIC biologists reviewed data and analysis provided by the Applicant and used only that data and analysis that they considered to be unbiased and factual to determine the potential effects to birds and bats.

LPAS1-3: The commenter suggests that the DEIR provide a basis for having performed most of its bird surveys in the afternoon when bird activity is generally at its lowest.

A total of 51 additional field days of surveys and a NEXRAD Radar migration analysis has occurred and is reported in the EIR. Point count surveys, evening surveys, and random transect surveys were conducted during early morning hours when birds are typically most active. The NEXRAD analysis focused on night-time migration over the site. The winter and spring surveys, and NEXRAD analysis are available in Appendix B.

LPAS1-4: The commenter suggests that the DEIR mention how bird survey dates were chosen, as well as whether the bird surveys were conducted in conjunction with plant surveys, which could have introduced bias into the bird surveys.

Additional point count surveys and analysis has been conducted for this EIR. Sapphos Environmental has conducted two additional seasons-worth of bird surveys in 2007 and 2008 that consisted of 24 field days for the winter surveys and 27 days of surveys in Spring 2008. These surveys were conducted independent of vegetation surveys.

LPAS1-5: The commenter suggests that the DEIR disclose whether certain habitat types were prioritized according to their species richness during bird surveys. Also, the commenter points out that the surveys may be biased against “terrestrial” species when observations were conducted from afar in habitats such as coastal sage scrub, riparian, and oak woodland.
Point count surveys were chosen within habitats that would be affected by WTG placement. A total of 54 point count stations were selected in annual grasslands, central coast scrub and all

were selected within the proposed WTG corridors. Raptor transect lines, raptor nesting habitat surveys and ridgeline surveys were conducted specifically to increase the observations of these species in a variety of habitats.

LPAS1-6: The commenter suggests further discussion of the importance of WTG siting in relation to wildlife interactions with the landscape as a mitigation measure.

Mitigation Measure 15.a includes the following text: "The turbines shall be sited so that each tower is located at least 500 feet away from critical biological resources identified in preconstruction surveys, specifically: active raptor nest sites, active state or federally listed species' nests, open water which would attract birds or bats (including stock-ponds), thicker riparian habitat in Canada Honda and Miguelito creeks, eucalyptus tree groves, or vernal pools, if present. The turbines shall be sited so that each tower is located at least 250 feet from the un-named intermittent tributaries containing Central Coast Riparian Scrub habitat located up-gradient of major streams. Preconstruction surveys (described in MM Bio-11a) shall identify existing raptor nests and other sensitive resources. The Applicant shall, in consultation with the CDFG, attempt to dissuade raptors from building new nests within 500 feet of any turbine.

LPAS1-7: The commenter finds that the pre-construction surveys conducted are inadequate to compare with post-construction monitoring. The commenter recommends that pre-construction surveying meet the criteria of the BACI study methodology.

Mitigation Measure Bio-16 requires a Monitoring and Adaptive Management Plan that will include additional surveys to assess the project's effects on bird and bat species including the following components: a Before-after/Control-impact (BACI) Study (to compare pre- and post-construction bird use on the site) and a Bird/Bat Mortality Study (to estimate bird and bat mortality rates during wind farm operations and to identify WTGs causing unanticipated levels of mortalities). The Monitoring and Adaptive Management Plan shall be prepared by a County-approved biologist and be subject to County approval. Approval of the entire Plan by the County, in consultation with CDFG, is required prior to land use clearance for the first and subsequent project phases.

LPAS1-8: The commenter states that the pre-Project surveys are inconsistent, not comparable, and conducted with different, incomparable methodologies. As such, the commenter finds that the pre-Project surveys will not serve as good baseline comparisons for future post-construction monitoring.

Please see Response to Comment LPSAS1-7.

LPAS1-9: The commenter states that the surveys fail to assess nocturnal movements of birds and bats, especially movements of migrating birds.

Dr. Sidney Gauthreaux, a third-party consultant, conducted a NEXRAD Radar analysis to determine the potential effects to birds migrating over the site at night in the spring and fall seasons of 2006 and 2007. The results of this analysis determined that the potential effects to birds migrating over the site at night in the spring and fall seasons was low.

LPAS1-10: The commenter states that the DEIR inadequately assesses the Project's impacts on bats. The commenter highlights the importance of nocturnal surveys that look at local and migrating bat species in order to form an accurate pre-Project assessment that can later be compared to post-construction survey data.

Additional field work was conducted on bats for the EIR. The Group conducted two week's worth of acoustic surveys for bat use on the project site in 2008 (Section 3.5.3). Data were collected by biologists who were familiar with the area and who had conducted previous local surveys on VAFB. CCBRG biologists were able to increase site specific knowledge with some data to better describe bat use of the site.

Impacts to bats were classified as Class I. Mitigation for this impact includes collecting additional information so as to add to the body of knowledge for this type of impact.

LPAS1-11: The commenter disagrees with the assessment of potential impacts to raptors in the DEIR. This assessment is partially based upon raptor mortality data from other wind farms located outside of California; the commenter finds that these comparisons are inadequate because the habitats at the other wind farms are not similar enough to the habitat in the Project site.

Additional analysis on raptor mortality was added to the EIR; information on specific species' potential for impacts was added to Impact BIO-10. In addition, the following text was added to the baseline:

> Summarizing the data included in the 2006 Olson report focusing on the Point Count Survey results, Olson reports observing an average of 1.46 raptors for every 20 minutes of survey, which equals an adjusted rate of 2.19 raptors per 30-minute survey. These data were collected in only one season (winter) for only one year; raptor counts in this portion of southern California are typically elevated during the fall and winter, likely making the Olson average higher than a typical yearly average; therefore, some caution is warranted using these results. Out of the 11 windfarm sites that were included in Appendix G: "Estimating Impacts to Raptors Using Bird Count and Fatality Data from Existing Projects" of the CEC Guidelines that used standardized methods to collect data and were located in the western United States, the LWEP site is on the high end of the comparative values (the LWEP site has more raptor observations per 30-minute survey than nine of the eleven sites used in Table 1 and more than 27 out of 29 wind energy sites depicted in Figure 4 of the Appendix). For the 11 Site Comparisons in Table 1, the range of raptor observations was from 0.15 to 5.25 raptors per 30 minute count. Only two sites (High Winds, California and Diablo Winds, California) have substantially higher raptor counts (High Winds = 5.25 and Diablo Winds = 4.35 raptors per 30 minute count). These two sites represent the two highest fatality rates per MW for raptors in the analysis.

LPAS1-12: The commenter states that the DEIR provides inadequately supported claims about the risk factors of various groups of birds to WTG's. The commenter recommends including more scientifically sound sources to substantiate such claims. For example, the DEIR claims that taller, modern WTG's will lower raptor mortality. The commenter points out that taller WTG's

would likely cause increased mortality of migratory songbirds and passerines. The DEIR also claims that WTG's with slower speeds are associated with lower avian fatality rates, although the commenter responds that such a claim has not been proven through scientific research. Lastly, the DEIR claims that modern, larger WTG's lead to few WTG's overall that are spaced at larger intervals, which reduces the risk of bird collisions with WTG's. The commenter responds that this claim is unproven and may actually increase the risk of bird collisions.

At present, the risk factors are not well understood or scientifically established over a range of sites. Many published studies are inconclusive, contradictory, or unreplicated.

Additional analysis on avian mortality was added to the EIR; information on specific species' potential for impacts was added to Impact BIO-10. In addition, this impact was already classified as a Class I impact, significant and unmitigable; the impact classification cannot be increased. The Adaptive Mitigation strategy detailed in Mitigation Measure BIO-16 allows for additional research and application of appropriate mitigation, including new advancements in technology that might best reduce impacts to avian and bat species.

LPAS1-13: The commenter states that habitat loss due to construction and installation is inadequately described and mitigation inadequately addressed. The commenter challenges the area estimates of disturbed land, suggesting that they are underestimated. The commenter also requests that the predictions for turbine placement be more specific.

Additional information and analysis has been added to Impact BIO-1 which describes temporary and long term impacts to habitat during the installation of WTGs. Additional information has also been added to Impact Bio-12 that includes an estimate of habitat affected from the installation of WTGs.

LPAS1-14: The commenter points out that the lead agency has not established mitigation for discovery of sensitive or endangered species, raptor nests, increased migratory movements or fallouts, or other discoveries that may be made during Avian Monitoring.

The following text has been added to the EIR, Mitigation Measure BIO-12b:

> "If ground disturbance or vegetation removal is scheduled to occur during the avian nesting or bat roosting season (from February 1 through August 31) the Applicant shall fund a County-approved biologist to survey for active avian nests and roosting bats immediately prior to the start of construction in a given area (including removal or trimming of trees and shrubs). The survey shall occur at the sites of construction activity, as well as up to 500 feet away. If an active raptor nest is found, no construction activity shall occur within 500 feet of the nest unless otherwise directed by CDFG. The County-approved biologist shall conduct a study to collect more detailed information on nesting raptors in the Project area. Areas of dense vegetation, including the riparian corridors along Miguelito Creek, the eucalyptus groves onsite, and mixed evergreen forest within 500 feet of Project facilities shall be surveyed at weekly intervals to collect data on nesting season length, species nesting in the area, density of nests, and success rates. Information shall also be collected on the use of perches and the relative amount of foraging by raptors in the Project area. Count locations

shall also be established in areas of representative habitat to characterize the prey base for raptors. Counts shall be made of California ground squirrels, brush rabbits, black-tailed jackrabbits, and other small mammals observed during each visit."

In addition, Mitigation Measure Bio-16 requires a Monitoring and Adaptive Management Plan that will include additional surveys to assess the project's effects on bird and bat species including sensitive species; the plan will include the following components: a Before-after/Control-impact (BACI) Study (to compare pre- and post-construction bird use on the site) and a Bird/Bat Mortality Study (to estimate bird and bat mortality rates during wind farm operations and to identify WTGs causing unanticipated levels of mortalities).

LPAS1-15: The commenter states that the post-construction mortality study is inadequate because the guidelines proposed for the study are outdated. The commenter suggests the implementation of affordable modern technologies in the mortality, and also sees a need for better pre-construction studies for comparison to mortality monitoring.

Mitigation Measure Bio-16 requires a Monitoring and Adaptive Management Plan that will include additional surveys to assess the project's effects on bird and bat species, specifically the plan will include a Bird/Bat Mortality Study to estimate bird and bat mortality rates during wind farm operations and to identify WTGs causing unanticipated levels of mortalities. This plan has flexibility designed into it to account for new technologies and the most up-to-date, proven methods for collecting data. The Monitoring and Adaptive Management Plan shall be prepared by a County-approved biologist and be subject to County approval. Approval of the entire Plan by the County, in consultation with CDFG, is required prior to land use clearance for the first and subsequent project phases.

LPAS1-16: The commenter states that the "technical advisory committee" as described in the DEIR is inadequate, since the DEIR does not explain how this committee will take mitigation or adaptive management action in order to prevent excessive mortality. The commenter also sees a need for an independent biologist to be on the committee who is free from financial influence of the lead agency and the developer. Lastly, the commenter suggests that the deliberations of the committee and its decisions should be fully disclosed to the public in order to contribute to the overall body of knowledge on wind development in California.

The County will enforce the adaptive mitigation detailed in Mitigation Measure 16 unless CDFG adopts them as part of a Sec. 2081 incidental take permit or Sec. 1602 streambed alteration agreement. In reviewing and approving the final plan and applying the required measures, the County will consult with CDFG and USFWS, as appropriate. The County will ensure that the prey base, BACI, and mortality monitoring measures are implemented. The County will review all quarterly and annual reports provided pursuant to the Avian and Bat Mitigation Plan and ensure that appropriate adaptive management measures are undertaken if AMP thresholds are reached.

LPAS1-17: The commenter suggests applying an "excessive mortality" definition to individual WTG's rather than to the Project site as a whole. In this way, "excessive mortality" could be defined in comparison to WTG's of similar size, blade speed, etc. This definition allows the lead

agency to identify WTG's which cause disproportionate mortality and take mitigation measures such as WTG removal or shutdown.

Speific thresholds have been added in Mitigation Measure BIO-16 to define impacts from individual WTGs and the project site as a whole.

LPAS1-18: The commenter states that the DEIR fails to consider "cumulative impacts" of wind energy on bird populations.

Cumulative Impacts are discussed in Section 4.5.4 and under Impact C-BIO-1 it is stated that "cumulative impacts of expanding growth in the Lompoc Valley would be significant, although with mitigation measures, most significant cumulative impacts would be reduced to less than significant levels. However, cumulative impacts to avian and bat species would be significant and unavoidable."

LPAS1-19: The commenter suggests that the DEIR require the wind developer to do as much as science and technology will allow in order to understand, disclose, and minimize the impacts on birds and bats of this project.

In addition to the studies outlined in Mitigation Measure BIO-16, additional mitigation options are included in Mitigation Measure 16 for research to add to the body of knowledge for future wind energy projects.

Comment Set LPAS2

La Purisima Audubon Society

Post Office Box 2045
Lompoc, California 93438

Serving the Lompoc, Santa Maria, and Santa Ynez Valleys

Received 8/30/07 at Lompoc Wind Energy DEIR Comment Hearing

August 30th, 2007

Mr. John Day
Santa Barbara County P&D
Energy Division
123 E. Anapamu St.
Santa Barbara, CA 93191

Re: Lompoc Wind Energy Project DEIR

Dear John,

LPAS feels that the DEIR is inadequate in that it does not address the threat to California Condor recovery. Condors can fly more than fifty miles while foraging. The Lompoc Wind Energy site is well within range of three Condor feeding stations. As the California Condor Recovery Program succeeds, and Condors learn to feed on their own, their foraging areas will expand to the shoreline. This selected wind turbine project site is of special concern due to the updraft it offers to foraging Condors. Please refer to the attached map.

Luis Barrios and Alejandro Rodriguez, in their study published in the February 2004 issue of the Journal of Applied Ecology concluded that in the Straits of Gibraltar, where there are updrafts along the coastline, wind turbines kill Griffon Vultures. They also concluded that new wind installations must be preceded by detailed behavioral observations of soaring birds as well as careful mapping of their migration routes.

LPAS2-1

We urge the County of Santa Barbara, as lead agency in this DEIR, to require the wind developer of the Lompoc Wind Energy Project to apply the available science and technology to its fullest extent to understand, disclose, and minimize the considerable impacts on soaring birds of this project.

Thank you for the opportunity to comment on this project.

Sincerely,

Tamarah Taaffe

Tamarah N. Taaffe
Chairperson, Lompoc Wind Energy Committee
La Purisima Audubon Society

"Dedicated to Conservation"
100% Recycled Paper

Response to Comment Set LPAS2

LPAS2-1: The commenter suggests that the DEIR address the California Condor recovery, citing the Project area's proximity to three Condor feeding stations, and the danger that WTG's might pose to the soaring Condors.

The following text is included in the EIR baseline:

> "An additional concern is that California condors (Gymnogyps californianus) have been released both south in Ventura County and north at the Pinnacles in San Benito County. There is a possibility that condors could be found in the Project vicinity while traveling between the two population areas or while foraging, especially during fall and winter."

Comment Set N&BT

The noted attachment is available for viewing at the Santa Barbara County Energy Division office

Minnesota's Energy Future: Evaluating Windpower, Part 3 of 3

Day, John

From: Norm & Betty Taylor [njt.bjt@verizon.net]
Sent: Saturday, July 21, 2007 3:27 PM
To: Day, John; Gray, Joni
Subject: Lompoc Wind Power Project
Attachments: United_States_USGS_small.jpg; image002.jpg; image004.jpg; image006.jpg; image009.jpg; image011.jpg; image013.jpg; image015.jpg; image017.jpg; image019.jpg

Dear Mr.. Day / Ms. Gray,

Please take time to review this document before making your decision on the Lompoc Wind Power Project.

N&BT-1

Sincerely,

Norman Taylor
Santa Barbara County Resident

(Part 3 of 3)

Minnesota's Energy Future:

Evaluating Windpower[2]

Testimony
of
Dell Erickson[1]

Before the
Minnesota Senate: Commerce and Utilities Committee
Regarding
Wind Power in Minnesota

St. Paul, Minnesota
February 26, 2003

Minnesota's Energy Future: Evaluating Windpower[3]

Table of Contents

7/23/2007

Response to Comment Set N&BT

N&BT-1: As acknowledged by the Project EIR and other available literature, including the reference provided by the commenter, wind development projects, while providing a renewable source of energy, do present impacts associated with construction and operations. In the case of the proposed Project, significant and unavoidable (*Class I*) avian and visual impacts would occur. It is up to the County decision makers to decide if the benefits of the Project outweigh the impacts.

Comment Set PG&E

Pacific Gas and Electric Company

LAND SERVICES
950 "O" Street, Bag #23
Fresno, CA 93760-0001

September 4, 2007

Santa Barbara County P&D
Energy Division
Attention: John Day
123 E. Anapamu Street
Santa Barbara, CA 93101

RE: Draft EIR for the Proposed Lompoc Wind Energy Project

Dear Mr. Day:

Pacific Gas and Electric Company (PG&E) appreciates the opportunity to submit comments on the Draft Environmental Impact Report (DEIR) for the proposed Lompoc Wind Energy Project (Wind Project or Project).

As the DEIR acknowledges, the siting and design of transmission line facilities are under the sole jurisdiction of the California Public Utilities Commission (CPUC). PG&E must comply with the CPUC's General Order 131-D on the construction, modification, alteration, or addition of all electric transmission facilities (i.e., lines, substations, etc.). In cases where no new line over 200 kV is required and PG&E's electric facilities are part of a larger project (e.g., this project), the Order exempts PG&E from obtaining a permit from the CPUC provided that the planned facilities have been included in the larger project's California Environmental Quality Act (CEQA) review, and the project's lead agency finds no significant unavoidable environmental impacts from construction of PG&E's facilities. PG&E may proceed with construction once PG&E has filed notice with the CPUC and the public on the project's exempt status, the public has had a chance to protest PG&E's claim of exemption, and the notice is final.

PG&E-1

Part I below provides a detailed explanation of the basis for the CPUC's jurisdiction. Part II provides comments and suggested revisions concerning PG&E's transmission line facilities that interconnect the Wind Project to the PG&E electrical system. PG&E is committed to working with the County of Santa Barbara and the project applicant to provide a safe, reliable interconnection for this Project and to resolving any issues that may arise in the process.

I. The CPUC's Jurisdiction Over Transmission Facilities

A. The Constitution and Supporting Case Law Confer Exclusive Jurisdiction to the CPUC Over the Siting and Design of Electrical Facilities

Comment Set PG&E, continued

The California Constitution vests in the Commission exclusive power and authority with respect to "all matters cognate and germane to the regulation of public utilities." (Cal. Const., art. XII, § 5; *Pacific Tel & Tel. v. Eshleman* (1913) 166 Cal. 640, 652-660.) The Constitution, moreover, explicitly prohibits municipalities from regulating "matters over which the Legislature grants regulating power to the Commission." (Cal. Const., art. XII, § 8.)

In Decision 94-06-014, by which the Commission adopted General Order 131-D, (1994) 55 Cal.P.U.C.2d 87 (Dec. No. 94-06-014), the Commission reaffirmed that the exercise of regulatory authority over construction for utility purposes carried out by public utilities is subject to the exclusive jurisdiction of the Commission.

> The California Constitution gives the state Legislature "plenary power ... to confer ... authority and jurisdiction upon the [Public Utilities] [C]ommission ...." (Cal. Const. Art. XII, § 5.) And the state Legislature in turn has granted broad authority to the Commission to regulate utilities. The Commission is authorized by statute to "do all things ... which are necessary and convenient in the exercise" of its power. (Public Utilities (PU) Code § 701.) In particular, the Commission can make orders governing the services, equipment, physical property, and safety devices used by public utilities." (PU Code §§ 761, 762, 768.) (55 Cal.P.U.C.2d at 95.)

PG&E-1, Cont.

Decision 94-06-014 also affirmed that cities and counties could not regulate the location or construction of electric substations.

> The question of whether local agencies are pre-empted from regulating the construction or installation of utility facilities is answered in section 8 of Article XII of the California Constitution, which states in pertinent part: "A city, county, or other public body may not regulate matters over which the Legislature grants regulatory power to the Commission." (55 Cal.P.U.C.2d at 95.)

Both the California Public Utilities Commission and the California courts have repeatedly reaffirmed the Commission's exclusive jurisdiction over public utility facilities. "[S]uch matters as the location of lines, their electrical and structural adequacy, their safety, and their meeting of the needs of the public within this state are clearly, by law, subject to the jurisdiction of this Commission." (55 Cal.P.U.C.2d at 95, citing *Duncan v. PG&E* (1965) 61 PUR 3d 388, 394.)

For example, in *Town of Woodside v. PG&E* (1978) 83 Cal.P.U.C. 418 (Dec. No. 88462), the Commission clarified that its jurisdiction over utilities preempted local zoning ordinances. *Town of Woodside* addressed Woodside's contention that PG&E could not convert a 4 kV line to 12 kV without complying with the Town's zoning ordinance. The Town argued that its zoning ordinance was complementary to the

Comment Set PG&E, continued

power exercised by the Commission and was therefore controlling in regulating the placement, above or below ground, of the new line. The Commission held the Town's position to be incorrect:

> Questions relating to the electric plant, including distribution facilities, of electrical corporations are matters of statewide concern. [Citations.] The regulation of PG&E's electric distribution facilities, including those in Woodside, is within the exclusive jurisdiction of the Commission. [Citations.]
> (83 Cal.P.U.C. at 422 (emphasis added).)

B. The CPUC Has Preempted All Local Regulation Of Public Utility Facilities

Likewise, several California courts have found that discretionary (as opposed to ministerial) regulation by local governments is preempted by the Commission's jurisdiction because the construction, design, and operation of public utility facilities are matters of statewide concern. In *Pacific Telephone and Telegraph Co. v. City and County of San Francisco*, (1959) 51 Cal.2d 766, the California Supreme Court held that the right and obligation to construct and maintain telephone lines had become matters of statewide concern and therefore the City of San Francisco could not exclude telephone lines from certain streets based on its assertion that the regulation of utility lines in public streets was a "municipal affair." (Id., at 774.) Similarly, in *California Water and Telephone Co. v. County of Los Angeles* (1967) 253 Cal.App.2d 16, the appellate court stated that "the construction, design, operation and maintenance of public water utilities is a matter of statewide concern." (Id. at 30.) Hence, that court found the County's water ordinance to be void since the local legislation (based on the police power) was pre-empted by the authority vested in the Commission.

> Local legislation in conflict with general law is void. Conflicts exist if the ordinance duplicates, contradicts, or enters an area fully occupied by general law, either expressly or by legislative implication. If the subject matter or field of the legislation has been fully occupied by the state, there is no room for supplementary or complementary local legislation, even if the subject otherwise one properly characterized as a 'municipal affair.'
> (253 Cal.App.2d at 27; emphasis supplied.)

The same rule was affirmed in *San Diego Gas & Electric Co. v. City of Carlsbad* (1998) 64 Cal.App.4th 785, where the court addressed the City of Carlsbad's effort to enforce a local floodplain ordinance to regulate dredging performed by the public utility. The City argued that it should have concurrent jurisdiction over the dredging because the CPUC had not taken any action to regulate in this area, and because dredging was not an essential utility facility or activity. The court rejected this argument, holding that the city's floodplain ordinance was impliedly preempted by the constitutional and statutory

PG&E-1, Cont.

Comment Set PG&E, continued

scheme granting power to the Commission. According to the court, even though the Commission had not expressly exercised this power, the power still resided in the CPUC. (See also *Harbor Carriers, Inc. v. City of Sausalito* (1975) 46 Cal.App.3d 773, 774.)

PG&E-1, Cont.

II. Specific DEIR Comments

PG&E recommends the following revisions and clarifications to the DEIR:

Under **2.3.7 Lompoc Wind Energy Power Line**, 2nd paragraph, we suggest you clarify the fact that Public Resources Code (PRC), Section 4292 states that the 10-foot clearing applies only to poles or towers that support certain equipment (switches, fuses, transformers, lightning arresters, line junctions, or dead end or corners). The references to tree trimming in this paragraph differ from those in the 3rd paragraph. PRC, Section 4293 states 10-feet clearance for 110,000 volts or higher.

PG&E-2

Under **2.2.2 Lompoc Wind Energy Power Line**, 3rd paragraph, it states that the 1500 foot span across Miguelito Canyon may be accomplished by using a three-pole structure. Under **2.3.7 Lompoc Wind Energy Power Line** (4th paragraph), however, it does not mention a three-pole structure as a possible design technique. This paragraph should state that a three-pole structure may also be used.

PG&E-3

Table 2-5 - Power Poles calculations appear to be incorrect. I believe the area calculations are missing the "pi" factor.

PG&E-4

2.5.2 Step 2 – Erecting the Supporting Structures. Normally wood poles are not set with a crane. Consider revising as follows (bold italics):

2.5.2 Step 2 – Erecting the Supporting Structures
The ***wood*** poles would be installed by conventional methods or by helicopter, as needed. The steel pole shafts may be delivered to the pole site in two or more sections depending on pole design. For safety and ease of construction, the ***steel*** poles would be assembled on the ground in the pole laydown area. The sections would be pulled together with a winch and the cross arms bolted to the pole. Insulators would be attached to the cross arms and secured. A crane (delete "would") ***may be used*** to erect the poles and set them in the excavation(delete "for wood poles"), or on the anchor bolts embedded in the concrete foundation for ***certain*** (delete "angle poles or") steel poles. Finally, the securing nuts on the foundation would be tightened.

PG&E-5

Under **2.5.3 Step 3 – Stringing the Conductors**, 3rd paragraph, change "tower to tower" to "pole to pole". Also change the other reference to "tower" further down in the paragraph.

PG&E-6

Comment Set PG&E, continued

5.3.2.2 Description of Impacts
Mitigation Measure ALT-VIS-1: Visibility of Power Line (5-18)

Because PG&E is under the exclusive discretionary approval authority of the CPUC, we suggest that references to County approval of the power line pole locations and design be revised to indicate that PG&E has agreed to consult with the County on pole location and design.

PG&E-7

Thank you again for the opportunity to submit these comments. If you have any questions regarding this information you may contact me at (559) 263-5237 or my email address ASJ4@pge.com.

Sincerely,

Andrew Smith
Senior Land Planner

Response to Comment Set PG&E

PG&E-1: The project description for the power line has been revised so that the mitigation measures applicable to the PG&E power line are noted as "Avoidance and Protection Measures" in Section 2.8.5. As discussed on November 9, 2007, PG&E agrees to work with County monitors to assure that the project is built as presented in the revised power line description. Should PG&E deviate from the Avoidance and Protection Measures, this would trigger CPUC enforcement actions to ensure compliance.

PG&E-2: The noted clarification has been made.

PG&E-3: As illustrated in Figure 2-4, the southern alignment of the power line has been rerouted through the Sudden and Larsen properties. Spanning of Miguelito Canyon is no longer required.

PG&E-4: The values for the power line in Table 2-5 have been corrected to reflect the current alignment and applicable temporary and permanent disturbance areas.

PG&E-5: The noted corrections have been made.

PG&E-6: The noted corrections have been made.

PG&E-7: The noted clarification has been made.

Comment Set P&WC

To All Concerned: Aug. 28, 2007

My wife and I moved to Lompoc 38 years ago in order to teach in local schools. We consider ourselves loyal, concerned citizens of this area, and will remain through our retirement years. We would like to take this opportunity to express strong support for the development of alternative energy production.

We attended the August 6th Environmental Impact Report presentation in Lompoc, and left the event encouraged by the considerations which were showcased. Of course, we have concerns about any such project; primarily two:

1. Migratory flyways. The wind turbine project must consider this to be a priority for mitigation. As a retired biology teacher I could not abide the wholesale slaughter of migrating birds and bats. However, project managers could employ and cooperate with wildlife researchers to assess the least threatening corridors in the project zone, and could adjust the height, color and seasonal timing of operation for the turbines in the zone. Developers have much to prove to us in this area, but it can be done. **P&WC-1**
2. Residents in the ground zero passage. Our neighbors in the Migulito Canyon area must be treated with utmost respect and sensitivity. These residents will unavoidably pay the greatest personal price for the privilege of being part of cutting edge technology. Hopefully, project leaders would meet frequently with those most directly affected by the disruptions. They should be assured that, after the "dust settles" on the phased project, they would be left with vastly improved roads, access routes, and appropriate infrastructure improvements for each property owner. **P&WC-2**

Now for the issue of visibility. Our home is in the south hills of town, near Beattie Park, and we will certainly have a clear view of new power lines, as currently proposed, and may have a view of several of the tallest turbine towers above the hilltops to the southwest. Our view: WE CAN LIVE WITH IT! It is incomprehensible to us that citizens, even those from as far away as Vandenberg Village, could take a distant, minimal view of turbine blades to be some sort of blight or embarrassment. A preferred viewpoint, one which shows some vision, might be one of pride—that the Lompoc area could act as a pioneer for energy alternatives! **P&WC-3**

Comment Set P&WC, continued

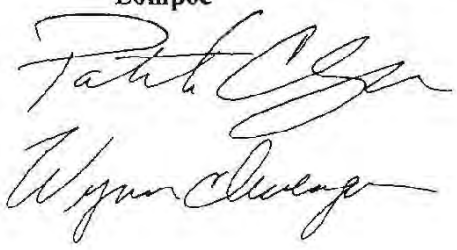
We have recently returned from two separate trips to Europe. Of relevance to the turbine issue is the fact that we found many areas in the Netherlands and Spain which had operating wind turbines. Throughout Holland and other provinces turbines were spinning away, sometimes immediately adjacent to 400 yr. old windmills which tourists travel to admire. In Spain, wind "forests" were prominently displayed on ridgetops, rising above vast olive groves. The citizens and their governments were proud of the progressive efforts to find alternatives for energy; there was no attempt to hide their efforts.

P&WC-3, Cont.

In conclusion, we wish to encourage Lompoc residents— all Americans for that matter, to take the long view, to rise to the big picture, of our future needs. All important change must start somewhere, and evolve to efficiency. Our energy needs are great and growing. We must do everything possible to lessen our dependence on fossil fuels-- especially from the sources which have a history of negative impacts on our foreign policies, and also to prevent the sort of energy extortion we Californians suffered at the hands of corrupt corporations, such as Enron, a few years ago.

Rather than endlessly attend to "not in my back yard" arguments we need to take a collective attitude of activism and pride in all efforts to co-exist with our natural environment. We can insist on commitment to our concerns; we can hold project managers to their word; we can help shape our own future. We urge Lompoc citizens to get involved with the assurance of quality in such projects.

Sincerely,
Patrick & Wynn Clevenger
Lompoc



Response to Comment Set P&WC

P&WC-1: The commenter suggests that mitigation measures such as adjustment of height, color, and seasonal timing of WTG's be put in place for the protection of migratory birds and bats.
Additional mitigation has been added to Mitigation Measure BIO-16 which now requires a Monitoring and Adaptive Management Plan that includes an assortment of additional, specific adaptive mitigation such as specific design features of the WTGs, painting rotor blades, acoustic deterrents, additional research, additional monitoring, and other measures discussed in the CEC Guidelines that could be applied as needed.

P&WC-2: Mitigation Measure NOI-5 has been revised as follows:

> Mitigation Measure NOI-5: Resident Notification. In coordination with the County, the Applicant shall hold a pre-construction meeting for Miguelito Canyon residents to review the anticipated construction schedule and associated noise, traffic, and road/lane closure impacts. The Applicant shall notify residences within 1 mile of any unusually loud construction activities, including the use of helicopters, blasting or pile driving, at least 1 week prior to their scheduled occurrence. In addition, the residents shall be notified at least one week prior of any anticipated road/lane closures and property owner ingress/egress restrictions. Such activities shall be limited to between the hours of 8:00 a.m. to 5:00 p.m., Monday through Friday, unless otherwise approved by the County.

Please see Response to Comment G&CB-1 regarding restoration of roads.

P&WC-3: Comment noted.

Comment Set SBAS

Santa Barbara Audubon Society, Inc.
A Chapter of the National Audubon Society

5679 Hollister Avenue, Suite 5B, Goleta, CA 93117 (805) 964-1468

September 4, 2007

RECEIVED
COUNTY OF SANTA BARBARA
SEP 04 2007
PLANNING AND DEVELOPMENT

Dr. John Day
Santa Barbara County Planning and Development
Energy Division
123 E. Anapamu St.
Santa Barbara, CA 93101

Re: Lompoc Wind Energy Project DEIR

Dear Dr. Day:

The Santa Barbara Audubon Society is a California non-profit 501(c)(3) corporation. The Santa Barbara Audubon Society educates members of our community about birds and their habitats, advocates responsible legislation and public policies which help preserve our natural resources, and administers science-based projects using birds as indicators of environmental health.

Santa Barbara Audubon, in conjunction with the La Purisima Audubon Society and the Los Angeles Audubon Society, previously submitted comments on the subject DEIR in a letter dated August 9, 2007. The present letter is an addendum to Santa Barbara Audubon's previous submittal.

Section 3.5.1.4 of the DEIR, Wildlife and Bird Surveys, is inadequate because it did not consider available radar data that could be used to determine the timing and density of bird populations in the project area. Radar data is available to the public from most U.S. Air Force and other military installations, including possibly Vandenberg Air Force Base. These radar images can be delimited and interpreted by experts such as Dr. Sidney Gauthreaux of Clemson University for a reasonable amount of money. Dr. Gauthreaux has analyzed radar data from Edwards Air Force Base for a wind energy project in Kern County. The analysis showed that a high number of birds pass through the area of that project, and also provided definitive data on when they pass through. Such data could be extremely important in determining where to locate the WTGs for the Lompoc Wind Energy Project and whether a mitigation measure such as shutting down the WTGs during bird migration would be feasible.

SBAS-1

A preliminary interpretation of radar images over a period of three to five years could give valuable information on the magnitude, timing, and movements of migratory birds above and possibly through project site, depending on the radar's field of detection. This preliminary radar

Comment Set SBAS, continued

analysis on migratory birds during the fall and spring migration might indicate whether further study on the site may be needed, or not. The DEIR is inadequate by not conducting a preliminary analysis of publicly available data on migratory birds.

SBAS-1, Cont.

Thank you again for the opportunity to comment on this project.

Yours truly,

Stephen J. Ferry
Conservation Chair
Santa Barbara Audubon Society

Response to Comment Set SBAS

SBAS-1: The commenter suggests that the baseline information presented in the EIR is inadequate because it did not present radar analysis of migration occurrences over the project site.

Dr. Sidney Gauthreaux, a third-party consultant, conducted a NEXRAD Radar analysis to determine the potential effects to birds migrating over the site at night in the spring and fall seasons of 2006 and 2007.

Comment Set SBTHP

Comment on the Lompoc Wind Energy Project EIR

Day, John

From: Jarrell Jackman [docjj@sbthp.org]
Sent: Wednesday, August 29, 2007 6:16 PM
To: Day, John
Subject: Comment on the Lompoc Wind Energy Project EIR

To Mr. John Day:

I am writing regarding the Lompoc Wind Energy Project EIR. This project has come to my attention from a member of the Santa Barbara Trust for Historic Preservation. The Trust is a countywide Preservation organization, and I am surprised we were not on your list for notification of the EIR. I know from my time on the County Advisory Landmarks Commission, that I asked staff to notify us of all projects with potential impacts on County historical resources.

In this instance, in reviewing the document on line, I have found the EIR inadequate in Section 3.2 as it pertains to La Purisima Mission State Historic Park. In table 3.2-2 the impact level on the Park is listed as Class III in both the daytime and the nighttime. La Purisima Mission has the only fully protected viewshed of the 21 missions in California. That is, all other missions are ensconced in urban settings and in full view of urban encroachment. La Purisima is a National Historic Landmark and is one of the most important historical sites in California. I am assuming you have notified the National Trust for Historic Preservation Office in San Francisco and the appropriate people at the US Dept of Interior to comment on the impacts of Wind Energy Project on the Mission Viewshed. **SBTHP-1**

Because it is a National Historic Landmark, and because this the only Mission with a fully protected viewshed, there is no question that if there is ANY visual impact on La Purisima it must be considered a Class I Impact.

Thank you for permitting the Trust to comment on the EIR

Sincerely, Jarrell Jackman

Jarrell C. Jackman, Ph.D.
Executive Director
Mail: **Santa Barbara Trust for Historic Preservation**
PO Box 388, S Barbara, CA 93102
Phone: (805) 965-0093
FAX: (805) 568-1999
Website: http://www.sbthp.org/home.htm

8/30/2007

Response to Comment Set SBTHP

SBTHP-1: Please see Responses to Comments CDPR-1 and CSPRA-1.

Comment Set SYBCI

Day, John

From: Sam Cohen [scohen@santaynezchumash.org]
Sent: Thursday, August 30, 2007 3:39 PM
To: Day, John
Cc: Sam Cohen
Subject: Lompoc Wind Energy Draft DEIR Comments

For use in your public meeting tonight on Lompoc, the Santa Ynez Band of Chumash Indians provides a draft copy of the following comments to the Lompoc Wind Energy Draft Environmental Impact Report. Final comments should be delivered by the September 4, 2007 deadline.

Sincerely,

Sam Cohen
Government and Legal Specialist
SYBCI
P.O. Box 517
Santa Ynez, CA 93460
805-688-7997

Review of Draft EIR (DEIR)

Page 36-14
Section 3.6.6 Evaluation of Results

Given the fact that 18 archaeological sites and 11 archaeological isolates were found during the current phase 1 investigation, the Project area is considered highly sensitive in terms of archaeological resources.

Page 36-6 to 36-13
3.6.4 Results of Field Surveys

LWF 1 through LWF 11 all end with:

"A Phase 2 archaeological investigation would be necessary …"

Page 36-13 to 36-14
3.6.4.2 Lompoc Wind Energy Power Line

A records and literature search "reveal[ed] the presence of three previously documented prehistoric sites (CA-SBA-1751, CA-SBA-2066, and CA-SBA-2465), all located slightly within or adjacent to the centerline of the powerline route."

SYBCI-1

Proposed Mitigation in DEIR

Executive Summary Pages ES 15 – ES 17

A-CULT-1: Additional Archaeological Surveys. If it is determined that a Project element requiring ground disturbance cannot be located at least 100 feet from the mapped boundaries of an archaeological site, a new Phase 1 survey of that specific location shall be conducted. If this survey confirms that ground disturbance would occur within 100 feet of a site boundary, then an Extended Phase 1 investigation shall be conducted by employing a small number of shovel test units (STU). These STUs would be used to determine the actual subsurface boundary of the

Comment Set SYBCI, continued

archaeological site relative to the proposed disturbance, and therefore verify whether or not the site would be affected by the disturbance. The STUs should be 20 inches in diameter and excavated in arbitrary 8-inch levels.
If the presence of cultural materials is confirmed in areas that would be disturbed by Project construction, then Phase 2 subsurface testing shall be conducted to evaluate the nature, extent, and significance of the cultural resources. This evaluation program shall be designed to assess each archaeological site consistent with County Archaeological Guidelines.
Should this program determine that the affected archaeological sites are significant, Phase 3 mitigation in the form of data recovery excavation shall be implemented consistent with County Archaeological Guidelines.

A-CULT-2: Archaeological Isolates. In the case where ground disturbance is proposed within 30 feet of Archaeological Isolates LWF Iso-1, Iso-8, Iso-9, Iso-10, and Iso-11, a single STU should be excavated within 3 feet of the isolate in order to determine if there are subsurface deposits present. If the isolate cannot be relocated, the STU should be placed in the general vicinity of its mapped location. If subsurface cultural deposits are identified, they should be assessed and characterized in accordance with Mitigation Measure A-CULT-1.

A-CULT-3: Road Preparation. Where existing graded ranch roads pass through an archaeological site, such roads may be utilized and widened through the site area by surfacing them with a 6-inch layer of imported gravel or soil that is free of cultural materials and recognizably different from the site soils. Surfacing the road with gravel should also occur for a distance of 100 feet beyond the mapped boundary of a site, except in cases where the boundary has been established through subsurface testing. Gravel from site LWF-111 should not be used for this purpose because it contains cultural material.

A-CULT-5: Archaeological and Native American Monitors. A County-approved archaeologist and Native American monitor shall monitor ground disturbances in all areas containing known archaeological materials to ensure that any previously unidentified cultural resources are recorded.

CULT-1: Avoidance of Cultural Resources. Avoidance of cultural resource sites is the preferred measure, and all impacts to CRHR eligible sites shall be avoided to the greatest extent possible.

CULT-2: Final Plan Notification. The Applicant shall include a note on a separate informational sheet to be recorded with the final plans for each construction phase designating the known archaeological sites as unbuildable areas, unless the archaeological site is formally evaluated by a County- approved archaeologist as ineligible for the CRHR or a Phase 3 data recovery program has been implemented. The areas shall not be identified as archaeological sites on the informational sheet.

CULT-3: Temporary Fencing. Known unevaluated or determined significant archaeological sites and 50-foot buffer areas shall be temporarily fenced with chain link flagged with color or other material authorized by the County where ground disturbance is proposed within 100 feet of the site and a buffer.

A-CULT-4: Unanticipated Discoveries. Should human remains, historic or prehistoric artifacts, or other potentially important cultural materials be unearthed or otherwise discovered at any time during activities associated with the development of the Project area, work in the immediate vicinity of the discovery shall be suspended until a County- approved archaeologist and Native American representative are retained by the Applicant to evaluate the significance of the find pursuant to Phase 2 investigations as specified in the County Guidelines (County, 1993). If the cultural resources are found to be significant, they shall be subject to a Phase 3 mitigation program consistent with County Cultural Resource Guidelines and funded by the Applicant. In the event that suspected human remains are discovered, the County Coroner shall be contacted in accordance with state law. See **Mitigation Measure A-CULT-5** above.

A-CULT-6: Pre-construction Workshop. The County shall conduct a pre-construction workshop with cultural resource specialists, Native American monitors, and construction workers and personnel, stressing the importance of cultural resources and discussing penalties for their illicit disturbance.

Suggested Revisions to Proposed Mitigation (underlined text):

Comment Set SYBCI, continued

A-CULT-1: Additional Archaeological Surveys. If it is determined that a Project element requiring ground disturbance cannot be located at least 1000 feet from the mapped boundaries of an archaeological site, a new Phase 1 survey of that specific location shall be conducted. If this survey confirms that ground disturbance would occur within 1000 feet of a site boundary, then an Extended Phase 1 investigation shall be conducted by employing a small number of shovel test units (STU). These STUs would be used to determine the actual subsurface boundary of the archaeological site relative to the proposed disturbance, and therefore verify whether or not the site would be affected by the disturbance. The STUs should be 20 inches in diameter and excavated in arbitrary 8-inch levels.
If the presence of cultural materials is confirmed in areas that would be disturbed by Project construction, then Phase 2 subsurface testing shall be conducted to evaluate the nature, extent, and significance of the cultural resources. This evaluation program shall be designed to assess each archaeological site consistent with County Archaeological Guidelines.
Should this program determine that the affected archaeological sites are significant, Phase 3 mitigation in the form of data recovery excavation shall be implemented consistent with County Archaeological Guidelines.

SYBCI-2

A-CULT-2: Archaeological Isolates. In the case where ground disturbance is proposed within 300 feet of Archaeological Isolates LWF Iso-1, Iso-8, Iso-9, Iso-10, and Iso-11, a single STU should be excavated within 3 feet of the isolate in order to determine if there are subsurface deposits present. If the isolate cannot be relocated, the STU should be placed in the general vicinity of its mapped location. If subsurface cultural deposits are identified, they should be assessed and characterized in accordance with Mitigation Measure A-CULT-1.

SYBCI-3

A-CULT-3: Road Preparation. Where existing graded ranch roads pass through an archaeological site, such roads may be utilized and widened through the site area by surfacing them with a 6-inch layer of imported gravel or soil that is free of cultural materials and recognizably different from the site soils provided that there shall be no ground disturbance other than to the imported gravel or soil. Surfacing the road with
gravel should also occur for a distance of 100 feet beyond the mapped boundary of a site, except in cases where the boundary has been established through subsurface testing. Gravel from site LWF-111 should not be used for this purpose because it contains cultural material.

SYBCI-4

A-CULT-5: Archaeological and Native American Monitors. A County-approved archaeologist and Native American monitor shall monitor ground disturbances in all areas containing known archaeological materials to ensure that any previously unidentified cultural resources are recorded. Areas not known to contain known archaeological materials shall have all ground disturbances monitored by a Native American monitor.

SYBCI-5

CULT-1: Avoidance of Cultural Resources. Avoidance of cultural resource sites is the preferred measure, and all impacts to CRHR eligible sites shall be avoided to the greatest extent possible.

CULT-2: Final Plan Notification. The Applicant shall include a note on a separate informational sheet to be recorded with the final plans for each construction phase designating the known archaeological sites as unbuildable areas, unless the archaeological site is formally evaluated by a County- approved archaeologist as ineligible for the CRHR or a Phase 3 data recovery program has been implemented. The areas shall not be identified as archaeological sites on the informational sheet.

CULT-3: Temporary Fencing. Known unevaluated or determined significant archaeological sites and 50-foot buffer areas shall be temporarily fenced with chain link flagged with color or other material authorized by the County where ground disturbance is proposed within 1000 feet of the site and a buffer.

SYBCI-6

A-CULT-4: Unanticipated Discoveries. Should human remains, historic or prehistoric artifacts, or other potentially important cultural materials be unearthed or otherwise discovered at any time during activities associated with the development of the Project area, work in the immediate vicinity of the discovery shall be suspended until a County- approved archaeologist and Native American representative are retained by the Applicant to evaluate the significance of the find pursuant to Phase 2 investigations as specified in the County Guidelines (County, 1993). If the cultural resources are found to be significant, they shall be subject to a Phase 3 mitigation program consistent with County Cultural Resource Guidelines and funded by the Applicant. In the event that suspected human remains are discovered, the County Coroner shall be contacted in accordance with state law. See **Mitigation Measure A-CULT-5** above.

Comment Set SYBCI, continued

A-CULT-6: Pre-construction Workshop. The County shall conduct a pre-construction workshop with cultural resource specialists, Native American monitors, and construction workers and personnel, stressing the importance of cultural resources and discussing penalties for their illicit disturbance.

Response to Comment Set SYBCI

SYBCI-1: Comment provides a copy of existing EIR cultural resources text. No changes to text required.

SYBCI-2: The commenter suggests changing Mitigation Measure A-CULT-1 (renamed Mitigation Measure "CULT-1" in the Final EIR) to say that additional investigations are warranted if Project elements that require ground disturbance are located within 1,000 feet of a recorded site boundary (Draft EIR specified 100 feet). Upon further review, the County agrees that 100 feet is insufficient because, in most cases, site recordation is based on surface material only and not based on subsurface testing, which could demonstrate that a site is larger than what is reflected on the surface. However, the County has concluded that 500 feet should be sufficient; the text was revised accordingly.

SYBCI-3: The commenter suggests changing Mitigation Measure A-CULT-2 (renamed Mitigation Measure "CULT-2" in the Final EIR) to say that additional investigations are warranted if Project elements that require ground disturbance are located within 300 feet of an archaeological isolate (Draft EIR specified 30 feet). Upon further review, the County agrees that 30 feet is insufficient. However, the County has concluded that 100 feet should be sufficient; the text was revised accordingly.

SYBCI-4: The commenter suggests changing Mitigation Measure A-CULT-3 (renamed Mitigation Measures "CULT-3" in the Final EIR) to clarify that proposed ground disturbance would only occur to the imported gravel and soil. Mitigation Measure CULT-3 has been deleted since Mitigation Measures CULT-1 and CULT-2 would provide better protection to known cultural sites and isolates that could be disturbed by project construction.

SYBCI-5: The commenter suggests changing Mitigation Measure A-CULT-5 (renamed Mitigation Measure "CULT-5" in the Final EIR) to include Native American monitoring for all ground disturbance, not just within recorded site boundaries. Upon further review, the County agrees with this comment because the Project area is highly sensitive for archaeological resources. Text has been revised so that both a County-approved Native American monitor and archaeologist shall monitor all ground disturbances.

SYBCI-6: Comment is similar to SYPCI-2. The County agrees that 100 feet is insufficient, for the same reasons described in Response to Comment SYBCI-2. However, the County has concluded that 500 feet should be sufficient; the text was revised accordingly.

Comment Set S

Day, John

From: Scolari [geraldscolari@comcast.net]
Sent: Tuesday, September 04, 2007 4:51 PM
To: Day, John
Subject: Lompoc Wind Project E.I.R.

We recommend that re-seeding mixtures for disturbed areas be that which is recommended by United States Natural Resource Conservation Service and not include species that are considered a determinate to agricultural grazing. **S-1**

Another point which must be kept in mind, is the financial aspects to the landowners would make it possible to improve the infrastructure of the cattle grazing operation. **S-2**

LeRoy Scolari Gerald E. Scolari Sandra K. Scolari Rosebel V. Cameron

423 No. G St.
Lompoc, CA 93436
(805) 736-0934

9/4/2007

Response to Comment Set S

S-1: The commenter recommends that re-seeding mixtures for disturbed areas be those which are recommended by the United States Natural Resource Conservation Service and not include species that are considered a determinate to agricultural grazing.

The biological mitigation measures proposed in the EIR, including reseeding, are intended to mitigate biological impacts, which include loss of habitat. To the extent that NRCS recommendations (typically intended to enhance grazing and conserve the soil) are compatible with restoration of habitat they would be incorporated into the restoration and revegetation plan.

The following was added to the revegetation mitigation measures: "Recommendations from USDA Natural Resources Conservation Service for reseeding of agricultural grazing areas will be sought and incorporated as approved by the above agencies. The use of non-native species considered detrimental to agricultural grazing will be avoided."

S-2: Please see Response to Comment BS-3.

8.0 Persons and Agencies Contacted

Allen, Dave	Sergeant, Santa Barbara County Sheriff's Department, Lompoc Station. December 29, 2006.
Baldwin, Bruce	Professor, University of California, Berkeley. September 11, 2002; September 26, 2005.
Ballard, Larry	Botanist, Carpinteria, California. September 12, 2005.
Campbell, Dave	Vegetation Management Captain. Santa Barbara County Fire Department. February 12, 2007.
Clement, Deanna	Community Services Officer, City of Lompoc Police Department. January 2007.
Day, John	Santa Barbara County. September 27, 2006.
Eaglesham, John	Contract and Compliance Coordinator. County of Santa Barbara, EMS Agency. February 12 and 13, 2007.
Erickson, W.P.	Biologist, WEST, Inc., Wyoming. December 18, 2006.
Evans, Rhys	Biologist, 30 CES / CEV, Vandenberg AFB, CA 93437-6010, December 27, 2007; May and June, 2008.
Fidler, Glenn	Engineer Inspector, Santa Barbara County Fire Department. December 27, 2006.
Gale, Nathan	Botanist, Santa Barbara, California. August 2002.
George, Gary	Executive Director LA Audubon Society April-May 2008
Gauthreaux, Sidney Jr.	Clemson University, April-May2008
Hahn, Chris	Deputy Fire Marshall, Santa Barbara County Fire Department. December 28, 2006.
Hart, Stan	Operations Chief, City of Lompoc Fire Department. February 10, 2007.
Hawk, Tom	Senior Environmental Specialist, Celite Corporation. February 2007.
Holmgren, Mark	University of California, Santa Barbara, April 2008
Hunt, Alan	President, Lompoc Valley Distance Club, March 26, 2008.
Johnson, Heather	Bat biologist, Sacramento, California. April 19, 2003.
Johnson, Martin	Captain, Santa Barbara County Fire Department. February 13, 2007.
Kovach, Robert	Battalion Chief, City of Lompoc Fire Department. January 2, 2007.

Leyva, Petra	Supervising Planner, Santa Barbara County, Building and Safety Division of Planning and Development. March 19 and 20, 2007.
Miller, Steve	Owner, Bicycles Unlimited, Lompoc, March 26, 2008.
Nathe, Craig	Range Management Specialist, Vandenberg Air Force Base. August 2005.
Neels, David	Captain, Santa Barbara County Fire Department, Vegetation Management. December 28, 2006.
Neubert, Keith	Associate Planner, City of Lompoc. March 19 and 20, 2007.
Olson, Thomas	Biological Consultant to the Applicant. Conversation with Marjorie Eisert of CH2M HILL. July 2007.
Potter, Martin	California Department of Fish and Game. April-June, 2008
Read, Nancy	Wildlife biologist, Vandenberg Air Force Base. August 20, 2002; May 5, 2005.
Rohr, James	Vandenberg Air Force Base. March 22, 2007.
Stahl, John	Applicant Representative. September 27, 2006.
Walton, Brian J.	Avian Biologist, University of California, Santa Cruz, Santa Cruz Predatory Bird Research Group. 2006.
Wilken, Dieter	Director of Research, Santa Barbara Botanic Garden. September 2 and 12, 2005, and October 2, 2006.
Wray, Tom	Senior Project Manager, PG&E. Personal Communication with John Day, County of Santa Barbara, Planning and Development Department, Energy Division. May 7, 2007.

9.0 List of Preparers

Company/ Affiliation	Name	Key Contributors/Responsibilities
		FINAL EIR
Aspen Environmental Group	Vida Strong, MUP	Final EIR Project Manager
	Jody Fessler	Project Manager Support
	Jenny Slaughter	Recreation
	Brewster Birdsall, MS, PE	Noise, Air Quality
	Phil Lowe, MS, PE	Hydrology
SAIC	Ted Mullen MA	Terrestrial Biology, Wildlife
	A. Trevor Pattison BS	Terrestrial Biology, Wetlands
	Thomas W. Mulroy, Ph.D.	Terrestrial Biology, Vegetation
	Karen Foster Ph.D.	Archaeology
Central Coast Bat Research Group	Winifred Frick Paul Heady	Spring 2008 Bat data collection, bat survey report
Geo-Marine, Inc.	Dr. Sidney Gauthreaux, Jr.	NEXRAD Analysis
Consultant	Lee Andersen	Visual Resources
		DRAFT EIR
CH2M HILL	Jennifer Scholl	Draft EIR Project Manager
	Lorraine Woodman	Project Description, Agriculture, Senior Reviewer
	Jim Hunter	Principal-in-Charge
	Monica Hood	Energy/Electric Utilities, Fire Protection and Emergency Services, Land Use, Noise, Risk of Accidents/Hazardous Materials/Safety Support
	Crystahl Taylor	Task Leader Support
	Dana Larson	Task Leader Support
	Lynn Hosely	Project Description and Risk of Accidents Senior Reviewer
	Tom Priestley	Aesthetics/Visual Resources, Senior Reviewer
	Chris Archer	Zone of Visual Influence
	Amy Clymo	Air Quality Task Leader
	Ray Romero	Biological Resources Task Leader
	Gary Santolo	Biological Resources Senior Reviewer
	Marjorie Eisert	Biological Resources Senior Reviewer

Company/ Affiliation	Name	Key Contributors/Responsibilities
	Maral Kasparian	Biological Resources Support
	Sophie Chiang	Biological Resources Field Work Support
	Morgan King	Biological Resources Field Work Support
	Clint Helton	Cultural Resources Task Leader
	Curt Basnett	Geology/Soils Task Leader
	Tom Henderson	Geology/Soils Field Work
	Mark Bastasch	Noise Task Leader
	Geof Spaulding	Paleontological Resources Task Leader
	Michelle Harris	Paleontological Resources Support
	Robert Pearson	Risk of Accidents Senior Reviewer
	Loren Bloomberg	Transportation/Circulation Task Leader
	Sajeev Keecheril	Transportation/Circulation Support
	Matt Franck	Water Resources Task Leader
	Andrea Schmid	Water Resources Support
Wallace Group	Andrew Merriam	Aesthetics/Visual Resources Task Leader
	Casey Kempenaar	Aesthetics/Visual Resources Support
Consultant	Jim Estep	Avian Collision Analysis Review

10.0 References

Able, Kenneth P. 1970. "A Radar Study of the Altitude of Nocturnal Passerine Migration." *Bird Banding*. Vol. 41, pp. 282-290.

American Wind Energy Association (AWEA). 1995. Avian Interactions with Wind Energy Facilities: A Summary. Prepared by Colson & Associates for AWEA, Washington, D.C.

Anderson, R., M. Morrison, K. Sinclair, and D. Strickland. 1999. "Studying wind energy/bird interactions: a guidance document." *National Wind Coordinating Committee/RESOLVE.* Washington D.C.

Applegate, Richard. 1975. "An Index of Chumash Placenames." *San Luis Obispo County Archaeological Society Occasional Papers.* No. 9. Paso Robles.

Applied Earthworks. 2001. *Integrated Cultural Resources Management Plan: Vandenberg Air Force Base.* Vol. 5: Management of Prehistoric Archaeological Resources.

Avian Power Line Interaction Committee (APLIC) of The Edison Institute and United States Fish and Wildlife Service. 2005. *Avian Protection Plan (APP) Guidelines.*

Avina, R.H. 1973. *Spanish and Mexican Land Grants in California*. San Francisco: R and E Research Associates.

Ballard, Larry. 2005. Botanist, Carpinteria, California. Unpublished notes on flora of Arguello and Tranquillon mountains. Quadrangles. Vandenberg Air Force Base.

Bean, L., and C. Smith. 1978. "Gabrieliño." *Handbook of North American Indians.* Volume 8, California. R. F. Heizer, ed. p. 538-549. Washington, D.C.: Smithsonian Institute Press.

Beranek, L. L. 1998. *Noise and Vibration Control.* Institute of Noise Control Engineering. McGraw Hill.

Bio Resource Consultants. 2004. Developing Methods to Reduce Bird Mortality in the Altamont Pass Wind Resource Area. PIER Final Project Report. Prepared for the California Energy Commission, Energy Research Program. 500-04-052. August.

Biosystems Analysis Inc. 1992. Wind Turbine Effects On Avian Activity, Habitat Use, and Mortality in Altamont Pass and Solano County Wind Resource Areas. Consultant Report prepared for the California Energy Commission. CEC-300-1992-001.

Blackburn, T.C. 1963. "Ethnohistoric Descriptions of Gabrieliño Material Culture." *University of California, Los Angeles, Archaeological Survey, Annual Report.* Vol. 5.

Blake, M. C., and Jones, D. L. 1981. "The Franciscan Assemblage and Related Rocks in Northern California: A Reinterpretation." *The Geotectonic Development of California*. Ernst, W. G., ed. Englewood Cliffs, New Jersey: Prentice-Hall. pp. 307-328.

Blake, T. F. 2004. EQFAULT, A Computer Program for the Deterministic Prediction of Peak Horizontal Acceleration from Digitized California Faults, User's Manual. pp. 79.

Bolton, H.E. 1930. "Diary of Sebastian Viscaino, 1602-1603." *Spanish Explorations in the Southwest, 1542-1706*. New York: Scribner's Sons. H.E. Bolton translation. (1967 reprint, New York: Barnes and Noble.)

Buhyoff, G.J., P.A. Miller, J.W. Roach, D. Zhou, and L.G. Fuller. 1994. "An AI Methodology for Landscape Visual Assessments." *AI Applications*. Vol. 8. pp. 1-13.

California Air Resources Board (ARB). 2006a. Ambient Air Quality Standards. *California Air Resources Board*. http://www.arb.ca.gov/research/aaqs/aaqs.htm.

California Air Resources Board (ARB). 2006b. Air Quality Data Statistics. *California Air Resources Board*. http://www.arb.ca.gov/adam/welcome.html.

California Air Resources Board (ARB). 2007. The Emission Factors Model (EMFAC2007). Version 2.3. http://www.arb.ca.gov/msei/onroad/latest_version.htm.

California Bat Working Group. 2006. Guidelines for Assessing and Minimizing Impacts to Bats at Wind Energy Development Sites in California. September.

California Building Standards Commission. 2001. *2001 California Building Code.* California Code of Regulations, Title 24, Part 2, Volume 2.

California Consumer Power and Conservation Financing Authority, Energy Resources Conservation and Development Commission, and Public Utilities Commission. 2003. Energy Action Plan.

California Department of Conservation (DOC). 2004a. Farmland Mapping and Monitoring Program.

California Department of Conservation (DOC). 2004b. Williamson Act Contract Lands.

California Department of Conservation, Division of Mines and Geology. 1997. *Guidelines for Evaluating and Mitigating Seismic Hazards in California*. Special Publication 117.

California Department of Fish and Game (CDFG). 2003. California Natural Diversity Database (CNDDB) results for the following 7.5-minute quads: Tranquillon Mountain, Point Arguello, Lompoc, Lompoc Hills, Santa Rosa Hills, Surf, Los Alamos, and Point Conception.

California Department of Fish and Game (CDFG). 2005. California Natural Diversity Database (CNDDB) results for the following 7.5-minute quads: Tranquillon Mountain, Point Arguello, Lompoc, Lompoc Hills, Santa Rosa Hills, Surf, Los Alamos, and Point Conception.

California Department of Fish and Game (CDFG). 2006. California Natural Diversity Database (CNDDB) results for the following 7.5-minute quads: Tranquillon Mountain, Point Arguello, Lompoc, Lompoc Hills, Santa Rosa Hills, Surf, Los Alamos, and Point Conception.

California Department of Fish and Game (CDFG). 2008. California Natural Diversity Database (CNDDB) results for the following 7.5-minute quads: Tranquillon Mountain, Point Arguello, Lompoc, Lompoc Hills, Santa Rosa Hills, Surf, Los Alamos, and Point Conception.

California Department of Fish and Game (CDFG), Natural Diversity Database. 2005. Special Vascular Plants, Bryophytes, and Lichens List. Quarterly Publication. July.

California Department of Fish and Game, Natural Diversity Database. 2007. Special Vascular Plants, Bryophytes, and Lichens List. Quarterly publication. April.

California Department of Fish and Game, Natural Diversity Database. 2008. Special Animals List. February 2008.

California Department of Motor Vehicles. 2007. 2007 California Vehicle Code. *California Department of Motor Vehicles.* http://www.dmv.ca.gov/pubs/vctop/vc/vc.htm.

California Department of Toxic Substances Control. 2006. Hazardous Waste and Substances Site List – Site Cleanup (Cortese List). *Department of Toxic Substances Control*. http://www.dtsc.ca.gov/SiteCleanup/Cortese_List.cfm.

California Department of Transportation (Caltrans) and Federal Highway Administration (FHA). 2003. Manual on Uniform Traffic Control Devices. *California Department of Transportation.* http://www.dot.ca.gov/hq/traffops/signtech/signdel/trafficmanual.htm.

California Department of Transportation (Caltrans). 2005. Traffic Volumes on California State Highways.

California Department of Transportation (Caltrans). Traffic Operations Division. 2006. "Caltrans, Traffic Operations Program." Traffic and Vehicle Data Systems Unit. http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/2005all/r001i.htm.

California Energy Commission (CEC). 2006. Fast Facts about Wind Energy. *California Energy Commission.* http://www.energy.ca.gov/wind/windfacts.html Accessed on 9/23/06.

California Energy Commission (CEC). 2007. 2004 Update to the 2003 Integrated Energy Policy Report Docket #03-IEP-01. *California Energy Commission.* http://www.energy.ca.gov/2004_policy_update/index.html.

California Energy Commission and California Department of Fish and Game. 2006. Draft Staff Report: Statewide Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development. December.

California Energy Commission and California Department of Fish and Game. 2007. *California Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development.* Committee Final Draft Report. California Energy Commission, Renewables Committee, and Energy Facilities Siting Division, and California Department of Fish and Game, Resources Management and Policy Division. CEC-700-2007-008-CTF.

California Native Plant Society (CNPS). 2001. *Inventory of Rare and Endangered Plants of California*. Sixth Edition. Tibor, David P., Rare Plant Scientific Advisory Committee, ed. Sacramento, California: California Native Plant Society.

California Office of Historic Preservation. 1983. *Summary of State/Federal Laws Protecting Cultural Resources.* Sacramento: California Office of Historic Preservation.

California Public Utilities Commission (CPUC). 1942. General Order 95, State of California Rules for Overhead Electric Line Construction. *California Public Utilities Commission.* Latest revision 1998.

California Public Utilities Commission. 2006a. *EMF Design Guidelines for Electrical Facilities*. July 21. http://www.cpuc.ca.gov/static/energy/environment/electromagnetic+fields/california+guidelines+for+electrical+facilities+072106+published.pdf.

California Public Utilities Commission. 2006b. *Opinion on Commission Policies Addressing Electromagnetic Fields Emanating from Regulated Utility Facilities, Decision 06-01-042*. January 26.

California Public Utilities Commission. 2007. "PUC Actions Regarding EMFs." *California Public Utilities Commission*. http://www.cpuc.ca.gov/static/energy/environment/electromagnetic+fields/action.htm.

Center for Biological Diversity, Defenders of Wildlife, California State Park Rangers Association, Santa Clara Valley Audubon Society, and San Bernardino Valley Audubon Society. 2003. Petition to the State of California Fish and Game Commission, and supporting information for listing the California population of the western burrowing owl (*Athene cunicularia hypugea*) as an endangered or threatened species under the California Endangered Species Act.

Central Coast Center for Plant Conservation. 2005. Rare Plants of Santa Barbara County. Santa Barbara Botanic Garden, Santa Barbara, California. September 13.

Central Coast Regional Water Quality Control Board (Central Coast RWQCB). 1994. Water Quality Control Plan, Central Coast Region. Adopted February 11.

CH2M HILL. 2006a. Lompoc Wind Energy Project Field Surveys: Vegetation. September.

CH2M HILL. 2006b. Lompoc Wind Energy Project Field Surveys: Avian. September.

Chesnut, Merlyn. 1993. *The Gaviota Land: A Glimpse Into California History*. Santa Barbara: Fithian Press.

City of Lompoc. 1997. *City of Lompoc General Plan*. Amended 2005.

City of Lompoc. 2002. Zoning Ordinance, Chapter 50. November.

City of Lompoc. 2005. *City of Lompoc 2005 Urban Water Management Plan*.

City of Lompoc. 2006. City of Lompoc Zoning and Land Use Designations GIS Map. February.

Clinical Laboratory of San Bernardino, Inc. 2006. General Mineral & Physical & Inorganic Analysis. Sample Source: Well/Signorelli Ranch.

Coast Valley Testing, Inc., 2006. Percolation Test, Signorelli Property, APN #083-100-008, San Miguelito Canyon Road, Lompoc, California, January 6.

Cooper et al. 2004. A Visual and Radar Study of 2003 Spring Bird Migration at the Proposed Chautauqua Wind Energy Facility, New York. Prepared by ABR, Inc. Prepared for Chautauqua Windpower, LLC. April 27, 2004.

County of Santa Barbara Agricultural Commissioner's Office. 2005. *2005 Agricultural Production Report*.

County of Santa Barbara. 1993. Archaeological Element of the Santa Barbara County Heritage Management Plan Cultural Resource Guidelines.

County of Santa Barbara. 2005. Deciduous Oak Tree Protection and Regeneration. Santa Barbara County Code. Article IX of Chapter 35. Planning and Development Department. January.

County of Santa Barbara. 2006. *Environmental Thresholds and Guidelines Manual*. May 1992, as amended through October 2006.

County of Santa Barbara, Project Clean Water. 2006. Storm Water Management Program. July. http://www.swrcb.ca.gov/centralcoast/SWNEW/PhaseII/Municipal/santa-barbaraco-swmp.pdf.

Curry & Kerlinger, L.L.C. 2001. Avian monitoring study and risk assessment for the High Winds Wind Power Project, Solano County, California. Appendix D of the Solano High Winds Power Project Environmental Impact Report. Prepared for FPL Energy. October.

Curry & Kerlinger, LLC. 2004. A Study of Bird and Bat Collision Fatalities at the Moutaineer Wind Energy Center, Tucker County, West Virginia. Annual Report for 2003. Prepared for FPL Energy and Mountaineering Wind Energy Center Technical Review Committee. February 14, 2004.

Curry & Kerlinger, LLC. 2005. Wind Power and Birds. *Curry & Kerlinger, LLC*. http://www.currykerlinger.com/windpower.htm.

Datakustik, GmbH. 2007. CadnaA Noise Prediction Model (Cadna/A). Version 3.6. 2007. Munich, Germany. http://www.datakustik.de/frameset.php?lang=en.

Dibblee, T. Jr. 1982. "Regional Geology of the Transverse Ranges Province of Southern California." *Geology and Mineral Wealth of the California Transverse Ranges*. D.L. Fife and J.A. Minch, ed. Santa Ana, California: South Coast Geological Society. pp. 7–26.

Dibblee, Thomas Jr., 1950. "Geology of Southwestern Santa Barbara County, California." *State of California, Department of Natural Resources, Division of Mines and Geology*. Bulletin 150.

Dibblee, Thomas Jr., 1988a. Geologic Map of the Lompoc and Surf Quadrangles, Santa Barbara County, California. Santa Barbara County, California: Dibblee Geologic Foundation.

Dibblee, Thomas Jr., 1988b. Geologic Map of the Lompoc Hill and Point Conception Quadrangles, Santa Barbara County, California. Santa Barbara County, California: Dibblee Geologic Foundation.

Dibblee, Thomas Jr., 1988c. Geologic Map of the Tranquillion Mountain and Point Arguello Quadrangles, Santa Barbara County, California. Santa Barbara County, California: Dibblee Geologic Foundation.

Diehl, R.H., and R.P. Larkin. 2005. Introduction to the WSR-88D (NEXRAD) for ornithological research. Pp. 876-888 in Bird Conservation Implementation and Integration in the Americas: Proceedings of the Third International Partners in Flight Conference 2002 March 20-24, Asilomar, California; Volume 2, C.J. Ralph and T.D. Rich, eds. Gen. Tech. Rep.

PSW-GTR-191. Albany, CA: Pacific Southwest Research Station, Forest Service, U.S. Department of Agriculture.

Dillon, B. 1990. Archaeological Record Search and Impact Evaluation for the Los Angeles Wastewater Program Management (NOS-NCOS) Project. Los Angeles, California. Prepared for Dr. Janet Fahey, James M. Montgomery, Consulting Engineers.

Dixon, J.B. 1937. "The Golden Eagle in San Diego County, California." *Condor*. Vol. 39. p. 49-56.

Ecology and Environment, Inc. 2005. Draft Environmental Impact Report. Shiloh I Wind Energy Project. Prepared for Solano County Department of Resource Management. January.

Environmental Defense Center. 2007. Comment on Lompoc Wind Energy Project Draft Environmental Impact Report. Santa Barbara County.

Environmental Laboratory. (1987). "Corps of Engineers wetlands delineation manual," Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS. NTIS No. AD A176 912

Erickson, W.P., G.D. Johnson, D.P. Young, Jr., M.D. Strickland, and R.E. Good, J. Sernka. 2001. Avian collisions with wind turbines: A summary of existing studies and comparisons to other sources of avian collision mortality in the United States. National Wind Coordinating Committee Publication.

Erickson, W.P., G.D. Johnson, M. Strickland, and Karen Kronner. 2000. Avian and bat mortality associated with the Vanscycle Wind Plant, Umatilla County Oregon. 1999 study year. Technical report submitted to Umatilla County Department of Resource Services and Development, Pendleton, Oregon.

Erickson, W.P., Kronner, K. and B. Gritski. 2003. Nine Canyon Wind Power Project Avian and Bat Monitoring Report. Prepared for the Nine Canyon Technical Advisory Committee Energy Northwest. October.

Erlandson, J. 1988. "Cultural Evolution and Paleogeography on the Santa Barbara Coast: A 9600 Year 14C record from Southern California." *Radiocarbon*. Vol. 30. pp. 25-39.

Erlandson, J. 1994. *Early Hunter Gathers of the California Coast*. New York: Plenum Press.

Erlandson, J., D.J. Kennete, B. Jogram, D.A. Guthrie, D.P. Morris, M.A. Tveskav, G.J. West, and P.L. Walker. 1996. "An Archaeological and Paleontological Chronology for Daisy Cave (CA-SMI-261)." *Radiocarbon*. Vol. 38. San Miguel Island, California. pp. 361-373.

Erlandson, J., T. Cooley, and R. Carrico. 1987. "A Fluted Projectile Point from the Southern California Coast: Chronology and Context at CA-SBA-1951." *Journal of California and Great Basin Anthropology*. Vol. 9. pp. 120-128.

Federal Aviation Association (FAA). 2007. Emissions and Dispersion Modeling System. http://www.faa.gov/about/office_org/headquarters_offices/aep/models/edms_model/.

Federal Emergency Management Agency (FEMA). 2005. Flood Insurance Rate Map: Santa Barbara County (panel number 06083C1000F).

Gallo, J. A., J.A. Scheeter, M.A. Holmgren and S.I. Rothstein. 2000. Initiation of a long term ecological monitoring project: Avian point counts and habitat assessment in riparian communities in 1998, at Vandenberg Air Force Base, California. Museum of Systematics and Ecology, Department of Ecology, Evolution, and Marine Biology, University of California Santa Barbara. Prepared for Vandenberg Air Force Base. March 2000.

United States Government Accountability Office (GAO). 2005. *Wind Power Impacts on Wildlife and Government Responsibilities for Regulating Development and Protecting Wildlife*.

Gannon, W. L., M. J. O'Farrell, C. Corben, and E. Bedrick. 2004. Call Character Lexicon and Analysis of Field Recorded Bat Echolocation Calls. Pages 478-483 *in* J. A. Thomas, C. F. Moss, and M. V. Vater, editors. Echolocation in Bats and Dolphins. University of Chicago, Chicago, Illinois, USA.

Garrett, K., and J. Dunn. 1981. Birds of Southern California. Status and distribution. Los Angeles, California: Los Angeles Audubon Society.

Gauthreaux, Sidney A. 2008. Analysis of WSR-88D Data to Assess Nocturnal Bird Migration Over the Lompoc Wind Energy Project in California. Prepared for Aspen Environmental Group. May 30.

Gauthreaux, S.A., Jr., and C.G. Belser. 1998. Displays of bird movements on the WSR-88D: Patterns and quantification. Weather and Forecasting Vol 13. pp. 453-464.

Gauthreaux, S.A., Jr., and C.G. Belser. 1999. "Reply" to displays of bird movements on the WSR-88D: Patterns and quantification. Weather and Forecasting. Vol. 14. pp. 1041-1042

Gauthreaux, S.A., Jr., and C.G. Belser. 2003. Bird movements on Doppler weather surveillance radar. *Birding*. Vol 35 pp. 616-628.

Gauthreaux, S.A., Jr., C.G. Belser, and A. Farnsworth. 2000. How to use Doppler weather-surveillance radar to study hawk migration. Pp. 146-160 in Hawkwatching in the Americas, K.L. Bildstein and D. Klem, Jr., eds. North Wales, Pennsylvania: Hawk Migration Associateion of North America.

Gibson, Robert O. 1991. *The Chumash.* New York and Philadelphia: Chelsea House Publishers.

Glassow, M., L. Wilcoxon, and J. Erlandson. 1988. "Cultural and Environmental Change During the Early Period of Santa Barbara Channel Prehistory." *The Archaeology of Prehistoric Coastlines*. G. Bailey and J. Parkington, eds. Cambridge University Press. pp. 64-77.

Goldberg, S. and C.M. Miller. 1985. "Reproduction of the silvery legless lizard, *Anniella pulchra pulchra* (Anniellidae), in southern California." *Southwestern Naturalist*. Vol. 30. pp. 617-619.

Google. 2005. *Google Earth.* http://earth.google.com/.

Grant, Campbell. 1965. *Rock Paintings of the Chumash.* Berkeley and Los Angeles: University of California Press.

Grant, Campbell. 1978a. "Chumash: Introduction." *Handbook of North American Indians*. Volume 8, California. R.F. Heizer, ed. Washington, D.C.: Smithsonian Institute Press. pp. 505-508.

Grant, Campbell. 1978b. "Eastern Coastal Chumash." *Handbook of North American Indians*. Volume 8, California. R.F. Heizer, ed. Washington, D.C.: Smithsonian Institute Press. pp. 509-519.

Grinnell, J., and A.H. Miller. 1944. *The Distribution of Birds of California*. Lee Vining, California: Artemisia Press. Reprinted in 1986.

Hale, M. E. and M. Cole. 1988. Lichens of California. Berkeley. The University of California Press. 254 p.

Harrington, J.P. 1978. "Tomol: Chumash Watercraft." (As described in the Ethnographic Notes of John P. Harrington. T. Hudson, J. Timbrook, and M. Rempe, eds. *Ballena Press Anthropological Papers 9*.

Harro, Doug, Clayton Lebow, and Becky McKim. 2001. *Final Archaeological Investigations at CA-SBA-1823, Vandenberg Air Force Base, Santa Barbara County, California.* Technical Report prepared for Vandenberg Air Force Base.

Hendrickson, Beth, Wayne R. Ferren, and Tamara Klug. 1998. Botanical Resources of Hollister Ranch, Santa Barbara County, California. Draft. Museum of Systematics and Ecology, Department of Ecology, Evolution, and Marine Resources, University of California at Santa Barbara. Environmental Report No. 10.\

Hickey, C., W.D. Shuford, G.W. Page, and S. Warnock. 2003. Version 1.1. The Southern Pacific Shorebird Conservation Plan: A strategy for supporting California's Central Valley and coastal shorebird populations. PRBO Conservation Science, Stinson Beach, CA.

Hickman, James C., ed. 1993. *The Jepson Manual, Higher Plants of California*. University of California Press.

Hodos, W., A. Potocki, T. Storm, and M. Gaffney. 2001. "Reduction of motion smear to reduce avian collisions with wind turbines." *Proceedings of National Avian-Wind Power Planning Meeting IV, Carmel, California*. S. S. Schwartz, ed. Washinton, D.C.: Avian Subcommittee of the National Wind Coordinating Committee. pp. 88–105.

Holland, Robert F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. California Department of Fish and Game, Non-Game Heritage Program. Sacramento.

Holland, V.L., and David J. Keil. 1995. *California Vegetation*. Iowa: Kendall/Hunt Publishing Company. 516 pp.

Holmgren, M.A., and P.W. Collins, eds. 1999. Distribution and habitat associations of six bird species of special concern at Vandenberg Air Force Base, Santa Barbara County, California. Prepared by the Museum of Systematics and Ecology, University of California Santa Barbara, and the Vertebrate Zoology Section of the Santa Barbara Museum of Natural History. Prepared for Vandenberg Air Force Base, 30 CES/CEVPN Natural Resources. June.

Hudson, Travis, and Thomas C. Blackburn. 1979-1986. *The Material Culture of the Chumash Interaction Sphere, Volumes I-V.* Los Altos, California: Ballena Press/Santa Barbara Museum of Natural History.

Ibis Consulting. 2001. Impacts to avian species from operation of the Solano County High Winds Power Project. Appendix C of the Solano County High Winds Power Project Environmental Report. Prepared for Environmental Science Associates (ESA).

International Electrotechnical Commission (IEC) 61400-11. 2006. *Wind Turbine Generator Systems – Part 11: Acoustic Noise Measurement Techniques*. Geneva, Switzerland.

International Organization for Standardization (ISO). 1993. *Acoustics – Sound Attenuation During Propagation Outdoors*. Part 1: Calculation of the Absorption of Sound by the Atmosphere, 1993. Part 2: General Method of Calculation. ISO 9613. Switzerland.

Jennings, M., and M. Hayes. 1994. Amphibian and reptile species of special concern in California. California Department of Fish and Game Special Report.

Johnson, G.D., D.P. Young, Jr., C.E. Derby, W.P. Erickson, M.D. Strickland, and J.W. Kern. 2000a. Wildlife Monitoring Studies, Sea West Windpower Plant Carbon County, Wyoming, 1995-1999. Technical report prepared by WEST for Sea West Energy Corporation and Bureau of Land Management. 195 pp.

Johnson, G.D., W.P. Erickson, M.D. Strickland, M.F. Shepherd, and D.A. Shepherd. 2000b. Avian Monitoring Studies. Buffalo Ridge, Minnesota Resource Area, 1996-1999, results of a 4-year study. Technical Report prepared for Northern States Power Co., Minneapolis, Minnesota. 212 pp.

Johnson, G.D., W.P. Erickson, M.D. Strickland, M.F. Shepherd, and S.A. Sarappo. 2002. "Collision mortality of local and migrant birds at a large-scale wind power development on Buffalo Ridge, Minnesota." *Wildlife Society Bulletin*. Vol. 30. pp. 879-887.

Johnson, G.D., M.K. Perlik, W.P. Erickson, M.D. Strickland, D.A. Shepherd, and P. Sutherland, Jr. 2003. "Bat interactions with wind turbines at the Buffalo Ridge, Minnesota Wind Resource Area: An assessment of bat activity, species composition, and collision mortality." *Electric Power Research Institute Report No. 1009178*. Palo Alto, California: Electric Power Research Institute, and Minneapolis, Minnesota: Xcel Energy.

Johnson, G.D. 2004. "A review of bat impacts at wind farms in the U.S." *Proceedings of the Wind Energy and Birds/Bats Workshop: Understanding and Resolving Bird and Bat Impacts.* S.S. Schwartz, ed. Washington, D.C.: *RESOLVE, Inc.* May 18-19, 2004. pp. 46–50.

Johnson, G.D. 2005. A review of bat mortality at wind-energy developments in the United States. *Bat Res News.* Vol 46, pp. 45-49.

Johnson, G.D., M.K. Perlik, W.P. Erickson, and M.D. Strickland. 2004. "Bat activity, composition and collision mortality at a large wind plant in Minnesota." *Wildlife Society Bulletin*. Vol. 32. pp. 1278-1288.

Johnston, B.E. 1962. "California's Gabrieliño Indians." *Frederick Webb Hodge Anniversary Publication Fund*. Vol. VII. Los Angeles: Southwest Museum.

Jones and Stokes Associates. 2002. Urban Emissions Model (URBEMIS2002). Version 8.7.0.

Keil, David J., and V.L. Holland. 1998. Documented Flora of Vandenberg Air Force Base, Santa Barbara County, California. A Report Prepared for The Nature Conservancy and Vandenberg Air Force Base. June 27. 97 pp.

Kerlinger, P., 1995. How Birds Migrate. Mechanicsburg, PA: Stackpole Books.

Kerlinger, P., R. Curry, L. Culp, A. Jain, C. Wilkerson, B. Fischer, and A. Hasch. 2006. Post-Construction Avian and Bat Fatality Monitoring Study for the High Winds Wind Power Project Solano County, California: Two Year Report. Prepared for High Winds, LLC, FPL Energy.

King, Chester. 1971. "Chumash inter-village economic exchange." *Indian Historian*. Vo. 4. pp. 31-43 . San Francisco, California.

Kroeber, A.L. 1925. *Handbook of California Indians*. Washington D.C.: Smithsonian Institution.

Kunz, T.H. 2004. "Wind Power: Bats and Wind Turbines." *Wind Energy and Birds/Bats: Understanding and Resolving Bird and Bat Impacts*. S. S. Schwartz, ed. Proceedings of a workshop in Washington, D.C., May 17-18, 2004. Washington, D.C.: RESOLVE. In Press.

Landberg, L.C. 1965. "The Chumash Indians of Southern California." *Southwest Museum Papers*. Vol. 19. Highland Park, California.

Lebow, Clayton G., Dina M. Coleman, and Douglas R. Harro. 2003. Archaeological Investigations at CA-SBA-2873: Vandenberg Air Force Base.

Leddy, K.L., K.F. Higgins, and D.E. Naugle. 1999. "Effects of wind turbines on upland nesting birds in Conservation Reserve Program grassland." *Wilson Bulletin*. Vol. 111. pp. 100-104.

Lehman, Paul. 1994. The Birds of Santa Barbara County, California. Vertebrate Museum, Biological Sciences Department, University of California at Santa Barbara.

Little, Arthur D., Marine Research Specialists, and Science Application International Corporation. 2002. Final Environmental Impact Report for the Tranquillon Ridge Oil and Gas Development Project, LOGP Produced Water Treatment System Project, Sisquoc Pipeline Bi-Directional Flow Project. Prepared for the County of Santa Barbara Planning and Development Department. State Clearinghouse Number 2000071130. June 2002.

Lynch, G. 1993. *A Birder's Guide to the Lompoc Valley*. Lompoc, California: La Purisima Audubon Society.

Marshall, L. G. 1976. "Paleontological Salvage and Federal Legislation." *Journal of Paleontology*. Vol. 50. pp. 346-348.

McDowell, David. 1994. Archaeological Extended Survey Report: Replace Waterline, Oak Mountain, Vandenberg Air Force Base, California. Draft on file at Vandenberg Air Force Base.

Meade, Daniel. 1999. Monarch Butterfly Overwintering Sites in Santa Barbara County California. Paso Robles, California: Althouse and Meade.

Meighan, C.W. 1954. "A late complex in southern California prehistory." *Southwestern Journal of Anthropology*. Vol. 10(2). pp. 215-227.

Morgan, M. G. *60 Hz Electric and Magnetic Fields, An Overview of the Issues*. Carnegie Mellon University. 1991.

Mualchin, L. 1996. CALTRANS California Seismic Hazard Map. Prepared for CALTRANS by the Office of Earthquake Engineering. July.

National Academy of Sciences. 1999. *Research on Power-Frequency Fields Completed Under the Energy Policy Act of 1992*. Washington D.C.: The National Academies Press.

National Audubon Society, Inc. (Audubon). 2006. Miguelito Canyon Christmas Bird Count, 1997 to 2005.

National Geographic. 2003. *Topo! Version 3.4.2*.

National Institute of Environmental Health Sciences (NIEHS). 1999. *1999 NIEHS Report on Health Effects from Exposure to Power-Line Frequency Electric and Magnetic Fields*. National Institutes of Health Publication No. 99-4493. Washington D.C.

National Institute of Environmental Health Sciences (NIEHS). 2002. EMF Electric and Magnetic Fields Associated with the Use of Electric Power – Questions and Answers. June. Available at http://www.niehs.nih.govlemfrapid.

National Wind Coordinating Collaborative (NWCC) and Jennie Rectenwald. 2007. Mitigation Toolbox.

Norris, Robert M. 2003. *The Geology and Landscape of Santa Barbara County, California and Its Offshore Islands*. Santa Barbara Museum of Natural History.

O'Farrell, M. J., B. W. Miller, and W. L. Gannon. 1999. "Qualitative Identification of Free-Flying Bats Using the Anabat Detector." *Journal of Mammalogy* Vol. 80 pp. 11-23.

Olson, T., and K. Rindlaub. 2006. Lompoc Wind Energy Biological Resources Report. February.

Olson, T. 2002. Personal Communication with N. Read, Wildlife Biologist, Vandenberg AFB, CA. August 20.

Olson, T. 2007. Lompoc Wind Energy Project: Results of Winter Bird Surveys. February.

Orloff, S., and A. Flannery. 1992. Wind Turbine Effects of Avian Activity, Habitat Use, and Mortality in Altamont Pass and Solano County Wind Resource Areas, 1989-1991. Final Report to Alameda, Contra Costa and Solano Counties and the California Energy Commission. BioSystems Analysis, Inc. Tiburon, California.

Pacific Gas Electric Company (PG&E). 2006. Providing Clean Energy Efficiently, Responsibly, and with an Eye Toward Innovation. *Our Environment*. http://www.pgecorp.com/corp_responsibility/reports/2005/our_env_clean_energy.html.

Page, G.W. and R.E. Gill, Jr. 1994. Shorebirds in western North America: late 1800s to late 1900s, p.147-160. *In* A century of avifaunal change in western North America (J.R. Jehl, Jr. and N.K. Johnson, eds.). Studies in Avian Biology 15.

Page, G.W., L.E. Stenzel, and J.E. Kjelmyr. 1999. Overview of shorebird abundance and distribution in wetlands of the Pacific coast of the contiguous United States. *Condor.* Vol. 101, pp. 461-471.

Page, G.W., E. Palacios, L. Alfaro, S. Gonzalez, L.E. Stenzel, and M. Jungers. 1997. Numbers of wintering shorebirds in coastal wetlands of Baja California, Mexico. *Journal of Field Ornithology*. Vol 68, pp. 562-574.

Parsons et al. 2000. "Advantages and Disadvantages of Techniques for Transforming and Analyzing Chiropteran Echolocation Calls." *Journal of Mammalogy.* Vol. 81, pp. 927-938.

Parsons Engineering Science, Inc. 1996. Survey and Inventory of Archaeological Properties for the Range Standardization and Automation Fiber-Optic Transmission System, South Vandenberg Air Force Base, Santa Barbara County, California.

Pierson, E.D., P.W. Collins, W.E. Rainey, P.A. Heady, and C.J. Corben. 2002. Distribution, status, and habitat associations of bat species on Vandenberg Air Force Base, Santa Barbara County, California. Prepared for Prepared for Vandenberg Air Force Base, 30 CES/CEVPN Natural Resources. September 30.

Rick, T.C., J. Erlandson, and R.L. Vellanowesh. 2001. "Paleocoastal Marine Fishing on the Pacific Coast of the Americas: Perspectives from Daisy Cave, California." *American Antiquity.* Vol. 66. pp. 595-613.

Rogers, D.B. 1929. Prehistoric Man of the Santa Barbara Coast. Santa Barbara Museum of Natural History.

Root, T. 1989. Atlas of Wintering North American Birds: An Analysis of Christmas Bird Count Data. Chicago and London: University of Chicago Press.

Santa Barbara Botanic Garden (SBBG). 1988. Some Special Plants of Local Concern. Upland Habitats of the Santa Barbara South Coast Area (Between Point Conception and Ventura River, From the Summits of the Santa Ynez Mountains to the Coast).

Santa Barbara County Air Pollution Control District (SBCAPCD). 2004. 2004 Clean Air Plan. December.

Santa Barbara County Air Pollution Control District (SBCAPCD). 2006a. Air Pollutants and Our Health. *Santa Barbara County Air Pollution Control District.* http://www.sbcapcd.org/sbc/pollut.htm#Particulate.

Santa Barbara County Air Pollution Control District (SBCAPCD). 2006b. Santa Barbara County Air Quality Attainment Designation. *Santa Barbara County Air Pollution Control District.* http://www.sbcapcd.org/sbc/attainment.htm.

Santa Barbara County Air Pollution Control District (SBCAPCD). 2007. Scope and Content of Air Quality Sections in Environmental Documents. Updated January.

Santa Barbara County Airport Land Use Commission (ALUC) and Association of Governments (SBCAG). 1993. *Santa Barbara County Airport Land Use Plan.* October.

Santa Barbara County Association of Governments. 1993. *Airport Land Use Plan*. October.

Santa Barbara County Comprehensive Plan. 1979.

Santa Barbara County Fire Department (SBCFD). 2006. Private Road and Driveway Standards. Development Standard No. 1.

Santa Barbara County Sheriff's Department (SBCSD). 2006. Department Overview. *Santa Barbara County Sheriff's Department.* http://www.sbsheriff.org/de/ovde/index.html.

Santa Barbara County. 1975. *General Plan of Scenic Highways: An Element of the General Plan of the County of Santa Barbara.* Advance Planning Division. November.

Santa Barbara County. 1979a. Open Space Element, Santa Barbara County Comprehensive Plan. May.

Santa Barbara County. 1979b. Seismic and Safety and Safety Element, Santa Barbara County Comprehensive Plan. January. Updated October 1991.

Santa Barbara County. 1980. Land Use Element, Circulation Element, Environmental Resource Management Element, Santa Barbara County Comprehensive Plan. December.

Santa Barbara County. 1981. Air Quality Supplement to the Land Use Element, Santa Barbara County Comprehensive Plan. March.

Santa Barbara County. 1986. Noise Element, Santa Barbara County Comprehensive Plan. February.

Santa Barbara County. 1991a. Agricultural Element, Santa Barbara County Comprehensive Plan. September.

Santa Barbara County. 1991b. Circulation Element, 1992 Santa Barbara County Comprehensive Plan. Resource Management Department. Adopted December 1980. Amended December 1991.

Santa Barbara County. 1994. Conservation Element, Santa Barbara County Comprehensive Plan. May.

Santa Barbara County. 1998. Energy Element, Santa Barbara County Comprehensive Plan. December.

Santa Barbara County. 2002. Standard Conditions of Approval and Standard Mitigation Measures. Planning and Development Department. Republished, February 2005.

Santa Barbara County. 2003. Conservation Element, Oak Tree Protection in the Inland Rural Areas of Santa Barbara County, Santa Barbara County Comprehensive Plan. April.

Santa Barbara County. 2006, 2007. Land Use and Development Code.

Santa Barbara County. 2006. *2005 Santa Barbara County Groundwater Report.* Public Works, Water Resources Department, Water Agency Division.

Santa Maria Times. 2006. "Lightning Show Leaves Residents Without Power." October 14.

Sapphos Environmental Inc. 2008. MFR 06 Habitat Suitability for the Federally Endangered El Segundo Blue Butterfly at the Lompoc Wind Energy Project Site, County of Santa Barbara, California. Prepared for Acciona Energy North America Lompoc Wind Energy Project. February 12.

Sapphos Environmental Inc. 2008. MFR 08 Habitat Suitability for Three Listed Aquatic Species at the Lompoc Wind Energy Project Site, Santa Barbara County, California. Prepared for Acciona Energy North America Lompoc Wind Energy Project. February 4.

Sapphos Environmental Inc. 2008. MFR 09. Plant Communities at the Lompoc Wind Energy Project Site, County of Santa Barbara, California. Prepared for Acciona Energy North America Lompoc Wind Energy Project. January 31.

Sapphos Environmental Inc. 2008. MFR 10. Areas Subject to the Jurisdiction of the U. S. Army Corps of Engineers and the California Department of Fish and Game at the Lompoc Wind Energy Project Site, County of Santa Barbara, California. Prepared for Acciona Energy North America Lompoc Wind Energy Project. February 11.

Sapphos Environmental Inc. 2008. MFR 12. Inferred Baseline and Impact Analyses for Avian Species at the Lompoc Wind Energy Project Site, Santa Barbara County, California. Prepared for Acciona Energy North America Lompoc Wind Energy Project. February 13.

Sapphos Environmental Inc. 2008. MFR 16. Areas Subject to the Jurisdiction of the U.S. Army Corps of Engineers and the California Department of Fish and Game at the Lompoc Wind Energy Project Site, County of Santa Barbara, California. Prepared for Acciona Energy North America Lompoc Wind Energy Project. May 7.

Sapphos Environmental Inc. 2008. Lompoc Wind Energy Project Final Winter Season Avian Pre-Construction Survey Technical Report. Prepared for Pacific Renewable Energy Generation, LLC. June 16.

Sinclair-Thomas. 1999. "The Thomas Matrix." Traffic Model. http://www.cprw.org.uk/wind/Hlords/hlapp1.htm.

Smardon, Richard C., James F. Palmer, and John P. Felleman, eds. 1986. *Foundations for Visual Project Analysis.* New York, NY: John Wiley & Sons.

Smith, C. F. 1998. A Flora of the Santa Barbara Region, California. 2nd ed. Santa Barbara, California: Santa Barbara Botanic Garden and Capra Press.

Society of Vertebrate Paleontology (SVP). 1991. "Standard Measures for Assessment and Mitigation of Adverse Impacts to Nonrenewable Paleontological Resources." *Society of Vertebrate Paleontology News Bulletin.* Vol. 152. pp. 2-5.

Society of Vertebrate Paleontology (SVP). 1995. "Assessment and mitigation of adverse impacts to nonrenewable paleontologic resources–standard guidelines." *Society of Vertebrate Paleontology News Bulletin*. Vol. 163. pp. 22-27.

Society of Vertebrate Paleontology (SVP). 1996. "Conditions of receivership for paleontologic salvage collections [final draft]." *Society of Vertebrate Paleontology News Bulletin*. Vol. 166. pp. 31-32.

Society of Vertebrate Paleontology (SVP). 2005. "Assessment and mitigation of Adverse Impacts to Nonrenewable Paleontologic Resources: Standard Guidelines." *Society of Vertebrate Paleontology Policy and Position Statements.*

Spanne, Laurence W. 2005. Phase I Archaeological Survey Report for the Lompoc Wind Farm Project, Scolari and Signorelli Ranches, Upper Miguelito and Honda Canyons, Lompoc Vicinity, County of Santa Barbara California.

Stenzel, L. E., C. M. Hickey, J. E. Kjelmyr, and G. W. Page. 2002. Abundance and distribution of shorebirds in the San Francisco Bay area. *Western Birds.* Vol. 33, pp. 69-98.

Tetra Tech, Inc. 1999a. Final environmental assessment for the Honda Ridge Road Repair Project, Vandenberg Air Force Base, California. Prepared for Vandenberg Air Force Base, 30 CES/CEVPN Natural Resources. May 6.

Tetra Tech, Inc. 1999b. Final environmental assessment for the Oak Mountain Road Repair Project, Vandenberg Air Force Base, California. Prepared for Vandenberg Air Force Base, 30 CES/CEVPN Natural Resources. August 16.

Thayer, R.L. and C.M. Freeman. 1987. "Altamont: Public Perceptions of a Wind Energy Landscape." *Landscape and Urban Planning.* Vol. 14, No. 5.

Thelander, C.G., and L. Rugge. 2001. "Examining bird risk behaviors and fatalities at the Altamont Wind Resource Area: a second year's progress report." *RESOLVE, Inc. Proceedings of the National Avian-Wind Power Planning Meeting IV*. May 16-17, 2000. Carmel, California. pp. 5-14.

Tompkins, Walker. 1976. *Goleta: The Good Land.* Fresno, California: Pioneer Publishing.

Tompkins, Walker. 1987. *Santa Barbara's Royal Rancho.* Goleta, California: Dos Pueblos Publications.

Transportation Research Board. 2000. *Highway Capacity Manual.*

Tyler, W.B., K.T. Briggs, D.B. Lewis, and G. Ford. 1993. Seabird distribution and abundance in relation to oceanographic processes in the California Current System. Pages 48-60 *in* The status, ecology and conservation of marine birds of the North Pacific (K. Vermeer, K.T. Briggs, K.H. Morgan, and D. Siegal-Causey, Eds.). Canadian Wildlife Service Special Publication, Ottawa.

United States Department of Energy. 2005. "Energy Assurance Daily." *Office of Electricity and Energy Assurance.* May 11.

United States Department of Interior (USDI). 2005. *Final Programmatic Environmental Impact Statement on Wind Energy Development on BLM-Administered Lands in the Western United States*. Bureau of Land Management. June.

United States Department of Transportation Federal Aviation Administration (FAA). 2000. Advisory Circular AC 70/7460-2K. *Proposed Construction or Alteration of Objects that May Affect the Navigable Airspace.* Prepared by the Air Traffic Airspace Management Program.

United States Department of Transportation Federal Highway Administration (FHWA). 1988. *Visual Impact Assessment for Highway Projects*. FHWA-HI-88-054.

United States Environmental Protection Agency (EPA). 1971. *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances*.

United States Environmental Protection Agency (EPA). 1978. *Protective Noise Levels, Condensed Version of EPA Levels Document.* November.

United States Environmental Protection Agency (EPA). 2006a. *AP-42, Fifth Edition, Compilation of Air Pollutant Emission Factors, Volume I: Stationary and Point Sources, Chapter 11.12*. June 2006.

United States Environmental Protection Agency (EPA). 2006b. National Ambient Air Quality Standards (NAAQS). *United States Environmental Protection Agency*. http://www.epa.gov/air/criteria.html.

United States Environmental Protection Agency (EPA). 2007. AirData: Access to Air Pollution Data. *United States Environmental Protection Agency*. http://www.epa.gov/air/data/index.html.

United States Fish and Wildlife Service. 2003. *Interim Guidance on Avoiding and Minimizing Wildlife Impacts from Wind Turbines.*

US Fish and Wildlife Service (USFWS), 2007. Biological Opinion for the Second Relocatable In-Flight Interceptor Communications System Data Terminal Project, Vandenberg Air Force Base, Santa Barbara County, California (1-8-07-F-56). October 5.

Vandenberg Air Force Base, 2007b. Biological Assessment, Gaviota Tarplant and El Segundo Blue Butterfly and Second Relocatable In-Flight Interceptor Communications System Data Terminal, August. Prepared by ManTech SRS Technologies for the 30th Space Wing Environmental Flight (30 CES/CEV).

Verein Deutscher Ingenieure (VDI). 1988. *Outdoor Sound Propagation*. *VDI (Verein Deutscher Ingenieure)* Vol. 2714. Verlag, Dussledorf, Beuth Verlag, Berlin, Koln, Germany: GmbH.

Wagner, H.R. 1929. "Spanish Voyages to the Northwest Coast of America in the Sixteenth Century." California Historical Society Special Publications. Vol. 4. San Francisco: California Historical Society.

Wallace, W.J. 1978. "Post-Pleistocene Archaeology, 9000 to 2000 B.C." *Handbook of North American Indians*. Volume 8, California. R. F. Heizer, ed. Washington, D.C.: Smithsonian Institute Press. p.p. 25-36.

Wallace, W.R. 1955. "A suggested chronology for southern California coastal archaeology." *Southwestern Journal of Anthropology.* Vol. 11(3). pp. 214-230.

Wallace, W.R. 1968. "Cultural tradition and ecological adaptation the southern California coast." *Archaic prehistory in the western United States.* C. Irwin-Williams, ed. Portales: Eastern New Mexico University Contributions in Anthropology. Vol. 1(3). pp. 1-14.

Warnock, N., C. Elphick, and M. Rubega. 2001. Shorebirds in the marine environment. Pages 581-615 in (J. Burger and B. A. Schreiber, Eds.). Biology of Marine Birds. CRC Press, Boca Raton, FL.

Warren, C.N. 1967. "The San Dieguito Complex: A review and hypothesis." *American Antiquity*. Vol. 32(2). pp. 168–185.

Warren, C.N. 1968. "Cultural tradition and ecological adaptation the southern California coast." In "Archaic prehistory in the western United States." C. Irwin-Williams, ed. *Contributions in Anthropology.* Vol. 1(3). Portales: Eastern New Mexico University. pp. 1-14.

Washington, State of. 2003. Kittitas Valley Wind Project EFSEC application. January 12.

Weber, David J. 1982. *The Mexican Frontier 1821-1846.* Albuquerque: University of New Mexico Press.

Weber, David J. 1992. *The Spanish Frontier in North America.* New Haven: Yale University Press.

WEST, Inc. and Northwest Wildlife Consultants, Inc. 2002. Baseline Avian Studies for the Proposed Maiden Wind Farm, Yakima and Benton, Counties, Washington.

WEST, Inc., Concord College, and ABR, Inc. 2004. Baseline Avian Studies Mount Storm Wind Power Project, Grant County, West Virginia.

Western Regional Climate Center (WRCC). 2007. *Average Number of Days with Heavy Fog*. http://www.wrcc.dri.edu/htmlfiles/westcomp.fog.html.

Williams, Timothy C. 2001. Bird Migration through a Mountain Pass Studies with High Resolution Radar, Ceilometers, and Census. *The Auk.* Vol. 118, pp. 389-403.

Young, D.P. Jr., W.P. Ericksn, R.E. Good, M.D. Strickland, and J.P. Eddy. 2002. Avian and bat mortality associated with the initial phase of the Foote Creek Rim Windpower Project, Carbon County Wyoming, November 1998-June 2000. Technical Report prepared by WEST, Inc. for Pacificorp, Inc., Sea West Windpower, Inc, and U.S. Bureau of Land Management.

Appendix A.
Air Quality Emission Calculations

Lompoc Wind Energy
Emissions Summary

Construction Emissions

	Emissions (tons/project)		
	ROG	NOx	PM_{10}
TOTAL (ton/project)	3	19	6
SBCAPCD Threshold (ton/yr)	25	25	NA
Threshold Exceeded?	No	No	NA

[b] SBCAPCD, Scope and Content of Air Quality Sections in Environmental Documents, January 2007.

Operation Emissions

	Emissions (tons/project)		
	ROG	NOx	PM_{10}
TOTAL (lb/day)	0.3	1.2	18
Threshold - Mobile and Stationary Sources (lb/day)[a]	55	55	80
Threshold - Motor Vehicle Trips (lb/day)[a]	25	25	NA
Threshold Exceeded?	No	No	No

[a]County of Santa Barbara Significance Thresholds and Guideline Manual, Revised October 2006.

Lompoc Wind Energy
Construction Emissions

Table 1a. Construction Emission Summary (lb/day)

Construction Activity	Duration of Activity (months)	Emissions (lb/day)[1,2] ROG	NOx	CO	Exhaust PM_{10}	Fugitive PM_{10}
Site Preparation and Road Construction	2	32.35	223.24	256.2	9.19	20
Foundation Construction	4	9.71	65.15	77.68	2.51	20
Electrical Collection System	2	9.92	63.18	81.07	2.17	20
Power Line Construction	6	8.95	57.65	72.01	2.15	20
Substation, O&M Building, and Meteorological Tower	3	9.93	68.25	78.63	2.74	20
Turbine Installation	3	9.62	58.98	80.32	1.97	20

Table 1b. Construction Emission Summary (tons/activity)

Construction Activity	Duration of Activity (months)	Emissions (ton/activity)[3,4] ROG	NOx	CO	Exhaust PM_{10}	Fugitive PM_{10}
Site Preparation and Road Construction	2	0.71	4.91	5.64	0.20	0.44
Foundation Construction	4	0.43	2.87	3.42	0.11	1.60
Electrical Collection System	2	0.22	1.39	1.79	0.05	0.44
Power Line Construction	6	0.60	3.88	4.88	0.14	1.32
Substation, O&M Building, and Meteorological Tower	3	0.33	2.25	2.60	0.09	0.66
Turbine Installation	3	0.32	1.95	2.65	0.07	0.66
TOTAL (ton/project)		**2.60**	**17.25**	**20.98**	**0.66**	**5.12**
SBCAPCD Threshold (ton/yr)		**25**	**25**	**NA**	**NA**	**NA**
Threshold Exceeded?		No	No	NA	NA	NA

1.Output from URBEMIS2002 (version 8.7.0). The emissions were based on the construction schedule, equipment types, horsepower, load, and hours of operation in Table 2.

2. Calculations assume 2 acres per day disturbed during each construction activity.

3. The URBEMIS2002 default of 22 days per month was used to calculate emissions in units of tons per activity.

4. The tons/activity emissions include the truck emissions by construction activity summarized in Table 6b, concrete batch plant emissions summarized in Table 7 are included with Foundation Construction, and helicopter emissions summarized in Table 9 are included with Power Line Construction.

Lompoc Wind Energy
Construction Emissions

Table 2. Construction Schedule and Equipment Summary

Equipment	Fuel Type	Number of Equipment	Horsepower	Load	Operation (hours per day)	Equipment Type in URBEMIS*
Construction Activity: Site Preparation and Road Construction						
Duration: 2 months, Year 2007						
Excavator	Diesel	2	180	0.58	8	Excavator
D-9 bulldozer	Diesel	1	474	0.59	8	Other equipment
D-8 bulldozer	Diesel	2	305	0.59	8	Rubber-tired dozer
D-6 bulldozer	Diesel	1	185	0.59	8	Off highway tractor
980 front-end loader	Diesel	1	165	0.465	8	Rubber-tired loader
14-H load grader	Diesel	1	215	0.575	8	Grader
Compactor	Diesel	2	84	0.73	8	Concrete/industrial saw
Scraper	Diesel	2	313	0.66	8	Scraper
Forklift	Diesel	1	94	0.475	8	Rough terrain forklift
Generator	Diesel	1	119	0.82	8	Signal boards
Construction Activity: Foundation Construction						
Duration: 4 months, Year 2008						
D-6 bulldozer	Diesel	1	185	0.59	8	Off highway tractor
980 front-end loader	Diesel	1	165	0.465	8	Rubber-tired loader
14-H load grader	Diesel	1	215	0.575	8	Grader
Compactor	Diesel	2	84	0.73	8	Concrete/industrial saw
Forklift	Diesel	1	94	0.475	8	Rough terrain forklift
Generator	Diesel	1	119	0.82	8	Signal boards
Construction Activity: Electrical Collection System						
Duration: 2 months, Year 2008						
Excavator	Diesel	2	180	0.58	8	Excavator
980 front-end loader	Diesel	1	165	0.465	8	Rubber-tired loader
Compactor	Diesel	2	84	0.73	8	Concrete/industrial saw
Trencher	Diesel	1	82	0.695	8	Trencher
Generator	Diesel	1	119	0.82	8	Signal boards
Construction Activity: Power Line Construction						
Duration: 6 months, Year 2008						
980 front-end loader	Diesel	1	165	0.465	8	Rubber-tired loader
120-ton crane	Diesel	1	190	0.43	8	Crane
14-H load grader	Diesel	1	215	0.575	8	Grader
Compactor	Diesel	2	84	0.73	8	Concrete/industrial saw
Generator	Diesel	1	119	0.82	8	Signal boards
Construction Activity: Substation, O&M Building, and Meteorological Tower						
Duration: 3 months, Year 2008						
D-9 bulldozer	Diesel	1	474	0.59	8	Other equipment
D-8 bulldozer	Diesel	1	305	0.59	8	Rubber-tired dozer
14-H load grader	Diesel	1	215	0.575	8	Grader
Forklift	Diesel	1	94	0.475	8	Rough terrain forklift
Generator	Diesel	1	119	0.82	8	Signal boards
Construction Activity: Turbine Installation						
Duration: 3 months						
980 front-end loader	Diesel	1	165	0.465	8	Rubber-tired loader
300-ton crane	Diesel	1	190	0.43	8	Crane
120-ton crane	Diesel	1	190	0.43	8	Crane
90-ton crane	Diesel	2	190	0.43	8	Crane
Forklift	Diesel	1	94	0.475	8	Rough terrain forklift
Generator	Diesel	1	119	0.82	8	Signal boards

*In order to account for the different horsepower of the bulldozers, the D-6 and D-9 bulldozers were loaded into URBEMIS as a different equipment types for activities with more than one bulldozer. For some equipment, such as the compactor, URBEMIS does not have this specific equipment type so a similar type of equipment was used to represent compactor emissions.

Lompoc Wind Energy
Truck Emissions

Table 3. On-Site Truck Miles Traveled

Trucks	Number of Trucks[1]	Average Roundtrip Distance Traveled by Each Truck (Miles)[2]	Total Vehicle Miles Traveled for the Project (VMT)
Trucks for Transport			
WTG Parts	1,280	12	15,360
WTG Foundation	3,450	12	41,400
WTG Water	3,000	12	36,000
Access Roads	2,646	12	31,752
Pole Placement	1,014	12	12,168
Line Stringing	160	12	1,920
Meteorological Tower	120	12	1,440
Substation and O&M Building	60	12	720
Trucks Associated with Construction Activities			
Site Preparation and Road Construction			
Diesel Trucks (water, dump, line)	7	12	84
Pick-up truck (gasoline)	14	12	168
Foundation Construction			
Diesel Trucks (water, dump, line)	14	12	168
Pick-up truck (gasoline)	14	12	168
Electrical Collection System			
Diesel Trucks (water, dump, line)	6	12	72
Pick-up truck (gasoline)	8	12	96
Power Line Construction			
Diesel Trucks (water, dump, line)	9	12	108
Pick-up truck (gasoline)	14	12	168
Substation, O&M Building, and Met Tower			
Diesel Trucks (water, dump, line)	6	12	72
Pick-up truck (gasoline)	8	12	96
Turbine Installation			
Diesel Trucks (water, dump, line)	3	12	36
Pick-up truck (gasoline)	14	12	168

1. Number of truck trips from Table 2-3 Section 2.0 Project Description.
2.The distance traveled estimated based on size of Project site, Figure 2-2.

Table 4. Emission Factors (EF)

	ROG	NOx	CO	PM_{10}
Heavy-duty diesel Emission Factor (g/mile)	2.158	11.396	19.091	0.653
Heavy-duty diesel Emission Factor (lb/mile)	0.0048	0.0251	0.0421	0.0014
Gasoline pick-up Emission Factor (g/mile)	0.537	0.856	8.931	0.065
Gasoline pick-up Emission Factor (lb/mile)	0.0012	0.0019	0.0197	0.0001

Emission factors from EMFAC2007 v 2.3 for Santa Barbara County for a heavy duty diesel truck traveling 15 miles per hour.

Lompoc Wind Energy
Truck Emissions

3. On-Site Emissions

Equation: **E = (VMT*EF)**
Where,
E = Emissions (lb/project)
VMT = Vehicle miles traveled/project
EF = EMFAC emission factor (lb/mile)

Table 5a. Transport Truck Emissions (lb/project)

Trucks for Transport	Emissions (lb/activity)			
	ROG	NOx	CO	PM_{10}
WTG Parts	73.08	386	646	22.11
WTG Foundation	196.96	1,040	1,742	59.60
WTG Water	171.27	904	1,515	51.83
Access Roads	151.06	798	1,336	45.71
Pole Placement	57.89	306	512	17.52
Line Stringing	9.13	48	81	2.76
Meteorological Tower	6.85	36	61	2.07
Substation and O&M Building	3.43	18	30	1.04

Table 5b. Transport Truck Emissions (tons/project)

Trucks for Transport	Emissions (tons/project)			
	ROG	NOx	CO	PM_{10}
WTG Parts	0.0365	0.193	0.323	0.011
WTG Foundation	0.0985	0.520	0.871	0.030
WTG Water	0.0856	0.452	0.758	0.026
Access Roads	0.0755	0.399	0.668	0.023
Pole Placement	0.0289	0.153	0.256	0.009
Line Stringing	0.0046	0.024	0.040	0.001
Meteorological Tower	0.0034	0.018	0.030	0.001
Substation and O&M Building	0.0017	0.009	0.015	0.0005
TOTAL (tons/project)	0.33	1.77	2.96	0.10

Lompoc Wind Energy
Truck Emissions

Table 6a. Emissions from Trucks Associatd with Construction Activities (lb/project)

Trucks Associated with Construction Activities	Emissions (lb/project)			
	ROG	NOx	CO	PM_{10}
Site Preparation and Road Construction				
Diesel Trucks (dump, line)	0.40	2.11	3.54	0.12
Pick-up truck (gasoline)	0.20	0.32	3.31	0.02
Foundation Construction				
Diesel Trucks (dump, line)	0.80	4.22	7.07	0.24
Pick-up truck (gasoline)	0.20	0.32	3.31	0.02
Electrical Collection System				
Diesel Trucks (dump, line)	0.34	1.81	3.03	0.10
Pick-up truck (gasoline)	0.11	0.18	1.89	0.01
Power Line Construction				
Diesel Trucks (water, dump, line)	0.51	2.71	4.55	0.16
Pick-up truck (gasoline)	0.20	0.32	3.31	0.02
Substation, O&M, and Meteorological Tower				
Diesel Trucks (dump, line)	0.34	1.81	3.03	0.10
Pick-up truck (gasoline)	0.11	0.18	1.89	0.01
Turbine Installation				
Diesel Trucks (dump, line)	0.17	0.90	1.52	0.05
Pick-up truck (gasoline)	0.20	0.32	3.31	0.02

Table 6b. Emissions from Trucks Associatd with Construction Activities (ton/project)

Trucks Associated with Construction Activities	Emissions (tons/project)			
	ROG	NOx	CO	PM_{10}
Site Preparation and Road Construction				
Diesel Trucks (dump, line)	2.00E-04	1.06E-03	1.77E-03	6.05E-05
Pick-up truck (gasoline)	9.94E-05	1.59E-04	1.65E-03	1.20E-05
Foundation Construction				
Diesel Trucks (dump, line)	4.00E-04	2.11E-03	3.54E-03	1.21E-04
Pick-up truck (gasoline)	9.94E-05	1.59E-04	1.65E-03	1.20E-05
Electrical Collection System				
Diesel Trucks (dump, line)	1.71E-04	9.04E-04	1.52E-03	5.18E-05
Pick-up truck (gasoline)	5.68E-05	9.06E-05	9.45E-04	6.88E-06
Power Line Construction				
Diesel Trucks (dump, line)	2.57E-04	1.36E-03	2.27E-03	7.77E-05
Pick-up truck (gasoline)	9.94E-05	1.59E-04	1.65E-03	1.20E-05
Substation, O&M, and Meteorological Tower				
Diesel Trucks (dump, line)	1.71E-04	9.04E-04	1.52E-03	5.18E-05
Pick-up truck (gasoline)	5.68E-05	9.06E-05	9.45E-04	6.88E-06
Turbine Installation				
Diesel Trucks (dump, line)	8.56E-05	4.52E-04	7.58E-04	2.59E-05
Pick-up truck (gasoline)	9.94E-05	1.59E-04	1.65E-03	1.20E-05
TOTAL (tons/project)	1.80E-03	7.60E-03	1.99E-02	4.51E-04

Lompoc Wind Energy

Portable Concrete Batch Plant Emissions

Project Information

200 cubic yard of concrete per foundation (from Section 2.0 Project Description)
80 maximum number of turbines (from Section 2.0 Project Description)
2 maximum number of batch plants operating on same day

Table 7. Portable Concrete Batch Plant Emission Summary

Daily Emissions		Annual Emissions	
Uncontrolled PM_{10} Emissions (lb/day)	Controlled PM_{10} Emissions (lb/day)	Uncontrolled PM_{10} Emissions (ton/yr)	Controlled PM_{10} Emissions (ton/yr)
36.04	6.48	0.72	0.13

Daily emission calculation assumes maximum of two batch plants would operate on the same day.
Annual emission calculation assumes 80 foundations placed.

Table 8. Concrete Batch Plant Emission Factors

Emission Source	Uncontrolled PM_{10} Emission Factor (lb/yd^3)	Controlled PM_{10} Emission Factor (lb/yd^3)
Aggregate delivery to ground storage	0.0031	0.0031
Sand delivery to ground storage	0.0007	0.0007
Aggregate transfer to conveyor	0.0031	0.0031
Sand transfer to conveyor	0.0007	0.0007
Aggregate transfer to elevated storage	0.0031	0.0031
Sand transfer to elevated storage	0.0007	0.0007
Cement delivery to silo	0.0001	0.0001
Cement supplement delivery to silo	0.0002	0.0002
Truck mix loading[1]	0.0784	0.0045
Total Emission Factor (lb PM_{10}/yd^3)	0.090	0.016

Emission factors from AP-42, Fifth Edition, Chapter 11.12 Table 11-12-5 Plant Wide Emission Factors (lb/yd3), June 2006, http://www.epa.gov/ttn/chief/ap42/
[1]Emission factor from Equation 11.12-2 and Table 11.12-2.

Lompoc Wind Energy

Helicopter Emission Calculations

Table 9. Helicopter Emissions Summary

Daily Emissions (lb/day)				
CO	**HC**	**NOx**	**SOx**	**PM**
8.03	0.50	4.58	0.42	0
Annual Emissions (ton/yr)				
CO	**HC**	**NOx**	**SOx**	**PM**
0.120	0.007	0.069	0.006	0

Daily emissions calculated assuming 1 LTO per day and 3 hours for pole installation per LTO.
Annual emissions calculated assuming 5 trips (LTO) per month over six-month construction period.

Table 10. Helicopter Emission Factors

				Emission Factors (lbs/min)					
Helicopter	**Engine Type**	**Mode**		**CO**	**HC**	**NOx**	**SOx**	**PM**	**Minutes/LTO**
BELL 206	250B17B	1	Approach	0.0686777	0.007566187	0.0032011	0.0007857	0	6.50
	250B17B	2	Climb	0.0368677	0.001634931	0.0243605	0.0022072	0	4.33
	250B17B	3	Take-off	0.0345047	0.001325406	0.0291589	0.0023857	0	2.17
	250B17B	4	Idle	0.1013631	0.020899608	0.001045	0.0005643	0	7.00

It was assumed that the Bell 206 engine represents the emissions profile of a helicopter that would be used for pole installation.
Emission factors for the Bell 206 engine are from the Federal Aviation Administration, Emissions and Dispersion Modeling System (EDMS).
Time per mode based on default times in EDMS.

Lompoc Wind Energy

Helicopter Emission Calculations

Table 11. Landing/Take-Off Emissions

	Emissions (lbs/LTO)				
Engine Mode	**CO**	**HC**	**NOx**	**SOx**	**PM**
Approach	0.446	0.049	0.021	0.005	0
Climb	0.160	0.007	0.105	0.010	0
Take-off	0.075	0.003	0.063	0.005	0
Idle	0.710	0.146	0.007	0.004	0
	TOTAL:				
	1.390	**0.205**	**0.197**	**0.024**	**0**

Table 12. Helicopter Operation Emissions during Pole Installation

Minutes operation per day 180

	Emissions (lbs/LTO)				
Engine Mode	**CO**	**HC**	**NOx**	**SOx**	**PM**
Climb	6.64	0.29	4.38	0.40	0

Assume helicopter operates for 3 hours per day per LTO when used for pole installation.

Lompoc Wind Energy

Operation Emissions

Table 13. Operation Emissions

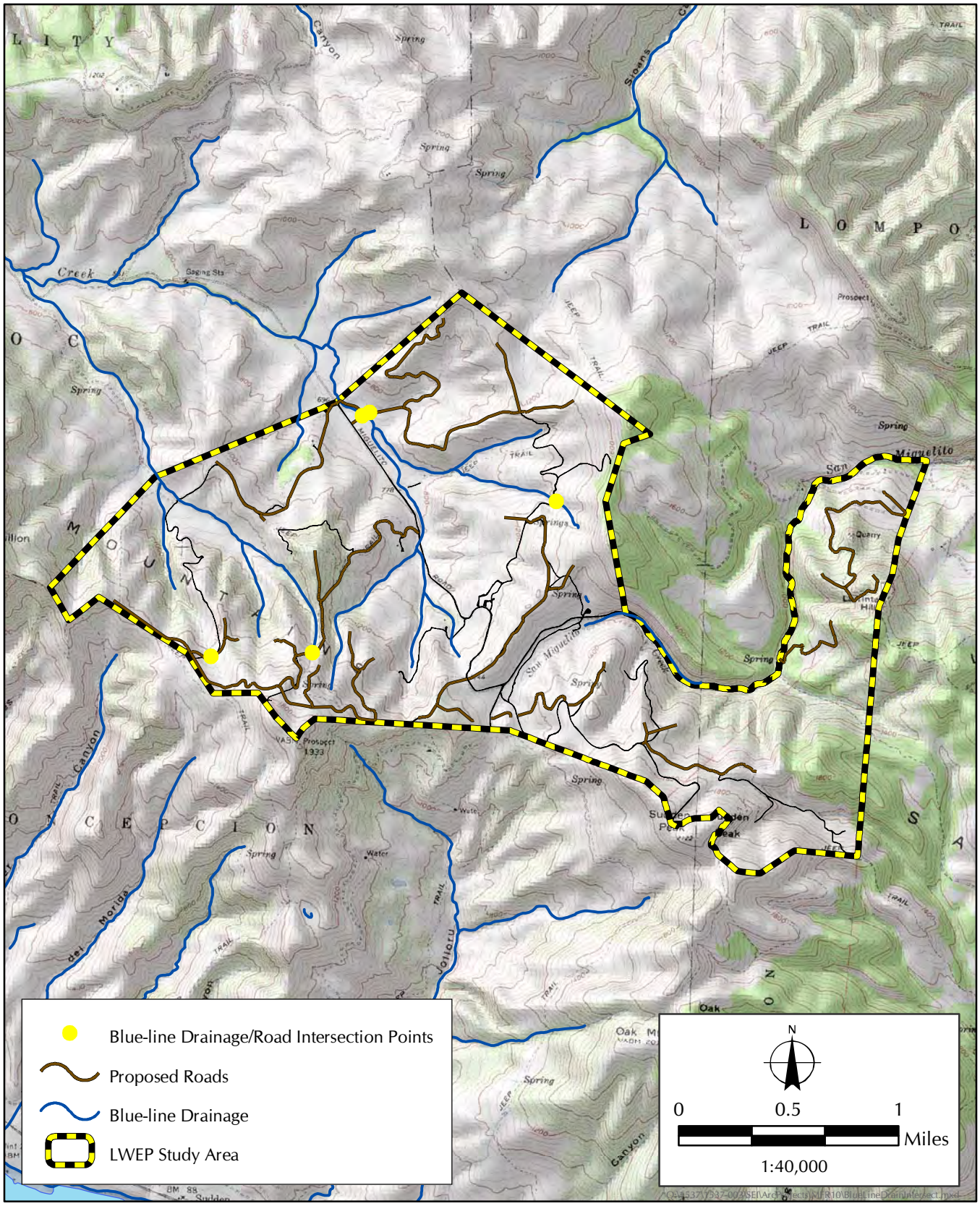
Operation	Emissions (lb/day)[1]				Emissions (ton/yr)[2]			
	ROG	NOx	CO	PM_{10}	ROG	NOx	CO	PM_{10}
Forklift	0.20	1.14	1.67	0.03	0.037	0.21	0.30	0.0055
On-site Trucks	0.09	0.05	0.84	17.85	0.016	0.009	0.153	3.26
TOTAL (lb/day)	0.29	1.19	2.51	17.88				
Threshold - Mobile and Stationary Sources (lb/day)	55	55	NA	80				
Threshold - Motor Vehicle Trips (lb/day)	25	25	NA	NA				

1. Output from URBEMIS2002 (version 8.7.0) assuming an operation year of 2008, a vehicle mix of 100% light duty trucks traveling 20 miles per day onsite on unpaved roads at 15 mph, and one forklift operating 2 hours per day.
2. Calculation assumes 365 days per year.

3. The most conservative thresholds were used to evaluate impacts. The threshold for ROG and NOx is based on the County of Santa Barbara Environmental Thresholds and Guidelines Manual, Revised October 2006.

Appendix B.
Biological Surveys and Analysis

These Appendices are on the CD-ROM located in the front pocket of this document.

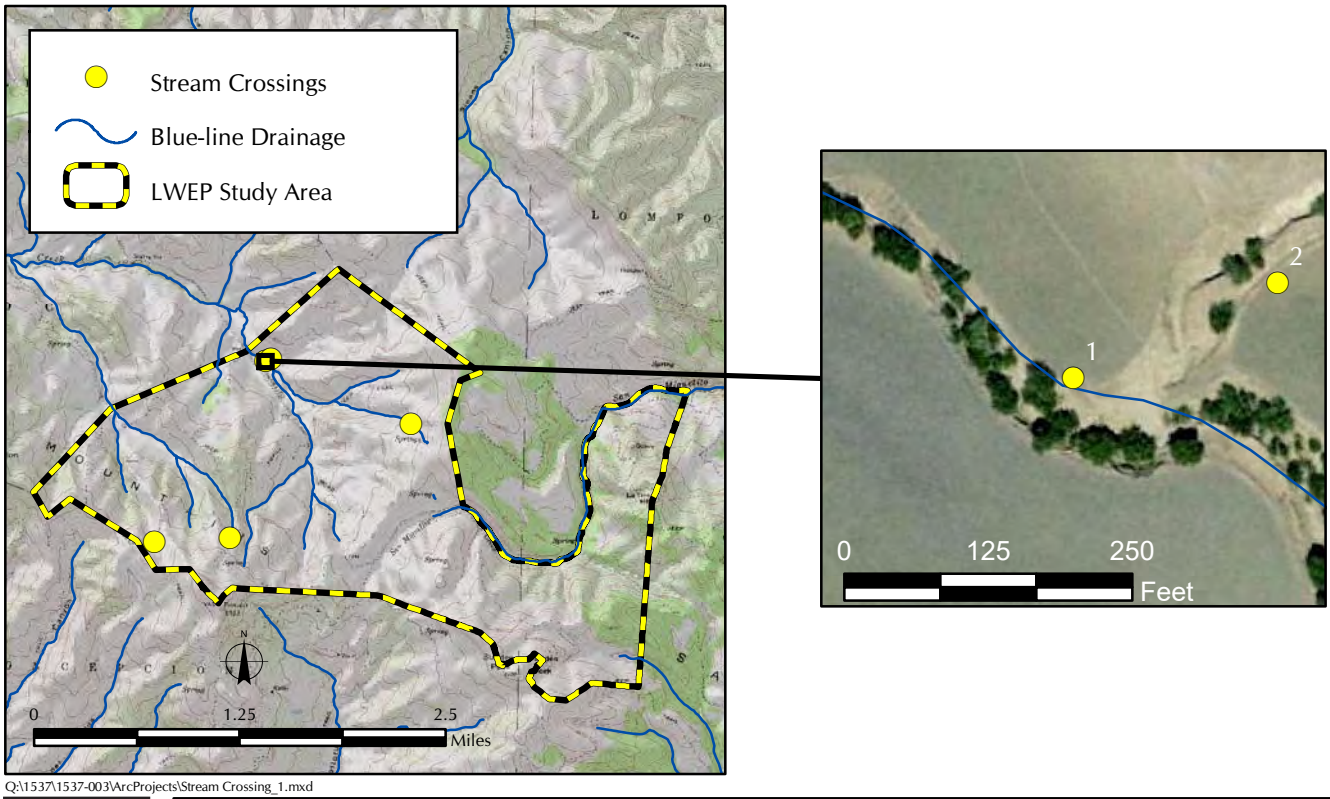


ATTACHMENT 4

Waters of the United States Survey Area

PHOTO 1
Looking North from
Blue-line Feature Crossing 1

PHOTO 2
Looking South from
Blue-line Feature Crossing 1



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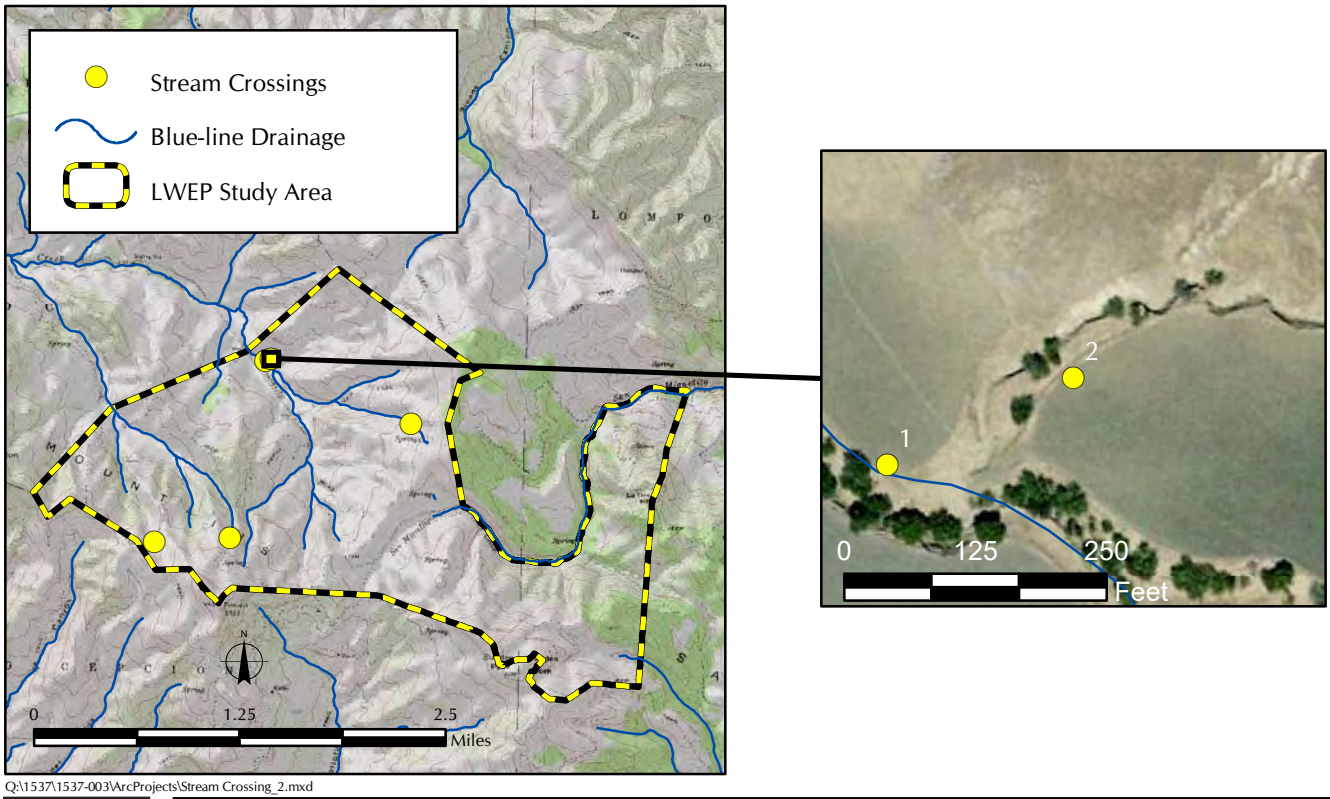
ATTACHMENT 5
Proposed Stream Line Crossing 1

PHOTO 1
Looking North from
Blue-line Feature Crossing 2

PHOTO 2
Looking South from
Blue-line Feature Crossing 2



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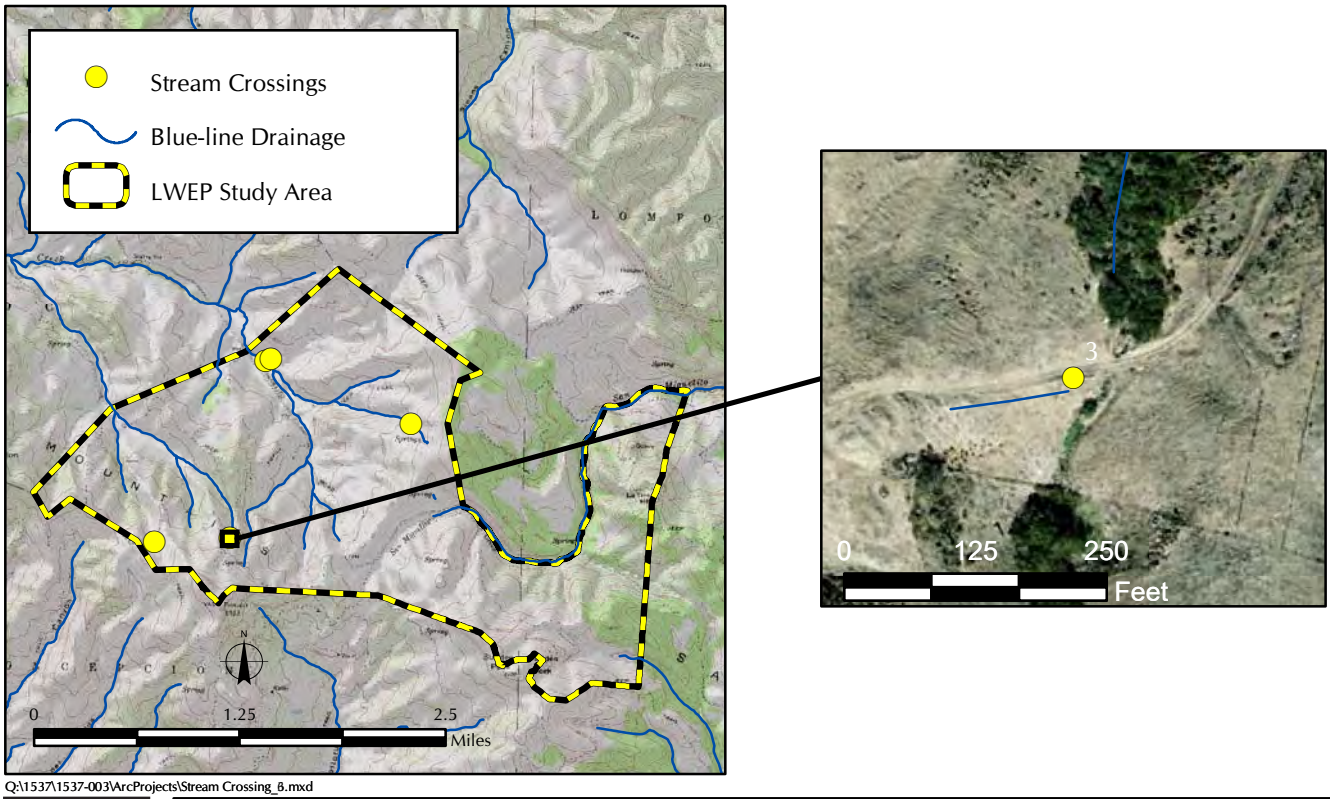
ATTACHMENT 6
Proposed Stream Line Crossing 2

PHOTO 1
Looking East from
Blue-line Feature Crossing 3

PHOTO 2
Looking West from
Blue-line Feature Crossing 3



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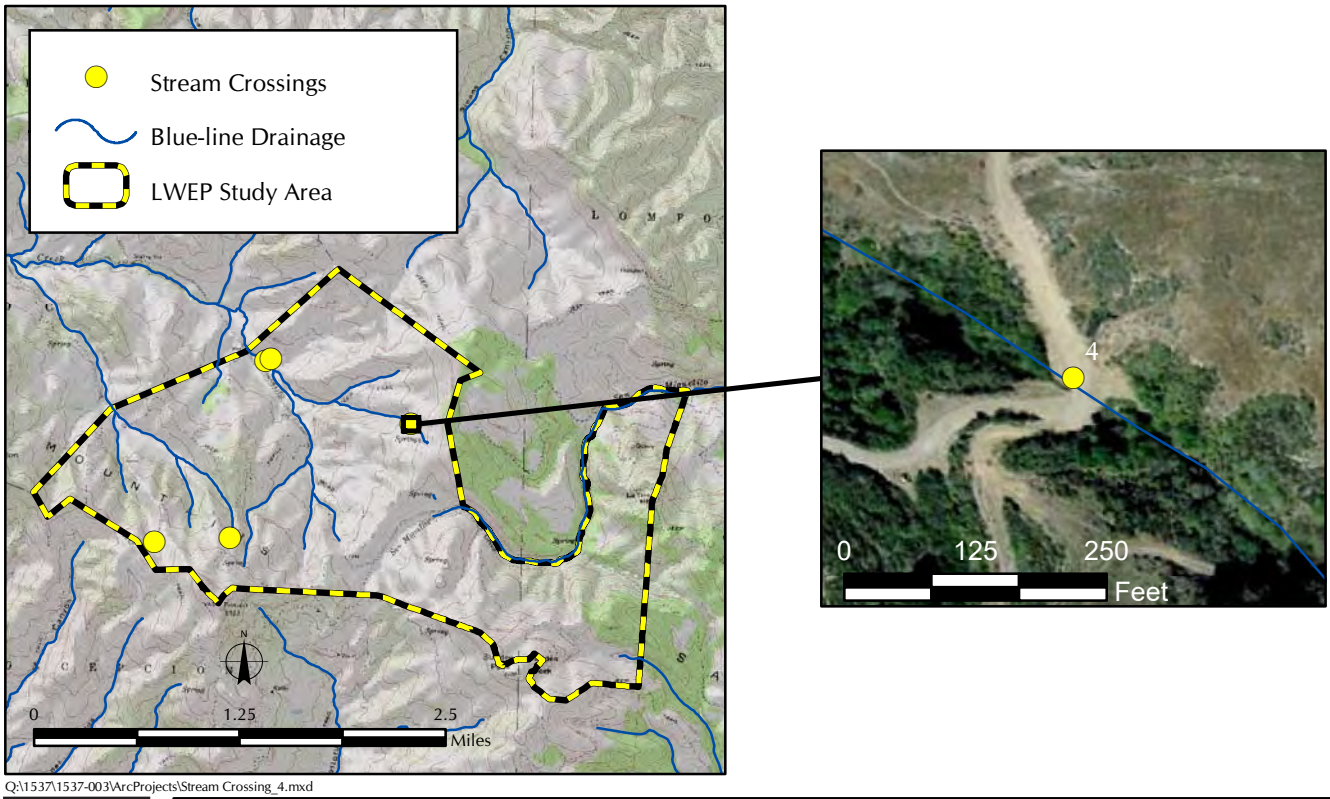
ATTACHMENT 7
Proposed Stream Line Crossing 3

PHOTO 1
Looking East from
Blue-line Feature Crossing 4

PHOTO 2
Looking West from
Blue-line Feature Crossing 4



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ATTACHMENT 8
Proposed Stream Line Crossing 4

PHOTO 1
Looking East from
Blue-line Feature Crossing 5

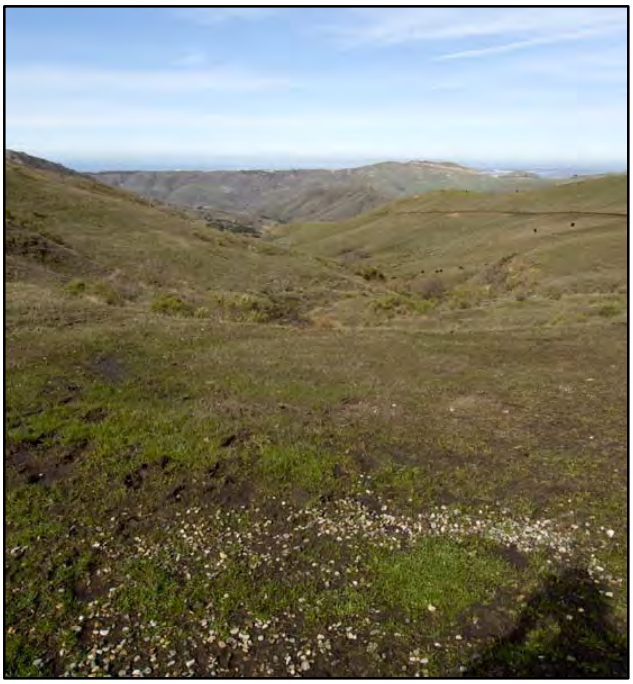
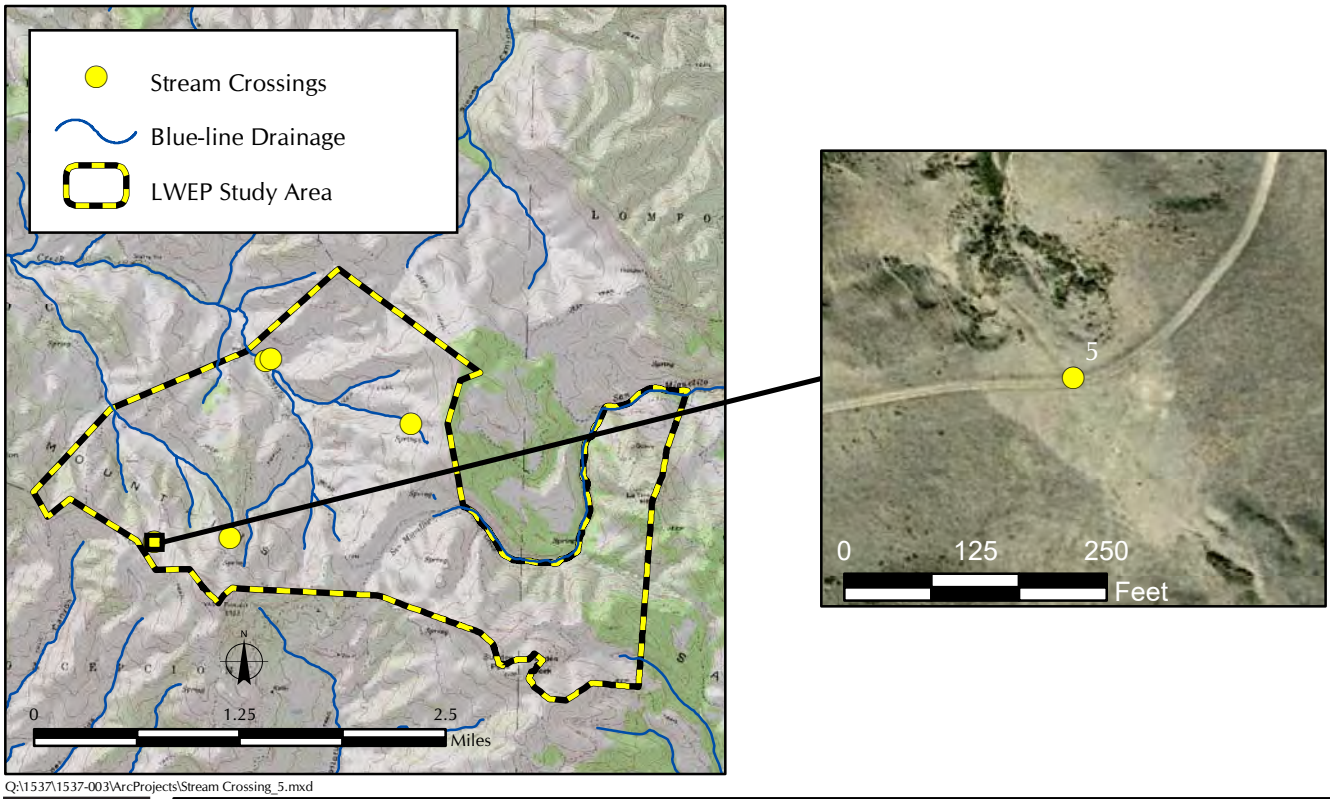


PHOTO 2
Looking West from
Blue-line Feature Crossing 5



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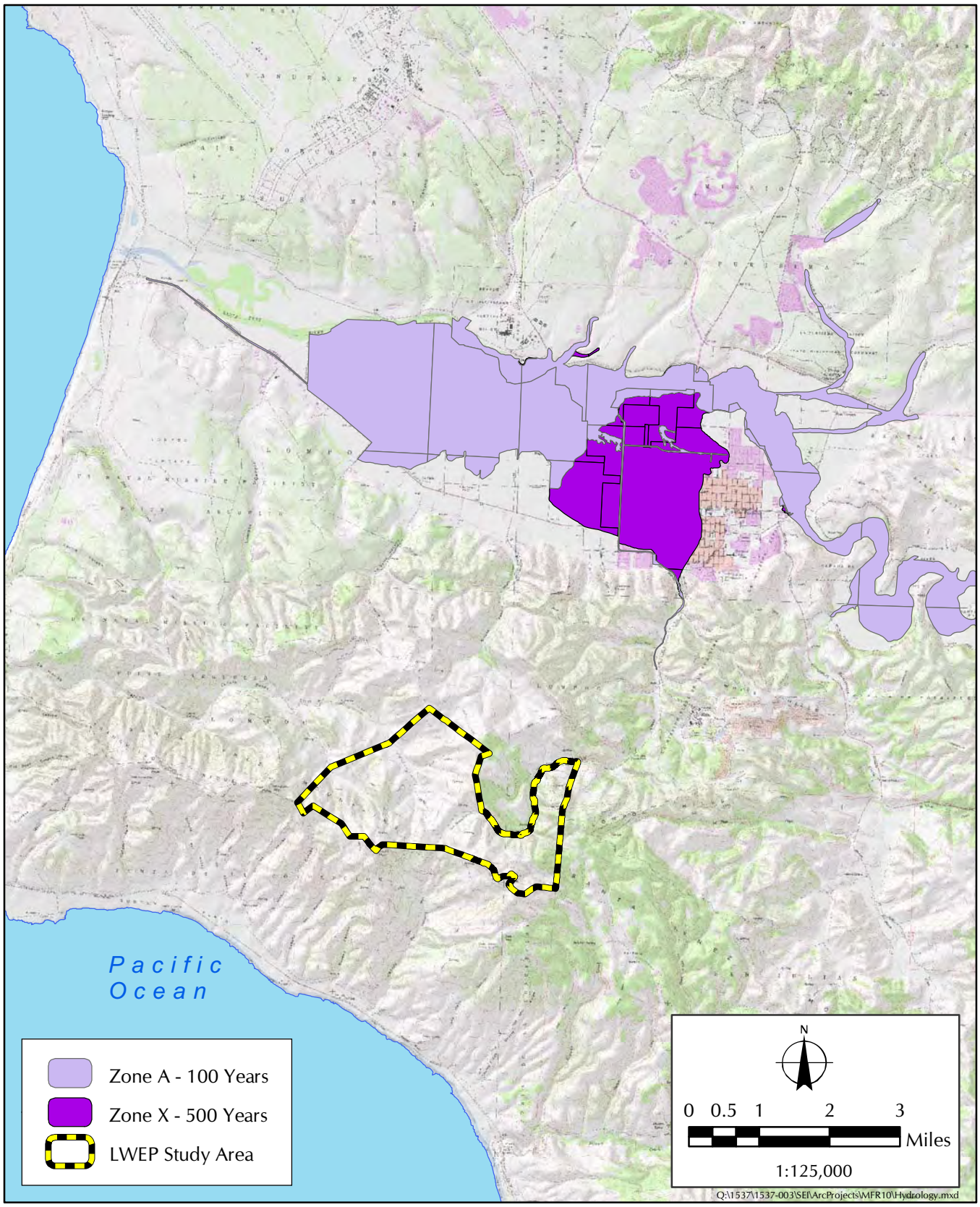
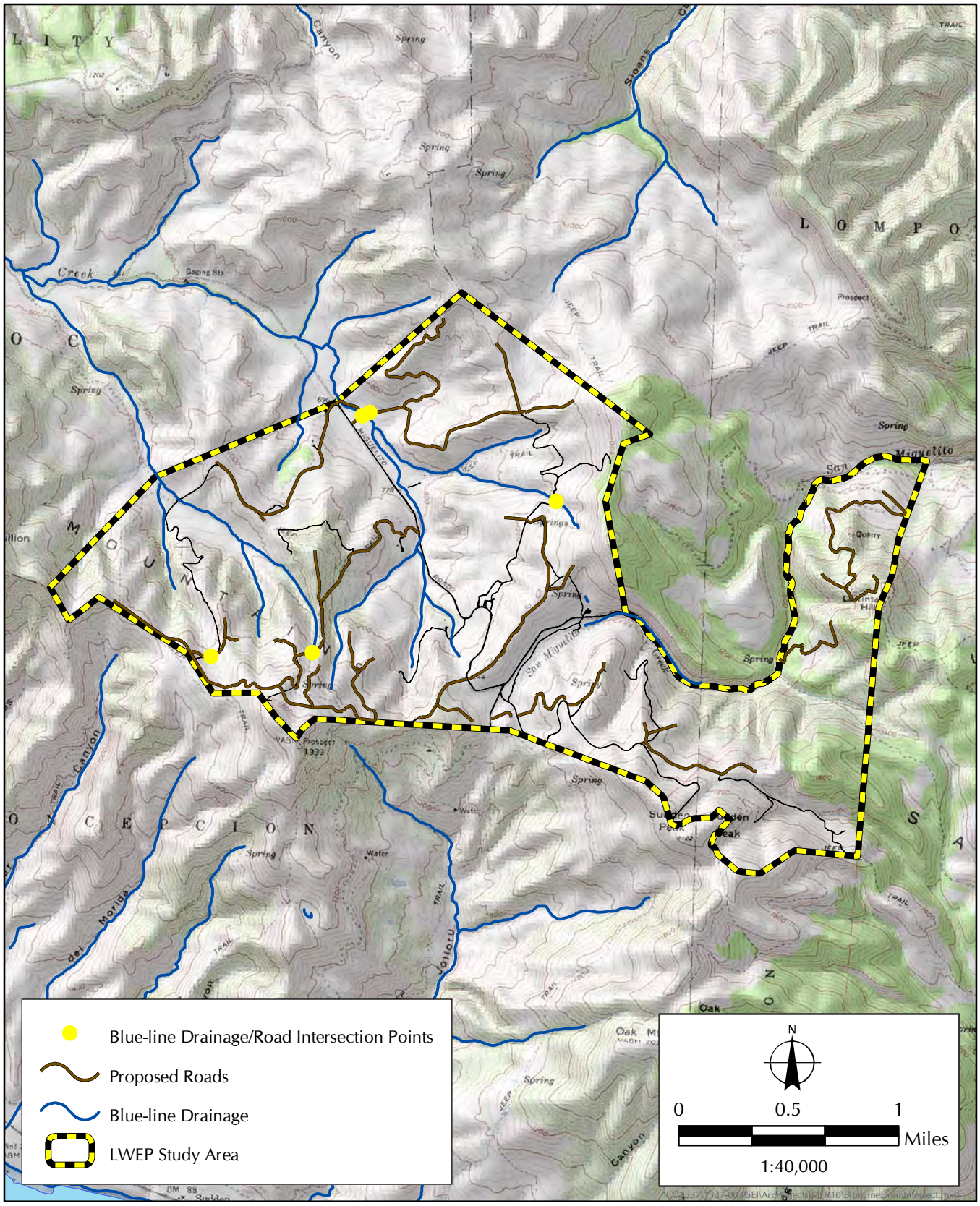
ATTACHMENT 9
Proposed Stream Line Crossing 5



ATTACHMENT 12

Flood Zone of the LWEP Study Area



ATTACHMENT 13

Blue-line Drainage/Road Intersections

APPENDIX A
DESCRIPTION OF AREAS SUBJECT TO
SECTION 404 OF THE CLEAN WATER ACT DATA SHEETS

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: LWEP Site 1 Applicant/Owner: Acciona Investigator: ACK	Date: 4/9/08 County: S. Barbara State: CA
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: _____

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Unknown lily		
2. Brass buttons (Cotula)		
3. Curly Dock (Rumex crispus)		
4. Juncus patens		
5. Coyote bush (Baccharis)		
6.		
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).

Remarks: unknown lily dominant in central drainage

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
✓ Aerial Photographs
___ Other
___ No Recorded Data Available

Field Observations:

Depth of Surface Water: N/A 0 (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: _____ (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
✓ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: large swale that drains towards road through culvert

SOILS

Map Unit Name
(Series and Phase): _____

Taxonomy (Subgroup): Sandy loam - Mollisol

Drainage Class: _____
Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
		See back of Page 2 of Sect. 1600 Data sheets			

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

(Circle)
Is this Sampling Point Within a Wetland? (Yes) No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: LWEP Site 2 Applicant/Owner: Accisna Investigator: ACK / JAG	Date: 4/18/08 & 4/17/08 County: Santa Barbara State: CA
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: _____

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Cotula sp. (Brass Buttons)			9.		
2. Lily			10.		
3. Plantago sp.			11.		
4. Polygonum			12.		
5. Curly Dock			13.		
6. Bromus sp			14.		
7. Hordeum sp.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).

Remarks: Inundated for more than 2 weeks during growing season.

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
✓ Aerial Photographs
___ Other
___ No Recorded Data Available

Field Observations: (lower section)
Depth of Surface Water: 7 (in.)
Depth to Free Water in Pit: inundated (in.)
Depth to Saturated Soil: inundated (in.)

Wetland Hydrology Indicators:
Primary Indicators:
✓ Inundated
✓ Saturated in Upper 12 Inches (lower section)
___ Water Marks
___ Drift Lines
___ Sediment Deposits
✓ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: Construction to avoid lower section of wetland.

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Field Observations
Taxonomy (Subgroup): _____ Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
		See back of Sect. 1600 Data sheets			

Hydric Soil Indicators:

- ✓ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ✓ Aquic Moisture Regime
- ___ Reducing Conditions
- ✓ Gleyed or Low-Chroma Colors
- ✓ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: Current construction plans will avoid lower section of wetland

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

Is this Sampling Point Within a Wetland? (Circle) (Yes) No

Remarks:

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: LWEP site 3 Applicant/Owner: Accima Investigator: ACK	Date: 4/9/08 & 4/10/08 County: Santa Barbara State: CA
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: _____

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Arroyo willow		
2. Juncus patens		
3. Lily sp.		
4. Blackberry		
5. Coyote Bush		
6. Plantago		
7. Poison Oak		
8. non-native grasses		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).

Remarks: Arroyo willow dominates the riparian zone ~75% cover

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
_✓_ Aerial Photographs
___ Other
___ No Recorded Data Available

Field Observations:	1	2	3	4
	0	0	0	2 in
Depth of Surface Water:				(in.)
Depth to Free Water in Pit:	0	0	24+	surface (in.)
Depth to Saturated Soil:	0	6 in	6 in	surface (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
_✓_ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____

Taxonomy (Subgroup): Histel

Drainage Class: _____
Field Observations
Confirm Mapped Type? Yes No
Sandy loam

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
		See back of sheet 2 in each			1600 Field Data sheet

Hydric Soil Indicators:

- ✓ Histosol In some areas
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- X Reducing Conditions
- X Gleyed or Low-Chroma Colors
- X Concretions
- X High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: Soil is a well mixed sandy loam; apparent slow surface flow during periods of rain. Water appears to originate from a seep/spring that is fed by surrounding hillsides. The characteristics of the soils in the hillsides keep water for long periods after rainfall

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes) No (Circle)	(Circle)
Wetland Hydrology Present?	(Yes) No	
Hydric Soils Present?	(Yes) No	Is this Sampling Point Within a Wetland? (Yes) No

Remarks:

Approved by HQUSACE 3/92

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: California County/parish/borough: Santa Barbara County City: Lompoc
Center coordinates of site (lat/long in degree decimal format): Lat. ° **Pick List**, Long. ° **Pick List**.
Universal Transverse Mercator: UTM Zone 10 727904/3829286
Name of nearest waterbody: Pacific Ocean
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Pacific Ocean
Name of watershed or Hydrologic Unit Code (HUC): 18060013

☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☐ Office (Desk) Determination. Date:
☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** *"navigable waters of the U.S."* within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]

☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
      ☐ TNWs, including territorial seas
      ☐ Wetlands adjacent to TNWs
      ☐ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
      ☐ Non-RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
      ☒ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
      ☐ Impoundments of jurisdictional waters
      ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
      Non-wetland waters: linear feet: width (ft) and/or acres.
      Wetlands: 0.188 acres.

   c. **Limits (boundaries) of jurisdiction** based on: **1987 Delineation Manual**
      Elevation of established OHWM (if known): .

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   ☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
   Explain: .

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW
Identify TNW: .

Summarize rationale supporting determination: .

2. Wetland adjacent to TNW
Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: 375.2 **square miles**
Drainage area: 7552.4 **acres**
Average annual rainfall: 18.50 inches
Average annual snowfall: 0.0 inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☒ Tributary flows through **2** tributaries before entering TNW.

Project waters are **2-5** river miles from TNW.
Project waters are **1 (or less)** river miles from RPW.
Project waters are **2-5** aerial (straight) miles from TNW.
Project waters are **1 (or less)** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

Identify flow route to TNW[5]: Tributary flows into San Miguelito Creek, which flows into the Santa Ynez River, which then flows into the Pacific Ocean..

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

Tributary stream order, if known: .

(b) General Tributary Characteristics (check all that apply):

Tributary is: ☒ Natural
☐ Artificial (man-made). Explain: .
☐ Manipulated (man-altered). Explain: .

Tributary properties with respect to top of bank (estimate):
Average width: 2 feet
Average depth: 1 feet
Average side slopes: **4:1 (or greater).**

Primary tributary substrate composition (check all that apply):

☐ Silts	☒ Sands	☐ Concrete
☐ Cobbles	☐ Gravel	☒ Muck
☐ Bedrock	☐ Vegetation. Type/% cover:	

☒ Other. Explain: Sandy Loam with streaking of gleyed hydric soils.

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: Higly eroding due to cattle presence.
Presence of run/riffle/pool complexes. Explain: .
Tributary geometry: **Relatively straight**
Tributary gradient (approximate average slope): 2 %

(c) Flow:
Tributary provides for: **Seasonal flow**
Estimate average number of flow events in review area/year: **6-10**
Describe flow regime: Area subject to winter rain events.
Other information on duration and volume: .

Surface flow is: **Discrete.** Characteristics: The wetland area meanderinly drains into San Miguelito Creek.

Subsurface flow: **No**. Explain findings: 18 inch test pits uncovered no water.
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☒ Bed and banks
☐ OHWM[6] (check all indicators that apply):

☐ clear, natural line impressed on the bank	☐ the presence of litter and debris
☐ changes in the character of soil	☐ destruction of terrestrial vegetation
☐ shelving	☐ the presence of wrack line
☐ vegetation matted down, bent, or absent	☐ sediment sorting
☐ leaf litter disturbed or washed away	☐ scour
☐ sediment deposition	☐ multiple observed or predicted flow events
☐ water staining	☐ abrupt change in plant community
☐ other (list):	

☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by:	☐ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects	☐ survey to available datum;
☐ fine shell or debris deposits (foreshore)	☐ physical markings;
☐ physical markings/characteristics	☐ vegetation lines/changes in vegetation types.
☐ tidal gauges	
☐ other (list):	

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: Entire area is heavily used by cattle and water quality reflects this. Water color is a murky brown..
Identify specific pollutants, if known: .

[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

(iv) Biological Characteristics. Channel supports (check all that apply):

☒ Riparian corridor. Characteristics (type, average width): .
☐ Wetland fringe. Characteristics: .
☒ Habitat for:
☐ Federally Listed species. Explain findings: .
☐ Fish/spawn areas. Explain findings: .
☐ Other environmentally-sensitive species. Explain findings: .
☒ Aquatic/wildlife diversity. Explain findings: Western Toads and Pacific Treefrogs (tadpoles and adults) were present further downstream of the impact area.

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:
Properties:
Wetland size:0.233 acres
Wetland type. Explain:Seasonal.
Wetland quality. Explain:Highly eroded due to cattle presence.
Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:
Flow is: **Intermittent flow**. Explain: Site experiences winter rain events.

Surface flow is**: Discrete**
Characteristics: Wetland meanderingly drains into San Miguelito Creek.

Subsurface flow: **No**. Explain findings: Soil test pits uncovered no water.
☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:
☐ Directly abutting
☒ Not directly abutting
☒ Discrete wetland hydrologic connection. Explain: The wetland area is a very small channel that form into a large swale that reforms into an incised channel which then flows into San Miguelito creek (RPW)..
☐ Ecological connection. Explain: .
☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW
Project wetlands are **2-5** river miles from TNW.
Project waters are **2-5** aerial (straight) miles from TNW.
Flow is from: **Wetland to navigable waters.**
Estimate approximate location of wetland as within the **100 - 500-year** floodplain.
4.5 miles from the 500-year floodplain

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: Water color is a murky brown and water quality reflects the heavy cattle use.
Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):

☒ Riparian buffer. Characteristics (type, average width):Average width of riparian vegetation is 15 feet.
☐ Vegetation type/percent cover. Explain:Wetland is dominated by Arroyo Willows.
☒ Habitat for:
☐ Federally Listed species. Explain findings: .
☐ Fish/spawn areas. Explain findings: .
☐ Other environmentally-sensitive species. Explain findings: .
☒ Aquatic/wildlife diversity. Explain findings:Western Toads and Pacific Treefrogs (tadpoles and adults) were present downstream of the impacted wetland area..

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **1**
Approximately (0.233) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)
N	0.233		

Summarize overall biological, chemical and physical functions being performed: .

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: The wetland flows into San Miguelito creek (RPW), which flows into the Santa Ynez river and then into the Pacific Ocean (TNW).

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: linear feet width (ft), Or, acres.
   - ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .
   - ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

3. Non-RPWs[8] that flow directly or indirectly into TNWs.
☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.
☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.
☒ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.
☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. Impoundments of jurisdictional waters.[9]
As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
☐ Demonstrate that impoundment was created from "waters of the U.S.," or
☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

[8] See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .
☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☒ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☐ U.S. Geological Survey Hydrologic Atlas: .
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name:1:24,000 Surf, Lompoc, Tranquilon Mtn., Lompoc Hills..
☐ USDA Natural Resources Conservation Service Soil Survey. Citation: .
☒ National wetlands inventory map(s). Cite name:Tranquillon Mtn...
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date):0.3 Meter Orthorectified, 2004, Obtained from GlobeXplore, Inc..
or ☐ Other (Name & Date): .
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .
☐ Applicable/supporting scientific literature: .
☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: Although 3 wetlands were delineated, current construction plans will only impact one of these wetlands, which account for 0.233 acre of waters. These wetlands do eventually drain into the San Miguelito creek which is an RPW. San Miguelito flows into the Santa Ynez River which then flows into the Pacific Ocean. Hence, this wetland is jurisdictional.

APPENDIX B
DESCRIPTION OF AREAS SUBJECT TO
SECTION 1600 OF THE STATE FISH AND GAME CODE DATA SHEETS

SECTION 1600 FISH AND GAME CODE FIELD ASSESSMENT SHEET

Project Name and Site No.	Project No.
LWEP Site 1	1537-003
Date: 4/9/08	Time start: 1100
Surveyors: ACK	

Photo data	Weather data
Photo No.: 1-5	Air temperature: 59° F
Taken from (direction): 1) W→E, 2) S→N, 3) E→W, 4) N→S	Cloud cover (%) 0% Chemtrails present
Description of photo: 5) Channel	Precipitation: [ ] yes [X] no
	Estimated wind speed: 5-10% Gusty

Physical Characteristics

Adjacent land uses (e.g., residential, commercial, open space)

North: Ruderal - cattle grazing	East: " "
South: " "	West: " "
Slope %: Southern sloping 2-3%	Soil description: Sandy loam 10YR 3/4
Aspect: Southern	
GPS location: N34°34.406 W120°31.038	

Previous/existing disturbances, both natural and anthropogenic (describe and depict on aerial):

Extensive grazing, mixture of native + nonnative grassland

Evidence of Aquatic or Riparian Resources (take photo and depict on aerial)

Is there a well-defined stream, bed, bank? [ ] yes (fill out section below) [X] no

Classify stream as follows: [X] ephemeral [ ] intermittent [ ] perennial

Presence of aquatic wildlife? [ ] yes [X] no

Obvious wildlife movement corridor? [ ] yes [X] no

Width of stream from top of streambed:

Width of riparian vegetation:

Cross-section sketch of stream section and vegetation:

- gentle depression
- funnels toward upper section

Shelving: [ ] yes [X] no	Sediment deposition: [ ] yes [X] no
Debris lines: [ ] yes [X] no	Presence of defined bed and bank: [ ] yes [X] no
OHWM: [ ] yes [X] no	Riparian vegetation: [X] yes (note below) [ ] no
Water marks: [ ] yes [X] no	Flowing or standing water: [ ] yes [X] no

Notes: cattails, lilly, juncus patens

Vegetation Communities				
Plant communities within and adjacent to crossings:				
Species	% cover	Terrestrial upland	Aquatic	Riparian
unknown lily	80%			✓
Brass buttons	<5%	✓		✓
curly dock	<5%	✓		✓
Juncus patens	<5%	✓		✓
Coyote Bush	<5%	✓		

Wildlife				
		Primary Habitat		
Species	Sign*	Terrestrial upland	Aquatic	Riparian
turkey vulture	O	✓	✓	✓
CA ground squirrel	O	✓		
Red-tailed hawk	O	✓	✓	✓

flyover

* B = burrow; C = carcass; Fe = feathers; Fu = fur; N = nest; O = observed; S = scat; T = tracks; V = vocalization

Pit #	Horizon/depth	Matrix Color	Mottle Color	Mottle abundance	texture/concretions
1	0-0.25 A_o 0.25-18 B	10YR 3/4 5YR 3/2	N/A	N/A	Sandy loam Pedogenesis
2	0-.25 A_o .25-18 B	10YR 3/4 5YR 3/2	10YR 5/6	<5%	Sandy loam Pedogenesis
3	0-0.25 A_o .25-18 B	10YR 3/4 5YR 3/2	N/A	—	Sandy loam Pedogenesis
4	0-.25 A_o .25-18 B	10YR 3/4 5YR 3/2	N/A	—	"
5	0-.25 A_o .25-18 B	10YR 3/4 5YR 3/2	N/A	—	"
6	0-18 B	10YR 4/2	N/A	—	"

* No surface or sub surface inundation

SECTION 1600 FISH AND GAME CODE FIELD ASSESSMENT SHEET

Project Name and Site No.	Project No.
LWEP Site 2	1537-003
Date: 4/15/08	Time start: 0900
Surveyors: ACK + JAG	

Photo data	Weather data
Photo No.:	Air temperature: 60°F
Taken from (direction): upper 1) S→N 2) E→West 3) N→S / lower 4+5) S→N	Cloud cover (%) 30%
Description of photo:	Precipitation: [ ] yes [X] no
	Estimated wind speed: 5-10 Gusty

3 upper & 2 lower

Physical Characteristics

Adjacent land uses (e.g., residential, commercial, open space)

North: Ruderal	East:
South: Ruderal	West:
Slope %: 0-1 Varying	Soil description: See back
Aspect: South sloping	
GPS location: Center N 34°34.571, W 120° 30.951	

Previous/existing disturbances, both natural and anthropogenic (describe and depict on aerial):

Cattle grazing

Evidence of Aquatic or Riparian Resources (take photo and depict on aerial)

Is there a well-defined stream, bed, bank? [X] yes (fill out section below) [ ] no

Classify stream as follows: [ ] ephemeral [X] intermittent [X] perennial

Presence of aquatic wildlife? [X] yes [ ] no Toads / Frogs & tadpoles

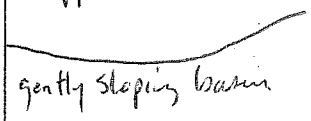
Obvious wildlife movement corridor? [ ] yes [X] no

Width of stream from top of streambed:
Upper N/A Lower 7 feet Varying Cavg. = 7

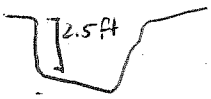
Width of riparian vegetation:
Unknown Lilly 7 feet * Unknown Lilly may not be riparian - could be facultative

Cross-section sketch of stream section and vegetation:

upper



lower



incised channel, defined bed / bank

Shelving:	[X] yes [ ] no	Sediment deposition:	[X] yes [ ] no
Debris lines:	[ ] yes [X] no	Presence of defined bed and bank:	[X] yes [ ] no
OHWM:	[ ] yes [ ] no	Riparian vegetation: *	[X] yes (note below) [ ] no
Water marks:	[X] yes [ ] no	Flowing or standing water:	[X] yes [ ] no

Notes:
* Unknown Lilly

Vegetation Communities				
Plant communities within and adjacent to crossings:				
Species	% cover	Terrestrial upland	Aquatic	Riparian
Bracs buttons	5%	✓		✓
oxbow lily	50-70%			✓
Plantago spp	15%			✓
Polygonum	45%			✓
Curly Dock	5%	✓		✓
Bromus spp	50%	✓		
Hordeum spp	45%	✓		✓

Wildlife				
		Primary Habitat		
Species	Sign*	Terrestrial upland	Aquatic	Riparian
Coast Garter snake	O	✓	✓	✓
CA ground squirrel	O			
Meadowlark	O	✓	✓	✓
Western toad tads	O			
Pseudacris regilla tads	O			

* B = burrow; C = carcass; Fe = feathers; Fu = fur; N = nest; O = observed; S = scat; T = tracks; V = vocalization

Pit #	Horizon/Depth	Matrix Color	Mottle Color	Mottle Abundance	Texture
1 (Upper section)	0-18 A	10YR 3/2	5YR 3/3	10%	Sandy loam
2	"	10YR 3/2	5YR 3/3	10%	"
3	"	10YR 3/3	—	—	"
4	"	10YR 4/3	10YR 4/6	15%	"
5	"	10YR 3/2	5YR 3/3	5%	"
6	"	10YR 3/2	5YR 3/3	<5%	"
7 (Lower section)	saturated 0-18 A	Sat. 2.5YR 2.5/1	5YR 3/3	10%	"
8	"	Dry 10YR 3/2	5YR 3/3	<5%	"
9	"	10YR 3/2	5YR 3/3	10%	"
10	"	10YR 3/2	5YR 3/3	5%	"
11	"	10YR 3/2	5YR 3/3	5%	"
12	"	10YR 3/2	5YR 3/3 = 40% 2.5YR 2.5/3 = 5%		"
13	"	10YR 3/3	5YR 3/3	10%	"

SECTION 1600 FISH AND GAME CODE FIELD ASSESSMENT SHEET

Project Name and Site No.	Project No.
LWEP site 3	1537-003
Date: 4/9/08 | Time start: 0900	
Surveyors: ACK	

Photo data	Weather data
Photo No.: 1-7	Air temperature: 59° F
Taken from (direction): 1) S→N 2) E→W 3) N→S 4) W→E 5) Center	Cloud cover (%) <5% chemtrails present
Description of photo: 6) Center 2 7) Center 3 *transect numbers coincide w/ pit transects	Precipitation: [ ] yes [ ] no
	Estimated wind speed: 5-10 mph gusty

Physical Characteristics

Adjacent land uses (e.g., residential, commercial, open space)

North: ruderal - cattle grazing	East: " "
South: ruderal - cattle grazing	West: " "
Slope %: 3-4% varying	Soil description: Sandy loam 10 YR 4/3
Aspect: SE	
GPS location: N34°34.482' W120°31.106	

Previous/existing disturbances, both natural and anthropogenic (describe and depict on aerial):

High cattle usage; trampling, grazing, urine and excrement, sedimentation, erosion/slight channelization

Exotic plants such as non-native grasses, Eucalyptus

Evidence of Aquatic or Riparian Resources (take photo and depict on aerial)

Is there a well-defined stream, bed, bank? [X] yes (fill out section below) [ ] no

Classify stream as follows: [X] ephemeral [ ] intermittent [ ] perennial Subsurface seepings

Presence of aquatic wildlife? [ ] yes [X] no

Obvious wildlife movement corridor? [ ] yes [X] no * only for cattle

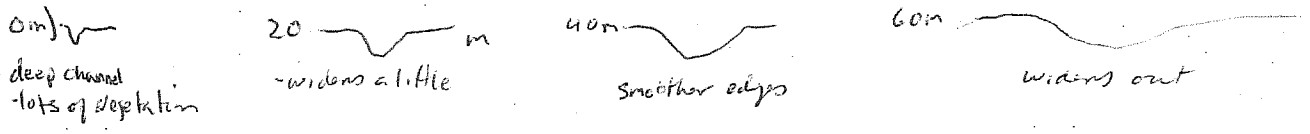
Width of stream from top of streambed:

0m) n/a 20m) n/a 40m) n/a 60m) 14 inches n/a = no water present on surface

Width of riparian vegetation:

0m) 25 ft 20m) 17 ft 40m) 10 ft 60m) n/a n/a = no vegetation present

Cross-section sketch of stream section and vegetation:



Shelving: [ ] yes [X] no	Sediment deposition: [ ] yes [X] no
Debris lines: [ ] yes [X] no	Presence of defined bed and bank: [X] yes [ ] no
OHWM: [ ] yes [X] no	Riparian vegetation: [X] yes (note below) [ ] no
Water marks: [ ] yes [X] no	Flowing or standing water: [X] yes [ ] no

Notes:

Riparian Vegetation: Arroyo willow, blackberry, poison oak, juncus patterns, coyote brush, plaintago, unknown lilly

Vegetation Communities

Plant communities within and adjacent to crossings: non-native grassland adjacent, Riparian veg community within (See species previous page)

Species	% cover	Terrestrial upland	Aquatic	Riparian
Arroyo Willow	75% in R zone			✓
Juncus patens	5%	✓		
unknown lily	10%	✓ - edges		✓
Blackberry	10%			✓
Coyote Bush	5%	✓		
Plantago	10%	✓		✓
Poison Oak	5%			✓
non-native grasses	95% upland	✓		

Wildlife

Species	Sign*	Primary Habitat		
		Terrestrial upland	Aquatic	Riparian
Turkey vulture	O			
Passerines	O			
- horned lark	O			
- unknown	O			
- scrub jay	O			
Botta's Pocket Gopher	B			
CA ground squirrels	B			

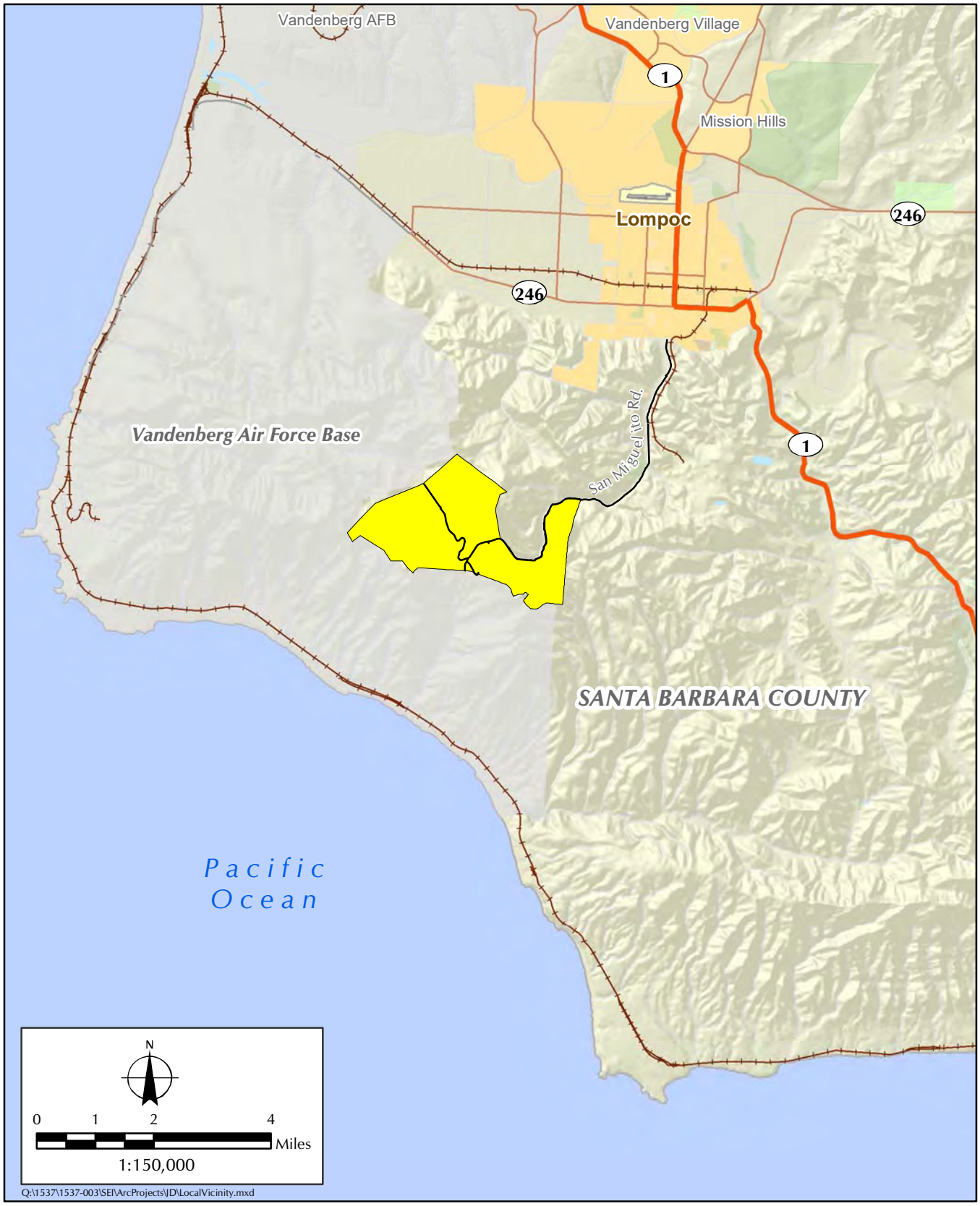
* B = burrow; C = carcass; Fe = feathers; Fu = fur; N = nest; O = observed; S = scat; T = tracks; V = vocalization

Pit #	Horizon/Depth	Matrix Color	Mottle color	Mottle abundance	Texture
1 (0m)	0–18 B	2.5Y 3/1	–	–	Sandy loam Cohesion Thru high moisture
2 (20m)	0–.5 A_0 .5–18 B	10YR 3/4	–	–	moist in lower portion of pit Sandy loam
3 (40m)	0–1.0 A_0 1.0–18 B	2.5YR 3/1	–	–	Sandy loam
4 (60m)	0–18 B	10YR 3/2	–	–	" (1.5 ft to dry soil)

LWEP Property

ATTACHMENT 1

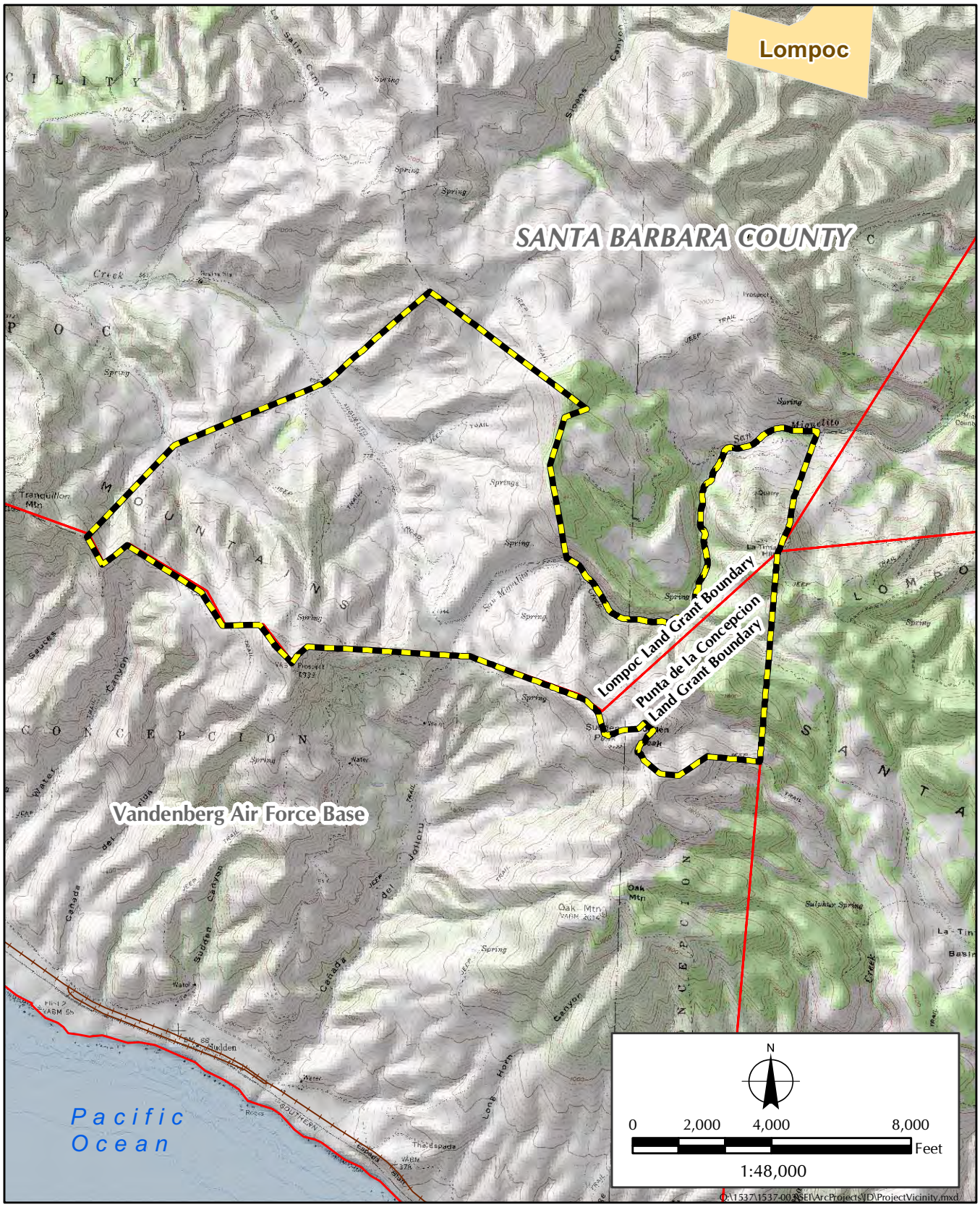
Regional Vicinity Map



LWEP Property

ATTACHMENT 2

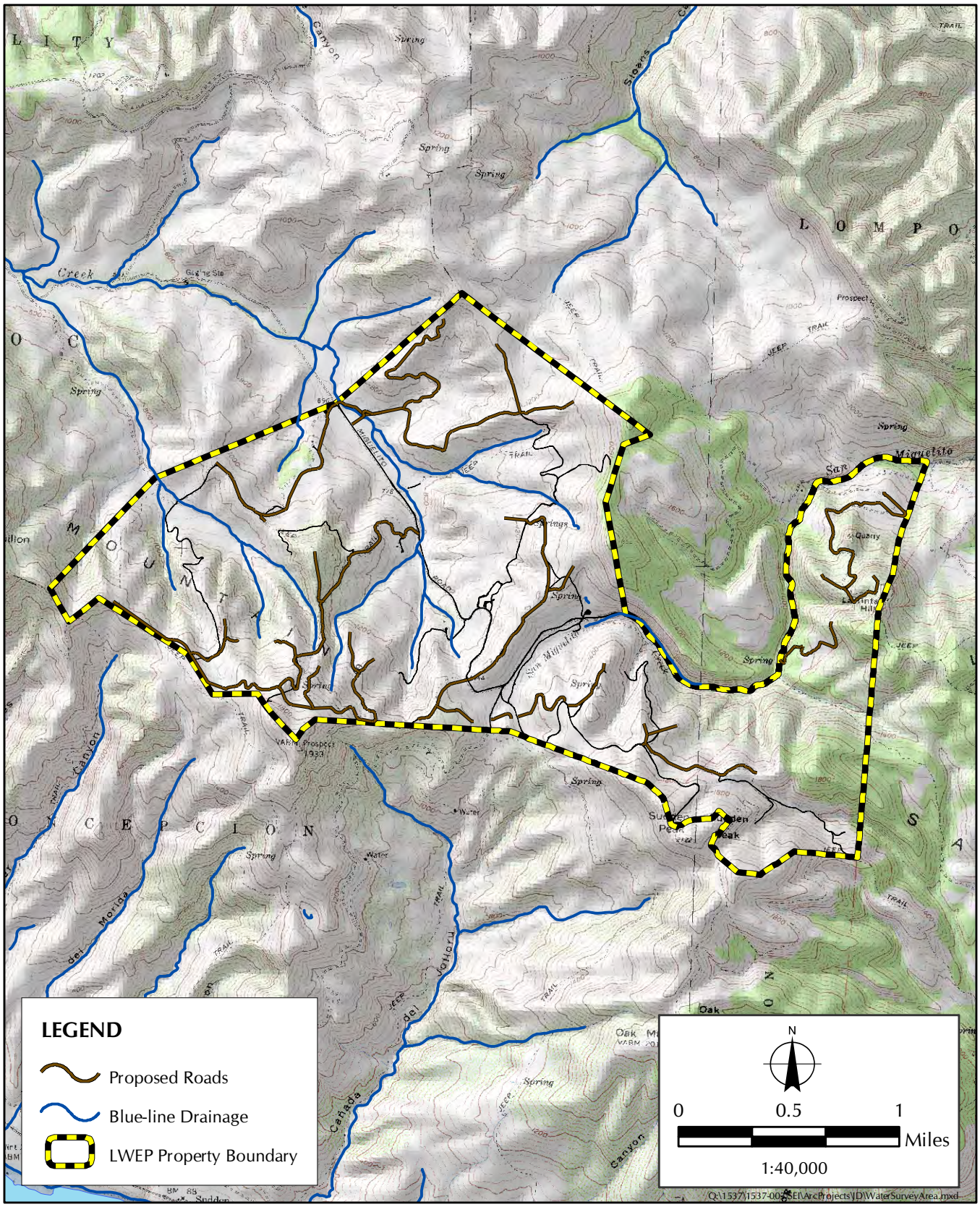
Local Vicinity Map



LWEP Property Boundary

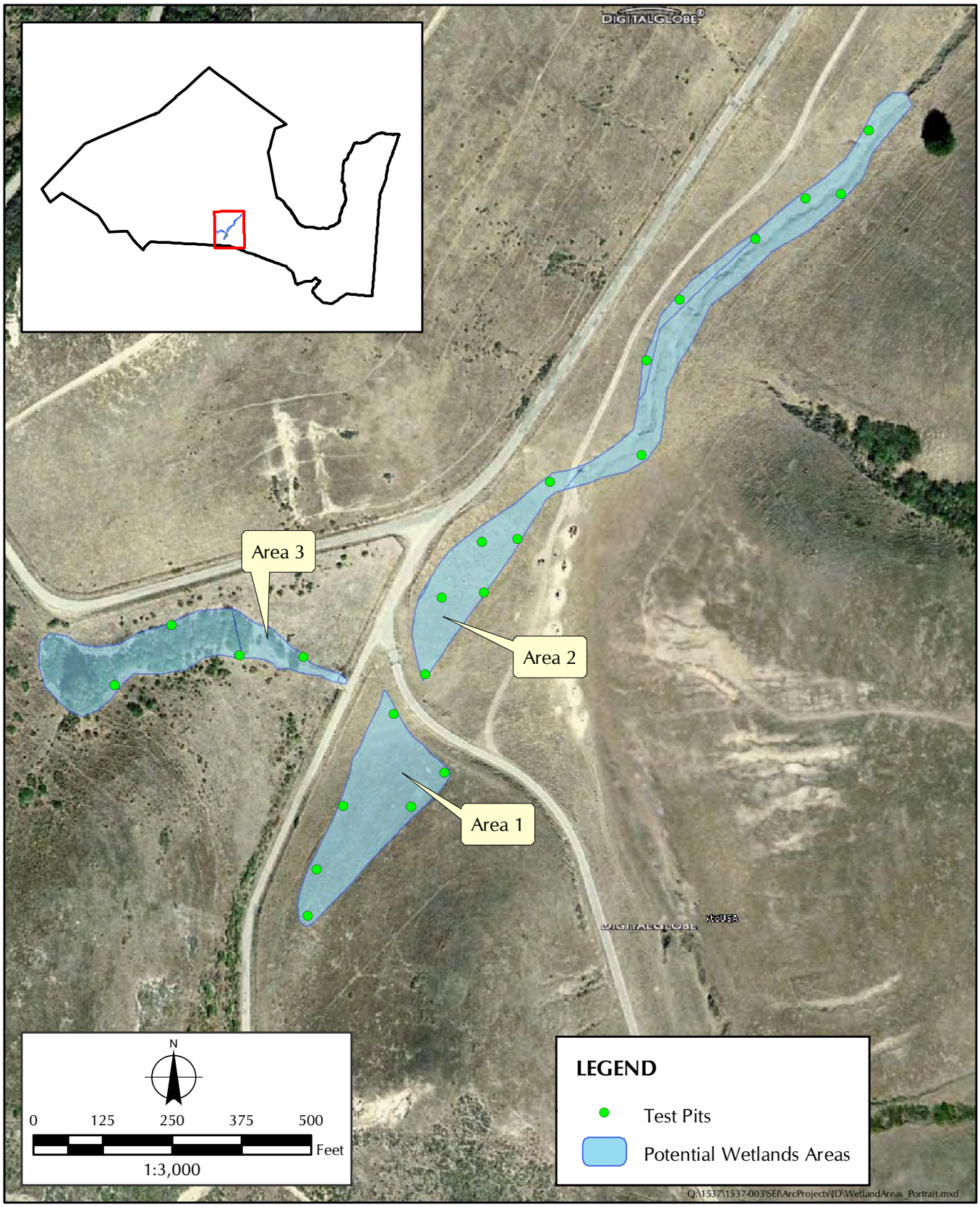
ATTACHMENT 3

Project Site Map



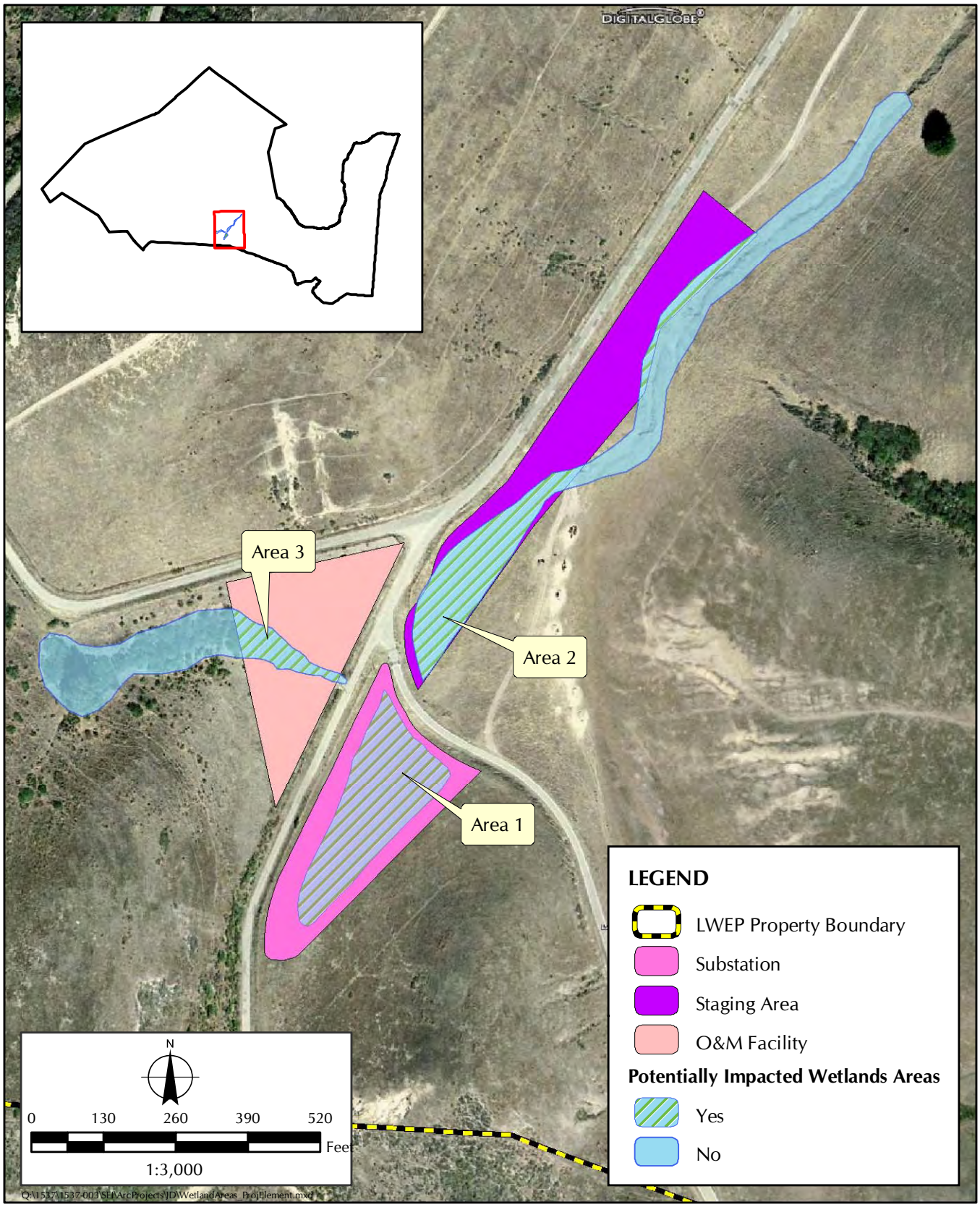
ATTACHMENT 4

Waters of the United States Survey Area



ATTACHMENT 5

Potential Wetlands Survey Area



ATTACHMENT 6

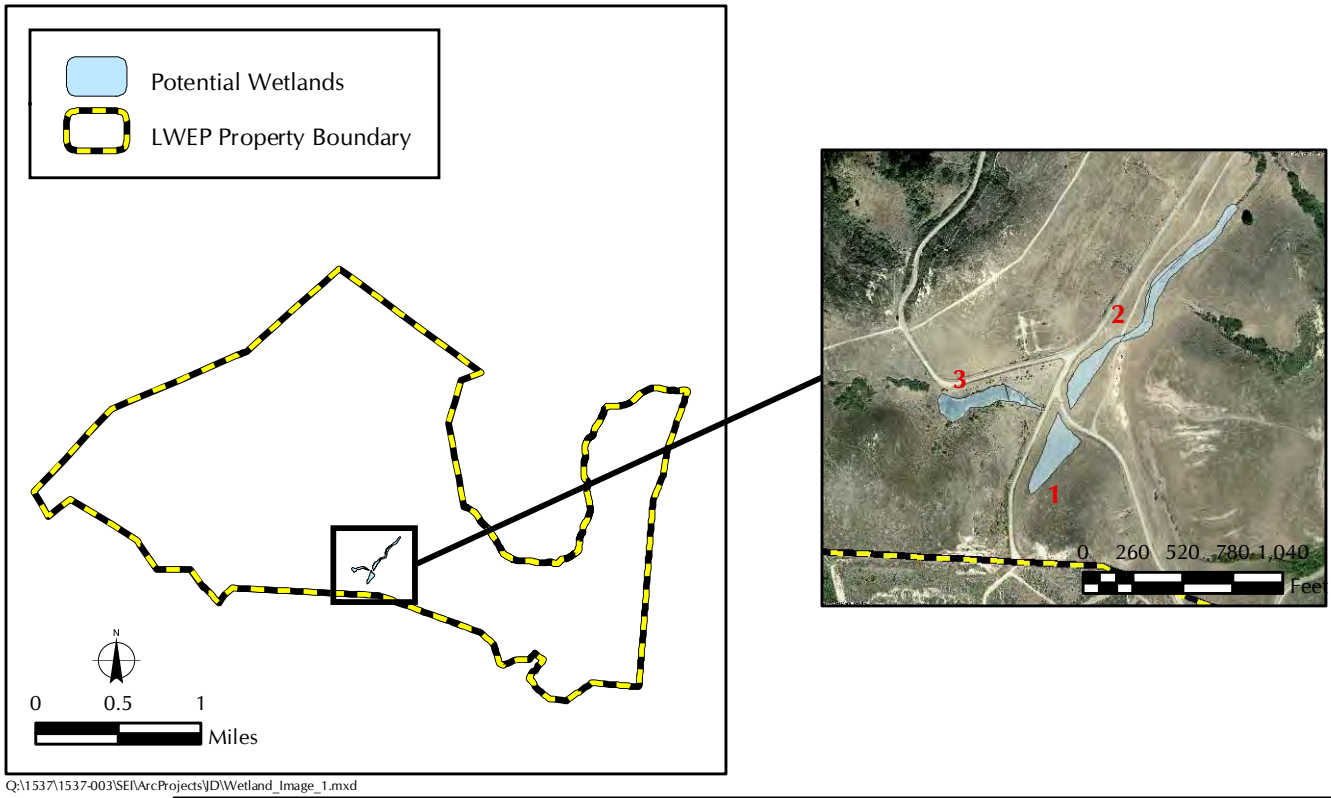
Potential Wetlands Areas with Project Elements

PHOTO 1

Looking Northeast from
Wetlands Area 1

PHOTO 2

Looking Southwest from
Wetlands Area 1



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ATTACHMENT 7

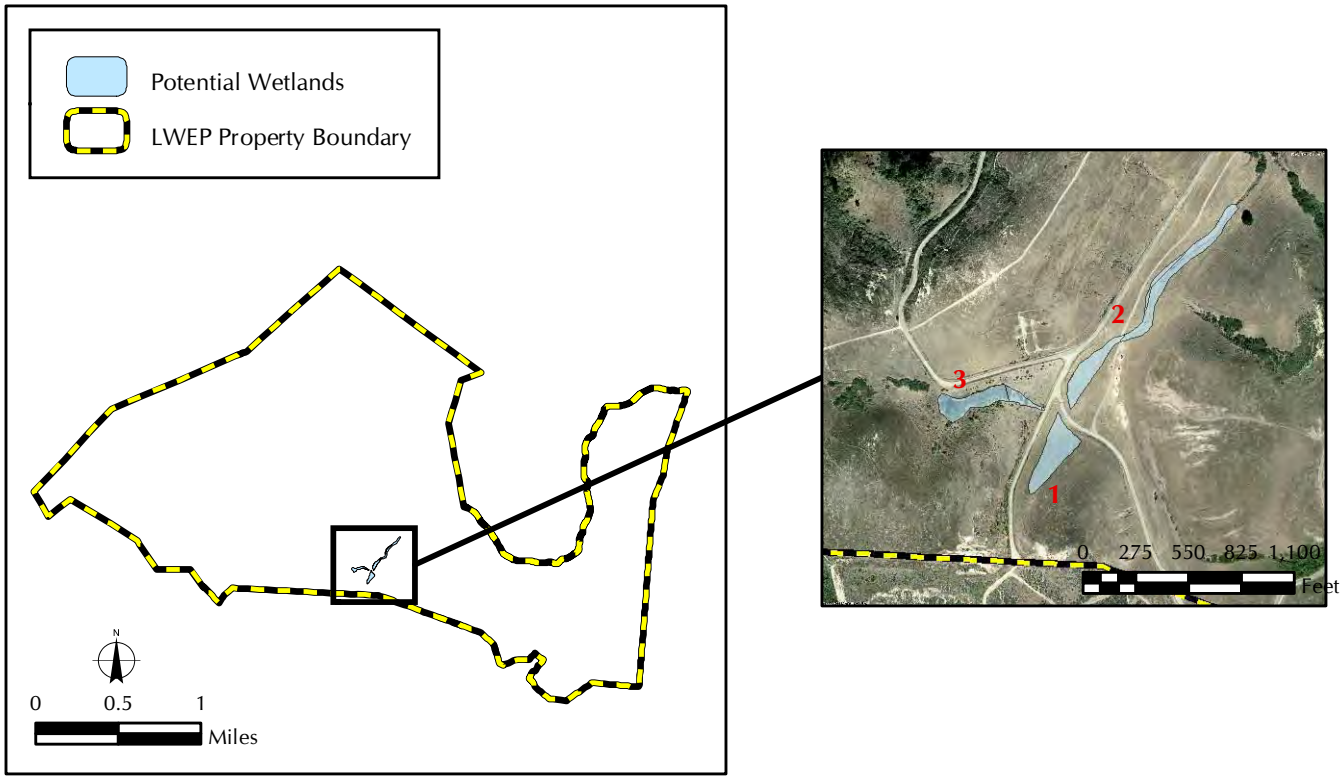
Potential Wetlands Area 1

PHOTO 1

Looking Northeast from Wetlands Area 2

PHOTO 2

Looking Northeast into lower channel from Wetlands Area 2



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ATTACHMENT 8

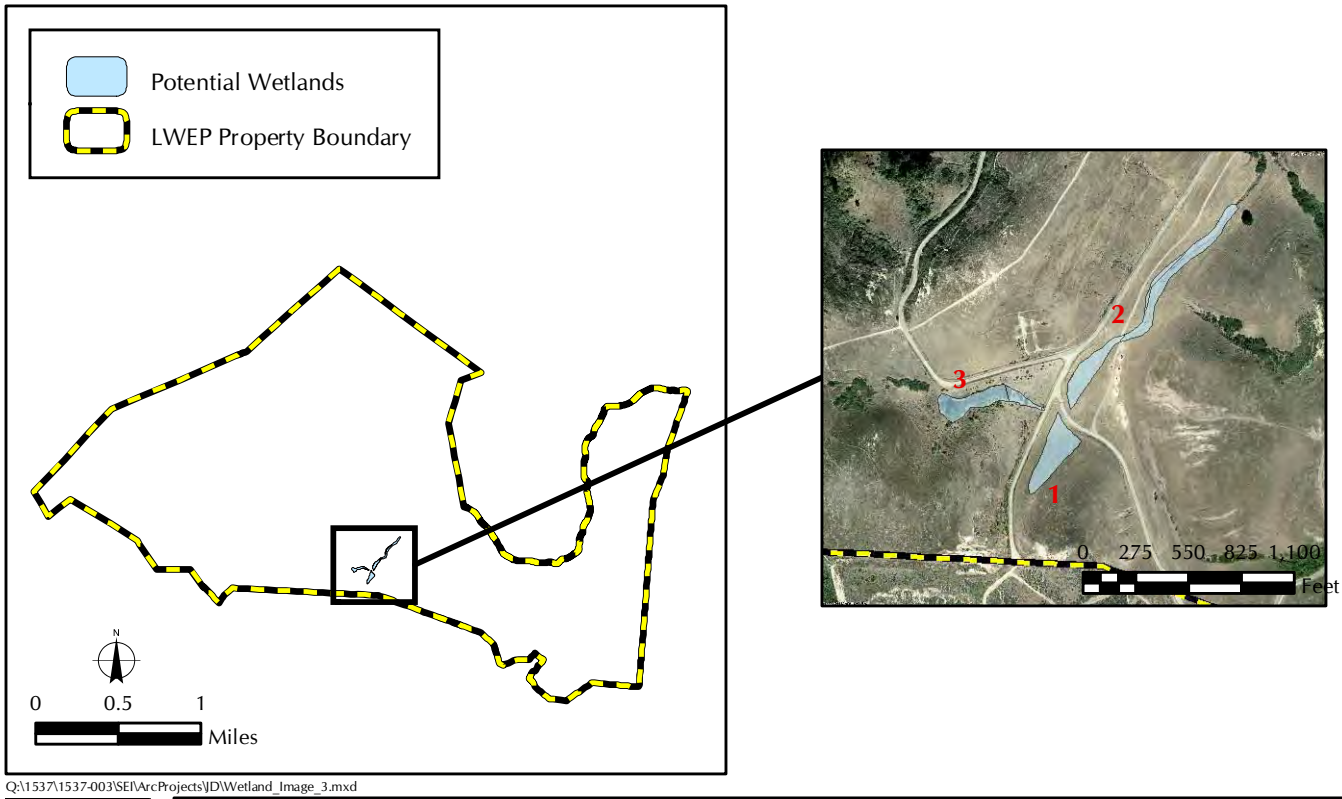
Potential Wetlands Area 2

PHOTO 1

Looking Southwest from
Wetlands Area 3

PHOTO 2

Looking West from
Wetlands Area 3



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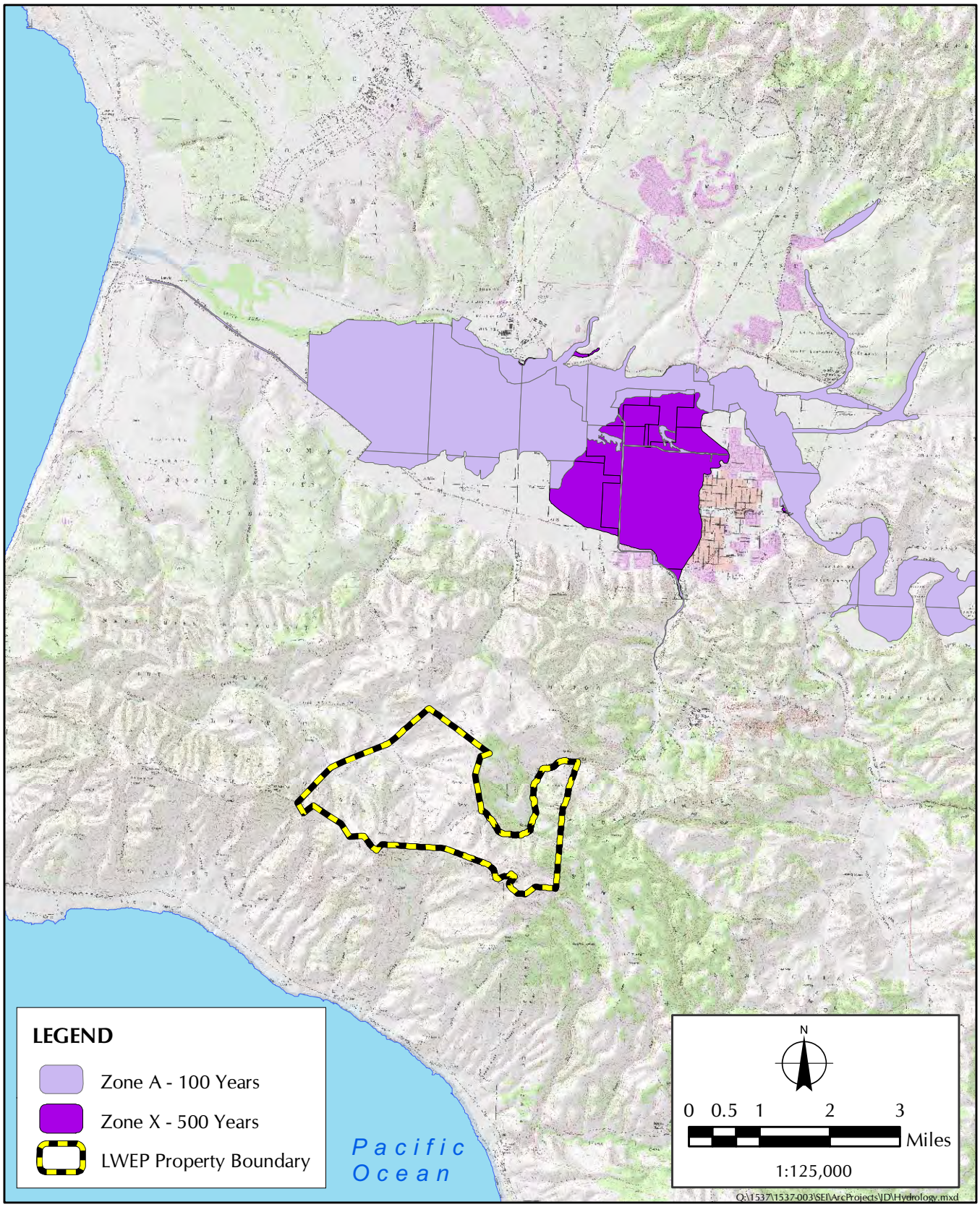
ATTACHMENT 9

Potential Wetlands Area 3



ATTACHMENT 10

Flood Zones in Relation to the LWEP Property

Appendix C.
Supplemental Cultural Resources Inventory Report

This is a confidential document; therefore, it is not included in this Final EIR

Appendix D.
Mitigation Monitoring Plan

Appendix D: Mitigation Monitoring Plan

A Mitigation Monitoring Plan (MMP) has been prepared for the Lompoc Wind Energy Project to ensure, should the Proposed Project be approved, compliance with and enforcement of all measures adopted as conditions of approval to lessen or avoid known and potential environmental impacts. These measures include both County-imposed and Applicant-Proposed Measures (APMs). APMs identified by the Applicant, Pacific Renewable Energy Generation, are included in this EIR as part of the Project Description (see Section 2.8.4). Mitigation measures developed by the County, and incorporating APMs as appropriate, are presented in Sections 3.2 through 3.15 and are summarized in Table D-1. Section D.1 introduces the MMP process and describes the roles and responsibilities of the government agencies involved in implementing and enforcing the MMP.

D.1 Introduction to the MMP

Santa Barbara County is the lead agency under the California Environmental Quality Act (CEQA) for the Proposed Project. Pursuant to its statutory responsibilities under CEQA, the County is required to ensure that mitigation measures stipulated as conditions of approval are implemented properly, monitored, and reported. In 1989, this requirement was codified statewide as Section 21081.6 of the Public Resources Code, which requires a public agency to adopt a Mitigation Monitoring Plan when it approves a project that is subject to the preparation of an EIR and where the EIR for the project identifies significant adverse environmental effects. CEQA Guidelines Section 15097 was added in 1999 to further clarify agency requirements for mitigation monitoring or reporting.

The purpose of a MMP is to ensure that measures adopted to mitigate or avoid significant impacts of a project are implemented. The County views the MMP as a working guide (or program) to facilitate not only the implementation of mitigation measures by the project proponent, but also the monitoring, compliance, and reporting activities of the County and any monitors it may designate. If the County approves the Lompoc Wind Energy Project, it would also certify the Final EIR, including adoption of the MMP that includes the mitigation measures as conditions of approval.

D.2 Roles and Responsibilities

D.2.1 Monitoring Responsibility

As the lead agency under CEQA, the County is required to monitor this project, if approved, to ensure that the required mitigation measures are implemented and effective. The County will be responsible for ensuring full compliance with the provisions of this MMP and has primary responsibility for ensuring implementation of the MMP under their Environmental Quality Assurance Program (EQAP). The purpose of the MMP is to document that the mitigation measures required by the County are implemented and that mitigated environmental impacts are reduced to the level identified in the Final EIR.

The County may delegate duties and responsibilities for monitoring to assigned EQAP Inspectors or consultants as deemed necessary, and some monitoring responsibilities may be assumed by responsible agencies, such as CDFG and other affected agencies. The number of EQAP Inspectors assigned to the project would depend on the number of concurrent construction activities and their locations. The County, however, will ensure that each person delegated any duties or responsibilities is qualified to monitor compliance.

The MMP presents the mitigation measures required to reduce environmental impacts anticipated from the proposed project, as described and analyzed in the EIR. Project modifications or deviations from the approved project or adopted mitigation measures would require County approval and could require additional environmental review.

D.2.2 Enforcement Responsibility

The County is responsible for enforcing the mitigation measures adopted for monitoring through the EQAP Inspector assigned to each project phase. The EQAP Inspector shall note problems with monitoring, notify appropriate agencies or individuals about any problems, and report any problems to the County.

The County has the authority to halt any construction, operation, or maintenance activity associated with the Lompoc Wind Energy Project if the activity is determined to be a deviation from the approved project or adopted mitigation measures. The County may assign this authority to the EQAP Inspector(s) for each phase of activity.

D.2.3 Mitigation Compliance Responsibility

The Applicant, Pacific Renewable Energy Generation, is responsible for successfully implementing all the adopted mitigation measures in the MMP. As defined in Table D-1 below, the mitigation measures contain criteria that define mitigation verification, timing, and responsible party(s). Standards for successful mitigation also are implicit in many mitigation measures that include such requirements as obtaining permits or avoiding a specific impact entirely. Additional mitigation success thresholds may be established by applicable agencies with jurisdiction through the permit process and through the review and approval of specific plans for the implementation of mitigation measures.

The Applicant shall inform the County in writing of any mitigation measures that are not or cannot be successfully implemented. The County, in coordination with other responsible agencies, would assess whether alternative mitigation is appropriate and specify to the Applicant the subsequent actions required.

D.3 General Monitoring Procedures

D.3.1 EQAP Inspector

In coordination with the Applicant, the County and its EQAP Inspectors will be responsible for integrating the procedures of the MMP into all aspects of project implementation, including construction and operations. To oversee the project and to ensure successful mitigation, the EQAP Inspector(s) assigned to each area of construction must be on site during project implementation to remain appraised of project status and to report and remediate any non-compliance activity. The EQAP Inspectors are responsible for ensuring that all procedures specified in the MMP are followed.

D.3.2 Construction & Operational Personnel

A key feature contributing to the success of mitigation monitoring will be obtaining the full cooperation of construction and operational personnel and supervisors. Many of the mitigation measures require action on the part of supervisors and personnel for successful implementation. To ensure proper implementation, the following actions would be taken:

- The Applicant would prepare contracts to be signed by the companies hired for the project that outline the purposes and procedures for successful mitigation. Similarly, the Applicant would have the contract signed by all construction crews and other personnel prior to working on the job site, denoting agreement.
- Prior to working on the job site, all personnel would be required to attend an informational training session, which would outline the mitigation requirements of the project.
- Each project supervisor would be provided with a written summary of the mitigation monitoring procedures and would be expected to keep those and all other necessary permits onsite for easy reference by the construction crew or other personnel, and for review and inspection by the County EQAP Inspectors.

D.3.3 General Reporting Procedures

The County and EQAP Inspector(s) will report all problems that may arise and take the appropriate action to rectify any problems. Site visits and specific monitoring procedures performed by other individuals, such as biologists or archaeologists, will be reported to the appropriate County EQAP Inspector. A record will be submitted to the County EQAP Inspector by the individual conducting the visit or procedure so that details of the visit could be tracked and recorded. In addition, the County EQAP Inspector will report as directed to County designated staff the status of construction and other project activities as well as the timing and completion of any MMP requirements. Weekly reports documenting project development and County monitoring activities will be prepared and distributed to responsible agencies and posted on the County web site (see Section D.3.4).

The Applicant shall provide the County with written weekly reports of the status of the project, which shall include construction progress, upcoming schedule of tasks, summary of survey and mitigation results, and all other noteworthy elements of the project. Weekly reports shall be required until all Project Protocols and mitigation measures have been completed.

D.3.4 Public Access to Records

The public is allowed access to the records and reports used to track the implementation of the MMP. Monitoring records and reports will be made available for public inspection by the County on request.

D.4 Mitigation Monitoring Program Table

Mitigation measures developed by the County are presented in Sections 3.2 through 3.15 and are summarized in Table D-1 below. These measures incorporate appropriate provisions of the APMs listed in Section 2.8.4, with revisions as needed to ensure maximum feasible mitigation in accordance with Santa Barbara County policy. Therefore, the APMs are not listed separately in Table D-1.

Table D-1: Lompoc Wind Energy Project Mitigation Monitoring Program

Mitigation Measure #	Mitigation Requirements and Timing	Methods of Verification	Timing of Verification	Party Responsible for Verification
AESTHETIC/VISUAL RESOURCES				
VIS-1	Materials Storage. All construction materials and excavated materials shall be stored away from San Miguelito Road, whenever possible, to reduce impacts on mountain views. Materials storage shall be confined to within the WTG corridors, staging areas, and the Project Substation and O&M facility areas.	Notation regarding materials storage shall be denoted on building plans.	Prior to zoning clearance for the first phase of project construction and each subsequent project phase.	Santa Barbara County (SBCo) Planning & Development (P&D)
		EQAP inspections.	During construction.	
VIS-2	Location of Construction Activities. Construction activities shall be confined to within the WTG corridors, staging areas, and the Project Substation and O&M facility areas.	Notation regarding construction activities materials storage shall be denoted on building plans.	Prior to zoning clearance for the first phase of project construction and each subsequent project phase.	SBCo P&D
		EQAP inspections.	During construction.	
VIS-3	Contribution to County Parks Fund. *T*he Applicant shall make a one-time $100,000 payment to the County. This money shall be used by the County Parks Department exclusively to preserve and enhance the natural beauty of Miguelito County Park and Jalama Beach County Park.	Confirm receipt of payment.	Prior to zoning clearance for the first phase of construction.	SBCo P&D
VIS-4	Landscape and Lighting Plan. In accordance with the Santa Barbara County Land Use Element, Visual Resources Policies, Policy 1, the applicant shall be required to submit a landscaping plan to the County for review and approval. In addition, any facility lighting shall be included. Measures to minimize the attraction of birds to facility lighting shall be developed and presented in the plan (see also Mitigation Measure LU-1, Section 3.10.3.4).	The Landscape and Lighting Plan shall be reviewed and approved.	Prior to zoning clearance for the first phase and each subsequent phase of project construction.	SBCo P&D
		EQAP inspections.	During operation.	
AGRICULTURAL RESOURCES				
	No mitigation measures are required, because no significant impacts to Agricultural Resources would occur.			
AIR QUALITY				
AQ-1	Construction Equipment Emission Reduction Plan. A Construction Equipment Emission Reduction Plan shall be prepared by the Applicant that contains the following elements. These measures are based on the construction impact mitigation measures for equipment exhaust summarized in the SBCAPCD guide (SBCAPCD, 2007).	Requirement shall be shown on grading and building plans.	Prior to the issuance of zoning clearance for the first phase of construction and each subsequent phase.	SBCO P&D and SBCAPCD

Mitigation Measure #	Mitigation Requirements and Timing	Methods of Verification	Timing of Verification	Party Responsible for Verification
	Catalytic Converters – Ensure that catalytic converters are installed on all gasoline-powered equipment, if feasible. Install diesel catalytic converters, diesel oxidation catalysts, and diesel particulate filters as certified and/or verified by EPA or California on diesel equipment, if available. *High Pressure Fuel Injectors* – Use high-pressure fuel injectors on Caterpillar engine types 3306 and 3406 DITA to reduce NOx emissions. Engine Maintenance – Maintain engines and emission systems in proper operating condition. Engine Model Year – Utilize heavy-duty diesel-powered construction equipment manufactured after 1996, whenever feasible. *Engine Size* – The engine size of construction equipment will be the minimum practical size. Number of Equipment – The number of construction equipment operating simultaneously will be minimized through efficient management practices to ensure that the smallest practical number is operating at any one time. *Engine Timing* – Construction equipment operating onsite will be equipped with two to four degree engine timing retard or precombustion chamber engines. *Equipment Replacement* – Diesel-powered equipment will be replaced by electric equipment whenever feasible. *Truck Idle Time* – Idling of heavy-duty diesel trucks during loading and unloading will be limited to 5 minutes; auxiliary power units will be used whenever possible. *Worker Trips* – Construction worker trips will be minimized by requiring carpooling and by providing for lunch onsite.	EQAP inspections.	During construction.	
AQ-2	Dust Control Plan. A Dust Control Plan shall be prepared by the Applicant that contains the following elements. a. *Water Application* – Apply water sprays to all disturbed active construction areas a minimum of two times per day, except when soil water content would exceed the level recommended by the soils engineers for compaction or when weather conditions warrant a reduction in water application. Additionally, use adequate dust control to keep fugitive dust from being transmitted outside of the trail right-of-way. Perform increased dust control watering when wind speeds exceed 15 miles per hour. The amount of additional watering would depend	Requirements shall be shown on grading and building plans. EQAP inspections.	Prior to the issuance of the zoning clearance for the first phase of construction and each subsequent project phase. During construction.	SBCO P&D and SBCAPCD

Mitigation Measure #	Mitigation Requirements and Timing	Methods of Verification	Timing of Verification	Party Responsible for Verification
	upon soil moisture content. b. *Soil Stabilization* – Stabilize any disturbed area that would not be covered with base or paving within 14 days after completion of disturbing activities by use of soil coating mulch, dust palliatives, compaction, reseeding, or other approved methods. Soil stockpiled for more than 2 days shall be covered, kept moist, or treated with soil binders to prevent dust generation. Trucks transporting soil will be covered in transit. c. *Construction Monitoring* – The contractor or builder shall designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust offsite. Their duties will include holiday and weekend periods when work may not be in progress. d. *Limit Traffic Speed* – Reduce traffic speeds on all unpaved roads to 15 miles per hour or less.			
BIOLOGICAL RESOURCES				
BIO-1	Worker Education and Awareness Program. The Applicant shall fund a County-approved biologist to develop and implement a worker education and awareness program (WEAP) specific to the Project. The program shall be presented to all individuals involved in the construction and O&M phases of the Project. The program shall include information focused on sensitive habitats and species and shall include, but not be limited to, the following: • The natural history, including sensitive species and habitats, shall be described as well as the current status, reasons for decline, and protection measures relevant to the species and habitats. • Contact points shall be provided for workers to report sightings of sensitive biological resources such as Gaviota tarplant, active bird nests, badger dens, and roosting bats and raptors in the vicinity of Project facilities. • Workers shall be provided with photographs of sensitive biological resources including sensitive wildlife and plant species, den and burrow entrances, and nest structures. Qualified biologists, familiar with El Segundo blue butterfly (ESBB) and Gaviota tarplant, will provide a brief educational program for all personnel prior to initiation of any construction activities within the project site. The program will include identification of	The WEAP shall be reviewed and approved by the County. Conduct WEAP training. Receive hardhat sticker upon completion. EQAP inspections: Review of attendance sheets and hardhats, inspection of the site, and interview workers, as appropriate.	Prior to zoning clearance. Prior to the start of construction and as new crew members are added to the project. Throughout construction and operations.	SBCo P&D

Mitigation Measure #	Mitigation Requirements and Timing	Methods of Verification	Timing of Verification	Party Responsible for Verification
	ESBB, its host plant, coast buckwheat, and Gaviota tarplant; the general provisions and protections afforded to ESBB and Gaviota tarplant by the Endangered Species Act; and measures to be implemented during the Project to avoid and minimize adverse effects to ESBB and Gaviota tarplant. • Workers shall be informed verbally and in writing of the various Project tasks that require biological surveys and monitoring for resource protection. • Workers shall be provided with a photograph or description of the markers for active bird nests, trees, salvaged topsoil piles and windrows, or other mitigation areas, so that they shall know these are not to be disturbed without a biological monitor present. • Workers shall be provided with photographs of invasive weeds and instructed to report to the biologist any new populations observed near Project facilities. • Workers shall be informed not to litter. All trash and litter shall be picked up and removed from the construction sites at the end of each day. • Workers shall be informed to obey a speed limit of 15 miles per hour while traveling on the Project site to avoid collisions with wildlife. • Workers shall avoid driving over or otherwise disturbing areas outside the designated construction areas.			
BIO-2	Ground Disturbance. The Applicant shall minimize the amount of disturbance to the extent feasible including areas devoted to WTGs; power line poles; temporary and permanent access roads; stockpiles; staging, parking and lay down areas; areas where spoil shall be used to control erosion; and areas for associated facilities. Construction activities shall avoid sensitive areas, such as riparian zones, forests, etc., where feasible. Construction shall avoid all wetlands regulated by Santa Barbara County, CDFG, and USACE (see Mitigation Measure BIO-9) where feasible. Parking, lay down, storage areas, and other sites of superficial disturbance shall be located in previously disturbed areas or in annual grassland (except in Gaviota tarplant habitat) and will be mowed, versus graded, where feasible to keep root structures in place; thereby, facilitating future revegetation. Permanent access roads shall follow routes used for construction access to reduce the amount of new road construction.	Review of detailed plans, showing the limits of the grading, ground disturbance, and installation of facilities. EQAP inspections. Restoration plan review and EQAP inspections.	Prior to the issuance of zoning clearance for the first phase of construction and each subsequent project phase. During construction. During revegetation.	SBCo P&D

Mitigation Measure #	Mitigation Requirements and Timing	Methods of Verification	Timing of Verification	Party Responsible for Verification
	Vehicles and equipment access shall follow marked routes. Indiscriminant cross-country vehicle travel shall not be allowed.			
BIO-3	Site Restoration and Revegetation Plan. The Applicant shall retain a County-approved botanist to prepare and implement a site restoration and revegetation plan. The plan shall include the following requirements and other provisions as appropriate: • Top soil, and the seed bank it contains, shall be conserved on areas where soil is excavated such as WTG sites, access roads, and transmission pole locations. Salvage shall be accomplished by: • Woody material shall be removed from the soil surface and piled in an area that will be out of the way during construction. The upper 6 to 8 inches of soil shall be scraped from the disturbance footprint and piled into a windrow in an area that will not be disturbed during construction. • Topsoil stockpiles shall be clearly marked for avoidance. • Windrows shall be immediately protected from wind erosion by covering them or hydromulching them to protect the pile from wind erosion. Wind erosion protection shall be renewed as needed. • Salvaged topsoil shall be respread on areas that will be revegetated following construction. Salvaged topsoil versus subsoil shall be used for this purpose unless the location is very weedy. • At final grade, the last few inches shall not be compacted to more than 75 percent to facilitate penetration by plant roots. Salvaged topsoil shall be spread over the finish grade. The grade shall not be completely smoothed. Small ridges shall be provided for seedling wind protection and to collect moisture from rain and fog. Hydroseed with soil stabilization seed mixture shall be applied between October 1 and mid-November. The hydroseed mix shall contain a mulch and binder to retard wind erosion by providing a crust over the soil surface. Native plant seeds shall be added to the hydroseed mixture or hand broadcasted onto the site just prior to hydroseeding. Care shall be taken to avoid premature germination of native species caused by prolonged immersion in the hydroseeder. On slopes, the Applicant shall augment the erosion	Review of the detailed grading plan, showing the limits of the grading. Review and approval of restoration plan. The plan shall be designed to address restoration during all phases of development of the site and shall include success criteria to determine whether restoration is proceeding as expected. Verification that Applicant filed a performance security with the County to complete restoration. EQAP inspections: verification of plan implementation. EQAP inspections: seed application using a hydroseeder. EQAP inspections: Application native seed using other methods (e.g., drill seeding, broadcast seeding followed by	Prior to approval of the tentative Project map. Prior to the issuance of zoning clearance for the first phase of construction and each subsequent project phase. Prior to the issuance of zoning clearance for the first phase of construction and each subsequent project phase. During and after construction of the first and all subsequent project phases. Application shall occur between October 1 and mid-December. Preferably apply the seed to coincide with the onset of the fall-winter rainy season.	SBCo P&D

Mitigation Measure #	Mitigation Requirements and Timing	Methods of Verification	Timing of Verification	Party Responsible for Verification
	control seed mixture with seed of native coastal scrub species native to the site and collected from the Project region. Appropriate seed mixtures for use on grassland and coastal scrub areas shall be developed in consultation with and approved by CDFG and County staff using seed of native species originating from the area between the Santa Ynez River and Hollister Ranch, and inland as far as California State Highway 1. Recommendations from USDA Natural Resources Conservation Service for reseeding of agricultural grazing areas will be sought and incorporated as approved by the above agencies. The use of non-native species considered detrimental to agricultural grazing will be avoided. • For localized areas dominated by weedy species not palatable to livestock, the plan should consider a "grow-kill" approach that would include cycles of irrigation followed, after a suitable delay, by physical or chemical weed control methods to reduce the seedbank of weedy species by germinating them and killing the resulting seedlings prior to final seeding of the treated area. • Where central coast scrub or central coast scrub/grassland mosaic has been removed by construction, revegetation will include coast buckwheat in the seed mix. The restoration areas shall be monitored for a minimum of 3 years by a qualified botanist. Weed control shall be started within 3 months of planting, or earlier if weeds have begun to flower. Weeding shall proceed as frequently as necessary to prevent weeds from spreading off the Project site into the adjacent area and to prevent seed set. An effort shall be made to cut weeds before they develop seeds to minimize the spread of invasive weeds. Cut mustard shall be hauled off the site and disposed of where the toxins in the stems shall not affect other plants. Any new weed species not present in the Project area prior to construction shall be eradicated. At the end of the three year monitoring period the qualified biologist shall prepare a monitoring report detailing the success of the restoration efforts and shall provide recommendations, if needed. This monitoring report shall be submitted to the County for review and approval.	incorporation). Review and approval of monitoring report.	Monitoring report shall be submitted to the County at the end of the three year monitoring period.	
BIO-4	Tree Protection and Replacement Plan. The Applicant shall retain a County-approved botanist or arborist to design and implement a tree protection and replacement plan in order to	Review and approval of grading plans, building plans, and the tree protection	Prior to the issuance of zoning clearance for the first phase	

Mitigation Measure #	Mitigation Requirements and Timing	Methods of Verification	Timing of Verification	Party Responsible for Verification
	protect existing native trees and minimize adverse effects of grading and construction. No ground disturbance, including grading for buildings, access ways, easements, and subsurface grading, shall occur within the critical root zone of any native tree unless specifically authorized by the approved tree protection and replacement plan. The tree protection and replacement plan shall include the following measures: a. The plan shall show the location, diameter at breast height (DBH), and critical root zone of all native and specimen trees that are potentially subject to disturbance due to Project construction and operational activities, including transport of large loads on San Miguelito Road or onsite access roads. b. The tree protection plan shall clearly identify any areas where grading, trenching, or other construction related activities would encroach within the critical root zone of any native or specimen tree and within 6 feet of the drip line for blue oaks and valley oaks. All encroachment is subject to review and approval by the County. c. Fencing of all native and specimen trees shall be installed to protect the critical root zone. (All onsite oaks shall be fenced outside of the critical root zone and all blue oaks and valley oaks shall be fenced at least 6 feet beyond the drip line). Fencing shall be at least 3 feet in height of chain link or other material acceptable to the County and shall be staked every 6 feet. The Applicant shall place signs stating "tree protection area" at 15-foot intervals on the fence. Fencing and signs shall be shown on the tree protection exhibit, shall be installed prior to zoning clearance, and shall remain in place throughout all grading and construction activities. d. Any encroachment within the critical root zone of native trees and within 6 feet of the drip line for blue oaks and valley oaks shall adhere to the following standards: i Any paving shall be of pervious material (gravel, brick without mortar, or turf block). ii Any trenching required within the critical root zone of a protected tree shall be done by hand. Iii Any roots 1 inch in diameter or greater encountered during grading or trenching	and replacement plan. Verification that Applicant filed a performance security with the County to complete restoration. EQAP inspections.	of construction and each subsequent project phase. Prior to the issuance of zoning clearance for the first phase of construction and each subsequent project phase. During construction and operations.	

Mitigation Measure #	Mitigation Requirements and Timing	Methods of Verification	Timing of Verification	Party Responsible for Verification
	shall be cleanly cut and sealed. e. Construction equipment staging and storage areas shall be located in designated staging and lay-down areas depicted on Project plans submitted for zoning clearance. No construction equipment shall be parked, stored, or operated within the protected areas. No fill soil, rocks, or construction materials shall be stored or placed within the protected area. f. All utility corridors and irrigation lines shall be shown on the tree protection exhibit. New utilities shall be located within roadways, driveways or a designated utility corridor such that impacts to trees are minimized. g. Any tree wells or retaining walls shall be shown on the tree protection plan exhibit as well as grading and construction plans and shall be located outside of the critical root zone of all native trees and 6 feet beyond the drip line for blue oaks and valley oaks unless specifically authorized by the County. h. Access routes for equipment shall be checked for clearance prior to bringing any equipment onto the site. All trees and shrubs that require limbing or pruning shall be prepared at least 2 days prior to the arrival of the equipment and adhere to the following standards: i All limbing shall be done under the supervision of a licensed arborist or qualified biologist. Ii Any inadvertently broken limbs shall be cleanly cut under the direction of a licensed arborist or qualified biologist. Iii In the event that damage to a native tree is so severe that its survival is compromised, the tree shall be replaced in kind as mentioned below for native trees. i. Only trees designated for removal on the approved tree protection plan shall be removed. Any native trees which are removed, relocated, or damaged (more than 20 percent encroachment into the critical root zone or drip line for blue oaks and valley oaks) shall be replaced on a 10:1 (15:1 for blue oak and valley oak trees) basis with 1 gallon size saplings of the same species grown from seed obtained from the same watershed as the Project site. Where it is necessary to remove a tree and feasible to replant, trees shall be boxed and replanted. A			

Mitigation Measure #	Mitigation Requirements and Timing	Methods of Verification	Timing of Verification	Party Responsible for Verification
	drip irrigation system with a timer shall be installed. No permanent irrigation shall occur within the critical root zone of any native or specimen tree and within 6 feet of the drip line of blue oak and valley oak trees. Drainage plans shall be designed so that tree trunk areas are properly drained to avoid ponding. Trees shall be planted, irrigated, and maintained until established (up to 5 years). The plantings shall be protected from predation by wild and domestic animals and from human interference by the use of staked, chain link fencing, and gopher fencing during the maintenance period. Any unanticipated damage that occurs to trees resulting from construction activities shall be mitigated in a manner approved by the County. This mitigation shall include, but is not limited to, posting of a performance security, replacing native trees on a 10:1 (15:1 for blue oak and valley oak trees) ratio, and hiring a County-qualified arborist/ biologist to evaluate all proposed native tree and shrub removals within 25 feet of potential ground disturbances. The arborist/biologist report shall present biologically favorable options for access roads, utilities, drainages, and structure placement, taking into account native tree and shrub species, age, and health with an emphasis on preservation. All development and potential ground disturbances shall be designed to avoid the maximum number of native trees feasible. The required mitigation shall be undertaken immediately under the direction of the County, and a specific and detailed plan for replacement of all affected trees, including location and timing, shall be approved by the County prior to any further work occurring on site. Any performance securities required for installation and maintenance of replacement trees shall be released by the County after its inspection and approval of such installation.			
BIO-5	Pre-construction Plant Surveys. The Applicant shall retain a County-approved botanist to conduct appropriately timed pre-construction surveys for sensitive native plant species, including lichens, in all areas to be disturbed, including power line pole locations and access roads. In the unlikely event that a federally listed plant species is found on or near an area to be disturbed by the project, the FWS will be notified and the project will be adjusted to avoid impact and other species protection measures recommended by the Service will be implemented. If a substantial portion of a "stand"	Review of detailed grading plan, showing the limits of the grading. If surveys indicate that replacement of sensitive native plants is necessary, the Applicant shall prepare a detailed mitigation plan for	Prior to approval of the tentative Project map. Prior to the issuance of zoning clearance for the first phase of construction and each	SBCo P&D

Mitigation Measure #	Mitigation Requirements and Timing	Methods of Verification	Timing of Verification	Party Responsible for Verification
	of CNPS-listed or locally rare species shall be removed for the Project and adjustment of the disturbance area boundaries to avoid the impact is not feasible, the loss will be mitigated by collection of seeds or other propagules from the plants during the appropriate time of the year. The seed or propagules shall be used for restoration in the immediate area (if suitable habitat continues to be present) or on a nearby, suitable location. In the case of lichens having regional significance, the lichenologist shall make recommendations of feasible methods to relocate and re-establish the lichens at a suitable nearby site, if avoidance is not feasible. Methods may include collecting, moving, and emplacing a sample of substrate supporting the lichen at a suitable site nearby. The upper 3 to 6 inches of soil (topsoil and seedbank) shall be salvaged in all areas where the terrain allows it. Topsoil shall be windrowed and marked to keep it separated from other spoil. Topsoil piles shall be stabilized by covering the windrows or by spraying with hydromulch and binder to protect the soil from wind erosion. Salvaged topsoil shall be spread over all restored areas.	County review and approval. Verification that Applicant filed a performance security with the County to complete restoration. EQAP inspections.	subsequent project phase. Prior to the issuance of zoning clearance for the first phase of construction and each subsequent project phase. During construction and revegetation.	
BIO-6	Gaviota Tarplant Disturbance. The Applicant shall retain a qualified botanist approved by CDFG and the County to address impacts to Gaviota tarplant and oversee flagging of the perimeter of all approved work areas in Gaviota tarplant habitat. Gaviota tarplant habitat will include all areas of previously identified habitat plus any additional areas that are discovered during preconstruction surveys prior to ground disturbance. Gaviota tarplant will be assumed to be present within all areas where it had been previously mapped even if it is not evident during preconstruction surveys (because seedbank may be present that could germinate and establish under different environmental conditions). The Project design shall continue to be refined to minimize Gaviota tarplant habitat disturbance, the size of temporary excavation areas, and the size of areas where permanent loss shall occur. A determination shall be made of the total areas of (1) permanent habitat loss, (2) temporary excavations, and (3) surface disturbance for the construction phase of the Project. Mitigation measures shall be developed, in consultation with CDFG botanists, to minimize the extent of habitat disturbance and to minimize potential "take" of individuals of this species which is protected under the California Endangered Species Act (CESA). Measures and procedures shall be	Review of detailed grading plan, showing the limits of the grading. Review and approval a detailed Gaviota tarplant mitigation plan. Verification that Applicant filed a performance security with the County to complete restoration. Verification of flagging of the	Prior to approval of the tentative Project map. Prior to the issuance of zoning clearance for the first phase of construction and each subsequent project phase. Prior to the issuance of zoning clearance for the first phase of construction and each subsequent project phase.	SBCo P&D and CDFG

Mitigation Measure #	Mitigation Requirements and Timing	Methods of Verification	Timing of Verification	Party Responsible for Verification
	developed that address potential future impacts during the operations phase of the Project. Areas of temporary disturbance shall be mitigated at 1:1 ratio using the measures described below. A CESA permit from CDFG and a mitigation monitoring and reporting plan meeting the requirements of CESA will be required. Where construction activities may impact occupied Gaviota tarplant habitat during the growing season (between the first rain and the middle of September), standing drying plants that still have ripening seed during the late fall of the year shall be collected prior to construction. Plants shall be collected by hand or in a basket mounted behind a mower. The collected material shall be dried immediately and stored dry to preserve the seeds. The salvaged plant material shall be spread on restored habitat prior to final soil stabilization. The "triple-lift topsoil salvage" procedures described below shall be employed to conserve the soil profile and soil seed bank. All topsoil handling in Gaviota tarplant habitat shall be monitored by a qualified botanist approved by CDFG and the County to work with Gaviota tarplant. Seedbank material shall be developed using the following procedures: a. All woody vegetation shall be cleared and stockpiled separately in a location where it shall be out of the way during construction. b. A 3- to 6-inch lift of soil shall be scraped from the area of Gaviota tarplant habitat where soil shall be excavated. The seedbank shall be stored in a location where it shall be out of the way during construction. The seedbank stockpile shall be clearly marked for identification and avoidance. c. A second 6- to 8-inch lift of the sandy soil horizon (shallower if bedrock or other soil type is encountered, such as clay) shall be scraped from the area. The topsoil lift shall be stockpiled in a location where it shall not be disturbed during construction and shall be clearly marked for identification and avoidance. The stockpiles shall be shaped to maximize water runoff. d. The stockpiled seedbank shall be kept dry and protected from wind erosion and disturbance per the measures for topsoil conservation throughout construction and until it is replaced on the restored sites. The stockpiles will be covered or treated with hydromulch and binder to form a crust over the soil and reduce loss to wind erosion, but the spray shall not be heavy enough to soak	perimeter of all approved work areas in Gaviota tarplant habitat. EQAP inspections.	Prior to ground disturbance. During construction , revegetation, & operations.	

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	into the pile (to avoid soaking seeds and triggering seed germination). e. If the salvaged seedbank is being eroded by the wind, it shall be stabilized by spraying it with an organic soil binder used for hydroseeding. f. Following excavations and other types of temporary ground disturbance in Gaviota tarplant habitat, the soil profile shall be rebuilt using salvaged and stockpiled materials by replacing them in reverse order as described below. The salvaged and dried Gaviota tarplants shall be spread on top. Procedures to be followed are: i The layers beneath the final seedbank layer shall be well compacted. ii The seedbank layer shall be more loosely compacted by spreading it dry or with minimal water. Tracking, rather than spraying, shall be used to pack the seedbank layer into place. iii Soil stabilization shall follow immediately. iv The replacement of seedbank and topsoil stockpiles shall be monitored by a botanist acceptable to CDFG and the County for work with Gaviota tarplant. v Restored Gaviota tarplant sites shall be stabilized with a hydraulically applied mixture of biodegradable soil binder and wood fiber. The mulch shall be minimized so that light shall not be blocked from the tarplant seeds in the salvaged and replaced seed bank. No seed is required since the top layer on the restored site shall be composed of salvaged seed bank. Permanent Gaviota tarplant habitat loss shall be mitigated by continuing to contribute toward the understanding of the taxonomy and ecology of this species by: a) Contributing to the accumulation of additional data on the range and size of subpopulations. b) Contributing to taxonomic research to clarify limits and relationships of Gaviota tarplant populations versus close relatives. c) Requesting that CDFG review the status of this species in light of recent discoveries of extensive populations. d) Contributing to baseline ecological research, such as germination or pollinator studies, that shall be useful			

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	for future management decisions.			
BIO-7	Kellogg's and Mesa Horkelia Habitats. For Kellog's and Mesa Horkelia habitats identified during pre-construction surveys (see Mitigation Measure BIO-5, above), the Applicant shall track over Kellogg's and Mesa Horkelia habitat, where the terrain shall safely allow it, rather than widening roads beyond the permanent road width to minimize plant removal. The seedbank shall be salvaged and stockpiled separately from other spoil along roads and adjacent to other facilities constructed in Kellogg's and Mesa Horkelia habitat as described for Gaviota tarplant. Salvaged stockpiles shall be covered or sprayed with hydromulch and binder to crust the surface to minimize soil loss to wind erosion. Salvaged seedbank shall be spread over restored areas as described for Gaviota tarplant except that a normal mixture of mulch and binder shall be used. If the area is within Gaviota tarplant habitat, methods for the latter shall be used.	Review of detailed grading plan, showing the limits of the grading. If surveys indicate that replacement of Horkelia is necessary, the Applicant shall prepare a detailed mitigation plan for County review and approval. Verification that Applicant filed a performance security with the County to complete restoration. EQAP inspections.	Prior to approval of the tentative Project map. Prior to the issuance of zoning clearance for the first phase of construction and each subsequent project phase. Prior to the issuance of zoning clearance for the first phase of construction and each subsequent project phase. During construction and revegetation.	SBCo P&D
BIO-8	Native Perennial Bunchgrass. The Applicant shall retain a County-approved botanist to resurvey the potentially affected area during the appropriate season and determine the total area with at least 10 percent cover by native grassland species on the site (=native grassland habitat). If the total area of native grassland habitat that would be permanently removed is less than 10 percent of the total area of native grassland habitat within the Project area, loss of native grasses shall be mitigated by seedbank salvage and replacement as described for Horkelia. If the total area of native grassland habitat that would be permanently removed for the Project exceeds 10 percent of the total area of native grassland habitat within the Project area, seed shall be collected from the populations of native grasses and native grassland species on the Project sites prior to the start of construction. The seed shall be stored dry and included in the seed mixture applied to the restored areas. Drill seeding shall be performed for mixtures that include native grass seed.	Review of detailed grading plan, showing the limits of the grading. If surveys indicate that replacement of perennial bunchgrass is necessary, the Applicant shall prepare a detailed mitigation plan for County review and approval. Verification that Applicant filed a performance security	Prior to approval of the tentative Project map. Prior to the issuance of zoning clearance for the first phase of construction and each subsequent project phase. Prior to the issuance of zoning clearance for the first phase	SBCo P&D

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		with the County to complete restoration.	of construction and each subsequent project phase.	
		EQAP inspections.	During construction and revegetation.	
BIO-9	Protection of Creeks, Springs, and Wetlands. The Applicant shall make every effort to minimize the area and degree of impact to State and Federal wetlands and other Waters of the U.S. associated with placement of bridges, siting of the O&M facility, and other construction-related tasks. Additionally, all potential jurisdictional areas that may be disturbed by construction shall be delineated following all applicable standards associated with features regulated by the State of California, Santa Barbara County, and USACE for regulated wetlands, including documentation of specific surveys for presence of listed plant, invertebrate, or wildlife species that may occur there. The delineations shall apply the Arid West Supplement to the USACE Wetland Delineation Manual guidelines and shall map all features using a sub-meter dGPS. Based on the delineation, the Applicant shall consult with a wetland hydrologist and botanist to design construction, so that direct loss of wetland communities shall be minimized and hydrological conditions supporting the wetland shall be conserved to the maximum extent feasible consistent with project objectives. All final construction design plans and mapped wetland features shall be clearly presented in a wetland avoidance plan for approval by the County. The avoidance plan for the WTG corridor shall be included as part of the wetland restoration and avoidance plan for other project components and shall also present an approach for the restoration of lost and/or disturbed features associated with bridge crossings and siting of the O&M facility including calculations, proposed restoration locations, cattle or other disturbance barriers, plant mixes, quantitative restoration goals (maximum criteria for weedy species and minimum criteria for native hydrophytic plants), and temporal and native plant composition success criteria. At a minimum, any temporarily disturbed wetlands associated with bridge crossings or siting of the O&M facility shall be restored to its former condition at an aerial ratio of 1:1 with a clearly defined temporal goal and	Review and approval of he detailed wetland avoidance/restoration plan and grading plan, showing the limits of the grading. Review and approval of the wetland delineation and grading plan. Review of final plans to confirm that this condition shall be printed on all Project plans. Verification that Applicant filed a performance security with the County to complete restoration. EQAP inspections to verify plan implementation &	Prior to approval of the tentative Project map. Prior to any project construction that may affect wetlands. Prior to the issuance of zoning clearance for the first phase of construction and each subsequent project phase. Prior to the issuance of zoning clearance for the first phase of construction and each subsequent project phase. Implementation of revegetation plan within one year following disturbance.	SBCo P&D, CDFG, and USACE

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	success criteria. If any jurisdictional feature is permanently lost, it shall be mitigated by the creation of the same type of wetland in the Project area at an aerial ratio of 2:1. Additionally, all wetland areas within 50 feet of ground disturbance shall be protected from siltation by placement of silt fence, straw bales (composed of certified weed-free straw), or other barriers. Barriers shall be in place prior to ground disturbance. No fueling of vehicles or equipment shall occur within 100 feet of the top of any creek bank or within 100 feet of any seep or spring. Further, spill containment measures shall be implemented at all refueling sites. In the event that petroleum products escape into a creek, seep, or spring, every effort will be made to immediately remove the material using plastic sheets, absorbent blankets, or other materials, as necessary. Runoff from fresh concrete shall be directed away from the top of any creek bank and from any seep or spring into a plastic-lined hollow. Any washout from concrete trucks shall be collected within a designated contained and lined area and removed from the site. Dried concrete scraps shall be removed and all trash and litter shall be picked up and removed from the construction sites at the end of each day.	presence of biological monitor.	During construction and revegetation.	
BIO-10	Riparian Habitat Restoration. During consultation with the USACE and CDFG for impacts to Honda Creek (and other crossings, if applicable), a determination shall be made regarding whether a riparian habitat restoration plan will be required. If so, the Applicant shall retain a qualified ecologist to prepare and implement a site-specific creek restoration plan. The plan shall include, but not be limited to, the following elements: • Restoration shall include native riparian species from locally obtained plants and seed stock. • The new plantings shall be monitored for a period of 2 to 3 years to ensure successful establishment. Dead plants shall be replaced in kind. • The new plantings shall be irrigated with drip irrigation on a timer and shall be weaned off of irrigation when root zones are established. • Removal of native species in the creek shall be prohibited. • Non-native species located in the work area shall be removed from the creek.	Review and approval of creek restoration plan. Verification that Applicant filed a performance security with the County to complete restoration. EQAP inspections.	Prior to the issuance of zoning clearance for the first phase of construction and each subsequent project phase. Prior to the issuance of zoning clearance for the first phase of construction and each subsequent project phase. During construction and operations.	SBCo P&D, CDFG, and USACE

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BIO-11a	Pre-construction Wildlife Surveys. The Applicant shall retain a County-approved biologist to perform a wildlife survey prior to the excavation of the WTG sites. The biologist shall survey the surrounding area out to a 300-foot radius from the WTG site, the WTG footings, access roads, and staging, parking, and lay down areas prior to grading or the use of any explosives. Surveys shall be completed within 3 days before the start of initial vegetation clearance or ground disturbance in any affected area. If any wildlife species are found, they shall be relocated to similar habitat at least 300 feet away from construction activity.	Review and approval of final plans to confirm condition printed on plans. Review and approval of monthly reports documenting survey and relocation activities. EQAP inspections.	Prior to the issuance of zoning clearance for the first phase of construction and each subsequent project phase. Monthly prior to and during construction. During construction.	SBCo P&D
BIO-11b	Fencing. To minimize the amount of disturbance to wildlife habitat, the Applicant shall clearly define in the field: the project construction areas, including areas devoted to WTGs; power line poles; temporary and permanent access roads; stockpiles; staging, parking and lay down areas; areas where spoil shall be used to control erosion; and areas for associated facilities. Project boundaries shall be clearly marked with fencing or staking that shall be replaced as needed.	Review and approval of detailed fencing plan. EQAP inspections.	Prior to approval of the tentative Project map. During construction.	SBCo P&D
BIO-11c	Biological monitoring. The Applicant shall fund a County-approved, Environmental Monitor during Project construction to monitor construction activities and to ensure compliance with all mitigation measures. The Environmental Monitor shall be present onsite during all vegetation removal and during all of the initial ground disturbance activities for all aspects of the project, and shall regularly inspect the project site as needed after the initial ground disturbances to ensure that all mitigation measures are being implemented. The biologist shall ensure that wildlife do not become entrapped in the excavations during installation of the WTGs and associated underground collection system from the WTGs to the substation (i.e., open trenches). Safeguards shall be implemented during daytime periods of non-activity and overnight, such as a placing a platform over the entire excavation site, flush with the ground surface, or exclusionary fencing. A form of egress (such as a ramp) shall be placed within the excavated area to provide an exit to accidentally trapped wildlife. The biologist shall be responsible for ensuring these	Confirm that Applicant has hired Environmental Monitor(s) Coordination with EQAP Inspector.	Prior to and during construction During construction.	SBCo P&D

Mitigation Measure #	Mitigation Requirements and Timing	Methods of Verification	Timing of Verification	Party Responsible for Verification
	safeguards are in place on a daily basis.			
BIO-11d	Monitoring Report. On a bi-weekly basis, the County-approved, Environmental Monitor shall provide the County a Construction Monitoring and Biological Resources Mitigation Report. This report shall include a description of the activities that have occurred onsite, wildlife species encountered, relocation efforts, wildlife mortalities and injuries, violations or issues with construction activities, and any project-related resolutions.	Review of bi-weekly Construction Monitoring Reports.	On a bi-weekly basis through Construction.	SBCo P&D
BIO-12a	Schedule ground disturbance to avoid nesting season. All construction-related activities that include vegetation removal and initial ground disturbances in habitats where biological monitor does not have a clear view of the ground, shall be scheduled, as feasible, to avoid the bird nesting season (February 1 through August 31) to reduce impacts to nesting birds in the project vicinity. If construction activities are scheduled to begin during the nesting season, the applicant shall still attempt to remove or mow vegetation before the onset of nesting season to reduce the threat of violating the Migratory Bird Treaty Act.	Review of final plans to verify that condition printed on plans. EQAP inspections.	Prior to construction. During construction.	SBCo P&D
BIO-12b	Buffer Zones. If ground disturbance or vegetation removal is scheduled to occur during the avian nesting or bat roosting season (from February 1 through August 31) the Applicant shall fund a County-approved biologist to survey for active avian nests and roosting bats immediately prior to the start of construction in a given area (including removal or trimming of trees and shrubs). The survey shall occur at the sites of construction activity, as well as up to 500 feet away. If an active raptor nest is found, no construction activity shall occur within 500 feet of the nest unless otherwise directed by CDFG. The County-approved biologist shall conduct a study to collect more detailed information on nesting raptors in the Project area. Areas of dense vegetation, including the riparian corridors along Miguelito Creek, the eucalyptus groves onsite, and mixed evergreen forest within 500 feet of Project facilities shall be surveyed at weekly intervals to collect data on nesting activities. If any other active avian species nest or roosting bats are found, construction activity shall not occur within 150 feet of the area or as directed by the County-approved biologist unless otherwise directed by CDFG. The CDFG shall be consulted prior to any disturbance of bat maternity roosts. During the breeding season (February 1 through August 31) efforts shall be made and directed by the biological monitor to dissuade birds from using facilities and construction equipment. Active	Confirm that necessary permits have been obtained. Review bi-weekly reports. EQAP inspections.	Prior to construction. On a bi-weekly basis through construction. During construction.	SBCo P&D

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	nests and roosts shall be temporarily marked with flagging to warn workers; and monitored by a biologist to ensure that construction activities do not impact these sites. The applicant shall provide all workers on the site an updated map of active nests so that construction activities within the buffers can be avoided. Construction activities and timing shall be modified to avoid impacts to nesting avian species, and bat maternity roosts. Buffer areas shall be maintained until fledglings have left the nest and the biological monitor has cleared the area.			
BIO-13	Pre-construction Surveys and Conservation of El Segundo Blue Butterfly (ESBB). The applicant shall retain a qualified, County-approved entomologist to conduct directed surveys for the ESBB during the flight season (approximately mid-June to August) within all areas of coast buckwheat known on the LWEP site, including areas that would be affected by construction, operation, or maintenance of the project. The surveys shall be documented including a description of methodology, description and maps of the surveyed areas, and identification of locations of any ESBB observed within the proposed Project area (including maps and GPS coordinates). Conditions the sites where ESBB are located shall be described by the entomologist including vegetation, soils, exposure, and other factors that may influence the occurrence of ESBB at that site. A plan to restore and/or enhance ESBB habitat shall be prepared by a County-approved botanist with input from a County-approved entomologist. The goal of the plan shall be to establish coast buckwheat with other Central coast scrub species on areas having sandy soils and judged suitable for this type of restoration or enhancement by the project biologist and County-approved entomologist. The restoration or enhancement would preferably occur in or adjacent to an area of existing habitat supporting coast buckwheat on sandy soils or it could occur in an area disturbed by the project. The plan shall identify sites to be restored or enhanced and the approach to restoration and enhancement, including proposed density of coast buckwheat plants, which shall be generally consistent with the density of coast buckwheat in occupied ESBB habitat in the Project region and performance criteria shall reflect that density. Restoration or enhancement will be conducted on an acre-for acre- basis. If ESBB has been found on the site, the plan shall be submitted to USFWS for approval, prior to	Review of final plans to verify that condition printed on plans. Review monthly reports. EQAP inspections.	Prior to construction. On a monthly basis through construction. During construction.	SBCo P&D

Mitigation Measure #	Mitigation Requirements and Timing	Methods of Verification	Timing of Verification	Party Responsible for Verification
	implementation. Suitable ESBB habitat adjacent to construction areas shall be clearly marked for avoidance (e.g., by orange plastic construction fencing). The delineation shall be directed and approved by a county-approved biologist.			
BIO-14a	California Horned Lizard. The Applicant shall fund a County-approved biologist to survey construction areas, including the sites of footings for WTGs and power poles, access roads, and staging, parking, and lay down areas, for California horned lizards. Surveys shall be completed within 3 days before the start of initial vegetation clearance or ground disturbance in any affected area. The survey may be done in conjunction with surveys for ground-nesting birds. However, the survey for horned lizards shall be performed regardless of season of the year. If horned lizards are found, they shall be relocated to similar habitat at least 300 feet away from construction activity.	Review of final plans to verify that condition printed on plans. Review monthly reports. EQAP inspections.	Prior to construction. On a monthly basis through construction. During construction.	SBCo P&D
BIO-14b	Silvery Legless Lizard. The Applicant shall retain a County-approved biologist to survey for silvery legless lizards that could potentially occur in areas with Central Coast scrub and annual grassland with a shrub component. The biologist shall work with the equipment operator during initial vegetation clearance to identify those areas that would require legless lizard mitigation, and then to salvage and relocate exposed animals. The following technique shall be employed to avoid impacts to the silvery legless lizard: • Following initial vegetation clearance in pre-identified areas, grading shall be done in two consecutive 6-inch layers. • With each lift, the biologist shall check the areas for possible relocation of silvery legless lizards. If any are found, they shall be moved to similar habitat near shrubs at least 100 feet from the construction sites. • Monitoring for legless lizards shall be discontinued when grading reaches depths greater than 12 inches.	Review of final plans to verify that condition printed on plans. Review monthly reports. EQAP inspections.	Prior to construction. On a monthly basis through construction. During construction.	SBCo P&D
BIO-14c	San Diego Desert Woodrat. The Applicant shall retain a County-approved biologist to survey the locations of WTGs and access routes prior to construction, as well as for a distance of 50 feet away for signs of the San Diego desert woodrat. The following technique shall be employed to avoid impacts to the San Diego desert woodrat: • If signs of this species are found at or near the areas to be disturbed (such as a small stick nest within a rock overhang), it shall be	Review of final plans to verify that condition printed on plans. Review monthly reports.	Prior to construction. On a monthly basis through construction.	SBCo P&D

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	evaluated for potential impact due to construction activities. • If disturbance to a nest is likely to occur, the animal shall be live-trapped and relocated to a distance of 300 feet from Project activities and within similar habitat.	EQAP inspections.	During construction.	
BIO-14d	American Badger. The Applicant shall retain a County-approved biologist to survey, prior to construction, for badger dens in the Project area, including areas within 250 feet of all Project facilities, WTG sites, and access roads. The survey shall be performed regardless of season of the year. If badger dens are found, each den shall be classified as inactive, potentially active, or definitely active. Inactive dens shall be excavated by hand and backfilled to prevent reuse by badgers. Potentially and definitely active dens shall be monitored for 3 consecutive nights using a tracking medium (such as diatomaceous earth or fire clay) at the entrance. If no tracks are observed in the tracking medium after 3 nights, the den shall be excavated and backfilled by hand. If tracks are observed, the den shall be progressively blocked with natural materials (rocks, dirt, sticks, and vegetation piled in front of the entrance) for the next 3 to 5 nights to discourage the badger from continued use. The den shall then be excavated and backfilled by hand to ensure that no badgers are trapped in the den.	Review of final plans to verify that condition printed on plans. Review monthly reports. EQAP inspections.	Prior to construction. On a monthly basis through construction. During construction.	SBCo P&D
BIO-14e	Sensitive Avian Species. The County-approved biologist shall conduct a study in the spring season prior to the onset of construction activities to assess the density of special status passerines and other ground-nesting birds in areas of the project site potentially subject to disturbance. Plots shall be established in various habitats and checked at weekly intervals to monitor for new nests of ground-nesting birds that are sensitive species, including California horned lark, California rufous-crowned sparrow, grasshopper sparrow, and burrowing owls. The surveys shall be conducted as long as birds are nesting in the Project area between February 1 and August 31. The surveys shall be discontinued when it is apparent that nesting has ceased for the season. Surveys for burrowing owls shall be conducted prior to construction in the Project area, including areas within 300 feet of all Project facilities, WTG sites, and access roads. The survey shall be performed regardless of season of the year due to	Review of final plans to verify that condition printed on plans. Review bi-weekly reports.	Prior to construction. hroughout the first nesting season from February 1 through August 31 for nesting species and year-round for western burrowing owls and all subsequent nesting seasons during the construction	SBCo P&D

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	this species' being present in the winter. If construction is to occur between February 1 and August 31, all sites to be disturbed shall be surveyed for ground-nesting and shrub-nesting birds immediately prior to construction in a given area. The emphasis shall be on California horned lark, western burrowing owl, California rufous-crowned sparrow, and grasshopper sparrow. The survey shall occur at the sites of construction activity, as well as up to 300 feet away. If an active nest is found, no construction activity shall occur within 300 feet of the nest or as determined by the biological monitor and updated maps showing active nesting locations shall be distributed to the biological monitors, EQAP inspector, and crew foreman on a weekly basis. The nest shall be monitored to record any potential construction-related effects. Construction activities and timing may be modified as directed by the County to avoid impacts to nesting passerines or other ground-nesting birds. Frequent disturbance (every few days) may be initiated in some Project areas just prior to the nesting season to discourage nesting in the construction corridor. During both the construction and O&M phases, a speed limit of 15 mph shall be established and enforced. The speed limit shall reduce the potential for loss of bird species, including passerines, due to collisions with vehicles.	EQAP inspections.	phases.. During construction.	
Bio-15a	Siting. The turbines shall be sited so that each tower is located at least 500 feet away from critical biological resources identified in preconstruction surveys, specifically: active raptor nest sites, active state or federally listed species' nests, open water which would attract birds or bats (including stock-ponds), thicker riparian habitat in Canada Honda and Miguelito creeks, eucalyptus tree groves, or vernal pools, if present. The turbines shall be sited so that each tower is located at least 250 feet from the un-named intermittent tributaries containing Central Coast Riparian Scrub habitat located up-gradient of major streams. Preconstruction surveys (described in MM Bio-11a) shall identify existing raptor nests and other sensitive resources. The Applicant shall, in consultation with the CDFG, attempt to dissuade raptors from building new nests within 500 feet of any turbine.	Review of final plans to verify that condition printed on plans. Review of weekly written survey results and buffer area design. EQAP inspection.	Prior to construction. Prior to and during construction. During construction.	SBCo P&D
Bio-15b	Appropriate WTG and Project-Element Design: To minimize the likelihood of collisions of birds with WTGs and onsite power poles and collection lines, the design features of all WTGs and project	Review of final plans to verify that condition printed on plans.	Prior to construction.	SBCo P&D

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	related facilities shall include the following: a) Underground (rather than overhead) collection lines shall be used to minimize perching locations and electrocution hazards to birds, except where undergrounding would create potential for serious erosion (e.g., crossing steep canyons) or other serious impacts that could be avoided with overhead lines. b) All overhead collection lines shall be spaced to minimize the potential for raptor electrocution using the latest APLIC (2006) guidelines for line spacing. Further, construction and work procedures shall be consistent with the APLIC guidelines "*Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006*." c) WTGs with low rotational speed (approximately 10 to 23 revolutions per minute [RPM]) and tubular towers shall be used. WTG blades shall not rotate when the WTG is not in operation. d) All permanent meteorological towers shall be unguyed. To reduce impacts from lighting on WTGs and facilities Mitigation Measure LU-1 requires compliance with FAA regulations but also requires that lighting shall not exceed those requirements and regulations.	EQAP inspection.	During construction.	
BIO-16	Monitoring and Adaptive Management Plan. A Monitoring and Adaptive Management Plan is required, due to the uncertainty of the project's operational impacts on protected and special-status bird and bat species. The Plan shall be developed and implemented in an effort to provide maximum feasible mitigation for those impacts. Monitoring studies of bird activity and fatalities at the site shall be required to collect information on bird activity and fatalities caused by wind farm operations. In addition, an Adaptive Management Plan (AMP) shall be implemented if the bird or bat mortalities trigger specified thresholds. The County will enforce the following measures unless CDFG adopts them as part of a Sec. 2081 incidental take permit or Sec. 1602 streambed alteration agreement. In reviewing and approving the final plan and applying the required measures, the County will consult with CDFG and USFWS, as appropriate. The Plan shall be prepared by a County-approved biologist and be subject to County approval. The Plan shall include outlined in subsections 16.a-	See subsections, below.	See subsections, below.	SBCo P&D or CDFG

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	16.d below.			
BIO-16a	Before-After/Control-impact (BACI) Study. Conduct BACI surveys under direction of a County-approved biologist. The purpose of the BACI surveys is to compare pre- and post-construction bird use on the site; to assess the effects of the project on avian species; to assist in determining whether additional mitigation elements are necessary; and to collect research data to better understand wind power industry impacts and provide regulatory agencies with data for future projects. Study reports shall include estimates of average bird usage on the site and information on the location of species within the site, flight elevations and patterns of activity, and WTG avoidance behavior. The study data and reports shall be provided to the County for review. The surveys shall be conducted from the time of project approval through each project construction phase and for two years following first delivery of power for that phase. The methodology shall include methods for interpreting and summarizing the data, and the contents, format and schedule for reports. The methodology should follow the recommendations of the CEC Guidelines (2007), insofar as feasible without causing delays to the project construction schedule or start of operations. The methodology may incorporate the Applicant's current BACI methods as appropriate and explain any substantive changes between the studies currently being conducted by the Applicant and the methodology proposed for approval. The methodology could be modified during the course of the BACI study, with concurrence of the County and project operator.	Review and approval of BACI survey methodology. Review of survey results; change methodology if needed.	Within 60 days of project approval. From the time of project approval through each project construction phase and for two years following first delivery of power for each project phase.	SBCo P&D or CDFG
BIO-16b	Bird/Bat Mortality Study. Conduct a bird and bat mortality study under direction of a County-approved biologist. The purpose of mortality surveys is to estimate mortality rates for different species on the site attributable to collisions with WTGs and to identify individual WTGs or groups/strings of WTGs that cause unanticipated levels of mortality. The information will be used to determine whether the mortality thresholds of the Adaptive Management Plan (see AMP, below) have been reached. In addition, the collected data will add to the body of knowledge to provide regulatory agencies with data for future projects. Brief quarterly reports including tabulated search data and annual reports including analysis of the year's data shall be prepared. The study data and reports shall be provided to the County for review. Monitoring shall be conducted for the first	Review and approval of bird/bat mortality survey methodology. Review of annual survey results and interim reports, if applicable; change methodology if needed.	Prior to land use clearance for the first and subsequent project phases. For the first two full years following first delivery of power for each project phase.	SBCo P&D or CDFG

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	full 2 years after all WTGs are in operation for each project construction phase. Additional years of monitoring could be required if the mortality of special status bird and bat species exceeded thresholds (see AMP, below). The general design of the study should follow recommendations of the CEC Guidelines (2007), or improved methodologies if appropriate, including methods for carcass search surveys, scavenger studies, evaluation of researcher efficiency, data analysis and reporting methodology. Specifically, carcass searches shall occur once every two weeks at 30% of the WTGs, as recommended in the CEC Guidelines. Reports shall include mean estimated fatalities and 90% confidence intervals for species or appropriate bird and bat groups. The plan shall include training of project operations staff in handling and reporting avian fatalities encountered in the course of their regular activities. The selection of which WTGs to monitor may be adjusted from year to year (or as appropriate). Sampling methodology and sample locations to be approved by the County. If the AMP were triggered by excess fatalities, the frequency or design of carcass searches could be modified, as provided in the AMP.			
BIO-16c	Reduce Prey Base Near Turbines: Conduct a program under direction of a County-approved biologist to reduce the densities of California ground squirrels, rabbits, and other small mammals in the Project area. Limiting the number of burrowing mammals is intended to reduce the attraction of raptors to the Project area, and thus lower the potential for mortality resulting from collisions with WTGs and power lines on the project site. The program plan should emphasize, but not be limited to existing, mapped small mammal colonies. The plan shall be subject to County approval. Brief quarterly reports including the study data shall be provided to the County for review. The reports may be provided electronically. The program shall begin during the construction phase and continue for 2 years of Project operation. The County could modify or discontinue the program if new information indicates it is ineffective or harmful. *Minimum program elements:* a) Monitoring within the permanent disturbance area around WTGs and collection line pad locations for small mammal (including California ground squirrel) activity. If burrows are found at the pads, those holes shall be filled. Pad overhangs shall be filled with soil.	Review and approval of prey reduction program. Review of quarterly reports; change program methodology if needed.	Prior to land use clearance for the first and subsequent project phases. Through each project construction phase and for two years following first delivery of power for each project phase.	SBCo P&D or CDFG

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	Gravel shall be placed in a perimeter at least 5 feet out from the edges of the pad to discourage small mammals from burrowing. b) Removal of accumulated material under and near WTGs and collection line power poles, such as piles of rocks from construction and extra equipment or parts. Such accumulated material may attract prey for raptors such as California ground squirrels and brush rabbits. c) Implementation of other feasible measures to control small mammal populations could be required, based on recommendations of the biologist and results of the Bird/Bat Mortality Study, described below.			
BIO-16d	Adaptive Management Plan (AMP). Develop an Adaptive Management Plan (AMP) to be activated in the event that bird or bat mortality exceeds specified threshold levels. The AMP provides a structured framework to guide response, in case project operations result in excessive mortality that was unforeseeable at the time of EIR certification and project approval. The AMP defines two impact categories and corresponding response options, as described below. Table 3.5.7-2 (see Section 3.5, BIO-16d) summarizes the thresholds that will trigger Level 1 and Level 2 actions by the County. Level 2 actions may also be triggered by annual mortality statistics, as described below. Level 1 – First Alert and Enhanced Survey. If recorded bird or bat fatalities reach the threshold criteria for Level 1 (Table 3.5.7-2, in Section 3.5, BIO-16d), the project operator shall notify the County within 24 hours and make any required notifications to CDFG and USFWS. The carcass search frequency shall be increased in the vicinity of the specific WTG(s) suspected of being responsible, to determine whether WTG(s) are at cause and to better understand the causal factors and circumstances contributing to the fatalities. Carcass search patterns and extent may be modified, survey frequency may be increased up to twice per week, and supplementary field observations may be required for up to six months, if necessary to assess the pattern or frequency of fatalities. The additional information would facilitate a more informed response in the event that mortality levels reach Level 2. The project operator shall provide wind velocity data for the area of the fatalities if the County determines that the data are important for assessing the cause of fatalities or for designing enhanced search patterns. Details of the enhanced monitoring program will be subject to	Review and approval of AMP methodology. Review all reports provided pursuant to the Avian and Bat Mitigation Plan and ensure that appropriate adaptive management measures are undertaken if AMP thresholds are reached.	Prior to land use clearance for the first and subsequent project phases. For first two years of operation; or longer if Level 2 thresholds are reached or exceeded.	SBCo P&D or CDFG

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	County approval. Mortality monitoring shall conclude if fatalities remain below Level 2 thresholds for 2 consecutive years. If Level 2 thresholds are reached or exceeded, the County may require additional year(s) of monitoring until fatalities fall below Level 2 thresholds. Level 2 – Response Options. If recorded bird or bat fatalities reach the threshold criteria for Level 2 (Table 3.5.7-2, in Section 3.5, BIO-16d), the project operator shall notify the County within 24 hours and make any required notifications to CDFG and USFWS. The Level 2 thresholds might also be reached based on the annual mortality statistics, which would be reported in the annual reports of the mortality study. The cause of bird and bat fatalities at wind farms is often indeterminate, due to the condition of the carcasses, activity of scavengers, and wide radius of land-fall. The County shall require Level 2 response options only if it determines with reasonable certainty that the fatalities are caused by wind farm operations and which WTGs are at cause. The determination must be based on substantial evidence. Changes in bird use of the site observed in the BACI studies should be taken into account in the evaluation of impacts and response options. Measures required must be reasonable, feasible, and specifically targeted to reduce fatalities at the particular problem WTG(s). The following Level 2 response options should be considered by the County, in consultation with CDFG, and implemented if determined to be feasible and likely to reduce or compensate for further fatalities similar to those that triggered the Level 2 response. Such measures shall not be undertaken without appropriate environmental review, if applicable. Less extreme, less costly measures shall be exhausted before more extreme or costly measures are required. 1. Habitat modifications to make the site less attractive to impacted species, including intensified efforts to reduce the prey base (e.g., ground squirrels), weed control, grazing management. 2. Project modifications. Modifications must have a sound scientific basis, but need not be proven definitely effective, such as installing "dummy towers" at end of WTG rows; painting of WTG blades on selected WTGs to increase their visibility; audible warnings on towers; or other new or experimental			

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	technologies to divert birds/bats or react to the presence of at-risk species. If appropriate, a modification may be implemented as a controlled experiment to test efficacy in reducing mortality. 3. Implementation of a mitigation research component at the LWEP site at an appropriate department of a local college or university (e.g., Environmental Science or Wildlife Biology department); species-related research to improve knowledge of a species and conservation needs. 4. Contribution to a program to enhance recovery of the special status species impacted by the project; contribution to research program on wind project impacts to birds and bats. If any of these measures are implemented, the project operator, in consultation with the County, should implement an effectiveness evaluation program to assess the intended and unintended effects of the measure. The measure should be reversed, discontinued, or modified if little or no reduction in mortality is demonstrated within a reasonable time or if it leads to unintended, adverse consequences, as determined by the County. Alternative Level 2 Threshold Criteria Based on Annual Mortality Statistics In addition, Level 2 measures shall be triggered if the estimated, project-wide mortality rates of non-listed sensitive species, for fatalities attributable to the project, adjusted for searcher efficiency and scavenger removal, exceed 0.08 per WTG per year (at the 90% confidence level) in any 12-month period. The equivalent Level 2 trigger for non-sensitive raptors shall be 0.15 fatalities per WTG per year. Level 2 measures shall also be triggered by large-scale mortality of non-sensitive bird or bat species at thresholds of 4 and 12 fatalities per WTG, per year, respectively.			
CULTURAL RESOURCES				
CULT-1	Additional Archaeological Investigations. If it is determined that a Project element requiring ground disturbance cannot be located at least 500 feet from the mapped boundaries of an archaeological site, then an Extended Phase 1 investigation shall be conducted by employing a small number of shovel test units (STU). These STUs would be used to determine the actual subsurface boundary of the archaeological site relative to the proposed disturbance, and	Review of archaeological investigation study(s), if required, and final design plan review.	Prior to the issuance of the zoning clearance for the first phase of construction and each subsequent project phase.	SBCo P&D

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	therefore verify whether or not the site would be affected by the disturbance. The STUs should be 20 inches in diameter and excavated in arbitrary 8-inch levels. If the presence of cultural materials is confirmed in areas that would be disturbed by Project construction, then Project construction activities should be reviewed and redesigned, to the greatest extent feasible consistent with project objectives, to avoid impacts on confirmed cultural resource sites (see Mitigation Measure CULT-7). If a recorded archaeological site can not be avoided through Project redesign, then Phase 2 subsurface testing shall be conducted to evaluate the nature, extent, and significance of the cultural resources. This evaluation program shall be designed to assess each archaeological site consistent with County Archaeological Guidelines and shall involve the following: a. Controlled hand excavation and surface collection of a representative sample of the site deposit determined by a County-approved archaeologist b. A detailed analysis of the material recovered c. An assessment of cultural resource integrity d. Preparation of a final report with recommendations for impact mitigation if necessary. Should this program determine that the affected archaeological sites are significant, Phase 3 mitigation in the form of data recovery excavation shall be implemented consistent with County Archaeological Guidelines. All work shall be funded by the Applicant. The scope of work for the study(s) shall be prepared by the County or by the County- approved archaeologist and reviewed by the County. The study(s) shall be performed prior to final design so that any necessary modifications can be incorporated into the plans. The County-approved archaeologist shall submit a final report to the County detailing the results of the study(s) prior to zoning clearance. Any subsequent modifications resulting from the study(s) shall be incorporated into the final plans and be subject to review and approval by the County prior to zoning clearance for the first phase of construction and prior to zoning clearances for subsequent project phases.			
CULT-2	Archaeological Isolates. In the case where ground disturbance is proposed within 100 feet of Archaeological Isolates LWF Iso-1, Iso-8, Iso-9, Iso-10, and Iso-11, a single STU shall be excavated within 3 feet of the isolate in order to	Review of archaeological investigation study(s), if required, and final design plan	Prior to the issuance of the zoning clearance for the first phase of construction	SBCo P&D

Mitigation Measure #	Mitigation Requirements and Timing	Methods of Verification	Timing of Verification	Party Responsible for Verification
	determine if there are subsurface deposits present. If the isolate cannot be relocated, the STU shall be placed in the general vicinity of its mapped location. If subsurface cultural deposits are identified, they shall be assessed and characterized in accordance with Mitigation Measure A-CULT-1. The Applicant shall fund the above referenced study. The scope of work for the study shall be prepared and accepted by the County in consultation with a County-approved archaeologist. The findings of the study shall be submitted to the County to determine if additional protective measures shall be required. The study shall be performed prior to the zoning clearance for the first phase of construction and prior to the zoning clearances for subsequent Project phases for disturbance in this area.	review.	and each subsequent project phase.	
CULT-3	Unanticipated Discoveries. Should human remains, historic or prehistoric artifacts, or other potentially important cultural materials be unearthed or otherwise discovered at any time during activities associated with the development of the Project area, work in the immediate vicinity of the discovery shall be suspended until a County- approved archaeologist and Native American representative are retained by the Applicant to evaluate the significance of the find pursuant to Phase 2 investigations as specified in the County Guidelines (County, 1993). If the cultural resources are found to be significant, they shall be subject to a Phase 3 mitigation program consistent with County Cultural Resource Guidelines and funded by the Applicant. In the event that suspected human remains are discovered, the County Coroner shall be contacted in accordance with state law.	This condition shall be printed on all building and grading plans.	Prior to zoning clearance for the first phase of construction and each subsequent project phase.	SBCo P&D
		EQAP inspections.	During construction.	
CULT-4	Archaeological and Native American Monitors. A County- approved archaeologist and Native American monitor shall monitor all ground disturbances to ensure that any previously unidentified cultural resources are recorded. Prior to start of construction, a contract or Letter of Commitment between the Applicant and the County-approved archaeologist, consisting of a project description and scope of work, shall be prepared. The contract shall be executed and submitted to the County for review and approval prior to the issuance of the zoning clearance for the first phase of construction and prior to the issuance of the zoning clearances for subsequent project phases.	Review and execution of contract.	Prior to zoning clearance for the first phase of construction and each subsequent project phase.	SBCo P&D
		County- approved archaeologist and County grading inspectors will spot check field work.	During construction.	

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CULT-5	Pre-construction Workshop. The County shall conduct a pre-construction workshop with cultural resource specialists, Native American monitors, and construction workers and personnel, stressing the importance of cultural resources and discussing penalties for their illicit disturbance. Training shall occur prior to commencement of any construction-related activity and all construction personnel must receive training. The Applicant shall keep training records onsite for review by the County, if requested.	Review of training materials. Training of construction crews and associated personnel. Review of training records.	Prior to construction. Prior to project site entry for construction purposes. During construction.	SBCo P&D
CULT-6	Avoidance of Cultural Resources. Avoidance of cultural resource sites is the preferred measure, and all impacts to CRHR eligible sites shall be avoided to the greatest extent feasible, consistent with project objectives. As Project design plans are being finalized, the County and its qualified archaeologist shall review 1 inch to 400 feet (1":400') or better scale orthotopo maps of the areas of known Project impacts and provide an assessment of direct adverse effects to CRHR-eligible or unevaluated cultural resources. Recommendations for plan adjustments to avoid all eligible resources to the extent feasible shall be made and design adjustments may be necessary. Final Project layout (for example, WTG placement, access road alignment, power pole locations, and staging areas) shall include measures to avoid eligible sites where feasible. All work shall be completed as part of final design, and any necessary modifications shall be incorporated into the final plans.	Final design plan review and approval. EQAP inspections.	Prior to zoning clearance for the first phase of construction and each subsequent project phase. During construction.	SBCo P&D
CULT-7	Final Plan Notification. The Applicant shall include a note on a separate informational sheet to be recorded with the final plans for each construction phase designating the known archaeological sites as unbuildable areas, unless the archaeological site is formally evaluated by a County- approved archaeologist as ineligible for the CRHR or a Phase 3 data recovery program has been implemented. The areas shall not be identified as archaeological sites on the informational sheet.	Final design plan review and approval. EQAP inspections.	Prior to zoning clearance for the first phase of construction and each subsequent project phase. During construction.	SBCo P&D
CULT-8	Temporary Fencing. Known unevaluated or determined significant archaeological sites and 50-foot buffer areas shall be temporarily fenced with chain link flagged with color or other material authorized by the County where ground disturbance is proposed within 500 feet of the site and a buffer. The fencing requirement shall be shown on approved grading and building plans. Plans are to	Verify installation of fencing. EQAP inspections.	Prior to zoning clearance for the first phase of construction and each subsequent project phase. During construction.	SBCo P&D

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	be approved prior to zoning clearance for the first phase of construction and prior to zoning clearances for subsequent project phases; and fencing is to be in place prior to start of construction. The areas shall not be identified as archaeological sites on the informational sheet.			
	ENERGY/ELECTRIC UTILITIES			
	No mitigation measures are required because no significant impacts to Energy/Electric Utilities would occur.			
	FIRE HAZARDS AND EMERGENCY SERVICES			
FPES-1	Fire Protection Plan. The Applicant shall prepare a Fire Protection Plan that meets SBCFD requirements. The plan shall contain (but not be limited to) the following provisions: a. All construction equipment shall be equipped with appropriate spark arrestors and carry fire extinguishers. b. A fire watch with appropriate fire fighting equipment shall be available at the Project site at all times when welding activities are taking place. Welding shall not occur when sustained winds exceed that set forth by the SBCFD unless a SBCFD-approved wind shield is onsite. c. A vegetation management plan shall be prepared to address vegetation clearance around all WTGs and a regularly scheduled brush clearance of vegetation on and adjacent to all access roads, power lines, and other facilities. d. Operational fire water tanks shall be installed prior to construction. e. Provisions for fire/emergency services access if roadway blockage occurs due to large loads during construction and operation. f. Cleared, maintained parking areas shall be designated; no parking shall be allowed in non-designated areas. g. The need for and/or use of dedicated repeaters for emergency services.	Fire Protection Plan review and approval. EQAP inspections. SBCFD inspections.	Prior to zoning clearance for the first phase of construction. During construction. During operations.	SBCFD and SBCo P&D
FPES-2	Smoking and Open Fires. Smoking and open fires shall be prohibited at the Project site during construction and operations. A copy of the notification to all contractors regarding prohibiting smoking and burning shall be provided to the County.	Review and approval of notification. EQAP inspections.	Prior to zoning clearances for each phase of construction. During construction.	SBCo P&D
FPES-3	Install Gravel around Substation. Gravel shall be placed around the perimeter of the Project Substation as a fire prevention measure. This requirement shall be noted on building plans.	Confirmation of gravel installation.	Prior to operations.	SBCo P&D

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FPES-4	Access Roads. Access roads shall remain passable by emergency vehicles for the duration of the Project. Turn-around requirements at the terminus of access roads shall be included in roadway designs. The final design shall be approved by the SBCFD, and the final access road map (including topographic map) shall be provided to both the SBCFD and the City of Lompoc Fire Department. The approved access road design shall be included on the final plans with a note that the roads shall remain passable at all times.	Review and approval of final design plans. Roadway inspection. SBCFD inspections to verify that access roads are maintained in an acceptable condition.	Prior to construction Upon completion of construction. During operations.	SBCFD and SBCo P&D
FPES-5	Water Supply. The Applicant shall demonstrate to the County that sufficient water can be obtained from the new shallow well or existing spring on the property and/or by trucking in from offsite supplies to adequately supply the O&M facility needs while maintaining 5,000 gallons of stored water for fire-fighting purposes.	Review and approval of adequate water demonstration. SBCFD inspections.	Prior to zoning clearance for the first phase of construction. During operations.	SBCFD and SBCo P&D
GEOLOGY AND SOILS				
GEO-1	Seismicity. Project facilities shall be designed to Uniform Building Code Seismic Zone 4 standards.	Review and approval of plans for buildings and structures. SBCo B&S inspections.	Prior to zoning clearance for the first phase of construction and each subsequent phase. Prior to occupancy (O&M facility) and prior to operation of WTGs.	SBCo Building & Safety (B&S) and SBCo P&D
GEO-2	Grading and Drainage Plan. The Applicant shall prepare a final Grading and Drainage Plan, designed to minimize erosion and landslides, which includes the following measures: a. Use diversion structures and spot grading to reduce siltation into adjacent streams during grading and construction activities b. Design grading on slopes steeper than 3:1 to minimize surface water runoff c. Limit grading during construction to the dry season (April 15 to November 1) to the extent practicable. If grading needs to be done outside of the dry season, Applicant will coordinate grading work with the County and will follow all applicable guidelines d. Keep soil damp during grading activities to reduce the effects of dust generation e. Stockpile excess topsoil on site and segregate it from other soils to facilitate future land restoration	Grading and Drainage Plan review and approval. Verification that plan requirements are noted on all grading and building plans. The Applicant shall notify the County of grading schedule. EQAP inspections, including technical grading inspections.	Prior to zoning clearance for the first phase of construction and each subsequent phase. Prior to commencement of grading. During construction.	SBCo Flood Control and SBCo P&D

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	f. Install erosion control structures where appropriate, including temporary erosion control structures, such as trench plugs and water bars, on moderately steep slopes g. If slope stabilization impacts cannot be avoided, submit detailed plans of the excavation (with limits of cut and fill and slope restoration method) prior to construction for review and approval. h. Restore soil elevation/topography consistent with the approved grading and erosion control plans. i. Reseed all exposed graded surfaces with deep-rooted, native, drought-tolerant ground cover to minimize erosion. Geotextile binding fabrics shall be used if necessary to hold slope soils until vegetation is established. j. Construct cut slopes no steeper than 1.5:1 unless topographic constraints prevent this possibility; then, incorporate special design features to prevent slope failure. k. Construct fill slopes no steeper than 2:1 unless topographic constraints prevent this possibility; then, incorporate special design features to prevent slope failure. l. Strip areas to receive fill of vegetation, organic topsoil, debris, and other unsuitable material. Place engineered fill in layers not exceeding 12 inches in loose thickness, properly moistened and compacted, and tested for 90 percent compaction. m. Where fill is placed upon a natural or excavated slope steeper than about 5:1 (20 percent), construct a base key at the toe of the fill and bench the fill into the existing slopes. Embed the base key at least 2 feet into competent inorganic soils; then bench the fill horizontally into the existing slope at least 2 feet normal to the slope as the fill is brought up in layers. n. Designate a place for temporary storage of construction equipment at least 100 feet from any water bodies. o. Project grading and earthwork shall be observed and tested by a geotechnical engineer or his representative to verify compliance with these mitigation measures. Erosion and sediment control measures shall be in place throughout grading and development of the site until all disturbed areas are permanently stabilized. Graded surfaces shall be reseeded within 60 days of grading completion, with the exception of surfaces graded for the placement of structures. These surfaces shall be reseeded if construction of structures does not commence	Inspection and photo documentation of revegetation efforts.	Post-revegetation.	

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	within 60 days of grading completion.			
GEO-3	Expansive Soils. Soil analyses shall be completed for expansion potential. Once Project design has been developed and the criteria for the facility performance have been established, the soils engineer shall review the mitigation measures and modify them as appropriate. If further measures are considered necessary to mitigate problems posed by expansive soils, the following alternatives shall be considered: a. Over-excavation of expansive soils and replacement with non-expansive fill. b. Support of structures on drilled shaft foundations. c. Lime treatment of expansive subgrades.	Soil analyses and performance criteria shall be reviewed and approved. SBCo B&S inspections.	Prior to zoning clearance for the first phase of construction and each subsequent project phase. During construction.	SBCo B&S and SBCo P&D
GEO-4	Project Support Facilities. Project support facilities such as bridge foundations shall be sited on cut pads to provide relatively uniform foundation support and reduce differential settlement. Alternatively, structure foundations shall be designed to tolerate potential differential settlement.	Building plan review and approval. SBCo B&S inspections.	Prior to zoning clearance for the first phase of construction and each subsequent project phase. During construction.	SBCo B&S and SBCo P&D
LAND USE				
LU-1	Compliance with FAA Regulations. The WTG lighting plan shall comply with FAA requirements. (See also Mitigation Measure VIS-4, Section 3.2.5.8.) The Applicant shall demonstrate that the FAA-required WTG lighting plan complies with FAA requirements, but does not exceed FAA requirements for visibility. The Applicant shall submit copies of the following to the County, as evidence of compliance with FAA requirements: FAA Form 7460-1 as submitted to FAA, all communications with the FAA concerning the proposed lighting plan, and the final FAA-approved lighting plan.	Lighting Plan review. Ensure coordination with FAA Inspection of WTG lighting to ensure that installed lighting conforms to the approved Lighting Plan.	Prior to zoning clearance for the first phase of construction and each subsequent project phase. Prior to operations.	SBCo P&D
LU-2	Staking of Coastal Zone. The Applicant shall install exclusion fencing or stake the coastal zone boundary to ensure that no construction activities enter the coastal zone area. The installation of exclusion fencing or staking shall be completed prior to the start of construction activities within the WTG corridors adjacent to the coastal zone.	Inspection of fencing/staking. EQAP inspections.	Prior to construction in WTG corridors adjacent to the coastal zone. During construction.	SBCo P&D

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LU-3	Decommissioning & Reclamation Plan. The Applicant shall develop a Decommissioning and Reclamation Plan that addresses facility decommissioning, abandonment, and post-abandonment reclamation efforts. The Decommissioning and Reclamation Plan shall be submitted to the County for review and approval as part of the Applicant's permit application for a discretionary permit for facility decommissioning and abandonment. The plan shall be implemented during facility abandonment, with reclamation efforts following. This requirement shall apply in the case of partial decommissioning as well as decommissioning of the entire project.	Review and approval of Decommissioning and Reclamation Plan EQAP inspections of Plan implementation.	During discretionary permit review for decommissioning and abandonment. During abandonment and reclamation activities.	SBCo P&D
	NOISE			
NOI-1	WTG Maintenance. The Applicant shall maintain all WTGs in excellent working order to minimize operational noise impacts. The Applicant shall provide maintenance records to the County, upon request, demonstrating that the WTGs are being maintained appropriately.	Review of maintenance records.	During operation.	SBCo P&D
NOI-2	Construction Hours. All Project construction activities, including those that involve use of heavy equipment (i.e., greater than 2-axle vehicles) along San Miguelito Road,-shall be limited to between the hours of 7:00 a.m. to 10:00 p.m., Monday through Friday, unless otherwise approved by the County. Except that construction at the project site within 1,600 feet of non-participating residences shall be limited to 7:00 a.m. to 6:00 p.m. Work may occur within the WTG sites after hours or on weekends and holidays, subject to at least 48 hours written authorization from the County, and shall be limited to 8:00 a.m. to 5:00 p.m. Requests for weekend and holiday work shall be submitted to the County for approval in advance and shall include a description of the activity to occur, including equipment usage and duration. All complaints received regarding weekend and holiday work shall be immediately submitted to the County.	Review and approval of final plans. Review and approval of weekend and holiday work. EQAP inspections.	Prior to zoning clearance for the first phase of construction and each subsequent project phase. During construction.	SBCo P&D
NOI-3	Telephone Number for Noise Complaints. The Applicant shall establish a telephone number for use by the public to report any significant undesirable noise conditions associated with the construction and operation of the Project. If the telephone is not staffed 24 hours per day, the Applicant shall include an automatic answering feature, with date and time stamp recording, to answer calls when the phone is unattended. This telephone number shall be posted at the Project site during construction in a manner visible to	Confirm establishment of noise complaint phone number.	Prior to zoning clearance for the first phase of construction and each subsequent project phase.	SBCo P&D

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	passersby and the number shall be maintained until the Project has been operational for at least 1 year.	EQAP inspections.	During construction and first year of operation.	
NOI-4	Noise Complaint Resolution Plan. Throughout the construction and operation of the Project, the Applicant shall document, investigate, and evaluate all complaints and attempt to resolve all legitimate Project-related noise complaints. The Applicant shall submit a noise complaint resolution plan for approval by the County prior to zoning clearance for the first phase of construction and prior to zoning clearances for subsequent phases of the Project. The plan shall describe the specific steps that will be carried out by the Applicant in response to noise complaints. The final determination as to whether the response is adequate will be made by the County. The noise complaint forms will include instructions for filing the form with the Applicant and with the County. The County may require further noise analyses and require additional mitigation measures, if appropriate (*Addresses Impacts NOI-1 and NOI-2)*.	Review and approval of noise complaint resolution plan. Review of complaint forms to ensure that complaints are being resolved.	Prior to zoning clearance for the first phase of construction and each subsequent project phase. During construction and operation.	SBCo P&D
NOI-5	Maintenance of Construction Equipment. Construction contractors shall be required to ensure that construction equipment is well tuned and maintained according to the manufacturer's specifications, and that the standard noise reduction devices on the equipment are in good working order. The Applicant shall ensure that equipment is maintained in good working order during construction.	EQAP inspections.	During construction.	SBCo P&D
NOI-6	Resident Notification. In coordination with the County, the Applicant shall hold a pre-construction meeting for residents of Miguelito Canyon Road to review upcoming construction activities and associated noise and traffic. The Applicant shall notify residences within 1 mile of any unusually loud construction activities, including the use of helicopters, blasting or pile driving, at least 1 week prior to their scheduled occurrence. In addition, the San Miguelito Road residents shall be notified at least one week prior of any anticipated road/lane closures and property owner ingress/egress restrictions. Such activities shall be limited to between the hours of 8:00 a.m. to 5:00 p.m., Monday through Friday, unless otherwise approved by the County.	Review and approval of example notification. Proof of notification(s) shall be provided to County.	Prior to zoning clearance for the first phase of construction and each subsequent project phase. One week prior to each scheduled occurrence of loud construction activities.	SBCo P&D

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NOI-7	Acoustical Analysis. The LWEF will be designed and operated to ensure the noise level attributable to the Project does not exceed 43.3 dBA L_{eq} (1 hour) under normal operating conditions at any existing nonparticipating residences, or 58.3 dBA L_{eq} at participating residences. The Applicant shall submit to the County a detailed acoustical analysis of the final site layout and selected WTGs. All calculations or modeling input and output files shall be made available to the County. The analysis shall include all available vendor sound-level data (specified as either guaranteed or expected), including a site-specific analysis of how sound power levels increase with wind speed. If a stall-controlled WTG is selected, sound power level data must be sufficient to estimate maximum sound levels under any stall condition because this could fall outside the range reported by IEC 61400-11 (IEC, 2006). Control strategies, if available, to reduce Project noise levels also shall be discussed and evaluated. This requirement shall be shown on the final plans. The acoustical analysis and final layout and specification of WTGs shall be submitted to the County for review. County acceptance of the acoustical analysis and WTG layout does not constitute endorsement nor relieve the Applicant from ensuring the actual WTG operating noise levels are in compliance with the limits of 43.3 dBA Leq (1-hour) at nonparticipating residences, and 58.3 dBA L_{eq} at the participating residences.	Review and approval of acoustical analysis. Review and approval of final plans.	Prior to zoning clearance for the first phase of construction and each subsequent project phase.	SBCo P&D
NOI-8	Noise Monitoring and Control Plan. The Applicant shall prepare and submit a "Noise Monitoring and Control Plan" prior to zoning clearance. The plan shall be authored and implemented under the direction of a County-approved professional acoustical engineer or an engineer who is certified by the Institute of Noise Control Engineering to characterize the existing ambient noise levels in terms of CNEL, L_{dn}, and L_{eq} (1-hour) and determine the actual noise level generated by the Project at the participating and nonparticipating residences. Monitoring existing conditions shall occur for sufficient periods to characterize the existing noise levels during daytime and nighttime conditions and a range of wind speeds that includes calm conditions and wind speeds typical for WTG operation. Operational noise monitoring shall occur at the same locations for a period of at least 72 continuous hours of WTG operation. The Applicant shall be responsible for all expenditures	Review and approval of Noise Monitoring and Control Plan.	Prior to zoning clearance for the first phase of construction and each subsequent project phase. The noise measurements to characterize baseline ambient noise levels shall commence at least 3 months prior to site grading or as otherwise approved by the County.	SBCo P&D

Mitigation Measure #	Mitigation Requirements and Timing	Methods of Verification	Timing of Verification	Party Responsible for Verification
	associated with this analysis, including County staff time. If the analysis finds that the noise generated by the WTGs exceeds 43.3 dBA L_{eq} (1-hour) or causes an increase of greater than 10 dBA CNEL at nonparticipating residences or exceeds 58.3 dBA L_{eq} at the participating residences, the Applicant shall develop and implement measures to reduce Project noise levels to comply with this level. The proposed mitigation measures shall be submitted to the County for approval before implementation. Post-mitigation noise monitoring may be conducted by the County's acoustical consultant. The Applicant shall also reimburse the County for these expenditures.	Review operational noise data.	Operational noise monitoring shall commence within 3 months following startup of commercial operations.	
NOI-9	Maintenance Hours. Maintenance or other routine noise-generating operations activities within 1,600 feet of nonparticipating residences shall be limited to weekdays between the hours of 8:00 a.m. to 5:00 p.m. only, unless activities are for emergency repairs or as otherwise approved by the County.	Review and approval of final plans.	Prior to zoning clearance for the first phase of construction and each subsequent project phase.	SBCo P&D
		EQAP inspections.	During operations.	
PALEOTOLOGICAL RESOURCES				
PALEO-1	Pre-construction Workshop. The County shall conduct a pre-construction workshop with a County-qualified paleontologist or individual qualified to identify paleontological resources and construction workers and other Project personnel. The workshop shall inform personnel what fossil resources are and what they look like, what to do and who to notify in case of a paleontological discovery, and penalties for the illicit disturbance of fossils. All construction personnel must receive training. The Applicant will keep training records onsite for review by the County, if requested.	Review and approve training materials.	Prior to the commencement of construction	SBCo P&D
		Training of construction crews and associated personnel.	Prior to project site entry for construction purposes.	
		Review of training records.	During construction.	
PALEO-2	Implement Monitoring Program. Paleontological resources monitoring of mechanical disturbance only in Project areas known to have moderate to high sensitivity sediments shall occur concurrently with those construction activities. Monitoring shall be performed by an individual determined by the County to be qualified to identify paleontological resources. Based on field data, a decrease or increase in the monitoring of specific activities and areas may be identified. Prior to start of construction, a contract or Letter of Commitment between the Applicant and the monitor, consisting of a project description and scope of work, shall be prepared. The contract shall be executed and submitted to the County for review and approval prior to the issuance of the	Review and approval of Letter of Commitment	Prior to zoning clearance for the first phase of construction and each subsequent project phase.	SBCo P&D
		EQAP inspections.	During construction.	

Mitigation Measure #	Mitigation Requirements and Timing	Methods of Verification	Timing of Verification	Party Responsible for Verification
	zoning clearance for the first phase of construction and all subsequent construction phases.			
PALEO-3	Discovery of Fossils. If fossils are found by the monitor or by construction personnel, the following actions will be taken: a. Follow appropriate notification procedures b. Assessment of the find, usually in the field by the Project paleontologist and determination of recovery procedures c. Provisions for construction avoidance until a find is assessed and, if recovery is called for, scientifically recovered; construction-related excavations would continue in other areas away from the discovery d. Provisions for continued monitoring of construction in all appropriate areas while the find is being recovered e. Post-field initial study and curation preparation and subsequent curation. Fossils that may be discovered during construction must first be assessed to determine whether they are scientifically significant and whether recovery measures are warranted. If recovery is recommended, it shall be completed in a manner reflecting scientific standards currently applied to paleontological excavations. Within those limits, all appropriate measures shall be taken to expedite recovery and to minimize interference with construction scheduling. The County shall be notified within 48 hours of a paleontological resources discovery assessed by the Project paleontologist to be significant and warranting recovery. The paleontological monitor shall periodically update the County during the recovery, and notify them upon completion of recovery.	EQAP inspections. Review of notifications.	During construction. During recovery, if required.	SBCo P&D
RISK OF ACCIDENTS, HAZARDOUS MATERIALS, AN D SAFETY				
RISK-1	Hazardous Materials Management Plan. The Applicant shall prepare a Hazardous Materials Management Plan that meets SBCFD requirements. A copy of the plan shall be provided to the SBCFD and the County.	Review and approval of Hazardous Materials Management Plan.	Prior to zoning clearance for the first phase of construction.	SBCFD and SBCo P&D
RISK-2	Refueling. Refueling vehicles shall have a sign listing pertinent contacts to notify in the event of a spill. A copy of the notification to all contractors regarding this requirement shall be provided to the County.	Review and approval of notification. EQAP inspections.	Prior to zoning clearance for the first phase of construction and each subsequent project phase. During construction.	SBCo P&D

Mitigation Measure #	Mitigation Requirements and Timing	Methods of Verification	Timing of Verification	Party Responsible for Verification
RISK-3	Equipment Monitoring. All equipment shall be adequately maintained to minimize operational losses of hazardous materials and to reduce the risk of accidental spillage. A copy of the notification to all contractors regarding this requirement shall be provided to the County.	Review and approval of notification. EQAP inspections.	Prior to zoning clearance for the first phase of construction and each subsequent project phase. During construction.	SBCo P&D
RISK-4	Refueling Locations. Construction fueling shall be designated such that sensitive areas are avoided. A copy of the notification to all contractors regarding this requirement shall be provided to the County.	Review and approval of notification. EQAP inspections.	Prior to zoning clearance for the first phase of construction and each subsequent project phase. During construction.	SBCo P&D
RISK-5	Tower Failure and Blade Throw. All WTGs along public roadways shall adhere to the public road setback of the combined WTG tower and blade height. (Note that this requirement would prevent siting of WTGs along the southern portion of the Middle turbine corridor as shown on Figure 2-2. However, if San Miguelito Road and Sudden Road were converted to private roads beyond their intersection [Section 2.6.4], siting of WTGs would be restricted but not prevented in this area.) This requirement shall be included as a note on final design plans showing the WTG layout.	Review and approval of final plans. EQAP inspections.	Prior to zoning clearance for the first phase of construction and each subsequent project phase. During construction.	SBCo P&D
TRAFFIC AND CIRCULATION				
TC-1	Traffic Management Plan (TMP). The Applicant shall prepare a TMP for submittal to the County of Santa Barbara, City of Lompoc, and Caltrans. The purpose of the TMP is to address potential hazards associated with Project truck traffic. The plan will require measures such as informational signs, flagmen when equipment may result in blockages of throughways, and traffic control to implement any necessary changes in temporary lane configuration. Specific provisions could include: • Location and use of flag persons and pilot cars during the delivery of large loads • Requirements to limit the hours for transporting heavy loads to minimize traffic impacts • Limit the number of heavy loads per day, or to specific days • Provide for advance notification of residents, emergency providers, and hospitals when roads may be partially or completely closed • Develop protocols for passage of emergency	Review and approval of TMP and final plans. EQAP inspections.	Prior to zoning clearance for the first phase of construction and each subsequent project phase. During construction.	SBCo P&D, City of Lompoc, and Caltrans

Mitigation Measure #	Mitigation Requirements and Timing	Methods of Verification	Timing of Verification	Party Responsible for Verification
	vehicles and regular traffic when heavy vehicles are traveling at slow speeds • Ensure adequate parking for workers, construction vehicles, and trucks • Encourage measures for using carpooling, shuttle buses, cycling, or motorcycling to travel to the construction site. • Transportation Demand Management (TDM), including agreements, employee information, reporting, and traffic count monitoring All requirements shall be shown on grading and building plans prior to zoning clearance for the first and all subsequent Project phases.			
TC-2	Traffic Mitigation Fees. The Applicant shall pay the appropriate traffic mitigation fees to the County of Santa Barbara.	Confirmation of fee payment.	Prior to zoning clearance for the first phase of construction and each subsequent project phase.	SBCo P&D
TC-3	Roadway Repairs. The Applicant shall enter into an agreement with affected jurisdictions to ensure that any damage to roadways attributable to Project traffic is mitigated through repair or reconstruction to original conditions. Roads will be photographed or videotaped prior to construction to ensure that final repairs are sufficient to return the road to pre-construction conditions. The Applicant shall also comply with the requirements of the hauling permits from affected jurisdictions prior to the construction of the Project. All requirements shall be included in the TMP. The applicant shall pay for any repairs needed during the construction phase to maintain the roads in acceptable condition, as determined by the TMP. At the conclusion of each major construction phase, all affected roads shall be restored to pre-construction conditions in consultation with the affected jurisdictions. In addition, prior to the start of the rainy season, the roadways impacted by construction activities and heavy load delivery shall be surveyed to ensure that any roadway damage will not be subject to further damage from erosion caused by precipitation. If roadways are determined to need repair, interim repairs shall be proposed for review and approval by the affected jurisdictions and implemented in an approved timeframe to avoid further roadway damage.	TMP review and approval. EQAP inspections.	Prior to zoning clearance for the first phase of construction and each subsequent project phase. During construction.	SBCo P&D, City of Lompoc, and Caltrans

Mitigation Measure #	Mitigation Requirements and Timing	Methods of Verification	Timing of Verification	Party Responsible for Verification
TC-4	Oversize Loads. Oversize loads require the implementation of special traffic control measures and require permits from affected jurisdictions. Since loads will be delivered to the site using state, city, and County roads, permits shall be required from Caltrans, the City of Lompoc, and the County of Santa Barbara. The Applicant shall obtain permits from the County of Santa Barbara to trim or remove trees, or both, on San Miguelito Road for the safe movement of oversized trucks. Longer trucks may have to be restricted to specific routes if turning radii are not sufficient on current truck routes. The Applicant employed a licensed surveyor in November 2006 to evaluate San Miguelito Road, to determine if the road would be passable by large trucks; the surveyor concluded that road widening, grading, or tree removal would not be required if steerable trailers were used. However, this cannot be established with certainty until the specific characteristics of the transport vehicles have been determined. Therefore, before final zoning clearance, further survey of the roadway constraints shall be required. Specifically, the applicant shall employ a qualified, County-approved engineer to conduct a pre-construction survey to assess the ability to transport the required large loads along southern San Miguelito Road without grading of embankments or damage to trees or other vegetation (apart from minor trimming of overhead branches). The survey shall be based on the actual load dimensions and vehicles to be used in transporting the largest turbine parts and other Project parts and materials. If the survey indicates that grading, tree removal, or other vegetation damage may occur, all potentially affected areas shall be included in the Project grading and drainage plan, erosion control plan, and site restoration plan. County oak tree replacement requirements and any other applicable permit conditions relating to biological, cultural, geological, and water resources shall apply. All requirements shall be included in the TMP. Applicant shall file copies of all oversize load/heavy haul permits with the County prior to the first delivery. Applicant shall provide the County with the large load transportation survey, including all information on load sizes, for review and approval.	Review and approval of TMP and large load transportation survey. Verification that required permits have been obtained. EQAP inspections.	Prior to zoning clearance for the first phase of construction and each subsequent project phase. During construction.	SBCo P&D, City of Lompoc, and Caltrans

Mitigation Measure #	Mitigation Requirements and Timing	Methods of Verification	Timing of Verification	Party Responsible for Verification
	WATER RESOURCES			
WAT-1	**Erosion Control Plan.** An Erosion Control Plan for Project construction (the County acknowledges that a SWPPP that incorporates all of the RWQCB requirements/ BMPs and the measures listed below would be acceptable to comply with this requirement) shall be developed by a registered engineer to minimize potential impacts to surface water quality during construction activities. Best available erosion and sediment control measures shall be implemented during grading and construction, which could include but are not limited to: • Use of sediment basins • Gravel bags • Silt fences • Geo-bags or gravel and geotextile fabric berms • Erosion control blankets • Coir rolls • Jute net • Certified straw bales (to avoid the introduction of noxious or invasive weeds) Additional measures could include: • Minimizing the size of the disturbed area associated with grading/construction • Stockpiling all excavated soils and protecting them from wind and water erosion • Revegetating disturbed areas • Limiting grading during construction to the dry season to the extent practicable If grading needs to be done outside of the dry season, the Applicant shall coordinate grading work with the County and shall follow all applicable guidelines. Rainy season erosion control measures shall be utilized to control runoff and erosion in the event that revegetation is not completed prior to the rainy season. Sediment control measures shall be maintained for the duration of the grading period and until graded areas have been stabilized by structures, long-term erosion control measures or landscaping. Construction entrances and exits shall be stabilized using gravel beds, rumble plates, or other measures to prevent sediment from being tracked onto adjacent roadways. Any sediment or other materials tracked off site shall be removed the same day as they are tracked using dry cleaning methods. The Erosion Control Plan (SWPPP) shall be submitted for review and approval by the County	Erosion Control Plan (SWPPP) review and approval. Grading and building plan review and approval. The Applicant shall notify the County of grading schedule. EQAP inspections, including technical grading inspections.	Prior to zoning clearance for the first phase of construction and each subsequent project phase. Prior to commencement of grading. During construction.	SBCo P&D and RWQCB

Mitigation Measure #	Mitigation Requirements and Timing	Methods of Verification	Timing of Verification	Party Responsible for Verification
	prior to zoning clearance for the first phase of construction and prior to the zoning clearance for subsequent Project phases. The plan shall be designed to address erosion and sediment control during all Project phases. Plan requirements shall be noted on all grading and building plans. The Applicant shall notify County Permit Compliance prior to commencement of grading.			
WAT-2	Minimize watercourse encroachment in road widening. Prior to final approval of the Project, a road widening plan showing all watercourse encroachments shall be submitted to Santa Barbara County for review and approval. The plan shall demonstrate that any roadway widening within or adjacent to a watercourse is the minimum practicable, and that the widening does not adversely affect the creek channel or flow pattern. The road widening plan shall also demonstrate that access to the City of Lompoc Frick Springs Water Treatment Facility, and its operations and delivery systems, will not be compromised. Plan requirements shall be noted on all grading and building plans. The Applicant shall notify County Permit Compliance prior to commencement of grading.	Review and approval of final plans. The Applicant shall notify the County of grading schedule. EQAP inspections including technical grading inspections.	Prior to zoning clearance for the first phase of construction and each subsequent project phase. Prior to commencement of grading. During construction.	SBCo P&D and City of Lompoc Frick Springs Water Treatment Facility