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Incidental Take Permit Application Under the California Endangered Species Act for the Proposed Viracocha Hill Battery Energy Storage System Project

Reclaimed Wind, LLC

Viracocha Hill BESS

October 2, 2025

DRAFT



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Acronyms and Abbreviations

Acronym	Description
AB	Assembly Bill
APN	Assessor's Parcel Number
Applicant	Reclaimed Wind, LLC
APWRA	Altamont Pass Wind Resource Area
BESS	battery energy storage system
BIOS	Biogeographic Information and Observation System
BMP	best management practice
BRMIMP	Biological Resources Mitigation Implementation and Monitoring plan
BSA	biological study area
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
COC	Conditions of Certification
CPM	Compliance Project Manager
DCS	Distributed Control System
DPS	Distinct Population Segment
EIR	environmental impact report
ESA	Endangered Species Act
FGC	Fish and Game Code

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Acronym	Description
gen-tie	generation-tie line
HV	high voltage
ITP	incidental take permit
LORS	laws, ordinances, regulations, and standards
MV	medium voltage
MW	megawatt(s)
MW-hr	megawatt-hour(s)
NFPA	National Fire Protection Association
NHD	National Hydrology Dataset
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
PG&E	Pacific Gas and Electric
POI	Point of Interconnection
Project	Viracocha Hill Battery Energy Storage System Project
Rooney Ranch	Rooney Ranch Wind Repower Project
ROW	right-of-way
RPS	Renewables Portfolio Standard
Sand Hill	Sand Hill Wind Repower Project
SCADA	supervisory control and data acquisition
SSC	Species of Special Concern
State	State of California
USFWS	U.S. Fish and Wildlife Service

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Acronym	Description
USGS	U.S. Geological Survey
WEAP	Worker Environmental Awareness Program

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1. Introduction

Reclaimed Wind, LLC (Applicant) proposes to construct, own, operate and eventually repower or decommission the 90.7 megawatt (MW) (at the Point of Interconnection, POI) Viracocha Hill Battery Energy Storage System Project (Viracocha Hill BESS or Project) in Alameda County, California (Figure 1-1). The Project is located between Livermore and Tracy, adjacent to the proposed Sand Hill Wind Repower Project (Sand Hill) (to be constructed, owned, and operated by an affiliate of the Applicant), in the Altamont Pass Wind Resource Area (APWRA). The purpose of the proposed Project is to assist the State of California (state) in meeting the goal of all electricity in California to come from renewable and zero carbon resources by 2045 as required under Senate Bill 100 (2018).

The Applicant has prepared this application for an Incidental Take Permit (ITP) in conformance with Section 2081 of the California Endangered Species Act (CESA). This application describes the proposed Project (Section 2); the environmental setting (Section 3); the state-listed wildlife species present at the site; anticipated impacts on such species resulting from the proposed Project; and proposed conservation measures that the Project will take to avoid, reduce, or offset the effects on the species.

1.1 Background

The following sections provide details regarding the Project Applicant and the regulatory background for the Project.

1.2 Applicant/Proposed Permittee Contact Information

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1.3 Compliance with California Environmental Quality Act

Under Assembly Bill (AB) 205, the California Energy Commission (CEC) oversees the permitting of clean and renewable energy facilities, including energy storage systems. The CEC's permitting process, known as the Opt-In Certification Program, provides an optional pathway to submit permit applications, which enables faster deployment of renewable technologies. A facility may opt into the program through completion of an Opt-In Application. CEC will then complete and certify an environmental impact report (EIR) under the California Environmental Quality Act and issue a certificate approving the Project within an expedited timeframe.

An AB205 Opt-In Application for the Project was submitted to the CEC on February 14, 2025. Once the application is deemed complete, the CEC will begin the environmental review process.

1.4 Regulatory Framework

California Fish and Game Code (FGC) Section 2080 prohibits the take (as well as the import, export, possession, purchase, or sale) of any state-listed endangered or threatened (or candidate, per Section 2068) species. "Take" is defined by Section 86 of the FGC as "hunting, pursuing, catching, capturing, or killing an individual of a listed species, or to attempt any such act." As defined in FGC Section 2081, CDFW may authorize the take of listed species incidental to otherwise lawful development projects. Species covered under such authorization are subject to the rules and guidelines of Sections 2112 or 2114 (recovery strategies) of the FGC. Subsection (c) of Section 2081 indicates that "no permit may be issued pursuant to subdivision (b) if issuance of the permit would jeopardize the continued existence of the species."

This document has been prepared to support the Applicant's application for an ITP seeking authorization under Section 2081 (b) of the CESA for incidental take of five state-listed species that could occur within the Project site: California tiger salamander – Central California Distinct Population Segment (DPS) (*Ambystoma californiense*), tricolored blackbird (*Agelaius tricolor*), western burrowing owl (*Athene cunicularia hypugaea*, burrowing owl), Swainson's hawk (*Buteo swainsonii*), and San Joaquin kit fox (*Vulpes macrotis mutica*), hereafter referred to as the "Covered Species." The conservation measures and offsite habitat compensation plan proposed in this ITP application are consistent with the measures proposed in the Applicant's anticipated USFWS Section 10 Habitat Conservation Plan covering the California tiger salamander, California red-legged frog (*Rana draytonii*), Northwestern pond turtle (*Actinemys marmorata*), Western spadefoot (*Spea hammondi*), and San Joaquin kit fox, as well as the measures identified in the AB205 Opt-In Application.

1.5 Study Methods

This section provides a description of the study methods used to evaluate threatened, endangered, and candidate species habitat, potential presence and absence, and potential Project effects.

1.5.1 Definition of Project Footprint, Biological Study Area, and Project Vicinity

The Project footprint is the Project activities disturbance area containing all proposed direct temporary and permanent impacts (Figure 2-1). The biological study area (BSA) is defined as the Project footprint along with a 500-foot buffer which may include areas of indirect effects from Project activities such as noise or dust (Figure 3-1). The Project vicinity refers to the larger surrounding area within approximately 5 miles of the Project footprint that encompasses the Altamont Pass region and may be used when discussing the likelihood of species to occur regionally (Figure 1-1).

1.5.2 Desktop Literature Review and Database Queries

A database search and literature review were conducted to investigate the potential presence of natural resources, including special-status species and their habitats, aquatic resources, and other sensitive habitats within the BSA and Project vicinity.

The following databases and other sources were consulted:

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- The CDFW California Natural Diversity Database (CNDDDB), Biogeographic Information and Observation System (BIOS), and RareFind5 were queried for results within a 5-mile buffer around the BSA (CDFW 2025) (Appendix A).
- The U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) database was queried for the BSA (USFWS 2025a) (Appendix A).
- The California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants of California database was queried for the following nine USGS 7.5-minute quadrangles (CNPS 2025) (Appendix A):
 - Byron Hot Springs (3712176)
 - Union Island (3712174)
 - Clifton Court Forebay (3712175)
 - Woodward Island (3712185)
 - Brentwood (3712186)
 - Holt (3712184)
 - Tracy (3712164)
 - Midway (3712165)
 - Altamont (3712166)
- AB2025 Opt-In Application for the Viracocha Hill BESS (Reclaimed Wind LLC 2025).
- eBird data was queried for sightings and range maps for special-status bird species (eBird 2021)
- Rainfall data were obtained from the Western Regional Climate Center (WRCC 2025).
- The Natural Resources Conservation Service (NRCS) soils information database was queried, and maps were created for wetlands analysis and potential habitat for special-status plant species analysis (NRCS 2025).
- The USFWS National Wetlands Inventory (NWI) database was queried for wetlands analysis and potential habitat for special-status aquatic species analysis (USFWS 2025b).
- The USGS National Hydrography Dataset and California Streams Map were queried (USGS 2025).

1.5.3 Field Surveys

The field surveys discussed in the following sections were conducted to acquire information for preparing this permit application.

1.5.3.1 Habitat Assessment

Habitat assessments were conducted by Jacobs biologists Scott Lindemann, Sean O'Neil, Brian Lee, and Kyle Brown on November 7, 2024, and by Scott Lindemann, Sean O'Neil, and Holly Barbare on April 8, 2025, to map land cover and assess potential habitat for rare plants and special-status wildlife within the study area.

1.5.3.2 Aquatic Resources Delineation

An aquatic resources delineation was conducted to identify potential wetlands and waters of the United States within the study area. The aquatic resources delineation was conducted in accordance with the Corps of Engineers Wetland Delineation Manual, Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0), National Ordinary High Water Mark Delineation Manual for Rivers and Streams, and the State Wetland Definition and Procedures for Discharges of

Dredged of Fill Materials to Waters of the State. The aquatic resources delineation included a desktop review and field visit which was conducted by Jacobs wetland scientists Greg Davis and Pim Lauikitnont-Lee on March 18, 2025 (Jacobs 2025a). Because the Project design is not expected to impact any waters of the U.S., the Applicant does not plan to consult with the U.S. Army Corps of Engineers at this time.

1.5.3.3 Rare Plant Surveys

Rare plant surveys were conducted by Jacobs botanists Kyle Brown, Sam Young, and Greg Davis to identify rare plants and suitable habitat within the study area. Surveys were conducted in accordance with the guidelines set forth by CDFW (CDFW 2018) and the CNPS Botanical Survey Guidelines (CNPS 2001). Surveys were conducted on April 4, May 16, and July 24–25, 2025, to capture spring and summer blooming periods of plants with potential to occur. A fourth and final survey was conducted on September 11, 2025, to capture fall blooming periods. In addition, the botanists visited several special-status plant reference site populations ranked as high potential to occur, and are known to exist locally, to confirm that the surveys were conducted at a time of year when species would be apparent and identifiable.

1.5.3.4 Swainson's Hawk Surveys

Protocol-level Swainson's hawk surveys were conducted by Jacobs biologists Scott Lindemann, Sean O'Neil, Danny Rivas, Sunny Lee, Gabrielle Smith, Samuel Wentworth, and Rachel Cotroneo in accordance with the guidelines provided by the Swainson's Hawk Technical Advisory Committee (SHTAC) in *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys for the California Central Valley* (SHTAC 2000). Six nesting surveys were conducted in Survey Phases II and III on March 20, March 28, April 3, April 14, April 16, and April 18, 2025.

1.5.3.5 Western Burrowing Owl Surveys

Protocol-level burrowing owl surveys were conducted by Jacobs biologists in accordance with the 2012 *Staff Report on Burrowing Owl Mitigation* from the California Department of Fish and Game (CDFG 2012, 2012 Staff Report). A nonbreeding season survey was conducted on December 11, 2024. In addition, four surveys were conducted during the breeding season. In accordance with the 2012 Staff Report, two breeding season surveys were conducted between peak breeding season (April 15 – July 15) and were at least 3 weeks apart. The breeding season surveys were conducted on April 8, May 14, June 4, and June 26, 2025. During the nonbreeding season and breeding season surveys, surveyors recorded all observations of burrowing owl as well as mapped burrows and burrow complexes that showed signs of burrowing owl occupancy. Sign included the presence of whitewash, pellets, prey remains, feathers, and signs of predations as per the protocol.

1.5.4 Special-status Species Assessment

Each plant and wildlife species identified in the database queries was evaluated to determine its potential to occur within the study area. A species was determined to have potential to occur in the study area if a nearby occurrence is on record in the CNDDDB or if its known or expected geographic range includes the study area or vicinity of the study area, and if its required habitat types are present within or near the study area as determined during field surveys.

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Jacobs biologists evaluated and ranked the potential for each special-status species to occur according to the following criteria:

- **Absent:** The species is not present in the BSA, either because it is outside the known range of the species, or because habitat in and adjacent to the BSA is unsuitable for the species' life history requirements (for example, foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, and disturbance regime). Alternately, protocol-level surveys, if conducted in sufficient rigor, did not detect the species with sufficient evidence to prove absence.
- **Low Potential:** Few of the habitat components meeting the species requirements are present, and the majority of habitat in and adjacent to the BSA is unsuitable or of marginal quality to support the species' life history requirements. The species is not likely to be found in the BSA. Either there are no recorded observations of species in the vicinity, or the records were historical. Protocol surveys, if fully conducted, did not detect species.
- **Moderate Potential:** Some of the habitat components meeting the species requirements are present, and only some of the habitat in or adjacent to the BSA is suitable. The species has a moderate probability of being found within the BSA. Recorded observations of this species are current (within the past 25 years), and it may be present in the vicinity.
- **High Potential:** The species is likely to occur within the BSA but has not been observed to date. The habitat components meeting the species requirements are present and most of the habitat in or adjacent to the BSA is highly suitable. The species has a high probability of being found within the BSA. Recorded observations of this species are current and present in the vicinity.
- **Present:** The species has been observed within the BSA or in the vicinity of the BSA during biological resource surveys with varying survey buffer sizes depending on the species.

The results of the special-status species evaluations, including species potential for occurrence, are provided in Tables B-1 and B-2 in Appendix B. The results of the sensitive resource evaluations for this application are included in Section 4.

1.5.5 Limitations and Assumptions that May Influence Results

The protocol-level surveys for rare plants, Swainson's hawk, and burrowing owl only show results for one year. One year or one nesting season may not capture accurate population numbers or identify long-term trends of species present in the Project vicinity. In addition, presence/absence data alone should not be used to determine if a species may be present.

2. Description of the Proposed Project

The Applicant proposes to construct, own, operate and eventually repower or decommission the 90.7 MW (at the POI) Viracocha Hill BESS Project in Alameda County, California, adjacent to the proposed Sand Hill (to be constructed, owned, and operated by an affiliate of the Applicant) as shown on Figure 2-1. The Project will consist of a 17-acre area that will include a fenced 14-acre BESS yard with a 362.8 megawatt-hour (MW-hr) BESS facility, laydown area, substation, and retention pond. The exact design and location of these features will be refined as the Project moves forward. Additionally, the Project includes improvements to a 0.3-mile-long access road, a 0.15-acre road improvement and an approximately 1,325-foot-long generation-tie line (gen-tie) line connecting to the Ralph Substation. If expanding the Ralph Substation is unavailable, a new switching station or a line-tap will be developed adjacent to the existing substation.

The Project anticipates providing storage of energy for California's electric markets, supporting the state's pursuit of an environmentally clean and reliable electrical system. The location and the configuration of the Project have been selected to reduce curtailment for solar and wind projects during the period from 9 a.m. to 5 p.m., locally and at the system level. A Modification Request Report concluded that Pacific Gas and Electric (PG&E) network (transmission) upgrades are required to connect the Project to the grid (receive or deliver energy) via the Ralph Substation (Reclaimed Wind LLC 2025). Viracocha Hill BESS PG&E's network upgrades will support sustainable operation of PG&E's system and further projects not affiliated with the Project. PG&E will construct and complete the network updates before Project operation.

2.1 Project Objectives

The primary purpose of the Project is to assist the state in meeting the goal of all electricity in California to come from renewable and zero carbon resources by 2045 as required under Senate Bill 100 (2018). To achieve this goal, new power supplies and power storage are needed. The Project would help balance electricity generation from all sources, including, but not limited to, wind and solar, with electricity demand by storing excess generation from all power sources and delivering back to the grid when demand exceeds real-time generation supply. The Project displaces the need for additional fossil fuel-based generating stations to serve peak demand periods when renewable sources may be inadequate or unavailable. The Project objectives are as follows:

1. Construct and operate an up to approximately 362.8-MW-hr and 90.7 MW BESS facility at the POI to support the state's energy goals.
2. Develop a BESS facility that minimizes significant environmental impacts of Project development through the use of existing infrastructure, existing real property interests and rights-of-way, Project design measures, and feasible mitigation measures.
3. Develop a BESS facility in close proximity to a utility grid-connected substation with existing capacity available for interconnection.
4. Develop an eligible energy storage facility that can assist community choice aggregators, investor-owned utilities, and publicly owned utilities in meeting their California Renewables Portfolio Standard (RPS) requirements.
5. Develop a Community Benefits Plan that ensures the proposed Project benefits the local community and contributes to a clean and equitable economy for construction materials.
6. Create new, high-paying construction jobs and skilled trades and professional roles in Alameda County, California.

2.2 Project Location

The Project will be located in unincorporated eastern Alameda County, California, on a 443-acre parcel (APN 99B-7300-1-5) located within the APWRA in the Altamont Pass, approximately 0.8 mile south of the Bethany Reservoir, 1.8 miles north of Altamont Pass Road, and 4.7 miles northwest of the city limits of Tracy, California. This region of Alameda County is characterized mostly by grazing and wind power production, with more recent additions of proposed BESS facilities. The area surrounding the Viracocha Hill BESS site is primarily grazing land, but also includes the Bethany Reservoir, approximately 0.8 mile to the north, and the Altamont Landfill, approximately 0.5 mile to the southwest.

The Project is located north of I-580, with site access available from an existing access road connecting to Altamont Pass Road (Figure 1-1). There is a locked gate at the entrance from Altamont Pass Road, and once onsite, the Project can then be accessed via approximately 2.3 miles of unpaved access roads currently in use to access the Ralph Substation and Sand Hill. The Project is located within the Clifton Court Forebay USGS 7.5-minute quadrangle, and within California Public Land Survey Township 2 South, Range 3 East, Section 11, SW 1/4 of SW 1/4. The location and configuration of the Viracocha Hill BESS was selected to most effectively and efficiently support the adjacent Sand Hill and associated infrastructure.

2.3 Site Layout

The Viracocha Hill BESS general arrangement drawing is shown on Figure 2-1. The Viracocha Hill BESS will include the following elements:

- Battery units, Tesla Megapack 2XL or similar
- Medium Voltage Transformer
- Emergency Diesel Fire Water Pump
- Emergency Diesel Generator
- Fire Water Tank
- Operations and Maintenance (O&M) Pad
- Auxiliary Equipment Pad
- Onsite substation

2.4 Project Components

This section summarizes the Project components.

2.4.1 Battery Units

The Project will consist of up to 108 Tesla Megapack 2XL, or similar, at Beginning of Life, which will follow an augmentation schedule increasing the number of Tesla Megapack 2XL to 144 at the End of Life. Augmentation for a BESS involves adding new battery modules or upgrading equipment to maintain or increase the system's energy or power capacity over time. This process addresses battery degradation and ensures the system meets performance requirements. Each Tesla Megapack 2XL is rated for a maximum power capability of 979 kilowatts with a maximum energy capacity of 3,916 kilowatts per hour per Megapack in a 4-hour configuration. This will result in a total installed power of 90.70 MW at POI with up to 362.8 MW-hr at Beginning of Life.

2.4.2 Medium Voltage Transformer

The Project will include up to 27 medium voltage transformers with capacity of up to 36 medium voltage transformers.

2.4.3 Fire Water Pump and Tank

In the event of fire at the Project, one up to 260 horsepower fire pump will be included. The fire water pump will receive water from an approximately 28,000-gallon freshwater tank. The tank will be sited near the fire water pump. Before operations, approximately 28,000 gallons of water for the fire water tank will be trucked in via tanker trucks. Water will come from local sources including local irrigation districts and recycled water sources. The tank will be topped off as needed.

2.4.4 Standby Emergency Power

In case of a total loss of power, or in a situation when the utility system is out of service, the emergency electrical power for the facility will be supplied by one standby diesel engine-driven emergency generator with an output of up to 1,000 horsepower.

2.4.5 Operations and Maintenance Pad and Auxiliary Equipment Pad

The O&M Pad and Auxiliary Equipment Pads will be used for the storage and staging of all necessary materials and equipment for the operation and maintenance of the facility, as well as for the temporary storage or placement of auxiliary equipment.

2.4.6 Onsite Substation

The onsite substation will consist of all the equipment required to collect, step-up the voltage, and connect to the grid the energy generated by the BESS facility. This includes the following equipment:

- Main power transformer
- Medium voltage (MV) switches and/or breakers
- High voltage (HV) switches and/or breakers
- Current transformers and voltage transformer
- Metering devices
- Control room (including supervisory control and data acquisition [SCADA])
- MV and HV conductors
- Steel structures

2.4.7 Nonhazardous Waste Management

The construction and operation of the Viracocha Hill BESS will generate nonhazardous and hazardous waste. The hazardous materials and wastes expected to be used or generated by the facility are described in the following subsections. The construction of the facility will generate various types of nonhazardous wastes, including debris and other materials requiring removal during site grading and excavation, excess concrete, lumber, scrap metal, and empty nonhazardous chemical containers.

Solid Waste Construction

Inert solid waste from construction activities may include lumber, excess concrete, metal, cardboard, general trash, and empty nonhazardous containers. Typical management practices required for nonhazardous waste management include recycling when possible, proper storage of waste and debris to prevent wind dispersion, and weekly pickup and disposal of wastes to local Class III landfills. The total amount of solid waste to be generated by construction activities has been estimated to be similar to that generated for normal commercial construction.

Solid Waste Operations

The facility will be unmanned and visited once monthly to conduct standard O&M activities. Any solid waste generated during these visits would be consolidated and taken offsite by O&M staff. All nonhazardous wastes will be recycled to the greatest extent practical and the remainder disposed of appropriately.

2.4.8 Hazardous Waste Management

Small quantities of hazardous wastes will be generated over the course of construction. These may include waste paint, spent solvents, and spent welding materials. All hazardous wastes generated during facility construction and operation will be handled and disposed of in accordance with applicable laws, ordinances, regulations, and standards (LORS). Any hazardous wastes generated during construction will be collected in hazardous waste accumulation containers near the point of generation and moved to the contractor's 90-day hazardous waste storage area located onsite. The accumulated waste will subsequently be delivered to an authorized waste management facility. Hazardous wastes will be either recycled or disposed of in a licensed Class I disposal facility as appropriate. Managed and disposed of properly, these wastes will not cause significant environmental or health and safety impacts.

Some hazardous wastes will be recycled, including used oils from equipment maintenance, and oil-contaminated materials such as spent oil filters, rags, or other cleanup materials. Used oil will be recycled, and oil or heavy metal contaminated materials (for example, filters) requiring disposal will be disposed of in a Class I waste disposal facility.

The Viracocha Hill BESS will generate minimal hazardous solid waste from maintenance such as electronic components, oily rags, and lighting fixtures. The source of these solid wastes will be from O&M activities during monthly inspections. These solid wastes will be disposed of at an appropriate landfill.

2.4.9 Hazardous Materials Management

This section outlines the ways hazardous materials will be managed during construction and operation.

2.4.9.1 Construction

A variety of chemicals will be stored and used during construction of the Viracocha Hill BESS. Hazardous materials to be used during construction include unleaded gasoline, diesel fuel, oil, lubricants (for example, motor oil, transmission fluid, and hydraulic fluid), solvents, adhesives, and paint materials. There are no feasible alternatives to these materials for construction or operation of construction vehicles and equipment, or for painting and caulking equipment. The contractor will bear sole responsibility and liability for such hazardous materials brought onto or generated at the site by the construction contractor. A hazardous materials handling program will be implemented during construction in compliance with applicable LORS.

2.4.9.2 Operation

Before operation, the Viracocha Hill BESS will develop and implement a Hazardous Materials Business Plan, which will include procedures for the following:

- Hazardous materials handling, use, and storage
- Emergency response
- Spill control and prevention
- Employee training
- Reporting and record keeping

The storage, containment, handling, and use of these chemicals will be managed in accordance with applicable LORS. Limited hazardous materials will be stored onsite during operations and will be stored within equipment. Insulating oil will be encased in the transformers, the circuit breakers will contain sulfur hexafluoride, and diesel will be stored within the fire pump engine and diesel generator's fuel tanks. Secondary containment areas will provide secondary means of containment for the entire capacity of the largest single container and sufficient freeboard to contain precipitation. Any chemical spills in these areas will be removed with portable equipment and reused or disposed of properly. Other chemicals will be stored and used in their delivery containers.

Safety equipment will be provided for personnel use if required during chemical containment and cleanup activities. All personnel working with chemicals will be trained in proper handling and emergency response to chemical spills or accidental releases. Absorbent materials will be stored onsite for spill cleanup.

2.4.10 Fire Protection and Safety Systems

The Viracocha Hill BESS fire protection and safety systems will be designed to limit personnel injury, property loss, and facility downtime caused by a fire or other event. The systems will be designed in accordance with:

- Federal, state, and local fire codes, occupational health and safety regulations, and other jurisdictional requirements
- California Building Code
- Applicable National Fire Protection Association (NFPA) standards

The fire protection system design is under way and will be developed at a later stage in the detailed design. The fire protection system is anticipated to include a diesel-fired fire water pump. Fire water storage will be included within an approximately 28,000-gallon fire water tank, which will ensure an adequate water supply for fire protection. The onsite transformers will be protected per the NFPA by maintaining adequate separation. The fire water supply and pumping system will provide an adequate quantity of firefighting water.

In addition to the fixed fire protection system, portable carbon dioxide and dry chemical extinguishers will be located throughout the plant (including the switchgear rooms), with size, rating, and spacing in accordance with NFPA 10 (2026). Handcart carbon dioxide extinguishers also will be provided in the turbine area as necessary for specific hazards.

Local building fire alarms will be provided in accordance with NFPA 72 (2025). All materials will be free of asbestos and will meet the fire and smoke rating requirements of NFPA 255 (2006).

2.4.11 Plant Auxiliaries

This section summarizes plant auxiliaries, including lighting, grounding, cathodic and lightning protection, and the distributed control system.

2.4.11.1 Lighting

Lighting on the Project site will be limited to areas required for safety, will be directed onsite to avoid backscatter, and will be shielded from public view to the greatest extent practical. All lighting that is not required to be on during nighttime hours will be controlled with sensors or switches operated such that the lighting will be on only when needed. Lighting will be provided in the following areas:

- Outdoor equipment areas
- Transformer areas
- Perimeter roads
- Parking areas
- Facility entrance

Emergency lighting from direct current battery packs will be provided in areas of normal personnel traffic to permit egress from the area in case of failure of the normal lighting system. In major control equipment areas and electrical distribution equipment areas, emergency lighting permits equipment operation to allow auxiliary power to be reestablished.

2.4.11.2 Grounding

Safety is imperative for site personnel and electrical equipment. The electrical system is protected against ground faults that result in unit ground potential rises. The station grounding system provides a path to dissipate unsafe ground fault currents and reduces the ground potential rise. The grounding conductor will be sized for sufficient capacity to reduce the most severe fault conditions to within allowable limits by reducing voltage gradients to remote earth. The ground grid spacing will be assessed to provide sufficient step and touch potentials throughout the site. Bare conductors would be installed below grade in a grid pattern. Each junction of the grid will be bonded together by either an exothermic welding process or mechanical connectors.

Ground grid impedance performed as part of the grounding study would be used to determine the necessary number of grounding electrodes and grid spacing to ensure safe step and touch potentials under fault conditions. The grounding conductor will bond the ground grid to the building steel and non-energized metallic parts of electrical equipment. Isolated grounding conductors to the ground grid will be provided for sensitive control systems.

2.4.11.3 Cathodic Protection and Lightning Protection

Cathodic protection for underground metallic piping and structures (except rebar) takes into account cathodic protection and grounding influences associated with any existing cathodic protection system to which the facility is adjacent and connected. Cathodic protection would be provided by an impressed current system, a sacrificial system, and protective coatings. Lightning protection would be furnished for buildings and structures in accordance with NFPA 78 (2024). Lightning protection for the switchyards would be in accordance with industry practice.

2.4.11.4 Distributed Control System

A Distributed Control System (DCS) would provide modulating control, digital control, and monitoring and indicating functions for operation of the proposed facility at an offsite control room. The DCS would provide coordinated control among the BESS equipment and electrical offtaker. The BESS systems would interface with the DCS via a data link and/or hardwired input/output devices. A sequence-of-events recorder will be an integral part of the DCS. Indication of process changes that warrant action (process alarms), or information that the operator in the offsite control room should be made aware of (annunciation) will primarily be done by the DCS.

2.4.12 Thermal System

The manufacturer of the BESS system has not yet been selected and the final design of the facility has not been finalized; however, it is anticipated that if the Tesla Megapack, or similar, is selected, an external heating, ventilation, and air conditioning or thermal system will not be required. The thermal system is anticipated to be a self-contained closed-loop coolant (50-50 ethylene glycol-water) and refrigerant (typically R-134a) unit.

2.4.13 Facility Civil and Structural Features

This section describes the enclosures, structures, and other civil/structural features that will constitute the facility. The facility will consist of the following major components:

- BESS foundations
- MV collection systems
- Onsite electrical equipment including a step-up transformer and circuit breakers
- Emergency electrical backup system including switchgear, an emergency generator, and fuel tank
- Fire protection system including a fire water loop, electric and diesel fire water pumps, and a storage tank.
- Roadways
- Security fencing and systems

The civil/structural features related to these major components are described in the following subsections. Individual reinforced concrete foundations at grade will be used to support mechanical and electrical equipment.

2.4.14 Skids

If needed, packaged skid-mounted equipment will be supported by a reinforced concrete mat foundation.

2.4.15 Roads

The facility will be accessed by the existing unpaved and private Wind Farm Road that services the adjacent wind farm. The main access to the facility will be via an approximately 2.1-mile-long Wind Farm Road that extends from Altamont Pass Road to the proposed Project. No improvements will be made to Wind Farm Road, however the 0.3-mile-long access road from Wind Farm Road to the BESS site will be improved by widening and graveling the existing road. The BESS yard and all in-plant roads within the fence line will be graded and graveled.

2.4.16 Site Grading and Drainage

The site is fairly level. The proposed drainage design in general will flow from the southwest toward the northeast portion of the site. Within the Project site equipment will be constructed on foundations with the overall site grading scheme designed to route surface water around and away from all equipment and buildings. The stormwater drainage system is sized to accommodate 3.93 inches of precipitation in a 24-hour period (100-year storm event) and to comply with applicable local codes and standards. Buildings and equipment are constructed in a manner that provides protection from the 100-year storm.

2.4.16.1 Earthwork

Excavation work will consist of the removal, storage, and disposal of earth, sand, gravel, vegetation, organic and deleterious material, loose rock, boulders, and debris to the lines and grades necessary for construction. Materials suitable for backfill will be stored in small stockpiles at designated locations using proper erosion protection methods. Excess materials will be removed from the site and disposed of at an acceptable location. Disposal of any contaminated material encountered during excavation will comply with applicable federal, state, and local regulations.

The existing site topography will be graded to provide a level area for the Project site. It is assumed that excavated materials will be suitable for backfill. Graded areas will be smooth, compacted, free from irregular surface changes, and sloped to drain. Cut and fill slopes for permanent embankments will be designed to withstand horizontal ground accelerations consistent with the applicable building codes. Slopes for embankments will be no steeper than 2:1 (horizontal: vertical). Areas to be backfilled will be prepared by removing unsuitable materials and rocks. The bottom of an excavation will be examined for loose or soft areas. Such areas will be excavated fully and backfilled with compacted fill.

Backfilling will be done in layers of uniform, specified thickness. Soil in each layer will be properly moistened to facilitate compaction to achieve the specified density. To verify compaction, representative field density and moisture-content tests will be performed during compaction. All testing will be in accordance with American Society for Testing and Materials International standards.

2.4.17 Sanitary Sewer Systems

No sanitary facilities will be located at the site once operational.

2.5 Construction and Schedule

The overall Project schedule for the Viracocha Hill BESS construction and commissioning is expected to take approximately 14 months. Construction of the BESS facility is anticipated to begin in the third quarter of 2026 (July to September). The Project also includes construction of an approximately 1,325-foot-long 230 kV electrical interconnection gen-tie line from the Viracocha Hill BESS to the Point of Interconnection at the Kelso-Tesla 230kV line via the Ralph Substation. Construction of the gen-tie line is estimated to take up to 3 months.

2.5.1 BESS Facility

This section outlines the BESS facility.

2.5.1.1 Construction Facilities

Mobile trailers or similar suitable facilities (modular offices) will be used as construction offices. These construction facilities will be located at one of the nearby construction laydown areas. Visitor parking will be available in an area adjacent to the construction offices.

2.5.1.2 Emergency Facilities

Emergency services will be coordinated with the local fire department and hospital. First aid kits will be provided at the construction site and regularly maintained. As required by federal, state, and local requirements, first aid training will be provided to the appropriate staff.

Fire extinguishers will be placed throughout the Project area at strategic locations during construction.

2.5.1.3 Construction Utilities

Temporary utilities will be provided for the construction offices, the laydown and parking area, and the Project construction site. Temporary construction power at the site will be supplied by temporary generators and, as practical, utility-furnished power. Area lighting will be provided and strategically located for safety and security. Imported water will be used for construction water. Drinking water will be imported and distributed daily. Portable toilets will be provided throughout the site.

2.5.1.4 Construction Equipment and Materials Delivery

Truck deliveries will occur primarily on weekdays between 6:00 a.m. and 4:30 p.m. Materials such as concrete, pipe, wire and cable, fuels, reinforcing steel, and small tools and consumables will be delivered to the site by truck. Equipment planned for use in the construction of the Viracocha Hill BESS include:

- Excavators
- Backhoe
- 10-Wheel Dump Truck
- Dozer
- Front End Loader
- 75-Ton Hydraulic Crane
- 35-Ton Hydraulic Crane
- Pile Driver
- Forklift
- Grader
- Compactor
- Stake Truck
- Water Truck
- Pickup Truck
- Air Compressor
- Light Towers
- Heavy Lift Lattice Boom Main Crane
- Heavy Lift Lattice Boom Tail Crane
- Heavy Lift Gantry Crane

2.5.2 Interconnection Transmission Lines

This section summarizes interconnection transmission lines.

2.5.2.1 Gen-tie Right-of-Way

PG&E requirements, the National Electrical Safety Code, and operational considerations determine the width of the right-of-way (ROW). Specific ROW requirements depend on the structure type, height, span, and conductor configuration. PG&E generally requires ROWs that are the height of the structure on either side of the centerline to avoid issues associated with structure failure. The single steel pole structures for the Viracocha Hill BESS lines would range from 100 to 125 feet in height, with an overall permanent ROW width of 50 feet.

2.5.2.2 Construction Activities

Construction of an interconnection gen-tie includes structure site clearing; installing foundations; assembling and erecting the structures; clearing, pulling (stringing individual lines through conductors), tensioning, and splicing sites; installing ground wires and conductors; installing counterpoise/ground rods; and cleanup and site reclamation. Various phases of construction would occur at different locations throughout the construction process. This may require several construction crews operating simultaneously in different locations.

2.5.2.3 Structure Sites

At each structure site, leveled areas (pads) would be needed to facilitate the safe operation of equipment, such as construction cranes. The leveled area required for the location and safe operation of large cranes would be approximately 30 feet by 40 feet. At each structure site, a work area of approximately 200 square feet would be required for the location of structure footings, assembly of the structure, and the necessary crane maneuvers. The work area would be cleared of vegetation only to the extent necessary. After line construction, all pads not needed for normal gen-tie maintenance would be restored to natural contours to the greatest extent possible and be revegetated where required.

2.5.2.4 Cleaning and Grading within the Right-of-Way

Clearing and grading would be conducted only as necessary in construction areas for the safe movement of vehicles and construction activities.

2.5.2.5 Foundation Installation

Excavations for foundations would be made with power drilling equipment. A vehicle-mounted power auger or backhoe would be used to excavate for the structure foundations. In rocky areas, the foundation holes would be excavated by drilling. Footings would be installed by placing reinforcing steel and an anchor bolt cage into each foundation hole, positioning the bolt cage, and encasing it in concrete. Spoil material would be used as fill where suitable. Spoil materials that cannot be used as fill would be removed to a suitable location by the construction contractor for disposal. The foundation excavation and installation would require access to the site by a power auger or drill, a crane, material trucks, and ready-mix trucks.

2.5.2.6 Structure Assembly and Erection

Structural steel components and associated hardware would be shipped to each structure site by truck. Steel structure sections would be delivered to tower locations where they would be fastened together to form a complete structure and hoisted into place by a large crane.

2.5.2.7 Conductor Installation

After the structures are erected, insulators, hardware, and stringing sheaves would be delivered to each structure site. The structures would be rigged with insulator strings and stringing sheaves at each ground wire and conductor position. Pilot lines would be pulled (strung) from structure to structure and threaded through the stringing sheaves at each structure. Following pilot lines, a larger diameter, stronger line would be attached to conductors to pull them onto structures. This process would be repeated until the ground wire or conductor is pulled through all sheaves.

The shield wire and conductors would be strung using powered pulling equipment at one end and powered braking or tensioning equipment at the other end of a conductor segment. Sites for tensioning equipment and pulling equipment would be up to 2 miles apart. This distance will be essentially doubled where it is prudent to do so by pulling in two sets of conductors back-to-back.

Each tensioning site would be an area approximately 200 feet by 200 feet. Tensioners, line trucks, wire trailers, and tractors needed for stringing and anchoring the ground wire or conductor would be necessary at each tensioning site. The tensioner in concert with the puller would maintain tension on the shield wires or conductors while they are fastened to the structures. The pulling site would require approximately half the area of the tension site. A puller, line trucks, and tractors needed for pulling and temporarily anchoring the shield wires and conductor would be necessary at each pulling site.

2.5.2.8 Ground Rod Installation

Part of standard construction practices before wire installation would involve measuring the resistance of structure footings. If the resistance to remote earth for each transmission structure is greater than 25 ohms, additional ground rods would be installed to lower the resistance below 25 ohms.

2.6 Facilities, Operations, and Maintenance

The Viracocha Hill BESS is expected to have an operating life of 25 years. Reliability and availability are based on this projected operating life. The Viracocha Hill BESS will not have onsite staff but will be monitored offsite and monthly inspections will be conducted.

2.6.1 BESS Facility Operations and Maintenance

This section outlines O&M for the BESS Facility.

2.6.1.1 Annual Operating Practices

Generally, the Viracocha Hill BESS will be operated 24 hours, 7 days per week to meet contractual obligations. Planned maintenance will be addressed with safe operations as the primary priorities. Planned maintenance beyond these priorities will be coordinated to optimize availability and will be planned during seasonal periods when the need for electricity is reduced.

2.6.1.2 Augmentation Schedule

An augmentation schedule is a critical component of the Project's life cycle planning. It outlines how the Project will be maintained and enhanced over time to address natural battery degradation. As batteries age, their ability to store and discharge energy declines. The augmentation plan ensures that new battery modules are added or replaced as needed to maintain the system's designed capacity and meet energy delivery obligations.

The Project would have up to 409 MWh of storage when first constructed, and up to 140 MWh added at intervals during the life of the facility to maintain the nominal 362.8 MWh at the POI.

The preliminary proposed augmenting will take place in the following years:

- **Year 4** – Eight Tesla Megapack 2XL, two MVT, 30.57 MWh at POI
- **Year 9** – Eight Tesla Megapack 2XL, two MVT, 30.57 MWh at POI
- **Year 14** – Twelve Tesla Megapack 2XL, three MVT, 45.86 MWh at POI
- **Year 22** – Eight Tesla Megapack 2XL, two MVT, 30.57 MWh at POI

2.6.1.3 Degree of Automation and Control System

The Viracocha Hill BESS will be designed with a high degree of automation to reduce the need for onsite staff. Most equipment required to support the operation of the facility is incorporated into the BESS system with 24 hours, 7 days per week monitoring.

2.6.2 Interconnection Transmission System Operations and Maintenance

Operation of the transmission system is controlled by PG&E, the regional balancing authority and transmission owner. The Point of Interconnection is at the proposed PG&E Kelso-Tesla 230kV line via the Ralph Substation approximately 1,325 feet from the Viracocha Hill BESS. The Applicant will engineer, construct, own, operate, and maintain the approximately 1,325-foot-long interconnection gen-tie between the proposed Viracocha Hill BESS and the Ralph Substation. Anticipated maintenance activities for the interconnection transmission system are described as follows:

- Access ways to poles and structures will be provided, as required. All access ways will be maintained to minimize erosion and to allow access by the maintenance crew.
- Land use activities within and adjacent to the gen-tie ROW will be permitted within the terms of the easement. Incompatible uses of the ROW include buildings and tall trees that interfere with required line clearances, as well as storage of flammable materials, or other activities that compromise the safe operation of the interconnection gen-tie.
- The interconnection gen-tie would be inspected regularly by both ground patrol and possibly air patrols. Maintenance would be performed as needed.
- Emergency repairs will be made if the interconnection gen-tie is damaged and requires immediate attention. Maintenance crews will use tools and other such equipment, as necessary, for repairing and maintaining insulators, conductors, structures, and access ways. When access is required for nonemergency maintenance and repairs, the Applicant would adhere to the same precautions identified for original construction.
- The buildup of particulate matter on the ceramic insulators supporting the conductors on electrical lines increases the potential for flashovers, which affects the safe and reliable operation of the line. Structures with buildup of particulate matter are identified for washing during routine inspections of

the lines. Washing operations consist of spraying insulators with deionized water or limestone powder through high-pressure equipment mounted on a truck.

2.7 Facility Closure

This section outlines plans for temporary or permanent closure of the site.

2.7.1 Temporary Closure

Temporary or unplanned closure can result from numerous unforeseen circumstances, ranging from natural disaster to terrorist attack to economic forces. For a short-term unplanned closure, where there is no facility damage resulting in a hazardous substance release, the facility would be kept “as is,” ready to restart operations when the unplanned closure event is rectified or ceases to restrict operations. If there is a possibility of hazardous substances release, the Applicant will notify the appropriate agencies and follow emergency plans that are appropriate to the emergency. Depending on the expected duration of the shutdown, chemicals may be drained from the storage tanks and other equipment. All wastes (hazardous and nonhazardous) will be disposed of according to LORS in effect at the time of the closure. Facility security will be retained so that the Viracocha Hill BESS is secure from trespassers.

Before the beginning of operations, the Applicant will develop a contingency plan to deal with unplanned or unexpected plant closure. This plan will include the following elements:

- Taking immediate steps to secure the facility from trespassing and encroachment
- Procedures for the safe shutdown and startup of equipment and procedures for dealing with hazardous materials, including draining of vessels and equipment and disposal of wastes
- Communication with CEC and local authorities regarding the facility damage and compliance with LORS

2.7.2 Permanent Closure

The planned economic life of the Viracocha Hill BESS facility is 25 years. However, if the facility were economically viable at the end of the 25-year operating period, it could continue to operate for a much longer period. As operators continuously maintain the equipment up to industry standards, there is every expectation that the generation facility will have value beyond 25 years. It is also possible that the facility could become economically noncompetitive earlier than the planned facility's 25-year useful life. Decommissioning activities will follow a decommissioning plan that will be developed and submitted to the CEC for review at least 12 months before planned facility closure. The permanent closure plan will include the following elements:

- Activities required to permanently close the facility
- A listing of all applicable LORS and a plan to comply with them
- Coordination with CEC and interested local authorities, including workshops, to coordinate closure activities
- The maximization of recycling and other proper disposal methods
- The maintenance of site security, as required

In case of permanent closure, the facility will be cleaned, and the facility components will be salvaged to the greatest extent possible. All solids will be tested. Those found to be hazardous will be transferred to a

permitted Class I landfill. Nonhazardous wastes will be transferred to a permitted Class II or Class III landfill as appropriate for each waste. These solids will be managed and disposed of properly so as not to cause significant environmental or health and safety impacts.

2.8 Construction Disturbance Area

Potential temporary construction disturbance includes the gen-tie line buffered between 25 feet and 50 feet from centerline along 1,325 feet, resulting in approximately 0.70 acre of temporary disturbance (Table 2-1). All other temporary disturbances for Project features will occur within the permanent disturbance area. Potential permanent disturbance includes the construction of the BESS yard, laydown area, substation, stormwater retention pond; modification of the existing Ralph Substation; construction of a switching station or line-tap; improvements to an existing access road; and the installation of the gen-tie line as summarized in Table 2-1.

Table 2-1. Permanent and Temporary Impacts during Construction (acres)

Project Feature	Temporary Impacts*	Permanent Impacts
Gen-tie	0.70	0.56
Project Site (BESS yard, laydown area, substation, and stormwater retention pond)	0.0	16.73
Modification of existing Ralph Substation	0.0	1.07
Construct switching station or line-tap	0.0	2.05
Access road entrance improvement	0.0	0.76
Improvements to 0.3 mile of an access road	0.0	2.85
Total	0.70	24.02

* The gen-tie is the only Project feature with a temporary impact type. All other Project features are assumed to be a permanent impact.

2.9 Restoration of Temporary Construction Areas

Upon completion of construction activities, debris and materials associated with the Project will be removed and areas not needed for the long-term operation of the BESS will be restored to natural contours to the greatest extent possible and revegetated where required. Construction best management practices (BMPs) will be implemented during and postconstruction for soil stabilization and to facilitate timely vegetative restoration. Stockpiled topsoil will be maintained per California Stormwater Quality Association BMP Fact Sheet WM-3, Stockpile Management. Any stockpiled soil not scheduled to be used within 14 days will be stabilized. Stockpiled soil will also be protected by a linear sediment barrier, such as a silt fence, straw wattle, or both as required. Temporarily disturbed areas including cut and fill slopes and temporary pads for structure assembly, erection, and line installation may use the stockpiled topsoil during restoration.

Once these areas are adequately covered with topsoil, the remaining graded areas will be restored to natural contours to the greatest extent possible and revegetated where required. Restored temporary disturbance areas will also include laydown areas and the shoulders of the access road. Disturbed road sections will be restored to their original contours. Based on the current Project design, the Applicant anticipates a surplus of salvaged topsoil for reapplication over temporarily disturbed areas to enhance restoration success.

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Restoration areas will be designated as sites for all onsite personnel to avoid and allow for timely natural recruitment (or seed germination if hydroseed applied) and soil stabilization. Avoidance areas may be marked using temporary signage or fencing, as determined necessary by the Applicant. Restoration measures will be monitored to evaluate the recovery status of restored areas, to identify the need for additional restoration, and to make a final determination regarding restoration success.

Disturbance areas associated with features classified as permanent (for example, reclaimed road shoulders) will be subjected to the postconstruction restoration monitoring. If monitoring indicates that these areas meet the criteria of temporary disturbance as defined by applicable permits such as the ITP, the associated acreage will be counted as a temporary rather than permanent impact.

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3. Environmental Setting

The following sections describe the regional and local environmental setting of the BSA, including climate, hydrology, geology, soils, and vegetation types. State-listed species that may occur in the BSA are also discussed. Representative site photos are presented in Appendix C; photo point locations are included on Confidential Figure 3.

3.1 Regional Setting

The BSA lies within the Eastern Hills Subsection (M262Ad) of the Central California Coast Ranges Section of California (Miles and Goudy 1998). This subsection consists of the hills and low mountains in the eastern and southern portions of the Diablo Range, with elevations between 100 feet and 3,000 feet. Geologically the subsection consists of Franciscan Complex and Great Valley Sequence rocks. Regionally, the climate is hot and subhumid to arid. Mean annual temperatures range from 50 degrees Fahrenheit (°F) to 60°F in (Miles and Goudy 1998). Based on climate records from the Tracy Pumping Plant (049001) weather station located approximately 2.4 miles northeast of the BSA, average monthly temperatures range from lows in the 30-Fahrenheit (°F) range in January to a high of approximately 90°F in July. Average annual precipitation is 14.18 inches, with most of the rainfall occurring from November to March, and minimal rainfall from April through October (WRCC 2025). The BSA is located within the Clifton Court Forebay Hydrologic Unit (Code 180400030604). Bethany Reservoir and its associated recreation area are located less than half a mile east of the BSA. Bethany Reservoir is the northern terminus of the California Aqueduct and serves as the forebay for the South Bay Pumping Plant that feeds the South Bay Aqueduct.

3.2 Local Setting

The BSA is situated in rolling hills that are gently to moderately sloped, with the natural gradient sloping downward from north to south. Elevations range from approximately 300 to 490 feet above mean sea level. Slopes in the BSA range from 0% to greater than 45%. Although agriculture is prevalent within Alameda County, land within and surrounding the BSA is not used for cultivation. Existing land use at the BSA is undeveloped grazing land surrounded by an operating wind power generation facility. Electrical transmission infrastructure, roadways, and stock ponds are present within the BSA. The Project parcel is enrolled in a Williamson Act contract and does not meet any of the criteria for classification as Prime Agricultural Land.

3.2.1 Geology and Soils

Geologic resources underlying the BSA include Panoche Formation, which is not unique in terms of recreational or scientific value and which occurs throughout eastern Alameda County. The Panoche Formation is a Cretaceous-age geologic unit in the San Joaquin Valley. It rests unconformably on Franciscan formation and is conformably overlain by Moreno formation, the upper formation of Chico group. It consists of alternating beds of dark thin-bedded clay shale and massive gray concretionary sandstone aggregating 9,500 to more than 20,000 feet in thickness. The formation also includes some arenaceous shale, platy sandstone, and beds of coarse conglomerate, which locally attain great thicknesses. The lowest beds here included in the Panoche Formation are nonfossiliferous and may represent Knoxville formation. The BSA is not transected by any known active or potentially active faults (CGS 2015). The Midway Fault is the closest potentially active fault, located approximately 2 miles southeast of the Project (CGS 2024, USGS 2024).

The two soil types found in the BSA are Altamont rocky clay, moderately deep, 7 to 30% slopes and San Ysidro loam, 0 to 2% slope. The Altamont rocky clay (map unit ArD) underlies the Project footprint and is well-drained; capacity of the most limiting layer to transmit water is very low. The typical profile of this soil type is 28 to 32 inches to weathered bedrock and 18 to 36 inches to paralithic bedrock. San Ysidro loam (map unit Sa), located northern portion of the BSA but outside the Project footprint, is a moderately well-drained soil and capacity of the most limiting layer to transmit water is moderately low to moderately high. Neither soil type has frequency of flooding or ponding (USDA NRCS 2024).

3.2.2 Hydrology

The hydrology of aquatic resources in and around the BSA is primarily influenced by precipitation and seasonal runoff. Drainages flow to Bethany Reservoir. Based on a review of the U.S. Fish and Wildlife Service (USFWS) NWI and USGS National Hydrography Dataset (NHD), as well as an aquatic resources delineation conducted for the Project, there are three ephemeral streams within the BSA, including one at the far northwesternmost corner of the BSA, one in the center north portion of the BSA, and one in the southeastern portion of the BSA (USFWS 2025, USGS 2025). In addition, four Palustrine, Emergent, Persistent (PEM1) wetlands are located in the eastern portion of the BSA. None of the identified aquatic resources overlap the Project disturbance footprint (Jacobs 2025c).

3.2.3 Land Cover Types and Vegetation Communities

Four vegetation communities and land cover types were mapped within the BSA (Figure 3-1):

- Non-native annual grassland
- Developed
- Pond
- Emergent wetland

These four vegetation communities and land cover types are described in Table 3-1 and in the following subsections.

Table 3-1. Vegetation Communities within the Viracocha Hill BESS Biological Study Area

Vegetation Communities and Other Cover Types	Acreage within the BSA
Non-native Annual Grasslands	98.27
Developed	2.95
Pond	0.31
Emergent Wetland	1.78
Total	103.31

Source: Jacobs 2025a.

3.2.3.1 Non-native Annual Grasslands

Non-native annual grassland is the dominant vegetation community within the BSA, and the area is grazed by cattle. Non-native annual grasses are the dominant species in this community and often include wild oats (*Avena* spp.), bromes (*Bromus* spp.), and barleys (*Hordeum* spp.) (Sawyer et al. 2009). Common forbs include filaree (*Erodium* spp.), California poppy (*Eschscholzia californica*), and clovers (*Trifolium* spp.).

Non-vegetation features present within the non-native annual grassland community within the BSA include rock piles and high-voltage powerline towers east of the Ralph Substation.

3.2.3.2 Developed

The developed land cover type is nonnatural with human-made structures. Within the BSA, these areas generally consist of access roads, Ralph Substation, and an associated gravel area surrounding the substation. The area lacks natural vegetation cover.

3.2.3.3 Pond

One stock pond occurs in the eastern portion of the BSA. Stock ponds within the APWRA are typically small permanent or seasonal bodies of water that have been constructed for the purposes of retaining runoff water for livestock use. The surface area of these features varies widely depending on the time of year. An emergent wetland is located directly adjacent at the south end of the stock pond.

3.2.3.4 Wetland

Palustrine emergent wetlands occur in the eastern portion of the BSA in low-lying depressional areas. This community is dominated by hydrophytic vegetation, including Italian rye grass (*Festuca perennis*), Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), and saltgrass (*Distichlis spicata*).

3.3 Listed Species Presence Determination

This section provides a description of the habitat types and species with potential to occur within the BSA. State-listed plant species are discussed in Section 3.3.1. State-listed wildlife species present, with potential to occur, or with recent change in listing status are discussed in Section 3.3.2. The remaining state-listed wildlife species that were evaluated for their potential to occur in the BSA are discussed in Table B-1 and B-2 in Appendix B.

3.3.1 State-listed Plant Species

Based on the literature review, one state-listed plant species was evaluated for potential to occur in the BSA (Appendix B). This species, palmate-bracted bird's-beak (*Chloropyron palmatum*), was determined to have a moderate potential to occur. No special-status plant species were detected within the BSA during protocol-level botanical surveys in 2025, which coincided with the appropriate blooming periods of species with potential to occur in the BSA.

3.3.2 State-listed Wildlife Species

Based on the literature review, eight state-listed wildlife species were evaluated for potential to occur in the BSA (Appendix B). Two species, Alameda whipsnake (*Masticophis lateralis euryxanthus*) and California condor (*Gymnogyps californianus*), are absent from the BSA and will not be discussed further. The remaining six species were either considered present or have some potential to occur due to presence of habitat. One additional species, Crotch's bumble bee (*Bombus crotchii*), was also considered due to a recent change in listing status. These seven species, described in Table 3-2, are additionally discussed in the following subsections.

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Table 3-2. State-listed Wildlife Species Present or Potentially Occurring within the Viracocha Hill BESS Biological Study Area

Scientific Name	Common Name	Status ^[a]			Potential for Occurrence
		Federal	State	CDFW	
<i>Bombus crotchii</i>	Crotch's bumble bee	-	CE	-	Low Potential
<i>Ambystoma californiense</i>	California tiger salamander – Central California DPS Population 1	T	T	WL	Present
<i>Agelaius tricolor</i>	Tricolored blackbird	-	T	SSC	Present
<i>Athene cunicularia hypugaea</i>	Western burrowing owl	-	C	SSC	Present
<i>Buteo swainsoni</i>	Swainson's hawk	-	T	-	Present
<i>Haliaeetus leucocephalus</i>	Bald eagle	Delisted	E	FP	Present
<i>Vulpes macrotis mutica</i>	San Joaquin kit fox	E	T	-	Low Potential

^[a] Status abbreviations:

- = not listed

C = Candidate

CE = Candidate Endangered

Delisted = Previously listed but no longer covered under the ESA/CESA

E = Endangered

E = Endangered

FP = Fully Protected

SSC = CDFW Species of Special Concern

T = Threatened

WL = Watch List

3.3.2.1 Species for Which Coverage is Requested

Due to the presence of the species or their suitable habitats, take coverage under an ITP is requested for five of the seven considered state-listed wildlife species.

California Tiger Salamander

The Project occurs within the Central California DPS of the California tiger salamander. The central population of California tiger salamander is federally listed as threatened (69 *Federal Register* 47212–47248, 50 CFR 17; August 4, 2004) and state-listed as threatened.

This species is endemic to the San Joaquin–Sacramento River valleys, bordering foothills, and coastal valleys of Central California (Barry and Shaffer 1994). California tiger salamander is a lowland species restricted to grasslands and low foothill regions where its breeding habitat occurs (Jennings and Hayes 1994). Breeding habitat consists of temporary ponds or pools, slower portions of streams, and some permanent waters (Stebbins 2003). Permanent aquatic sites are unlikely to be used for breeding unless they lack fish predators (Jennings and Hayes 1994).

Breeding generally occurs from December through March (Stebbins 2003), with 3 to 6 months needed to complete development through metamorphosis (69 *Federal Register* 47215). The California tiger salamander is well documented as using ranching stock ponds for breeding despite the ponds' turbid conditions (USFWS 2004). Metamorphosed juveniles leave their ponds in the late spring or early summer and move to terrestrial refuge sites before seasonal ponds dry (Loredo et al. 1996). However, in late fall 1993, one larval overwintering salamander was observed in Monterey County and many overwintering salamanders were observed in three perennial stock ponds in Contra Costa County from 1998 to 2001, indicating the potential for larval overwintering in this species (Alvarez 2004).

Adult California tiger salamander move from subterranean burrow sites to breeding pools during warm late winter and spring rains (Jennings and Hayes 1994). Although the dispersal range of California tiger salamanders may be up to 1.24 miles from breeding sites, they generally move much shorter distances to find suitable burrow locations. In a recent study, an estimated 95% of adults remained within 2,034 feet (0.39 mile) of the breeding pond and 95% of subadults remained within 2,067 feet (0.39 mile) of the pond (Trenham and Shaffer 2005). Approximately 85% of the subadults concentrated between 656 feet (0.12 mile) and 1,969 feet (0.37 mile) of the pond. Another study (Trenham et al. 2001) projected that a 0.70 mile radius area would encompass 99% of interpond dispersing individuals.

California tiger salamanders also require dry-season refuge sites in the vicinity (that is, within 1 mile) of breeding sites (Jennings and Hayes 1994). California ground squirrel (*Otospermophilus beecheyi*) and pocket gopher (*Thomomys bottae*) burrows are important dry-season refuge sites for adults and juveniles (Loredo et al. 1996).

The Project is located within the USFWS-mapped range of the California tiger salamander (USFWS 2017). In addition, the CNDDDB documents 74 occurrences of California tiger salamander within 5 miles of the BSA (Confidential Figure 1). The closest CNDDDB occurrence is approximately 0.18 mile west of the BSA and describes three larvae observed in stock ponds in 2015 as well as eggs, over 25 larvae, and dispersal of more than 50 subadults in 2017. Jacobs biologists have incidentally observed this species breeding in a stock pond approximately 0.75 mile south of the BSA.

The stock pond in the eastern portion of the BSA provides suitable aquatic breeding habitat. Additionally, other stock ponds are scattered throughout the Project vicinity that provide suitable breeding habitat. Because California tiger salamanders are known to breed close enough to disperse into the BSA, they could occupy small mammal burrows or deep soil cracks in non-native annual grasslands that serve as upland habitat throughout the BSA. Based on the presence of suitable upland and aquatic breeding habitat in the BSA and known occupancy in the Project vicinity, California tiger salamander is known to be present in the BSA.

Tricolored Blackbird

The tricolored blackbird is a state threatened species and an SSC. Tricolored blackbirds inhabit a variety of wetland and upland habitats. The tricolored blackbird forms the largest breeding colonies of any North American landbird (Cook and Toft 2005). Tricolored blackbirds are highly colonial and have been reported to breed in groups exceeding 100,000 nests (Shuford and Gardali 2008). This species exhibits low site fidelity, and colonies are known to change their nesting location from year to year (Beedy et al. 2020); however, breeding colonies may show site fidelity if essential resources (nesting substrate, access to water, foraging habitat) continue to persist (Hamilton 1998).

All life stages require an insect and/or vegetative food source, and the species has shifted to using agricultural-associated habitats to replace and/or supplement their foraging needs. Alfalfa fields, rice patties, open rangeland/cattle pasture, annual grassland, hay fields, and sunflower farms have all been documented as adequate foraging habitats for insects (Beedy et al. 2020). Silage fields, stored grains, and rice patties serve as vegetative food sources. Ideal foraging conditions for this species are created when shallow flood irrigation, mowing, or grazing keeps the vegetation at an optimal height (less than 5.9 inches). Tricolored blackbirds also forage in remnant native habitats, including vernal pools, wetlands, riparian scrub, and open marsh borders. With the loss of a natural flooding cycle and most native wetland and upland habitats in the Central Valley, tricolored blackbirds now forage primarily in artificial habitats.

Breeding occurs from March to mid-August, and female individuals may double clutch (Beedy et al. 2020; Baicich and Harrison 2005). Most breeding colonies are located in the California Central Valley

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(Beedy et al. 2020). For breeding site selection, the species requires open accessible water; a protected nesting substrate, including either flooded or thorny or spiny vegetation; and a suitable foraging space providing adequate insect prey within a few miles of the nesting colony. Nest are created in emergent vegetation within aquatic and riparian habitats. Tricolored blackbird typically favor freshwater marshes dominated by cattails (*Typha* spp.) or bulrushes (*Schoenoplectus* spp.) in the Central Valley and the surrounding foothills (Beedy et al. 2020). The tricolored blackbird has also shifted to using non-native vegetation such as Himalayan blackberry (*Rubus armeniacus*), milk thistle (*Silybum marianum*), mallow (*Malva* spp.), giant reed (*Arundo donax*), and other Eurasian weeds in irrigated pastures, stock ponds, along drainages, and in upland habitats for nesting substrate. Proximity to suitable foraging habitat appears to be extremely important for the establishment of colony sites, because tricolored blackbirds usually forage, at least initially, in the field containing the colony site (Cook 1996). Nests may, however, be located up to 5.5 miles from foraging areas (Beedy et al. 2020). The most important prey for adults provisioning nestlings include coleopterans (beetles), orthopterans (grasshoppers, locusts), hemipterans (true bugs), other larval insects, and arachnids (spiders and allies; Crase and DeHaven 1977). Breeding colonies may number hundreds or even thousands of individuals. As many as 20,000 to 30,000 nests have been recorded in cattail (*Typha* spp.) marshes of 4 hectares or less.

Up to 99% of a global population, estimated at about 163,000 adults in 2000, occur in California; in most years, the Central Valley alone holds up to 90% of all breeding adults (Beedy et al. 2020). During winter, the remaining approximately 1% that breed outside of the state, except a small portion in Oregon, withdraw to concentrate within the California breeding range.

Wintering tricolored blackbird populations move extensively throughout their range in the nonbreeding season. According to the 2019 *Species Status Assessment for the Tricolored Blackbird*, during the winter, tricolored blackbirds in California retract from the Sacramento Valley and concentrate into the San Francisco Bay Delta, along the California coast, and in the northern San Joaquin Valley, but can occur throughout the species range (USFWS 2019). Major wintering concentrations occur in and around the Sacramento–San Joaquin River Delta and coastal areas, including Monterey and Marin Counties, where they are often associated with dairies. Small flocks also may appear at scattered coastal locations from Sonoma County south to San Diego County, and sporadically north to Del Norte County (Beedy et al 2020; Unitt 2004). They are rare in winter in the southern San Joaquin Valley and in the Sacramento Valley north of Sacramento County (Beedy et al. 2020). Wintering tricolored blackbirds often congregate in huge, mixed-species blackbird flocks that forage in grasslands and agricultural fields with low-growing vegetation and at dairies and feedlots. Nonbreeding congregations of tricolored blackbirds are often found in wetland habitats near abundant food sources such as rice fields, pastureland, recently cultivated cropland, and grain stores at dairies (USFWS 2019).

The CNDDDB documents seven occurrences of tricolored blackbirds within 5 miles of the Project footprint (Confidential Figure 1). The closest CNDDDB occurrence is approximately 0.75 mile east of the BSA and describes a nesting colony consisting of approximately 150 adults. The colony was nesting in cattails growing along the California Aqueduct. In addition, Jacobs biologists incidentally observed approximately 200 tricolored blackbirds foraging in the BSA during 2025 Swainson's hawk protocol surveys (Jacobs 2025b) (Confidential Figure 2).

The BSA supports little to no nesting habitat; most stock ponds in the vicinity are denuded of any suitable emergent or wetland vegetation (for example, tules [*Schoenoplectus acutus*] or cattails [*Typha* spp.]) by the ongoing cattle grazing, and the few patches of blackberries [*Rubus* spp.] or dense thistle [*Asteraceae* sp.] patches in the BSA are relatively small in extent). The nearest known potential breeding habitat are the wetlands fringing Bethany Reservoir, but these are located beyond the distance that the Project might reasonably be expected to cause any sort of disturbance to breeding tricolored blackbirds. The BSA does, however, provide abundant grassland foraging habitat for tricolored blackbird.

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Based on observations of this species foraging, tricolored blackbirds are considered present in the BSA and are likely to continue to forage within the BSA.

Western Burrowing Owl

On March 5, 2024, CDFW received a petition to list the western burrowing owl as a threatened or endangered species under CESA. CDFW published the findings of its decision to make the species a candidate for listing on October 15, 2024. As a result, burrowing owl now receives the same CESA protections afforded to an endangered or threatened species while its candidacy is being decided (FGC Sections 2074.2 and 2085). The burrowing owl is also a Species of Special Concern (SSC) in California as a result of declines of suitable habitat and both localized and statewide population declines.

The burrowing owl is primarily a grassland species, but it is known to tolerate landscapes that are highly altered by human activity or have a high level of ongoing human disturbance (Poulin et al. 2020; Shuford and Gardali 2008; Rosenberg and Haley 2004). Required habitat characteristics include existing burrows for roosting and nesting, as well as relatively short vegetation with only sparse shrubs or taller vegetation (Klute et al. 2003; Haug et al. 1993). Nest and roost burrows are most commonly dug by California ground squirrels (*Otospermophilus beecheyi*) (Trulio 1997), but burrowing owls may use other mammal burrows or structures such as culverts, piles of concrete rubble, and pipes (Ronan 2002). Most California populations are nonmigratory, and these habitat types serve for breeding, foraging, and overwintering. The breeding season is defined as February 1–August 31 (Thompson 1971; Gervais et al. 2008).

According to Klute et al. (2003), burrowing owls prefer to nest in areas with short grasses (approximately 2–6 inches) that have been cropped by mowing or grazing. Mowing grass is known to enhance the attractiveness of nest sites in the surrounding area for burrowing owl (Klute et al. 2003; Plumpton and Lutz 1993). Conversely, one study found that abandoned black-tailed prairie dog colonies that were not mowed were not used by owls at a study site near Denver, Colorado (Plumpton 1992).

The CNDDDB documents 57 occurrences of burrowing owls within 5 miles of the BSA (Confidential Figure 1). The closest CNDDDB occurrence is approximately 0.10 mile south of the BSA and describes two adult pairs with juveniles observed in 2008. Several other CNDDDB occurrences describe breeding pairs and juveniles observed.

During the nonbreeding season protocol-level survey in December 2024, surveyors observed 25 burrows showing sign of burrowing owl occupancy (for example, displaying burrowing owl sign such as recent deposition of whitewash or burrowing owl pellets) within the survey area (Project footprint plus a 500-meter buffer), including four burrows within the Project footprint. Of these 25 burrows showing owl sign, adult owls were observed entering or exiting 6 of the burrows. Each of these 6 burrows were within the survey area but outside of the Project footprint. Six burrows recorded within the Project footprint had whitewash and pellets at the mouths of the burrows, indicating recent use by a burrowing owl, though no burrowing owl individuals were observed entering or exiting. An additional four burrowing owl adults were observed foraging within the survey area that were not associated with any burrows for a total of 10 individuals observed within the survey area during the nonbreeding season survey.

During the 2025 breeding season surveys, surveyors observed four burrows/burrow complexes showing sign of burrowing owl occupancy within the survey area. Of these four burrows, two were determined to be currently occupied by a burrowing owl, as one or more adults were observed exiting the burrow. In total, four burrowing owls were observed at the two occupied burrows within the survey area during the breeding season surveys. Overall results from the protocol-level surveys, which includes owl observations at eight burrows, are presented on Confidential Figure 2.

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The non-native annual grassland habitat with California ground squirrel burrow complexes that is present throughout the BSA provides high-quality foraging and nesting habitat for this species. Although most burrowing owl observations and occupied burrows are more than 500 feet from the BESS facility footprint, there are numerous occupied burrows within the buffer and an even greater number of suitable burrows that may become occupied by burrowing owl. Based on observations of this species inhabiting the BSA, burrowing owls are considered present in the BSA and are likely to continue to occupy the BSA.

Swainson's Hawk

The Swainson's hawk is a state threatened species. This species breeds in the western U.S. and Canada, and winters in South America as far south as Argentina (Bechard et al. 2020). Their migration represents one of the longest-distance raptor migrations of the Americas. Swainson's hawks will migrate from their wintering grounds in Central and South America to arrive at their breeding grounds in California between March and April, leaving at the end of the nesting season between August and September. In California, most breeding occurs in the Central Valley between Modesto and Sacramento, and approximately 89% of breeding pairs now occur within 18 miles of the Central Valley (Battistone et al. 2022).

Swainson's hawks were once found throughout lowland California and were absent only from the Sierra Nevada, north Coast Ranges, and Klamath Mountains, and portions of the desert regions of the state. Swainson's hawks are currently restricted to portions of the Central Valley and Great Basin regions where suitable nesting and foraging habitat is still available. Central Valley populations are centered in Sacramento, San Joaquin, and Yolo Counties. This region has the highest population density of Swainson's hawks in California, and their regional success here is responsible for the rebound in their population since their listing under CESA (Battistone et al. 2022). In California, Swainson's hawk is vulnerable to extirpation because of its very restricted range (primarily the Central Valley), few populations, steep population declines in southern California, and loss of habitat.

Reduction of rodent populations because of the conversion of native grassland to cropland has resulted in the decline of Swainson's hawks' food source in some locations in North America, especially in Central California. As a raptor adapted to open grasslands, it has become increasingly dependent on agriculture, especially alfalfa crops, as native communities are converted to agricultural lands. Conversely, this human alteration may provide suitable habitat conditions in areas not historically known to support Swainson's hawk (Bechard et al. 2020), although the overall population trend for this species is still in decline. This pattern has also been confirmed in Solano County where there are high densities of Swainson's hawks in areas with substantial alfalfa production, irrigated pasture, and low row crops (Estep 1989), and lower densities in areas surrounded by dry-land pasture, vineyards, and orchards.

Swainson's hawks often nest peripherally to riparian systems of the valley as well as using lone trees or groves of trees in agricultural fields (Furnas et al. 2022). Over 85% of Swainson's hawk territories in the Central Valley are in riparian systems adjacent to suitable foraging habitats. The most-used nest trees in the Central Valley are valley oak (*Quercus lobata*), Fremont cottonwood (*Populus fremontii*), walnut (*Juglans* spp.), and large willows (*Salix* spp.), with an average nest tree height of about 58 feet. Suitable nest sites may be found in mature riparian forest, lone trees or groves of oaks, other trees in agricultural fields, and mature roadside trees (Woodbridge 1998). Swainson's hawks do not appear to take advantage of electrical transmission lines for nesting in the same way that red-tailed hawk (*Buteo jamaicensis*) or common raven (*Corvus corax*) do (Bechard et al. 2020).

In California, Swainson's hawks typically nest between late March and late July. They are monogamous and form long-lasting pair bonds. Although both members of a Swainson's hawk pair work on building a new nest, the male brings most of the materials to construct the loose bundle of sticks, twigs, and debris items such as rope and wire. Swainson's hawks in California have high nest site fidelity and will often reuse

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a nest from a previous year, although pairs will also construct new nests (Estep 1989). They may also refurbish a historic crow, raven, or magpie nest (Bechard et al. 2020). Nest construction can take up to 2 weeks, with the finished nest reaching up to 2 feet in diameter and over a foot high. Pairs typically lay between one and four eggs each nesting season, with the incubation period lasting around 5 weeks and nestling stage lasting 17 to 22 days. Fledged chicks typically rely on their parents for an additional 4 to 5 weeks.

The diet of the Swainson's hawk in California is varied but mainly consists of voles (*Microtus* sp.); however, other small mammals, birds, and insects are also taken. Swainson's hawks require large, open grasslands with abundant prey in association with suitable nest trees. Suitable foraging areas include native grasslands or lightly grazed pastures, alfalfa and other hay crops, and certain grain and row croplands. Swainson's hawks commonly use foraging areas within 10 miles of their nests, and a sufficient prey base within this radius is essential to the survival of breeding adults and nestlings.

The CNDDDB documents eight occurrences of Swainson's hawks within 5 miles of the Project area (Confidential Figure 1). The closest CNDDDB occurrence is approximately 1.35 miles northeast of the BSA and describes a nesting pair observed in 2009. The female was observed incubating on a nest in blue gum eucalyptus while a male remained in proximity to the nest. Jacobs biologists identified an active Swainson's hawk nest approximately 2.4 miles southwest of the Project footprint during the 2024 and 2025 protocol surveys for the nearby Rooney Ranch Wind Repowering Project (Jacobs 2024, 2025d). In addition, Jacobs biologists observed this species soaring above the BSA during the 2025 protocol surveys.

Although the species is most typically associated in recent times with the row crop agriculture of the Central Valley, annual grassland is a staple habitat type for its foraging and was likely the most-used habitat type for foraging before conversion of the Central Valley into large-scale agriculture (Bechard et al. 2020). Almost the entire BSA represents suitable foraging habitat for Swainson's hawk in the form of non-native annual grassland. The eucalyptus trees approximately 0.15 mile south of the BSA and planted trees surrounding Bethany Reservoir are considered highly suitable nesting habitat, though suitable nesting habitat is absent from the BSA. Swainson's hawk was observed soaring over the BSA during protocol-level surveys in 2025, although nesting was not detected in the vicinity.

Based on the presence of suitable nest trees within 0.5 mile of the BSA, the distance representing the recommended nest buffer size, that may be occupied by Swainson's hawk during construction of the Project, and known occurrences near the BSA, this species may be seasonally present foraging within the BSA during the summer breeding season.

San Joaquin Kit Fox

San Joaquin kit fox is a federally listed endangered and state-listed threatened species, occurring in a variety of habitats but prefers grasslands with scattered shrubs. This species may also occur in agricultural areas and in urban areas as long as there are dispersal corridors to suitable denning and foraging sites. San Joaquin kit fox appear to have adapted to living in marginal areas such as grazed, non-irrigated grasslands; peripheral lands adjacent to tilled and fallow fields; irrigated row crops, orchards, and vineyards; and petroleum fields and urban areas (USFWS 1998). Ground squirrel populations can be high in grazed rangelands and in areas disturbed by humans (for example, road banks, ditch banks, fence rows, around buildings, and bordering crops) (Salmon and Gorenzel 2010).

Dens are used for temperature regulation, shelter, reproduction, and escape from predators (USFWS 1998). Dens are often created in loose-textured soils, but they are also known to modify burrows of other animals (USFWS 2020c). Most dens are located on hillsides with less than 40 degrees of slope at elevations of 350 to 2,950 feet and are approximately 5 to 8 inches in diameter (USFWS 1998). San

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Joaquin kit fox usually prefer areas with loose-textured soils but are found on virtually every soil type (USFWS 1998). Where soils make digging difficult, kit fox can enlarge or modify burrows built by other animals, particularly those of California ground squirrels (Orloff et al. 1986; USFWS 1998). They may be littered with prey remains, scat, matted vegetation, and fresh paw prints. Structures such as culverts, abandoned pipelines, and well casings can also be used as den sites (USFWS 2020c). San Joaquin kit foxes may use between 3 and 24 different dens throughout the year.

Kit foxes can breed at 1 year old. The breeding season begins during September and October, when adult females begin to clean and enlarge natal or pupping dens. Mating and conception occur between late December and March, and litters of two to six pups are born between late February and late March (USFWS 1998).

In the northern portion of their range (which includes the study area), California ground squirrels are the prey most frequently consumed by San Joaquin kit fox. Other prey includes pocket mice, kangaroo rats, cottontails, and black-tailed hares. Predators include coyotes, non-native red foxes, domestic dogs, bobcats, and large raptors. San Joaquin kit foxes are primarily nocturnal, though sometimes shift to daytime activity in response to prey availability (USFWS 1998, 2010).

The Project is located within the USFWS-mapped range of the San Joaquin kit fox (USFWS 1998). According to the USFWS Five Year Review for the species, the BSA occurs within San Joaquin kit fox satellite areas and is not within any designated core areas (all core areas are in the southern Central Valley) (USFWS 2010). In addition, the CNDDDB documents 21 occurrences of San Joaquin kit fox within 5 miles of the Project area (Confidential Figure 1). The closest CNDDDB occurrence is approximately 0.15 mile west of the BSA and describes a den observed in 1983. This den was observed during a survey that identified 51 dens and observed 8 San Joaquin kit foxes in the area.

Suitable denning, foraging, and dispersal habitat is present in non-native annual grassland throughout the BSA, and many burrows sufficiently sized for kit fox are present. The non-native annual grassland habitat in the BSA provides suitable denning, foraging, and dispersal habitat for this species, with abundant prey of small mammals, and burrows created by fossorial mammals suitable for converting into kit fox dens. Due to the presence of non-native annual grassland habitat and burrow complexes, dispersing San Joaquin kit foxes could travel through or den in the BSA. However, the potential for San Joaquin kit fox to occur in the BSA is low because the species has not been detected in the Project vicinity in 25 years, despite the large amount of occurrence data in the vicinity of the BSA (Appendix B).

3.3.2.2 State-listed Species Considered for Coverage but Rejected

The following two state-listed wildlife species are not included in the request for coverage under an ITP as take of these species is not anticipated.

Crotch's Bumble Bee

Crotch's bumble bee (*Bombus crotchii*) is a state candidate species. Due to the recent proposal to list Crotch's bumble bee under CESA, Crotch's bumble bee was considered for this ITP.

The Crotch's bumble bee was once the predominant pollinator in northern California's Central Valley, but now appears to be largely absent from it, especially in the center of its historic range (Hatfield et al. 2014). The historic range of Crotch's bumble bee extends from Central California south to Mexico and includes coastal areas east to the edges of the deserts and the Central Valley, but typically excludes mountainous areas of California (Thorp et al. 1983; Williams et al. 2014). Observations made between 2008 and 2017 indicate a retraction from northern and central portions of its historical range. There are a few scattered

observations around the San Francisco Bay area, but most are confined to southern California (NatureServe Explorer 2023).

Populations of the Crotch's bumble bee show a sharp decline in relative abundance and persistence in the Central Valley of California, with reports indicating a relative abundance decline of 98% and an estimated 80% decline in the relative persistence from its historic range over the last decade (Xerces Society 2019). Like many other bumble bee populations historically occupying the grassland and prairie habitats of the Central Valley, Crotch's bumble bee populations have largely been fragmented or lost by agricultural conversion and urban development with additional contributing factors, including livestock overgrazing or fire suppression techniques (Noss et al. 1995). These cumulative effects pertaining to intensive agricultural development and rapid urbanization in the Central Valley have contributed to declining Crotch's bumble bee populations by reducing preferred nesting sites, the abundance of burrowing animals that create suitable nesting sites, and the abundance of available floral resources (Johnson and Horn 2008; Schmidt et al. 2009).

The Crotch's bumble bee are eusocial insects with a colonial hierarchy consisting of a queen and worker class. The flight period for Crotch's bumble bee queens in California is from late February to late October, peaking in early April, with a second pulse in July. The flight period for workers and males in California is from late March through September with worker and male abundance peaking in early July (Koch 2012). Mating season generally occurs in late summer to early fall. Crotch's bumble bee nest underground in cavities found within scrub grassland habitats (Williams et al. 2014). Crotch's bumble bee is considered to be generalist forager with individuals foraging at sages (*Salvia* spp.), lupines (*Lupinus* spp.), medics (*Medicago* spp.), phacelias (*Phacelia* spp.), and milkweeds (*Asclepias* spp.; Hatfield et al. 2018). Little is known about the overwintering sites or hibernacula of this species; however, it is reported that Crotch's bumble bee generally overwinter under debris or litter piles in soft, disturbed soils (Williams et al. 2014).

There are no CNDDDB occurrences within 5 miles of the BSA. An expanded 10-mile CNDDDB buffer was performed and 1 occurrence approximately 8 miles southeast of the Project footprint was observed in the Tracy 7.5-minute quadrangle. This occurrence was observed on May 1, 1959, with no exact location details, although is mapped within the general vicinity of the city of Tracy. No ecological details were provided with this occurrence.

The expected extant range of this species is near but outside of the BSA (Hatfield et al. 2014).

Although suitable underground nesting sites for this species, in the form of abandoned rodent burrows, are ubiquitous in the BSA, floral resources for foraging are limited, making the overall likelihood of nesting low. In addition, high winds in the region further reduce the likelihood of Crotch's bumble bee presence, as high winds negatively affect foraging activity (Goyal et al. 2024).

Although suitable habitat is present for this species within the BSA, the quality of the habitat is marginal. Given that the study area is outside the reported expected range of this species and the low habitat quality within the study area, no bumble bee colonies are expected to be present within the BSA.

Bald Eagle

The bald eagle is state-listed as endangered and is a CDFW Fully Protected species. It was removed from listing under the federal Endangered Species Act (ESA) in 2007. This species is a large bird of prey found near large bodies of water with an abundant fish population (USFWS 2021). In addition to fish, bald eagles feed on carrion, small mammals, and waterfowl. Nests are found in tall trees that provide easy flight access and good visibility, usually within one mile of water. Bald eagles will also nest on cliff faces or on the ground if trees are not available, such as along shorelines.

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There are no CNDDDB occurrences within 5 miles of the BSA. The extensive range of the bald eagle includes the APWRA and BSA (eBird 2021).

A pair of bald eagles (*Haliaeetus leucocephalus*) was observed soaring over the BSA during 2024 and 2025 surveys (Jacobs 2025e), and bald eagles were observed mating near the BSA during spring 2025 surveys. Bald eagles are known to winter in the APWRA and forage near the BSA at Bethany Reservoir approximately 0.5 mile northeast; however, no suitable nesting or high-quality foraging habitat is present in the BSA. Evidence of potential nesting within 1 mile of the BSA is limited, although potential nesting substrates, such as large eucalyptus trees and high-voltage power line towers, are located within the Project vicinity.

As foraging and nesting habitat are absent from the BSA and the individuals observed were likely transitory; take is not anticipated.

4. Take Analysis

Project construction impacts are addressed in this section as either indirect or direct. Both direct and indirect impacts can be permanent or temporary.

4.1 Definition of Impacts

Direct impacts are Project effects that are caused by or that result from the proposed action and occur at the same time and place. Examples of direct impacts include the crushing of a wildlife species beneath a bulldozer during the installation of Project components.

Indirect impacts are Project effects that are caused by or would result from the proposed action and would occur later in time or outside the Project footprint but are still reasonably certain to occur. Indirect impacts may occur outside the Project footprint, or after construction is completed. Examples can include issues such as erosion resulting in increased suspended sediment in downstream waterways, or a decrease in fitness or body condition of a wildlife individual due to stress from noise levels near Project activities.

For purposes of this application, temporary impacts are those that will be restored to pre-Project conditions. Examples of temporary impacts include vegetation removal for parking, laydown, and storage areas as well as tensioning sites for conductor installation; these areas would be stabilized with hydroseed. Permanent impacts would result from vegetation removal for the construction of permanent Project elements, including structures and roadways, and would not be restored during the lifetime of the Project. Conditions of the permit will likely require that recontouring and reseedling of temporary impacts occurs within the year of impact. California tiger salamander, burrowing owl, Swainson's hawk, tricolored blackbird, and San Joaquin kit fox would potentially be affected by the disturbance of upland habitat resulting from Covered Activities.

4.2 Anticipated Project Effects

The Project is expected to impact each of the five state-listed species and their respective suitable habitats. Table 4-1 presents the total anticipated temporary and permanent construction impacts of the Project on habitats for state-listed species expected or assumed to be present or have potential to occur based on determinations made in Section 3.3. Confidential Figure 3 provides an overview of Project components and the acreages as included in Table 4-1. No wetlands, ponds, or streams will be impacted by the Project. Construction impacts are discussed in detail in the following subsections.

Table 4-1. Land Cover Impacts during Construction (acres)

Land Cover/Habitat Type	Temporary*	Permanent	Total
Non-native annual grasslands	0.70	22.20	22.90
Developed	0.00	1.82	1.82
Total	0.70	24.02	24.72

* The gen-tie is the only Project feature with a temporary impact type. All other Project features are assumed to be a permanent impact.

4.2.1 California Tiger Salamander

Based on the presence of suitable upland habitat for California tiger salamander in the Project disturbance footprint, known occurrences from the CNDDDB database review, and presence of an active breeding pond south of the BSA, there is a potential for tiger salamanders to be affected by construction, operation, and maintenance activities. No permanent or temporary direct or indirect effects on aquatic breeding habitat for California tiger salamander are anticipated because of the distance from the disturbance footprint to breeding habitat in the eastern portion of the BSA.

4.2.1.1 Potential for and Extent of Take

Although impacts on breeding habitat are not expected, this species is known to be present near the BSA and may occur within construction areas. Project construction may therefore have direct and indirect impacts on California tiger salamander individuals as well as suitable upland habitat. Approximately 22.9 acres of annual grassland suitable as California tiger salamander upland habitat is expected to be disturbed, of which 0.7 acre will be temporarily affected and 22.2 acres will be permanently affected (Table 4-1).

Impacts to suitable upland habitat for California tiger salamander may result in the take of individual salamanders residing and aestivating there. Specifically, ground-disturbing activities associated with regrading existing roadways, BESS facility construction, and gen-tie structure installation, along with other ground-disturbing activities, could result in direct mortality, injury, or harassment of below-ground individuals by crushing, entombing salamanders in their burrows, or disturbing their usual cycles of activity and rest (for example, torpor). Individuals potentially inhabiting burrows or crevices within the BSA but outside the construction area may also be affected by the noise, dust, and other disturbances associated with Project construction.

In addition, adult and subadult salamanders may be encountered above ground before and after the breeding season as they move between upland areas and their breeding ponds. Salamanders above the ground surface may be directly affected by being trampled or killed beneath machinery, being collected by approved Project biologists in permitted wildlife salvage activities, or being disrupted from normal behavior (for example, prevented from breeding due to temporary construction barriers to dispersal). California tiger salamander could also be attracted to the construction area by the presence of vehicles, which they may rest under as refugia, or by the application of water to control dust, placing them at higher risk of Project-induced injury or mortality.

During construction, the installation of the exclusionary fencing of the Project work areas could also result in direct effects such as mortality, injury, or harassment of California tiger salamander due to equipment operation, installation activities, removal of aestivation burrows, and salamander relocation.

Potential indirect effects on California tiger salamander may include predation by scavengers attracted by trash generated during construction activities or becoming trapped in Project infrastructure after construction. Habitat fragmentation (or reduction of habitat continuity) and interruption of dispersal habitat may occur as the 17-acre BESS facility could be considered an impassible barrier that would prevent tiger salamanders from dispersing between upland refugia and aquatic breeding habitat. However, the facility is located as far from the potential breeding ponds as feasible, thereby minimizing this effect.

Minimization measures as described in Section 5, such as installation of and inspections of exclusionary fencing, biological monitoring during construction, and Worker Environmental Awareness Program (WEAP), will be effective in reducing or eliminating direct mortality or injury to California tiger salamander. CDFW-approved biologists will use appropriate protective measures and procedures during capture and

relocation of California tiger salamander, in accordance with the Project's Relocation Plan. Suitable upland habitat surrounding the disturbance footprint will remain available to California tiger salamander and both temporary and permanent loss of upland habitat will be mitigated.

4.2.1.2 Jeopardy Analysis

California tiger salamander populations in the region have been eliminated from much of their previous range due to habitat loss and fragmentation. Because California tiger salamander spend most of their life underground and only a fraction of the population emerges during the breeding season, an accurate determination of population size range-wide is not possible (USFWS 2017). The California tiger salamander population in general is trending downward from habitat loss and fragmentation, disease, road mortalities, barriers to migration, and the introduction of non-native predators (Jennings and Hayes 1994). The available data suggest that most populations consist of relatively small numbers of breeding adults. Breeding populations in the range of a few pairs up to a few dozen pairs are common, and numbers above 100 breeding individuals are rare (CDFW 2010).

The East Bay and Livermore Valley populations comprise a genetically distinct region within the California tiger salamander's distribution. These populations may be the most genetically diverse populations, suggesting that those regions may comprise the core of the species' distribution, and are of particularly high conservation value (Shaffer et al. 1994; U.S. Fish and Wildlife Service 2005).

The *Recovery Plan for the Central California Distinct Population Segment of the California Tiger Salamander* (USFWS 2017) cites the following five factors as the greatest threat to the continued existence of the species: "(A) the present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; and (E) other natural or manmade factors affecting its continued existence." The Project as proposed would cause a small amount of habitat modification or loss (Factor A) and may also introduce additional sources of disease or predation (Factor C), although these impacts are expected to be small in magnitude and negligible when considered in light of the existing population in the Project vicinity.

During Project construction, potentially suitable aquatic breeding habitat, where salamanders are most concentrated on the landscape, will be completely avoided. Temporary and permanent impacts on upland habitats, where the animals are much more distributed across greater areas when compared to their densities at breeding ponds, are expected to occur. In addition, a small number of California tiger salamander individuals may be directly affected (killed or injured) by Project activities. Project impacts, however, are expected to be negligible relative to the population of the California tiger salamander present in the Project vicinity because of the limited extent of Project activities. Research has shown most California tiger salamander (95%) typically disperse only a small distance (about 0.39 mile) from their breeding ponds (Trenham and Shaffer 2005). The BESS facility, the main component of the Project, is located approximately 0.4 mile from the nearest stock pond. It is therefore reasonable to expect that very few individuals will move into the disturbance footprint and be impacted by the Project. Project effects will also be mitigated for in coordination with the CDFW during consultation. Temporary impacts on upland habitats will be restored to their baseline condition within one year, and upland habitat temporarily or permanently affected by the Project will be mitigated.

Additional sources of disease or predation are expected to be negligible and minimized through the use of minimization measures. Construction materials and trash will be removed in a timely manner to prevent attracting scavengers to the work area, and biologists will use BMPs (for example, The Declining Amphibian Task Force Fieldwork Code of Practice) and be approved by the CDFW before handling California tiger salamander to avoid spreading Chytrid fungus.

In conclusion, the Project is not expected to result in jeopardy to the continued existence of the California tiger salamander species due to the avoidance of breeding pond impacts, the relatively limited extent of permanent development compared to the surrounding landscape, and the use of BMPs and other avoidance, minimization, and mitigation measures.

Because the Project overlaps the footprint of Sand Hill and is located approximately 2 miles northeast of the Rooney Ranch Wind Repower Project (Rooney Ranch), the combined impacts on the species were also considered. Sand Hill is a short duration wind energy construction Project co-located with the Viracocha Hill BESS Project and is spread over 1,811 acres of primarily non-native annual grassland (Jacobs 2023a). However, only 6% of this area is subject to temporary and permanent disturbance. Sand Hill is expected to be operational for approximately 30 years. Land use in the vicinity of Sand Hill would be similar to its previous use—wind energy generation and cattle grazing—but on a smaller scale due to repowering with fewer than one-quarter the turbines and associated infrastructure. Furthermore, Sand Hill is not expected to introduce new barriers to movement. The Viracocha BESS will disturb an additional 1% of this 1,811-acre area. Rooney Ranch is also a short duration construction project that will disturb approximately 14% of a 580-acre area and result in a wind energy facility that is expected to be operational for approximately 30 years (Jacobs 2023b). As a repowering project, Rooney Ranch is also not expected to introduce new barriers to movement. Together, these three projects will have a relatively limited impact on the upland habitat available to California tiger salamander (less than 10% of the combined projects' temporary and permanent impacts and overall projects' areas) or on the species' ability to disperse. Disturbance from these projects will not jeopardize the continued existence of the California tiger salamander population in the APWRA or the species as a whole.

4.2.2 Tricolored Blackbird

Based on the presence of suitable foraging and wintering habitat for tricolored blackbird in the Project disturbance footprint and surrounding BSA, known occurrences from the CNDDDB database review, and previous field observations, there is a potential for foraging tricolored blackbird to be affected by construction, operation, and maintenance activities. Only limited suitable nesting habitat occurs in the eastern portion of the BSA, and nesting is not anticipated.

4.2.2.1 Potential for and Extent of Take

The Project may result in direct effects on tricolored blackbird foraging and wintering habitat and may also have indirect effects in the form of disturbance possibly resulting in nest abandonment. During construction of the Project, approximately 22.9 acres of annual grassland suitable as tricolored blackbird foraging habitat will be disturbed, including 0.7 acre of temporary impacts and 22.2 acres of permanent impacts (Table 4-1).

If present during construction, they could be directly impacted by work activities, including being struck by vehicles and equipment or being accidentally crushed during site preparation (vegetation removal and grading) activities. Individuals may also be temporarily impacted by the noise and activity associated with Project construction, leading to an inability to complete normal feeding or mating activities, and leading to a decrease in fitness or body condition. However, suitable non-native annual grassland habitat that this species could use during Project construction is widespread in the vicinity of the BSA. In addition, indirect disturbance of adjacent populations of tricolored blackbird from construction is not considered permanent, as temporarily displaced birds could be expected to return to adjacent areas upon completion of Project construction.

Other indirect effects of auditory or visual disturbance from construction activities could include disruption of tricolored blackbird nesting behavior during the breeding season. As discussed in Section 3, breeding habitat is absent from the BSA due to the lack of emergent wetland vegetation or other structural vegetation (such as blackberry bushes) near ponds for nest building. If tricolored blackbirds were to nest near the BSA, however, construction activity could result in nest abandonment and therefore the take of chicks that were abandoned. The *California Department of Fish and Wildlife (Department) Staff Guidance Regarding Avoidance of Impacts to Tricolored Blackbird Breeding Colonies on Agricultural Fields in 2015* guidance document recommends consultation with the CDFW and a construction no-disturbance buffer of 300 feet around established breeding colonies of tricolored blackbird (CDFW 2015a). The Applicant proposes to establish a no-disturbance buffer of at least 0.1 mile (528 feet) around any tricolored blackbird nesting colonies discovered during construction to avoid impacts on nesting colonies of tricolored blackbird.

Minimization measures as described in Section 5, such as nesting surveys, no-disturbance buffers around nests, biological monitoring during construction, and WEAP, will be effective in reducing or eliminating potential for take of tricolored blackbird. Temporarily displaced birds could be expected to return to the non-native annual grassland foraging and wintering habitat of the BSA following restoration. Both temporary and permanent habitat loss will be mitigated in consultation with CDFW. These measures are expected to eliminate take of tricolored blackbirds and mitigate habitat loss for this species.

Because the Project overlaps the footprint of Sand Hill and is located approximately 2 miles northeast of the Rooney Ranch Wind Repowering Project (Rooney Ranch), the combined impacts on the species were also considered. Sand Hill is a short duration wind energy construction project co-located with the Viracocha Hill BESS Project and is spread over 1,811 acres of primarily non-native annual grassland (Jacobs 2023a). However, only 6% of this area is subject to temporary and permanent disturbance. Sand Hill is expected to be operational for approximately 30 years. Land use in the vicinity of Sand Hill would be similar to its previous use—wind energy generation and cattle grazing—but on a smaller scale due to repowering with fewer than one-quarter the turbines and associated infrastructure. Sand Hill is not expected to result in significant habitat fragmentation for tricolored blackbird or other avian species because the Project is not erecting any contiguous barriers in the airspace or creating or contributing to major conversion of grassland to non-habitat type. The Viracocha BESS will disturb an additional 1% of this 1,811-acre area, although tricolored blackbirds will be able to transit around and over the operational BESS facility. Rooney Ranch is also a linear, short duration, project that will disturb approximately 14% of a 580-acre area (Jacobs 2023b). As a repowering project, Rooney Ranch is also not expected to result in habitat fragmentation. Together, these three projects will have a relatively limited impact on the suitable foraging habitat available to tricolored blackbird (less than 10% of the combined projects' temporary and permanent impacts and overall projects' areas) or on the species' ability to disperse. Direct take of tricolored blackbird is expected during operation of both wind repowering projects but is not considered significant. Over 30 years, Sand Hill would result in mortality of 9.0 to 25.5 individuals and Rooney Ranch would result in mortality of 4.5–14.4 individuals. Disturbance and take from these projects will not jeopardize the continued existence of tricolored blackbirds in the APWRA or the species as a whole.

4.2.2.2 Jeopardy Analysis

Tricolored blackbird populations have declined by an estimated 63% from 1935 to 1975 (Graves et al. 2013) and another 34% from 2007 to 2016 (Robinson et al. 2018). These losses are primarily due to the destruction of the species' historically preferred habitats for nesting—wetlands—and foraging—grasslands—by extensive agricultural and urban development. Wetland habitats, the preferred nesting habitat of this species, have experienced losses of over 90% in California's Central Valley (Framer et al. 1989). Additionally, insects constitute this species' diet, and insecticides, such as neonicotinoids, applied

to agricultural lands have been linked to population declines in tricolored blackbird populations (Forister et al. 2016). Results of a 2008 census survey found that 9 of the 10 largest colonies are within California's Central Valley, with 63% of the species population coming from five colonies in Merced, Tulare, and Kern counties (Kelsey 2008). Meehan et al. (2019) found a decrease in average colony size of approximately 5% per year, which translated to a decrease in average colony size of approximately 40% between 2008 and 2017.

The CDFW *Evaluation of the Petition from The Center for Biological Diversity to List Tricolored Blackbird as Endangered Under the California Endangered Species Act* (2015b) cites habitat loss as the primary threat to the species, especially the loss of farmland or wetland habitat. Additional threats cited in the document include agricultural activities, low reproductive success, predation, agricultural contaminants, weather events, disease, interspecies competition, and other anthropogenic effects.

The Project would not result in significant loss of foraging or wintering habitat, because the majority of the habitat in the BSA would remain annual grassland (77%). Temporary disturbance of tricolored blackbird foraging and wintering habitat will be short-term (less than 1 year) and will be restored to functional habitat. Permanently disturbed habitat, which will result from BESS facility and laydown yard construction, and gen-tie structure installation, as well as temporary disturbed habitat will be mitigated for in consultation with the CDFW.

The potential take of tricolored blackbird chicks due to nest abandonment is not expected to occur because of the quality nesting habitat is absent from the BSA. A nesting colony, if it is established in or near the BSA, would be detected during nesting bird surveys conducted before and during Project activities. Following detection by Project biologists, minimization measures such as a no-disturbance buffer will be established around the nesting colony. Therefore, the abandonment of an entire nesting colony of tricolored blackbird, while it would be a significant effect that could contribute to the decline of the species regionally, is not expected to occur.

4.2.3 Western Burrowing Owl

Based on previous field observations, nearby CNDDDB occurrence data, and the presence of suitable habitat in the Project disturbance footprint, there is potential for burrowing owl to be impacted by Project activities during construction, operations, and maintenance. Survey results determined that both the disturbance footprint and the larger BSA offers high-quality foraging and nesting habitat, hosting burrowing owls during the breeding season as well as the nonbreeding season.

4.2.3.1 Potential For and Extent of Take

Project construction may result in direct and indirect impacts on burrowing owl individuals. In addition, approximately 0.7 acre of temporary disturbance and 22.2 acre of permanent disturbance will occur to suitable burrowing owl foraging and nesting habitat (Table 4-1).

If present during construction, burrowing owls could be directly impacted by work activities, including being struck by vehicles and equipment, being accidentally entombed within burrows during site preparation (vegetation removal and grading) activities, or abandoning roosting or breeding burrows due to construction activity (for example, noise or the presence of workers near their burrows).

Burrowing owls inhabiting burrows may also be impacted by the noise, dust, and other disturbances associated with the construction of the BESS. Indirect effects could include disruption of burrowing owl nesting behavior during the breeding season caused by auditory or visual disturbance from construction activities. As is the case with other species of wildlife, individuals will display different responses and

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tolerance to human-caused disturbance along a gradient of possible behavior. Scobie and Faminow (2000), cited in the 2012 Staff Report on Burrowing Owl Mitigation (CDFG 2012), estimate disturbance in the form of harassment may occur when low-level disturbance work activities are within 219 yards of nesting owls and within 547 yards for high-level disturbance activities. It is difficult to predict the response a given nesting pair of burrowing owls will have to human disturbance when the disturbance may also occur at different intensities on different days depending on equipment and duration of work on a given day.

Project construction activities could have other direct effects, such as nest abandonment resulting in mortality of eggs or young, which may then cause indirect effects, such as reduced nesting opportunities or otherwise inhibiting breeding opportunity and viability. Disturbance and displacement associated with the Project may increase the potential for predation, competition for food and shelter, or strike by vehicles on access roads. However, it can be assumed that burrowing owls within the Project footprint are accustomed to low levels of baseline disturbance because of the routine cattle grazing activities, and associated vehicle and foot traffic, that occur onsite.

Direct effects may occur from burrow exclusion and excavation activities (that is, passive relocation) by exposing individual owls to risk when they would otherwise have refuge available. Passive relocation may be required to ensure that occupied burrowing owl burrows within the Project disturbance footprint are vacant before site preparation activities such as grading and grubbing. Recent literature suggests that passive relocation may have low success rates, but that when properly designed, passive relocation can be a useful tool for conservation (Center for Biological Diversity et al. 2024).

Handling of individuals for wildlife salvage, if required for them to be taken to a rehabilitation facility, may also result in direct effects. Examples of situations in which wildlife salvage may be required include if individuals that were not detected in the path of site preparation activities (despite preconstruction surveys) are harmed or if chicks are abandoned by adults.

The Project may also introduce indirect effects on burrowing owls by increasing risk of predation. Predators, such as common ravens, coyotes (*Canis latrans*), red foxes (*Vulpes vulpes*), raccoons (*Procyon lotor*), and skunks (*Spilogale gracilis* and *Mephitis mephitis*), may be attracted to the site by trash from construction activities. However, materials and trash will be removed in a timely manner to prevent attracting scavengers to the work area, and these species are likely already present in the Project area.

Burrowing owl observations within the BSA are sourced from the 2025 protocol-level survey effort (Table 4-2). Consistent with the 2012 Staff Report, burrowing owl surveys included records of owl observations as well as burrowing owl sign, including whitewash and pellets. However, since a single owl may seasonally occupy space and leave sign at multiple burrow entrances, these signs do not concretely indicate owl density without elaborate monitoring protocols. Therefore, owl sign has been excluded from the take analysis but will continue to be recorded and included in burrowing owl survey reports.

No burrowing owls were detected within the Project disturbance footprint during the 2025 survey effort (Table 4-2, Confidential Figure 3). However, a total of 14 individuals were detected within the 500-meter survey buffer (see Section 3.2.2.1). Burrowing owls present within this survey buffer may be disturbed by Project activities although topography, distance, and other factors will likely reduce the disturbance that owls experience. Therefore, one-third (4) of this average annual number of burrowing owls (14) within 500 meters of the Project footprint may be expected to be disturbed to the level of take.

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Table 4-2. Burrowing Owl Observations by Season

Season ^[a]	Burrowing Owls Detected in 2025	
	Within Disturbance Footprint	Within 500-meter Survey Buffer
Breeding Season	0	10
Nonbreeding Season	0	4
Total	0	14

^[a] Nesting season is defined as the period February 1–August 31, non-nesting season is defined as the period from September 1 through January 31.

N/A = not applicable

Minimization measures as described in Section 5, such as preconstruction surveys, biological monitoring during construction, no-disturbance buffers around burrows, and WEAP, will be effective in reducing or eliminating direct mortality or injury to burrowing owl. CDFW-approved biologists will use appropriate protective measures and procedures during passive relocation, in accordance with the Project's Burrow Exclusion, Excavation, and Monitoring Plan. Suitable foraging and nesting habitat surrounding the disturbance footprint will remain available to burrowing owl during Project construction. Temporarily displaced birds could be expected to return to the non-native annual grassland habitat of the BSA following restoration. Both temporary and permanent habitat loss will be mitigated.

Based on the results of the 2025 survey effort, indirect take in the form of disturbance may occur for up to 4 burrowing owls from Project activities. However, taking into account the minimization and mitigation measures, timing of Project activities, and known level of burrowing owl tolerance for activity within the immediate area (relative to the baseline level of activity from ranching activities), indirect take is expected to be much less and more likely for up to 0 to 2 burrowing owls.

4.2.3.2 Jeopardy Analysis

While CDFW has not yet issued a status review on burrowing owl, historic and contemporary occurrence data was presented to CDFW in the Petition Evaluation for Burrowing Owl for all counties in the California range (Center for Biological Diversity et al. 2024; CDFW 2024). Following a statewide burrowing owl survey conducted in 1991–1993, Desante et al. (1996, 2007) reported that 71% of the breeding burrowing owls in California occurred in the Imperial Valley and 24% occurred in the Central Valley. The remaining 5% of the population was described as distributed across the San Francisco Bay area, central-western California, and southwestern California. The deserts of northern and southern California were not included in the 1991–1993 statewide survey. A second statewide survey in 2006–2007 found a similar population distribution but with a fairly large proportion of individuals in some of the desert areas not previously surveyed, including the western Mojave Desert (6%) and Palo Verde Valley in the Sonoran Desert (2%) (Wilkerson and Siegel 2010). Following the second statewide survey in 2006–2007, Wilkerson and Siegel (2010) reported an estimated 11% decline in the statewide breeding population since 1993 (excluding the desert regions that were not surveyed in 1991–1993). The number of burrowing owl breeding pairs for the entire Central Valley declined 27% from the 1991–1993 surveys, and the number of pairs in the San Francisco Bay area declined 28%. However, the petition does include a footnote that "The Wilkerson and Siegel (2010) surveys did not capture the hundreds of pairs of burrowing owls [elsewhere mentioned in the petition as being ~500 breeding pairs, per Smallwood et al. 2013] in the APWRA in eastern Contra Costa and Alameda counties, likely due to insufficient access to privately held property and the inability to detect owls by surveying from public roads in this area" (Center for Biological Diversity et al. 2024). In addition, the researchers that conducted the first statewide

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burrowing owl survey suggested that population declines had occurred between the 1980s and the 1991–1993 surveys (DeSante et al. 1996, 2007); estimated decline in the number of burrowing owl groups (a surrogate for number of colonies) was 62% to 77% in all of coastal California, 51% to 66% in the San Francisco Bay Area Interior, and 1% to 48% in the Central Valley.

The Petition discusses the APWRA specifically, noting the following:

The [APWRA] in eastern Alameda County emerged as the site of a key population of burrowing owls in California. Numbers of burrowing owls in the APWRA are substantial, and productivity is high. There is likely also considerable movement of burrowing owls through the APWRA between the Bay Area and the Central Valley. [...] Over Smallwood's last 10 years of research in the APWRA, burrowing owls declined 45% across eastern Alameda and Contra Costa counties, coinciding with a 63% retraction of the geographic extent of ground squirrel colonies (Smallwood 2023a).

The Petition indicates burrowing owls have been extirpated from several counties (16% of the California range) and are on the brink of extirpation from another 13% of their range, including portions of the Central Valley, the remaining areas in the interior San Francisco Bay area, and the central and southwestern coasts. Burrowing owls within the BSA are situated along the boundary of the San Francisco Bay Area Interior and Middle Central Valley regions, though the Project area appears to be outside of the near-extirpation regions identified in the Petition. The petition notes that the APWRA has been the site of "recent and significant declines" (Center for Biological Diversity et al. 2024).

The Petition identifies five primary threats to burrowing owl populations:

1. Habitat loss, fragmentation, and degradation from urban and suburban development, industrial energy development, destruction of ground squirrels, and agricultural practices
2. Direct mortality from development projects, collisions with vehicles and structures, pesticides, and agricultural activities
3. Relocation of owls and failure to maintain artificial nest boxes
4. Population isolation and demographic stochasticity
5. Predation

Of the five primary threats it lists, the Petition identifies habitat loss, fragmentation, and degradation as the primary threat to burrowing owls in California. The Petition suggests the elimination of ground squirrels as a result of control programs is one of the main factors contributing to habitat loss and degradation and both the recent and historical decline of the species. The Petition states that burrowing owls face numerous other threats to their habitat, primarily stemming from urban development, renewable energy projects, and invasive plant species (Center for Biological Diversity et al. 2024).

The Project would not result in significant loss of foraging or nesting habitat, because the majority of the habitat in the BSA would remain annual grassland (77%). Temporary habitat disturbance will be short-term (less than 1 year) and will be restored to functional habitat. Both temporarily and permanently disturbed habitat, which will result from BESS facility construction and gen-tie structure installation, will be fully mitigated for in consultation with the CDFW. The completed facility is not expected to result in substantial fragmentation because owls will still be able to transit around and over the operational facility.

Impacts to burrowing owls will be reduced with the use of BMPs including pre-disturbance surveys and application of no disturbance buffers, burrow removals outside of the breeding season, biological

monitoring, and employment of a WEAP along with other avoidance, minimization, and mitigation measures. The potential indirect impact to burrowing owls, if it does occur, is expected to result in take of up to two individuals for one breeding year, or at a level that would likely be negligible relative to the regional population of burrowing owls. This level of take is not expected to result in a risk of jeopardy to the species.

Because the Project overlaps the footprint of Sand Hill and is located approximately 2 miles northeast of the Rooney Ranch Wind Repowering Project (Rooney Ranch), the combined impacts on the species were also considered. Sand Hill is a short duration wind energy construction Project co-located with the Viracocha Hill BESS Project and is spread over 1,811 acres of primarily non-native annual grassland (Jacobs 2023a). However, only 6% of this area is subject to temporary and permanent disturbance. Sand Hill is expected to be operational for approximately 30 years. Land use in the vicinity of Sand Hill would be similar to its previous use—wind energy generation and cattle grazing—but on a smaller scale due to repowering with fewer than one-quarter the turbines and associated infrastructure. Sand Hill is not expected to result in significant habitat fragmentation for burrowing owl or other avian species because the Project is not erecting any contiguous barriers in the airspace or creating or contributing to major conversion of grassland to non-habitat type. The Viracocha BESS will disturb an additional 1% of this 1,811-acre area, although burrowing owls will be able to transit around and over the operational facility. Rooney Ranch is also a linear, short duration, project that will disturb approximately 14% of a 580-acre area and result in a wind energy facility that is expected to be operational for approximately 30 years (Jacobs 2025b). As a repowering project, Rooney Ranch is also not expected to result in habitat fragmentation. Together, these three projects will have a relatively limited impact on the suitable habitat available to burrowing owl (less than 10% of the combined projects' temporary and permanent impacts and overall projects' areas) or on the species' ability to disperse. Direct take is expected from operation of both wind repowering projects but is not considered significant. Over 30 years, Sand Hill would result in mortality of 120 burrowing owls and Rooney Ranch would result in mortality of 82 burrowing owls. Disturbance and take from these projects will not jeopardize the continued existence of the burrowing owl in the APWRA or the species as a whole.

4.2.4 Swainson's Hawk

Suitable foraging habitat for Swainson's hawk is present in the BSA. While no nesting habitat is present, suitable nest trees are located within 0.5 mile of the BSA and there are known occurrences in the surrounding vicinity. The Project may therefore impact this species during construction, operations, and maintenance.

4.2.4.1 Potential for and Extent of Take

During construction of the Project, approximately 22.9 acres of annual grassland suitable as Swainson's hawk foraging habitat will be disturbed, including 0.7 acre of temporary impacts and 22.2 acres of permanent impacts (Table 4-1). In addition to habitat impacts, the Project may have indirect effects to individual Swainson's hawks in the form of disturbance, possibly resulting in nest abandonment, if Swainson's hawks were to begin nesting within 0.5 mile of the Project.

Indirect effects resulting in disruption of Swainson's hawk nesting behavior during the breeding season may potentially occur during Project construction due to noise, dust, increased traffic, increased personnel on the ground, visual changes for nests that may be within the line of sight, or other potential disturbances. As is the case with other species of birds, as well as other wildlife, individual animals will display different responses and tolerance to human-caused disturbance along a gradient of possible behaviors. This concept is presented in the matrix figure at the end of the *Recommended Timing and*

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Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley guidance document, which is recommended for protocol surveys in the Central Valley by the CDFW (SHTAC 2000). For this reason, it is difficult to predict the response a given nesting pair of Swainson's hawks will have to human disturbance as disturbance may also occur at different intensities on different days depending on equipment and duration of work on a given day.

That said, it is reasonable to anticipate that if Swainson's hawks nest near the Project before construction, work may result in nest abandonment and therefore the take of the Swainson's hawk chicks that were abandoned. *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* guidance document recommends consultation with the CDFW for Swainson's hawk nests within 0.5 mile of the Project footprint to determine appropriate conservation measures. In the past, CDFW-recommended no-activity buffers around nests have ranged from as little as 100 feet in areas with high baseline levels of human disturbance (for example, along I-80 and in an actively farmed field in Solano County, per CDFW 2020) to as large as 0.25 mile in areas with lower levels of baseline disturbance. In the BSA, the potential for this type of take to occur is considered to be low because there are few potential nest trees and there is a relatively low density of Swainson's hawks present in the area during the breeding season.

Foraging individuals may be temporarily impacted by the noise, dust, and other disturbances associated with Project construction but because the Project footprint is similar to the extensive annual grassland in the area, foraging hawks will have ample foraging opportunities in the vicinity. These birds could also be expected to return to the non-native annual grassland foraging habitat of the BSA following restoration. Both temporary and permanent habitat loss resulting from the Project will be mitigated in consultation with CDFW and have limited impact on the overall availability of annual grassland foraging habitat in the APWRA.

Implementation of minimization measures described in Section 5, including annual nest surveys, no-disturbance avoidance buffers around nests, biological monitoring during construction, and WEAP, will minimize the potential for the take of Swainson's hawk.

4.2.4.2 Jeopardy Analysis

By 1979, Swainson's hawk populations declined to as low as 375 breeding pairs in California (CDFW 2016). By 2018, Swainson's hawk populations had rebounded significantly to an estimated 18,810 breeding pairs, with a summering population increase between 2005 and 2018 at a rate of 13.9% per year (Furnas et al. 2022). However, Swainson's hawks remain largely extirpated from southern California where they were historically common, and the species still faces significant threats to population viability due to widespread habitat conversion to urban uses in the Central Valley.

The *Five Year Status Review for Swainson's Hawk* (CDFW 2016) cites "habitat loss, especially the loss of suitable foraging habitat, but also nesting habitat in some portions of the species' breeding range due to urban development and incompatible agriculture" as the primary threat to Swainson's hawk in California. Additional threats cited in the document include climate change, renewable energy facilities, disease, contaminants, and other anthropogenic or stochastic effects.

The Project will result in both permanent and temporary disturbance of Swainson's hawk foraging habitat. This loss in habitat is not considered significant, because the majority of the habitat in the BSA will remain annual grassland (77%). Temporary habitat disturbance will be short-term (less than 1 year) and will be restored to functional habitat. Permanently disturbed areas include the BESS facility, associated yard, and gen-tie structure locations. Both temporary and permanent disturbance areas will be mitigated for in

consultation with the CDFW. This habitat loss is therefore not expected to result in a risk of jeopardy to the species.

Although construction may generally result in the take of Swainson's hawk chicks due to nest abandonment, nest take is not anticipated for this Project because no nests have been detected nearby.

Because the Project overlaps the footprint of Sand Hill and is located approximately 2 miles northeast of the Rooney Ranch Wind Repowering Project (Rooney Ranch), the combined impacts on the species were also considered. Sand Hill is a short duration wind energy construction project co-located with the Viracocha Hill BESS Project and is spread over 1,811 acres of primarily non-native annual grassland (Jacobs 2023a). However, only 6% of this area is subject to temporary and permanent disturbance. Sand Hill is expected to be operational for approximately 30 years. Land use in the vicinity of Sand Hill would be similar to its previous use—wind energy generation and cattle grazing—but on a smaller scale due to repowering with fewer than one-quarter the turbines and associated infrastructure. Sand Hill is not expected to result in significant habitat fragmentation for Swainson's hawk or other avian species because the Project is not erecting any contiguous barriers in the airspace or creating or contributing to major conversion of foraging grassland to non-habitat type. The Viracocha BESS will disturb an additional 1% of this 1,811-acre area, although Swainson's hawk will be able to transit around and over the operational facility. Rooney Ranch is also a linear, short duration, project that will disturb approximately 14% of a 580-acre area and result in a wind energy facility that is expected to be operational for approximately 30 years (Jacobs 2023b). As a repowering project, Rooney Ranch is also not expected to result in habitat fragmentation. Together, these three projects will have a relatively limited impact on the suitable foraging habitat available to Swainson's hawk (less than 10% of the combined projects' temporary and permanent impacts and overall projects' areas) or on the species' ability to fly between areas of suitable breeding and foraging habitat. Direct take of Swainson's hawk is expected during operation of both wind repowering projects. However, neither project is considered a significant contributor to Swainson's hawk mortality because of the low density of the species in the area. The new generation of wind turbines proposed to be installed have been specifically designed to lack perches for raptors. By minimizing perches, the wind repowering projects are unlikely to attract Swainson's hawk and therefore limit potential fatalities. Over 30 years, Sand Hill would result in mortality of 1.5 individuals and Rooney Ranch would result in mortality of less than one individual. Disturbance and take from these projects will not jeopardize the continued existence of Swainson's hawk in the APWRA or the species as a whole.

4.2.5 San Joaquin Kit Fox

Suitable denning, foraging, and dispersal habitat for San Joaquin kit fox present in the BSA and this species has been documented in the vicinity. Although the potential for San Joaquin kit fox to occur is low because the species has not been detected in within the BSA in 25 years, there is still potential for San Joaquin kit fox to be affected by construction operations, and maintenance of the Project.

4.2.5.1 Potential for and Extent of Take

The Project may result in direct impacts on San Joaquin kit fox individuals as well as suitable denning, foraging, and dispersal habitat. During construction of the Project, approximately 22.9 acres of annual grassland suitable as San Joaquin kit fox habitat will be disturbed, including 0.7 acre of temporary impacts and 22.2 acres of permanent impacts (Table 4-1). Habitat disturbance may result in the take of individual foxes residing in dens or other refugia. Specifically, ground-disturbing activities associated with regrading existing roadways, BESS facility construction, and gen-tie structure installation, along with other ground-disturbing activities, could result in direct mortality, injury, or harassment of belowground individuals by

crushing, entombing foxes in their burrows, or disturbing their usual cycles of activity and rest. San Joaquin kit fox may also be affected by exploratory excavation of potential dens by biologists.

In addition, San Joaquin kit fox may be encountered above ground during construction, as they forage or travel throughout their home ranges or disperse outwards to establish new territories. San Joaquin kit fox encountered above ground may be directly affected by being trampled or killed beneath machinery, being collected by approved Project biologists in permitted wildlife salvage activities, or being disrupted from normal behavior (for example, prevented from feeding or breeding due to temporary construction barriers to dispersal). San Joaquin kit fox could enter the construction site in search of food and cover and as a result be injured or killed by heavy equipment or entrapped in open excavations. San Joaquin kit fox may be attracted to the construction area by stored construction materials (for example, pipes, materials stockpiles, or parked machinery) and be killed, injured, or harassed when the materials are moved.

Individuals potentially inhabiting burrows within the Project footprint may be indirectly impacted by the noise, dust, or other disturbances associated with Project construction. However, many burrows exist in the BSA vicinity that would be available for these species to use, and temporarily displaced individuals could be expected to return to the non-native annual grassland habitat within the BSA upon completion of Project construction. The Project may also introduce indirect effects on San Joaquin kit fox by increasing interspecies competition. For example, other scavengers such as coyotes, red foxes, raccoons, skunks, or common raven, may be attracted to the site by trash from construction activities. However, materials and trash will be removed in a timely manner to prevent attracting scavengers to the work area, and these species are likely already present in the BSA. Therefore, this effect is expected to be negligible relative to the community baseline at the BSA and impossible to accurately predict.

Project activities, including the temporary and permanent loss of habitat, are not expected to result in a significant decline in the populations of the species' prey base (that is, California ground squirrels, deer mice, and other similar prey) relative to regional prey populations in the surrounding Project vicinity. Project construction is however expected to increase onsite human activity, which may alter kit fox behavior in the region or result in an increase in fox-vehicle collisions. In addition, because this species is primarily nocturnal, any outdoor illumination has the potential to cause disruption of surface movement and increase rates of predator or vehicle-related injury or mortality. No nighttime work is proposed during construction of the Project except when emergencies warrant such activities. Overall, the potential for the lethal take of San Joaquin kit fox is considered low given the low likelihood of the species to be present. Implementation of the minimization measures listed in Section 5, including no-disturbance buffers around dens, biological monitoring during construction, WEAP, and use of CDFW-approved biologists during surveys, burrow excavation, and monitoring, will further minimize the potential for the take of San Joaquin kit fox. In addition, both temporary and permanent habitat loss will be mitigated in consultation with CDFW.

4.2.5.2 Jeopardy Analysis

By the 1950s, the foremost factors in the decline of the San Joaquin kit fox were loss, degradation, and fragmentation of habitats associated with agricultural, industrial, and urban developments in the San Joaquin Valley (Laughrin 1970; Jensen 1972; Morrell 1975; Knapp 1978). The use of pesticides and rodenticides also pose threats to kit foxes, and since the early 1970s road kills among other causes have been determined to be another source of human-induced mortality (Grinnell et al. 1937; Morrell 1972; Egoscue 1975; Berry et al. 1987; Ralls and White 1991, 1995; Standley et al. 1992).

The 2010 and 2020 Five Year Reviews of the San Joaquin kit fox (USFWS 2010, 2020a) cite the following threats to the species: "the conversion of habitat to agriculture and industrial development (Factor A);

overutilization due to furbearer trapping (Factor B); competition (Factor C); pesticide use (Factor E); vehicle-caused mortality (Factor E); and accidental shooting by night-hunters (Factor E)."

While the Project is expected to affect suitable denning, foraging, and dispersal habitat (Factor A), the extent of disturbance is relatively limited compared to the surrounding landscape and habitat will still be available during and following Project construction. While the Project may increase interspecies competition (Factor C) with the San Joaquin kit fox, competitor species are likely already present in the BSA, and trash will be removed in a timely manner; therefore, this effect is expected to be negligible relative to the existing baseline. The Project will not result in an increase in pesticide or herbicide use; therefore, it will not exacerbate Factor E. It is possible that a small number of San Joaquin kit fox individuals may be directly affected (killed or injured) by Project activities (Factor E); however, this impact is not expected due to the low densities of San Joaquin kit fox found in the vicinity, implementation of minimization measures including pre-disturbance surveys, and also because the species is primarily nocturnal, and night work is not proposed.

Project effects will be mitigated for in coordination with the CDFW. Temporary impacts on non-native annual grassland habitat will be restored to their baseline condition within one year, and habitat temporarily or permanently affected by the Project will be mitigated. Habitat fragmentation (or reduction of habitat continuity) and interruption of dispersal corridors during the life of the Project was considered but is not expected because the Project would not create impassible barriers that would prevent San Joaquin kit fox from dispersing across the landscape. In conclusion, the Project is not expected to result in jeopardy to the continued existence of the San Joaquin kit fox due to the relatively limited extent of permanent development and proposed habitat impact mitigation, and the use of BMPs and other avoidance, minimization, and mitigation measures.

Because the Project overlaps the footprint of Sand Hill and is located approximately 2 miles northeast of the Rooney Ranch Wind Repowering Project (Rooney Ranch), the combined impacts on the species were also considered. Sand Hill is a short duration wind energy construction project co-located with the Viracocha Hill BESS Project and is spread over 1,811 acres of primarily non-native annual grassland (Jacobs 2023a). However, only 6% of this area is subject to temporary and permanent disturbance. Sand Hill is expected to be operational for approximately 30 years. Land use in the vicinity of Sand Hill would be similar to its previous use—wind energy generation and cattle grazing—but on a smaller scale due to repowering with fewer than one-quarter the turbines and associated infrastructure. Sand Hill is not expected to introduce new barriers to San Joaquin kit fox movement. The Viracocha BESS will disturb an additional 1% of this 1,811-acre area. Rooney Ranch is also a short duration construction project that will disturb approximately 14-percent of a 580-acre area and result in a wind energy facility that is expected to be operational for approximately 30 years (Jacobs 2023b). As a repowering project, Rooney Ranch is also not expected to introduce new barriers to movement. Together, these three projects will have a relatively limited impact on the suitable habitat available to San Joaquin kit fox salamander (less than 10% of the combined projects' temporary and permanent impacts and overall projects' areas) or on the species' ability to disperse. Disturbance from these projects will not jeopardize the continued existence of the San Joaquin kit fox population in the APWRA or the species as a whole.

4.3 Anticipated Project Effects during Operations

Operations will require periodic visual inspections, conducted by one or more staff. The gen-tie will be inspected by workers walking the line and determining if repairs or maintenance is required. Some facility maintenance activities, such as washing electrical components to remove accumulated dust, may occur but would be infrequent. As such, additional habitat impacts from O&M are not anticipated.

Operation of the 1,325 foot-long gen-tie, including steel pole structures and lines, may result in direct or indirect impacts on state-listed birds. Implementation of avian protection measures in the design, installation, and maintenance of gen-tie steel pole structures and lines, and all electrical components, will reduce or eliminate the likelihood of electrocutions of large birds (APLIC 2006). Implementation of mitigation measures such as vehicle speed limits and the WEAP will reduce the Project's direct impacts during on state-listed bird species to a less-than-significant level.

Operations activities may potentially result in direct mortality of state-listed wildlife by crushing or vehicle collisions. In addition, indirect impacts are possible from noise, lighting, and other activity associated with the operations of the Project. Lights may attract insects, which in turn could attract nocturnal foraging insectivores, including bats and herpetofauna. Lighting on the Project site will be limited to areas required for safety, will be directed onsite to avoid backscatter, and will be shielded to the greatest extent practical. All lighting that is not required to be on during nighttime hours will be controlled with sensors or switches operated such that the lighting will be on only when needed. Noise is anticipated to be minimal during operations and the Project will meet all required Alameda County LORS at the fence line. With implementation of mitigation measures including the WEAP, vehicle speed limits, and lighting restrictions, operational activities would have less-than-significant impacts on state-listed wildlife.

4.4 Cumulative Effects

With mitigation incorporated, the Project itself will not have significant adverse effects on biological resources. The Project is in the APWRA, with existing and ongoing wind power development. The Project will reduce the disturbance area to the extent feasible, which would reduce direct and indirect effects on habitat. Transient wildlife are expected to use similar habitats in the Project vicinity as alternatives during construction, and these habitats are not a limiting factor for these species. All temporary disturbances would be restored postconstruction. Existing land uses, such as cattle ranching, are expected to continue in the BSA during and after construction of the Project. In addition, and unlike other projects in the area that have caused habitat fragmentation (including the Los Vaqueros Reservoir Project and Vasco Road Widening Project), the Project will not introduce significant new barriers to dispersal at a regional level. Therefore, most of the regional habitat suitable for supporting populations of special-status species will be maintained in a relatively baseline condition, including maintaining habitat connectivity.

Other projects would be required individually to comply with applicable biological resource-related LORS, undergo a CEQA environmental review process, and implement mitigation for their identified impacts. Regional mitigation issues would be addressed and coordinated on a regional basis by local agencies, such as Alameda County and other interested stakeholders. As discussed above for each of the five potentially impacted species, the combined effects of the Project and the two wind repowering projects in the APWRA are not considered significant. These three projects are not expected to jeopardize the continued existence of any of the species.

The cumulative impacts on specific environmental resources resulting from the Project considered together with any other projects in the area also would be less than significant.

5. Proposed Avoidance, Minimization, and Mitigation Measures

This section describes the measures proposed by the Applicant to avoid, minimize, or mitigate the potential adverse effects on California tiger salamander, burrowing owl, Swainson's hawk, tricolored blackbird, and San Joaquin kit fox resulting from Project construction.

Measures intended to avoid, minimize, or mitigate impacts on state-listed species are organized by subject in Sections 5.1 through 5.7. An overriding objective of these measures is to reduce or eliminate the lethal take of the state-listed species and limit habitat disturbance to the maximum extent possible.

Section 5.8 discusses mitigation for Project activities.

5.1 General Construction Avoidance and Minimization Measures

Generalized measures will be implemented to avoid or minimize impacts on the environment and biological resources that may result from the Project.

5.1.1 Measures from Previous Documents

The AB205 Opt-In Application for the Project provides the following generalized measures (Reclaimed Wind, LLC 2025).

5.1.1.1 Biological Resources Mitigation Implementation and Monitoring Plan

The Applicant will submit the proposed Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) to the Compliance Project Manager (CPM) for review and approval, and to CDFW and USFWS for review and comment, and will implement the measures identified in the approved BRMIMP.

The final BRMIMP will identify:

1. All biological resources mitigation, monitoring, and compliance measures proposed and agreed to by the Applicant
2. All biological resources Conditions of Certification (COCs) identified in the Final EIR
3. All biological resources mitigation, monitoring, and compliance measures required in other state agency terms and conditions
4. All biological resources mitigation, monitoring, and compliance measures required in local agency permits, such as site grading and landscaping requirements
5. All sensitive biological resources to be impacted, avoided, or mitigated by Project construction, operation, and closure
6. All required mitigation measures for each special-status biological resource
7. Required habitat compensation strategy, including provisions for acquisition, enhancement, and management for any temporary and permanent loss of sensitive biological resources
8. A detailed description of measures that will be taken to avoid or mitigate temporary disturbances from construction activities

9. All locations on a map, at an approved scale, of sensitive biological resource areas subject to disturbance and areas requiring temporary protection and avoidance during construction
10. Aerial photographs of all areas to be disturbed during Project construction activities
11. Duration for each type of monitoring and a description of monitoring methodologies and frequency
12. Performance standards to be used to help decide if/when proposed mitigation is or is not successful
13. All performance standards and remedial measures to be implemented if performance standards are not met
14. A discussion of biological resources-related facility closure measures
15. A process for proposing plan modifications to the CPM and appropriate agencies for review and approval
16. A copy of all biological resources permits obtained

5.1.1.2 Designated Biologist and Biological Monitors

The Applicant will submit to the CEC, CDFW, and USFWS the Designated Biologist(s) and Biological Monitor(s) qualifications before starting Covered Activities, and as otherwise required by the CEC, CDFW, and USFWS. The Designated Biologist would have full access to the site and hold stop work authority and would notify the agency representatives of noncompliance immediately. Failure to notify agency staff of any noncompliance or take or injury of a special-status species would be considered a violation of Project requirements.

5.1.1.3 Worker Environmental Awareness Program

The Applicant will conduct a WEAP for all persons employed or otherwise working within the Project footprint before performing any work. The program would consist of a presentation that includes a discussion of the biology and general behavior of the special-status species occurring in the Project footprint and surrounding area; information about the distribution and habitat needs of these species; sensitivity of these species to human activities; their statuses pursuant to ESA, CESA, and applicable California FGC, including legal protection, recovery efforts, and penalties for violations; and Project-specific protective measures.

5.1.1.4 General Design and Conservation Measures

The Applicant will incorporate all feasible measures and manage the construction site and related facilities to avoid or minimize impacts on local biological resources, which may include the following:

1. Design, install, and maintain wildlife exclusion fencing and/or other types of exclusion fencing, staking, signage, and flagging to avoid identified sensitive resources and preferentially use previously disturbed locations.
2. Avoid wetland loss to the greatest extent possible when placing facility features.
3. Design, install, and maintain facility lighting to minimize side casting of light toward wildlife habitat. Lighting on the Project site will be limited to areas required for safety, will be directed onsite to avoid backscatter, and will be shielded to the greatest extent practical. All lighting that is not required to be on during nighttime hours will be controlled with sensors or switches operated such that the lighting will be on only when needed.

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4. Design, install, and maintain gen-tie steel pole structures, lines and all electrical components to reduce the likelihood of electrocutions of large birds by following *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* (APLIC 2006).
5. Vehicle and Equipment Cleaning. The spread of non-native weeds during construction activities shall be controlled. All vehicles shall be cleaned and free of excessive mud and debris before arriving onsite.
6. SWPPP and Erosion Control. Prepare and implement a construction stormwater pollution prevention plan identifying BMPs to prevent fluid spills from endangering adjacent properties and waterways that contain sensitive habitat. Appropriate BMPs for erosion and sediment control shall be utilized to prevent sediment and construction debris from entering nearby streams, rivers, and watersheds. No monofilament shall be used for fiber rolls.
7. Install a temporary fence and provide wildlife escape ramps or covers for construction areas that contain steep-walled holes or trenches if outside of an approved wildlife exclusionary fence. The temporary fence will be constructed of materials that are approved by USFWS and CDFW. All wildlife discovered in trenches will be allowed to escape voluntarily (by escape ramps or temporary structures), without harassment, before construction activities resume, or be removed from the trench or hole by a qualified biologist and allowed to escape unimpeded.
8. Environmentally Sensitive Area Demarcation. If surveys identify environmentally sensitive areas near work locations, the Applicant will clearly mark them for avoidance to the extent practicable.
9. Make certain all food-related trash is disposed of in closed containers and removed at least once a week.
10. Prohibit feeding of wildlife by staff or contractors.
11. Prohibit non-security related firearms or weapons from being brought to the site.
12. Prohibit pets from entering the site.
13. Minimize use of herbicides and prevent use of rodenticides and other pesticides in the BSA.
14. Advise all employees, contractors, and visitors of the need to adhere to speed limits and to avoid any wildlife, including burrowing owls and California tiger salamanders, which may be encountered on or crossing the roads to and from the BSA. The maximum speed on unpaved roads will be restricted to 15 miles per hour or lower during construction.
15. Inspect all construction pipes, culverts, or similar structures with a diameter of 4 inches or greater for special-status species (such as burrowing owls) before movement or burial of pipe. Cap all pipes with a diameter of 4 inches or greater if they are to be left in trenches overnight or in storage areas outside the construction laydown area.
16. Report all inadvertent deaths of special-status species to the appropriate Project representative. Injured wildlife will be reported to USFWS and CDFW and the Applicant will follow instructions that are provided by USFWS and CDFW. All incidences of wildlife injury or mortality resulting from Project-related vehicle traffic on roads used to access the Project will be reported as required.
17. Confine construction activities to the Project footprint, where feasible, to reduce the potential disruption associated with human presence within potentially occupied special-status species habitat.

5.1.1.5 Preconstruction Survey Plan

The Applicant will provide a preconstruction survey plan in the BRMIMP. Preconstruction surveys will be conducted by CEC-approved qualified biologists that may require additional agency approval to capture or

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handle special-status species. The CEC, in consultation with CDFW, the USFWS, and any other appropriate agencies, will determine the acceptability of the preconstruction survey protocols, the survey areas, avoidance buffer distance, relocation areas, and the Designated Biologist's prescriptions for potential impacts.

5.1.1.6 Construction Compliance Monitoring

The Applicant will perform monitoring throughout construction to ensure construction-related impacts remain at or below levels of significance set forth in the BRMIMP. Construction monitoring must include any special-status species located during the preconstruction survey and any areas identified as suitable habitat.

5.1.2 Additional Proposed Measures

The following additional general construction minimization measures are proposed by the Applicant to avoid, minimize, or mitigate impacts on the environment and state-listed species, beyond those measures presented in the AB205 Opt-In Application.

- **Designated Representative.** Before starting Covered Activities, the Applicant (or permittee) will designate a representative (Designated Representative) responsible for communications with CDFW and overseeing compliance with the ITP. The permittee will notify CDFW in writing of the Designated Representative's name, business address, and contact information before starting construction, and will notify CDFW in writing if a substitute Designated Representative is selected or identified at any time during the term of the ITP.
- **Delineation of Property Boundaries.** Before starting Covered Activities, the Applicant will clearly delineate the boundaries of the Project area with fencing, stakes, or flags. The Applicant will restrict all Covered Activities to within the fenced, staked, or flagged areas, and maintain all fencing, stakes, and flags until the completion of Covered Activities in that area.
- **Access Roads.** Access by project-related personnel to the Project site will be restricted to established and/or approved access roads. Cross-country vehicle and equipment use outside designated work areas will be prohibited.
- **Invasive Weed Control.** The Applicant will prepare an Invasive Species Management Plan (Plan) to effectively control and monitor invasive plants within Covered Species habitat that will be temporarily disturbed and subsequently restored. The Plan will include the results of baseline weed surveys conducted before start of Covered Activities. The Applicant will submit the Plan to CDFW for approval within 30 days before the start of restoration activities. The Designated Biologist will oversee the management of invasives within the Project area and may use control methods such as hand removal, mechanical removal and/or focused herbicide application within seeding and planting areas following vegetation restoration. The Designated Biologist will ensure that invasive plant removal does not result in damage to adjacent Covered Species habitat or to root systems of installed plants. Herbicides may be used if hand or mechanical removal of invasives is unsuccessful or infeasible. Herbicides shall not be used within or near aquatic habitat and shall only be applied by an applicator holding a valid license issued by the California Department of Pesticide Regulation. No more than 15% of baseline cover in each restoration site will consist of species designated as high or moderate invasive plants in the California Invasive Plant Council's (Cal-IPC) *California Invasive Plant Inventory Database* (<https://www.cal-ipc.org/plants/inventory/>) excluding European annual grasses, black mustard (*Brassica nigra*), and perennial mustard (*Hirschfeldia incana*), which are ubiquitous in the region.

5.2 Measures Specific to State-listed Plants

The following measures will be implemented to avoid and minimize the effects of the Project on state-listed plant species.

5.2.1 Measures from Previous Documents

Before mobilization, the Applicant will conduct preconstruction surveys for rare plants as described in the BRMIMP. The Designated Biologist will make recommendations to the Applicant to avoid or minimize impacts on state-listed plant species based on completed preconstruction surveys.

5.3 Measures Specific to California Tiger Salamander

The following measures will be implemented to avoid and minimize effects of the Project on the California tiger salamander.

5.3.1 Measures from Previous Documents

Presence of California tiger salamander is presumed within the BSA. The AB52 Opt-in Application includes conservation measures designed to minimize impacts to this species, including temporary exclusion fencing and installing escape ramps in open, steep-walled trenches and holes.

5.3.2 Additional Proposed Measures

The following additional measures are proposed by the Applicant to avoid, minimize, or mitigate impacts on California tiger salamander, beyond those measures presented in the AB205 Opt-In Application.

- **California Tiger Salamander Relocation.** The Designated Biologist will relocate any California tiger salamander to an active rodent burrow system located no more than 300 feet outside the Project footprint unless otherwise approved by CDFW in writing. The Designated Biologist will document both the capture and relocation areas by photographs and GPS positions. Individuals will be photographed and measured (snout-vent) for identification purposes before relocation. All documentation shall be provided to the CDFW within 24 hours of California tiger salamander relocation.
- **California Tiger Salamander Relocation Plan.** The Designated Biologist(s) will prepare a California Tiger Salamander Relocation Plan (Relocation Plan). The Relocation Plan will include, but not be limited to, an identification of the survey and hand excavation, capture, handling, and relocation methods; and identification of where the individuals will be relocated to and how they will be transported. Relocation areas will be identified by the Designated Biologist based upon best suitable habitat available and time of year and approved by CDFW before the start of Covered Activities. The Relocation Plan will be submitted to CDFW for approval before the beginning of Covered Activities. Covered Activities anywhere within the Project footprint may not proceed until the Relocation Plan is approved in writing by CDFW. Only the approved Designated Biologist(s) are authorized to capture and handle the California tiger salamander.
- **California Tiger Salamander Handling and Injury.** California tiger salamander will be handled and assessed according to the Restraint and Handling of Live Amphibians USGS, National Wildlife Health Center (D. Earl Greene, ARMI SOP NO. 100; 16 February 2001). If an injured California tiger salamander is found during the Project term, the individual will be evaluated by the Designated Biologist who shall then immediately contact CDFW, via email and telephone, to discuss the next steps. If CDFW cannot be contacted immediately, the injured California tiger salamander will be placed in a shaded container and kept moist. If CDFW is not available or has not responded within 15 minutes of initial attempts then the following steps will be taken by the Designated Biologist.
 - If the injury is minor or healing and the California tiger salamander is likely to survive, the California tiger salamander will be released immediately in accordance with the Relocation Plan.
 - If it is determined that the California tiger salamander has major or serious injuries as a result of Project-related activities, the Designated Biologist will immediately take it to a CDFW-approved

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facility. If taken into captivity the individual will remain in captivity and not be released into the wild unless it has been kept in quarantine and the release is authorized by the CDFW and USFWS. The Applicant will bear any costs associated with the care or treatment of such injured California tiger salamander. The circumstances of the injury, the procedure followed, and the final disposition of the injured animal will be documented in a written incident report.

- **Exclusion Fencing Near Aquatic Features.** To prevent the California tiger salamander from entering the construction area, exclusion fencing or drift-fence with associated pitfall traps and coverboards will be constructed in strategic locations and in and around all work areas within 500 feet of all aquatic features. The barrier will be designed to allow California tiger salamander to leave the Project footprint using a one-way funnel or other method approved by CDFW. The Applicant will coordinate with CDFW and USFWS on a fencing plan and will submit the design to CDFW for approval no less than 30 days before the proposed start of construction. Exclusion fencing will be installed before the start construction and will be placed within 10 feet of the edge of work areas or other appropriate distance in consultation with, and approved by, CDFW and USFWS. The Applicant will maintain the barrier throughout all construction activities. The Designated Biologist will inspect the area before installation. The interior and exterior of the exclusion fencing will be inspected by the Designated Biologist at least once daily before 0900 each day to ensure that no California tiger salamanders are trapped against the fencing, where they could desiccate or be predated upon. If the fence barrier is left in place from November 1 to June 15, the Designated Biologist will also inspect the fence daily before 0900 each day. The Applicant will maintain and repair the barrier immediately to ensure that it is functional and without defects.
 - The barrier will remain in place until all construction activities are completed and all construction equipment has been removed from the site. The Designated Biologist will relocate any California tiger salamander found along the fence. The Applicant will avoid damage to small mammal burrows to the maximum extent possible during installation of the exclusion fencing.
 - The Applicant will also ensure that silt fencing and/or other erosion control methods are used to prevent sediment or other debris from passing into California tiger salamander aquatic habitat that is within 500 feet of Project construction activities.
- **California Tiger Salamander Barrier Monitoring and Surveys.** The Designated Biologist or other trained staff during periods when no construction activities occur, will inspect all of the temporary barriers each morning. The barriers will be monitored until all ground-disturbing activities are completed. Any California tiger salamander found along the barrier will be relocated in accordance with the Relocation Plan. Refuge opportunities will be provided along or near both sides of the barrier. The Designated Biologist will survey the Project footprint for the California tiger salamander during and after all evening/nighttime storm events occurring prior completion of grading and scraping. Survey methodology will be provided to CDFW for approval before conducting surveys.
- **Preconstruction Burrow Identification and Delineation.** The Designated Biologist will clearly delineate all potential burrows within the preconstruction survey area and within 100 feet of the Project footprint in undeveloped grassland habitat no less than 5 days before earthmoving activities in those areas. Burrows will be delineated with posted signs, posting stakes, flags, and/or rope or cord. Signs, stakes, flags, and/or rope will be clearly distinguishable from markings used to delineate work areas. All burrows will be avoided to the maximum extent practicable during earthmoving activities.
- **Barriers to Movement.** The Applicant will construct roadways that are within 1.3 miles of known or potential California tiger salamander breeding sites such that there are no steep curbs, berms, or straw wattles that could prevent California tiger salamander from crossing or exiting the roadway. If curbs/berms/straw wattles are necessary for safety and/or surface runoff, the Applicant will design and construct them to allow California tiger salamander to walk over them. If steep curbs are required, the

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Applicant will design and construct them to include over-side drains or curb breaks spaced at intervals of 16.4 feet to 32.8 feet to allow California tiger salamander passage.

- **Open Trenches and Keyways.** To prevent inadvertent entrapment of the California tiger salamander during construction, the Designated Biologist will check all excavated open holes, sumps, trenches, and keyways for California tiger salamander no later than 0900 each day for trapped animals. If a California tiger salamander is trapped in these features, the Designated Biologist will remove and relocate the animal(s) to a safe location within suitable habitat as described in the Relocation Plan before the start of work activities at that site. At the close of each working day, the Designated Biologist will ensure all excavated, steep-walled holes or trenches more than 6 inches deep are provided with one or more escape ramps constructed of earthen fill or wooden planks with a slope of 3:1 (run: rise). Before trenches or holes are filled, the Designated Biologist will thoroughly inspect them for trapped California tiger salamander. If a California tiger salamander is discovered by the Designated Biologist or anyone else, the Designated Biologist will move the individual as required in the Relocation Plan.
 - If the open holes, sumps, trenches or excavations cannot be covered then a temporary barrier will be installed around any trenches, holes, sumps, or other excavations to prevent California tiger salamander from becoming trapped. Refuge opportunities, such as coverboards (2-foot by 3-foot plywood) or straw wattles will be provided on the outside perimeter of the barrier.
- **Augering and Excavation.** The Designated Biologist will inspect all augering and excavation soils material for California tiger salamander. The Applicant will ensure auger bits are cleaned by shaking the soil loose and not cleaned by spinning. The Applicant will ensure excavation is coordinated with the Designated Biologist to allow sufficient time to survey the excavated soil.
- **California Tiger Salamander Pre-Activity Surveys.** The Designated Biologist(s) will survey the work site immediately before construction activities. If California tiger salamanders are found, the Designated Biologist(s) will move the salamander to a previously approved relocation area as described in the Relocation Plan. The Designated Biologist(s) will be allowed sufficient time to move Central California tiger salamanders from the work site before construction activities begin. The Designated Biologist(s) will monitor the relocated salamander until it is determined that it is not imperiled by predators or other dangers.
- **Time of Day Work Restrictions.** The Applicant will terminate all construction activities 30 minutes before sunset and will not resume until 30 minutes after sunrise during the California tiger salamander migration/active season from November 1 to June 15. The Applicant will use sunrise and sunset times established by the U.S. Naval Observatory Astronomical Applications Department for determining when construction activities will terminate and resume.
- **Seasonal Work Window.** The Applicant will limit ground-disturbing construction activities involving construction and heavy equipment use (such as excavation, road construction, grading, trenching, contouring and culvert installation) to the following time periods ("seasonal work windows"):
 - Upland Habitat: Between April 15 and October 31 (Dry Season)
 - Aquatic Habitat: Between June 15 and October 31. Construction activities may begin before June 15 if the stream in which work will occur has been dry for a minimum of 30 days before initiating work.

The Applicant will adhere to the seasonal work windows required unless an expanded work window is approved by CDFW. The Applicant will submit any requests for extensions at least 14 days before the desired date of construction or 14 days before the expiration of the seasonal work window. Any work conducted during the wet season will be limited to construction work not involving ground disturbance and vehicles using completed roads.

- **Wet Season Work Restriction.** Construction activities involving ground-disturbing and heavy equipment use (such as excavation, grading, and contouring) during the wet season (November 1 to April 30) will be subject to approval of CDFW. If approved by CDFW, the Applicant will monitor the National Weather Service (NWS) 72-hour forecast for the Project vicinity. Construction activities involving ground-disturbing activities and heavy equipment use will cease 24 hours before a 40% or greater forecast of rain. Construction activities may continue 24 hours after the rain ceases and there is less than a 40% change of precipitation in the 24-hour forecast. If CDFW approves wet season work, a Designated Biologist(s) will survey the Project site EACH day rain is forecast and the morning after all storm events. If rain exceeds 0.25 inch during a 24-hour period, work will cease until there is a less than a 40% change of precipitation in the 24-hour forecast.
- **Notification of Non-native Tiger Salamanders or Hybrids.** The Designated Biologist will immediately notify CDFW if a non-native barred tiger salamander (*Ambystoma tigrinum mavortium*) or tiger salamander hybrid is found or suspected within the Project footprint within 24 hours. The Designated Biologist will not release any non-native or hybrid salamanders back to the wild until directed to do so by CDFW. The Designated Biologist will follow the California tiger salamander Handling and Injury measures above.
- **Invasive Species.** Any bullfrogs (*Lithobates catesbeianus*) encountered during construction or monitoring will be permanently removed from the wild. Pursuant to FGC section 6854, it is unlawful to take bullfrogs using firearms of any caliber or type. CDFW may issue a permit to take and dispose of frogs under such limitations as the commission may prescribe (FGC, § 6854). The Applicant may not introduce predatory fishes (including but not limited to largemouth bass, redear sunfish, bluegill, catfish, mosquitofish, and fathead minnows) or amphibians (including but not limited to bullfrogs, barred tiger salamanders, and Arizona tiger salamanders).
- **Check for California tiger salamander beneath vehicles.** Project employees working outside a cleared, fenced area will be required to check under a vehicle or equipment before it is moved. If a California tiger salamander is encountered, the vehicle will not be moved until the animal has voluntarily moved a safe distance from the parked vehicle. California tiger salamander can be moved by the Designated Biologist if the individual does not move away from the vehicle in a reasonable amount of time.

5.4 Measures Specific to Tricolored Blackbird

Before mobilization, the Applicant will conduct preconstruction surveys for tricolored blackbird as described in the BRMIMP. The Designated Biologist will make recommendations to the Applicant to avoid or minimize impacts on tricolored blackbird based on completed preconstruction surveys as specified in the following proposed measures.

5.4.1.1 Proposed Measures

The following additional measures are proposed by the Applicant to avoid, minimize, or mitigate impacts on tricolored blackbird, beyond those measures presented in the AB205 Opt-In Application.

- **Nesting Surveys.** If Covered Activities will occur during the tricolored blackbird nesting season (March 1 through August 15), no more than 30 days before the initiation of Covered Activities the Designated Biologist will survey any potential nesting substrates no less than 0.25 mile from Covered Activities to identify any tricolored blackbird nests or colonies that are present and determine their status. The Designated Biologist will report any active tricolored blackbird nesting colonies to CDFW within 24 hours.

- **Tricolored Blackbird Nest Buffers.** The Designated Biologist(s) will establish an appropriate no-disturbance buffer of at least 0.10 mile around identified tricolored blackbird nests or nesting colonies. The Designated Biologist may expand or reduce the buffer, in consultation with CDFW, if deemed necessary based on specific site conditions, or in instances there is sufficient topographic relief to protect the colony from excessive noise or visual disturbance between the Covered Activities and the active nest or nesting colony. Depending on site characteristics, the sensitivity of the colony, and surrounding land uses, Designated Biologist may increase the buffer zone to prevent disturbance at the active nest or nesting colony from construction-related Covered Activities. The Designated Biologist will monitor all identified active tricolored blackbird nests or nesting colonies for the first 2 days before any construction-related Covered Activities to establish a behavioral baseline of the adults and any nestlings. The Designated Biologist will continue to monitor the behavior of any active tricolored blackbird nests or nesting colonies within the buffer area at all times during construction-related Covered Activities, and will have authority to order the cessation of all construction work if the birds exhibit abnormal nesting behavior which may cause reproductive failure (nest abandonment and loss of eggs and/or young). Covered Activities within line of sight of the nest will not resume until the Designated Biologist has consulted with CDFW and both the Designated Biologist and CDFW confirm that the bird's behavior has normalized or the young have fledged and are foraging independently. If the Designated Biologist continues to detect signs of disturbance or behavioral changes the buffer will be increased. If the Designated Biologist determines that the active nest is still at risk, the Designated Biologist will notify CDFW and a meeting with the Applicant and CDFW will be held to determine the best course of action to avoid nest abandonment or take of individuals.

5.5 Measures Specific to Burrowing Owl

The Applicant will survey for burrowing owl activities on the BSA before site mobilization to assess owl presence. The Applicant will evaluate the potential impact on each burrowing owl occurrence using impact criteria reviewed by the CDFW and USFWS and approved by the CEC. The impact criteria will be based on type of activity, length of activity, distance maintained from the burrowing owls, and time of year. For impact determinations that require monitoring of burrowing owls, a qualified biologist approved by the CEC must do the monitoring. The Designated Biologist will make recommendations to the Applicant to avoid or minimize impacts on burrowing owls based on the completed activity survey and impact evaluation as specified in the following proposed measures.

5.5.1 Proposed Measures

The following additional measures are proposed by the Applicant to avoid, minimize, or mitigate impacts on burrowing owl, beyond those measures presented in the AB205 Opt-In Application.

- **Burrowing Owl Preconstruction Avoidance Surveys and Burrow Mapping.** The Designated Biologist(s) will conduct two preconstruction take avoidance surveys for burrowing owl no more than 14 days before and within 48 hours of initiating ground-disturbing activities. The survey area will encompass the work area and a 200-meter buffer. All potential and occupied burrows within the survey area will be mapped. The Designated Biologist will report any active burrowing owl burrows to CDFW within 24 hours. The Designated Biologist(s) will submit a report of the survey results and a KMZ map of all burrows to CDFW no less than 24 hours before initiation of Covered Activities. If a lapse in construction of 14 calendar days or longer occurs, the Applicant will contact CDFW by phone or email and may be required to conduct additional surveys before work may be reinitiated.

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- **Burrowing Owl Disturbance Buffers.** If potential or occupied burrowing owl burrows are identified within the survey area, the Designated Biologist will implement no disturbance buffers as follows:
 - Nesting season (February 1–August 31): a 656-foot (200-meter) buffer around all potential and occupied burrows.
 - Non-nesting season (September 1–January 31): a 164-foot (50-meter) buffer around all potential and occupied burrows.

The Designated Biologist will be present daily during Covered Activities to monitor the behavior of any burrowing owl present within 656 feet (200 meters) of the work area. The Designated Biologist will have the authority to stop work and increase the buffers if the owls exhibit distress or abnormal behavior. Covered Activities will not resume until the Designated Biologist has consulted with CDFW and both the Designated Biologist and CDFW confirm that the bird's behavior has normalized. Daily monitoring may cease when the burrow is vacant because the nest burrow is abandoned; the young have fledged, are foraging independently, or are no longer using the burrow; or the adults are no longer nesting as determined by the Designated Biologist. The Designated Biologist may reduce the buffer distances based on the behavior of the owls or for low to moderate impact activities and with prior approval from CDFW (buffer reduction request).

- **Burrow Exclusion, Excavation, and Monitoring Plan.** The Applicant will avoid disturbing any known or potential burrowing owl burrows unless they are in an area of direct ground disturbance or the burrow location poses a risk of direct harm to burrowing owl individuals. Before any burrowing owl exclusion or burrow excavation, the Applicant will submit an Exclusion, Excavation, and Monitoring Plan for review and approval. The Exclusion Plan will identify all known burrows, including those that are occupied, unoccupied, and of unknown status. All burrows that cannot be avoided will be clearly identified and the Exclusion Plan will describe the methods by which the Applicant will exclude owls and excavate burrows.
 - Burrow exclusion will only be used as a last resort and only if other avoidance and minimization measures cannot be implemented.
 - Paired owls will not be excluded where there is evidence of activity during the nesting season (February 1 – August 31).
 - Burrows will not be excavated until nestlings are fully fledge, are independently foraging, and are no longer depended on the adults or burrow complex.
 - Burrow exclusions and excavations should only be conducted by qualified biologists after the burrow is confirmed empty following at least two consecutive days of monitoring with tracking medium or infra-red cameras. If a burrow is outside the area of ground disturbance but the location poses a risk to burrowing owl individuals, the burrow entrance will then be blocked by installing an object such that is approved by CDFW in writing to prevent use. The object will be removed immediately after Covered Activities are completed. Burrow to be impacted by ground disturbance will be excavated by hand then entire length of the burrow until it is certain that no individuals are inside. Burrows will then be filled with soil and compacted. If burrowing owl adults, young, or eggs are found, excavation will cease immediately and monitoring will be resumed. The Applicant will contact CDFW within 24 hours for written guidance if an individual owl does not vacate the partially excavated burrow within a reasonable timeframe. Burrow excavations may not be conducted for burrows that are beyond the area of impact to preempt their use or establishment of a no-disturbance buffer.
 - At least two suitable alternative burrows will be available for each burrowing owl evicted. If naturally occurring suitable alternative burrows are absent or in numbers insufficient to support owls with 100 meters, artificial burrows may be installed as described in the Exclusion Plan.

5.6 Measures Specific to Swainson's Hawk

Before mobilization, the Applicant will conduct preconstruction surveys for Swainson's hawk as described in the BRMIMP. The Designated Biologist will make recommendations to the Applicant to avoid or minimize impacts on Swainson's hawk based on completed preconstruction surveys as specified in the following proposed measures.

5.6.1 Proposed Measures

The following additional measures are proposed by the Applicant to avoid, minimize, or mitigate impacts on Swainson's hawk, beyond those measures presented in the AB205 Opt-In Application.

- **Swainson's Hawk Nest Surveys.** Before initiating Covered Activities and at the onset of breeding season¹ during each year the Project is in active construction, the Designated Biologist(s) will conduct preconstruction surveys to identify Swainson's hawk active nesting within 0.5 mile of the Project. Surveys will be conducted according to the guidelines provided by the SHTAC (2000) in *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys for the California Central Valley*.
- **Swainson's Hawk Nest Buffers.** If an active nest is identified within the survey area, the Designated Biologist will establish an appropriate protective buffer of at least 0.5 mile from the active Swainson's hawk nest to prevent disturbance at the active nest from Covered Activities. The Designated Biologist will monitor all identified active Swainson's hawk nests for the first 2 days before any construction-related Covered Activities to establish a behavioral baseline of the adults and any nestlings. The Designated Biologist will continue to monitor the behavior of any active Swainson's hawk nest within the buffer area at all times during construction-related Covered Activities, and will have authority to order the cessation of all construction work if the birds exhibit abnormal nesting behavior which may cause reproductive failure (nest abandonment and loss of eggs and/or young). Covered Activities within line of sight of the nest will not resume until the Designated Biologist has consulted with CDFW and both the Designated Biologist and CDFW confirm that the bird's behavior has normalized or the young have fledged and are foraging independently. If the Designated Biologist continues to detect signs of disturbance or behavioral changes the buffer will be increased. If the Designated Biologist determines that the active nest is still at risk, the Designated Biologist will notify CDFW and a meeting with the Applicant and CDFW will be held to determine the best course of action to avoid nest abandonment or take of individuals.

5.7 Measures Specific to San Joaquin Kit Fox

Before mobilization, the Applicant will conduct preconstruction surveys for San Joaquin kit fox as described in the BRMIMP. The Designated Biologist will make recommendations to the Applicant to avoid or minimize impacts on San Joaquin kit fox based on completed preconstruction surveys as specified in the following proposed measures.

5.7.1 Proposed Measures

The following additional measures are proposed by the Applicant to avoid, minimize, or mitigate impacts on San Joaquin kit fox, beyond those measures presented in the AB205 Opt-In Application. These

¹ Swainson's hawk breeding season is described as March through mid-August by Bechard et al. (2020). Therefore, for the purposes of this document, Swainson's hawk breeding season is defined as March 1 through August 15.

additional measures are derived from *the Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance* (USFWS 2011).

- **Construction Buffers for Dens.** If a potential San Joaquin kit fox den is discovered during preconstruction surveys or construction monitoring, or a fox is found in an “atypical” den such as a pipe or culvert, the Designated Biologist will establish a 50-foot buffer using flagging. If a known kit fox den (one that shows evidence of current use or is known to have been used in the past) is discovered, a buffer of at least 100 feet will be established using fencing. If a natal den is discovered, it will be fenced and avoided with a buffer of at least 200 feet. The Designated Biologist will notify USFWS and CDFW for all of the above except potential kit fox dens. Buffer zones will be considered environmentally sensitive areas, and entry will be restricted.
- **Den Excavation.** If a potential or known San Joaquin kit fox den requires excavation, 3 days of monitoring with tracking medium or an infra-red camera will be conducted to first determine that kit fox is not present. The den should be fully excavated, filled with dirt, and compacted to ensure that San Joaquin kit foxes cannot re-enter or use the den during the construction period. If at any point during excavation a San Joaquin kit fox or kit fox signs is discovered inside the den, excavation will cease immediately and monitoring of the den with tracking medium or an infra-red camera will be resumed. Excavation will only be completed when, in the judgment of the Designated Biologist, the animal has escaped from or otherwise vacated the partially excavated den. Natal dens will not be excavated until the pups and adults have vacated and only after receiving written permission from USFWS and CDFW.

5.8 Mitigation Measures

Compensatory mitigation is proposed for impacts to state-listed species habitats that may result from the Project.

5.8.1 Measures from Previous Documents

To compensate for the temporary and permanent loss of non-native annual grassland habitat (Table 5-1), the Applicant will offset these losses by either purchasing species credits from an approved offsite mitigation bank, or through the recordation of an agency-approved conservation easement. Compensation would occur at a ratio suitable for protection of Covered Species such as California tiger salamander, burrowing owl, Swainson’s hawk, tricolored blackbird, San Joaquin kit fox as required.

5.8.2 Compensatory Mitigation

Non-native annual grassland serves as suitable California tiger salamander upland habitat, burrowing owl foraging and nesting habitat, Swainson’s hawk foraging habitat, tricolored blackbird foraging habitat, and San Joaquin kit fox habitat. A total of 22.2 acres of this grassland habitat will be permanently impacted. Assuming a 3:1 compensation ratio, either through purchase of species credits or recordation of conservation easement, offsite compensation for permanent habitat disturbance will total 66.6 acres. A 1:1 compensation ratio will be applied for the 0.7 acre of temporary disturbance; no additional impacts from O&M activities are anticipated. Total offsite compensation for the species requested for coverage will be 67.3 acres of non-native annual grassland habitat (Table 5-1). Depending upon the chosen mitigation location, mitigation ratios may differ from those cited here and therefore final mitigation acreage may need to be updated.

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Table 5-1. Impacts and Compensation

Land Cover Type	Disturbance Type	Impact Acres	Compensation Ratio	Acres or Credits to be Purchased
Annual grassland	Permanent	22.20	3:1	66.60
	Temporary	0.70	1:1	0.70
Total Annual Grassland				67.30

The Applicant will restore areas temporarily disturbed by Project construction upon completion to functioning upland and grassland habitat. The permanent mitigation that is provided will compensate for temporary and permanent construction impacts; all compensatory mitigation will be implemented within the timeframe identified in the ITP. The Applicant intends to purchase either mitigation land or credits in Alameda County; however, final selection of mitigation land, credits, or some combination of the two will be based on availability of mitigation options at the time of purchase and will be contingent upon CDFW approval. The Applicant will provide proof of recordation of a conservation easement or acquisition of mitigation credits to CDFW within the designated timeframe identified in the ITP.

In the event the Applicant purchases a conservation easement, the easement will be held by CDFW or an entity approved by CDFW. The easement will not allow development of wind resources and will not have any existing liens, leases, or other title encumbrances related to wind resources. The Applicant will prepare and submit to CDFW for approval a long-term management plan for the easement, addressing enhancement and restoration methods, monitoring and reporting requirements, success criteria, and long-term management activities, including invasive species and predator management. Moreover, the Applicant will provide an endowment to fund the management, monitoring, and security of the conservation easement area in perpetuity in accordance with terms approved by CDFW.

6. Monitoring, Reporting, and Funding

This section provides a summary-level description of the scope of biological monitoring to be performed, the reporting responsibilities of the Applicant, and the sources of funding for the Project.

6.1 Scope of Biological Monitoring

Consistent with measures from the AB205 Opt-In Application for the Project, approved Designated Biologists and Biological Monitors will monitor Covered Activities in accordance with the BRMIMP. The Designated Biologist would have full access to the site and hold stop work authority to protect state-listed species and avoid non-compliances. A Designated Representative will be responsible for communication with CDFW and overseeing compliance with the ITP. Together, this compliance team will be responsible for ensuring adherence to the avoidance and minimization measures as well as other environmental commitments.

6.2 Reporting Responsibilities

Reporting under the ITP is expected to be subject to the following reporting requirements:

- Notification before commencement of construction.
- Notification of noncompliance with any conditions in the ITP.
- Daily monitoring records.
- Monthly compliance reports.
- Annual status reports.
- Postconstruction report.
- Final mitigation report.
- CNDDDB observations.
- Notification of take or injury.

In addition, CDFW will be notified immediately if California tiger salamander, burrowing owl, Swainson's hawk, tricolored blackbird, or San Joaquin kit fox are discovered onsite, or found dead or injured. Injured state-listed wildlife species will be taken to a CDFW-approved facility. Dead individuals will be collected and delivered to CDFW for analysis and deposition. A follow-up notification will be provided to CDFW in writing within 24 hours.

6.3 Funding and Availability to Implement Measures

Development and construction of the Project, as well as implementation of the minimization and mitigation measures, will be funded by private equity raised by the Applicant.

As described in Section 5.8.2, temporarily disturbed areas will be restored to functioning upland and grassland habitat after construction. Permanent compensatory mitigation will be provided to compensate for temporary and permanent construction impacts within the timeframe identified in the ITP. The Applicant intends to purchase either mitigation land or credits in Alameda County; however, final selection of mitigation land, credits, or some combination of the two will be based on availability of mitigation options at the time of purchase and will be contingent upon CDFW approval. The Applicant will provide proof of recordation of a conservation easement or acquisition of mitigation credits to CDFW within the designated timeframe identified in the ITP.

In the event the Applicant purchases a conservation easement, the easement will be held by CDFW or an entity approved by CDFW. The easement will not allow development of wind resources and will not have

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any existing liens, leases, or other title encumbrances related to wind resources. The Applicant will prepare and submit to CDFW for approval a long-term management plan for the easement, addressing enhancement and restoration methods, monitoring and reporting requirements, success criteria, and long-term management activities, including invasive species and predator management. Moreover, the Applicant will provide an endowment to fund the management, monitoring, and security of the conservation easement area in perpetuity in accordance with terms approved by CDFW.

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7. Certification

I certify that the information in this application is complete and accurate to the best of my knowledge and belief. I understand that any false statement herein may subject me to suspension or revocation of this permit and to civil and criminal penalties under the laws of the State of California. If you require any additional information or have any questions, please call me at 202.569.9641 or Jerry Salamy at 916.769.8919.

Reclaimed Wind, LLC

Todd Hopper
Director of Development

8. References

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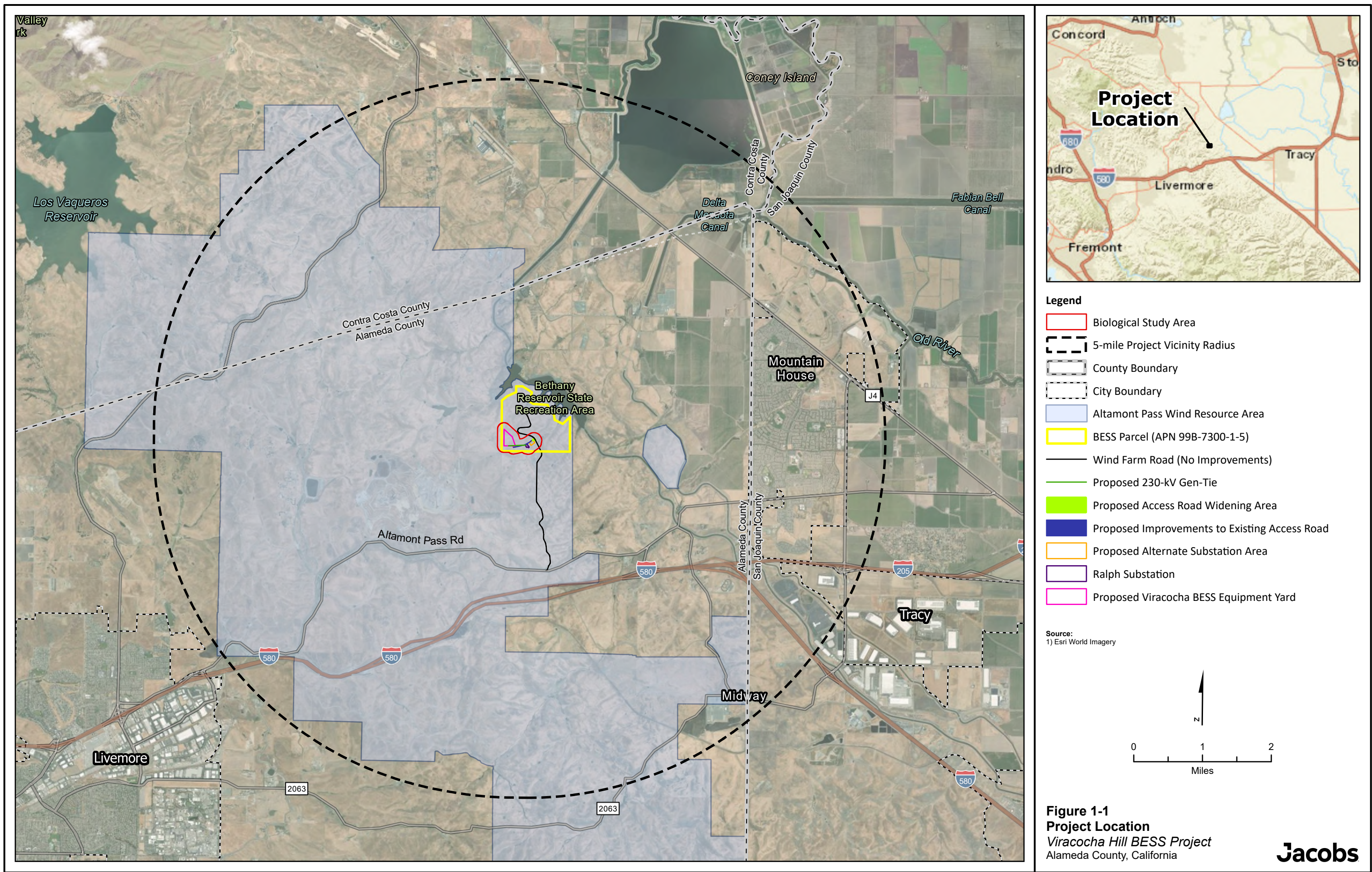
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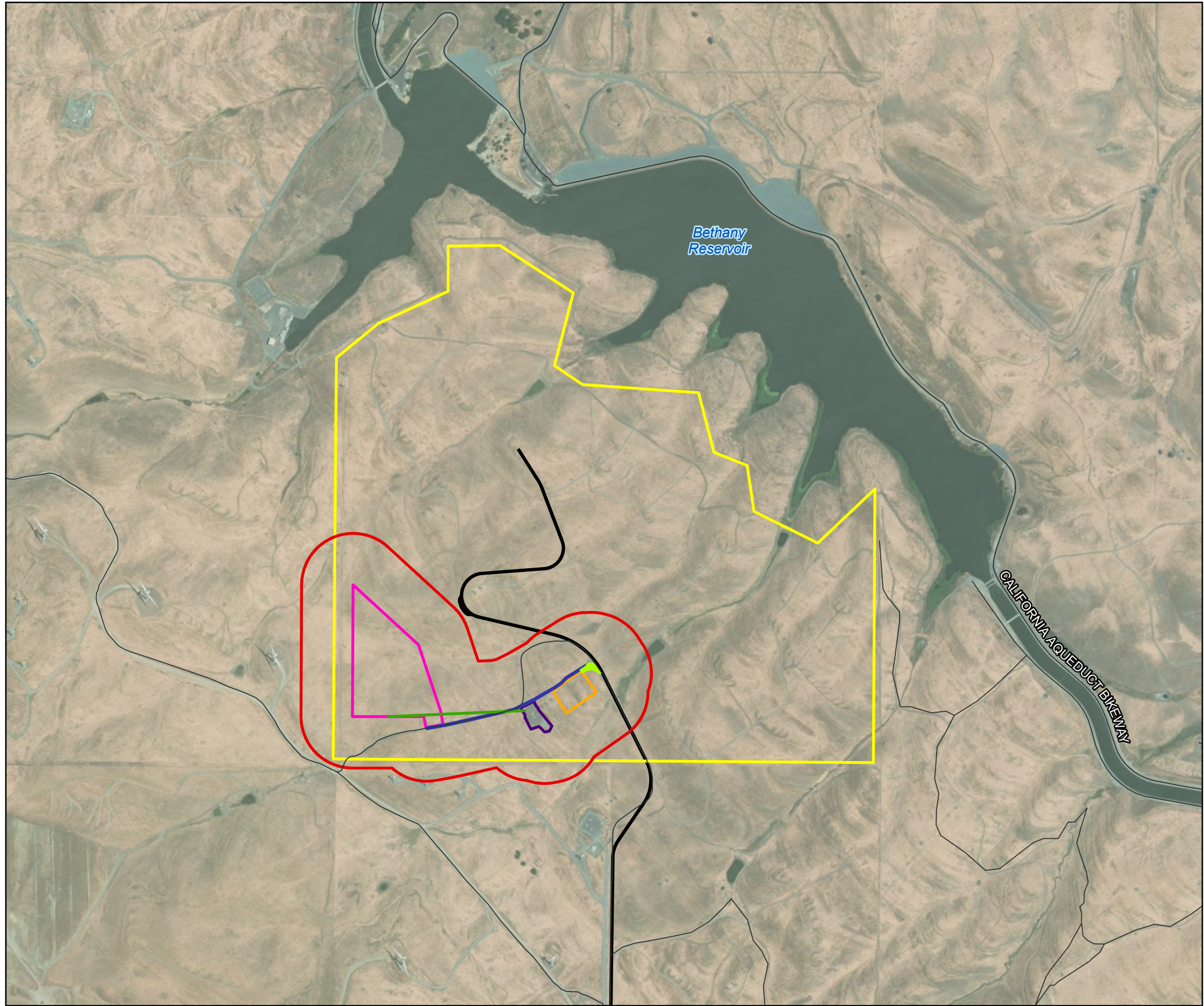
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Figures







Legend

-  Biological Study Area
-  Proposed 230-kV Gen-Tie
-  Proposed Access Road Widening Area
-  Proposed Improvements to Existing Access Road
-  Proposed Alternate Substation Area
-  Ralph Substation
-  Proposed Viracocha BESS Equipment Yard
-  BESS Parcel (APN 99B-7300-1-5)
-  Wind Farm Road (No Improvements)

Source:
1) Esri World Imagery

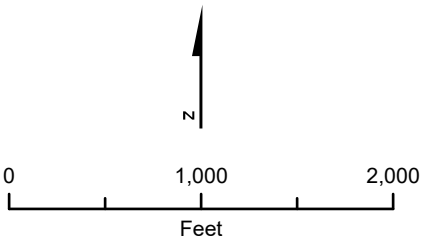
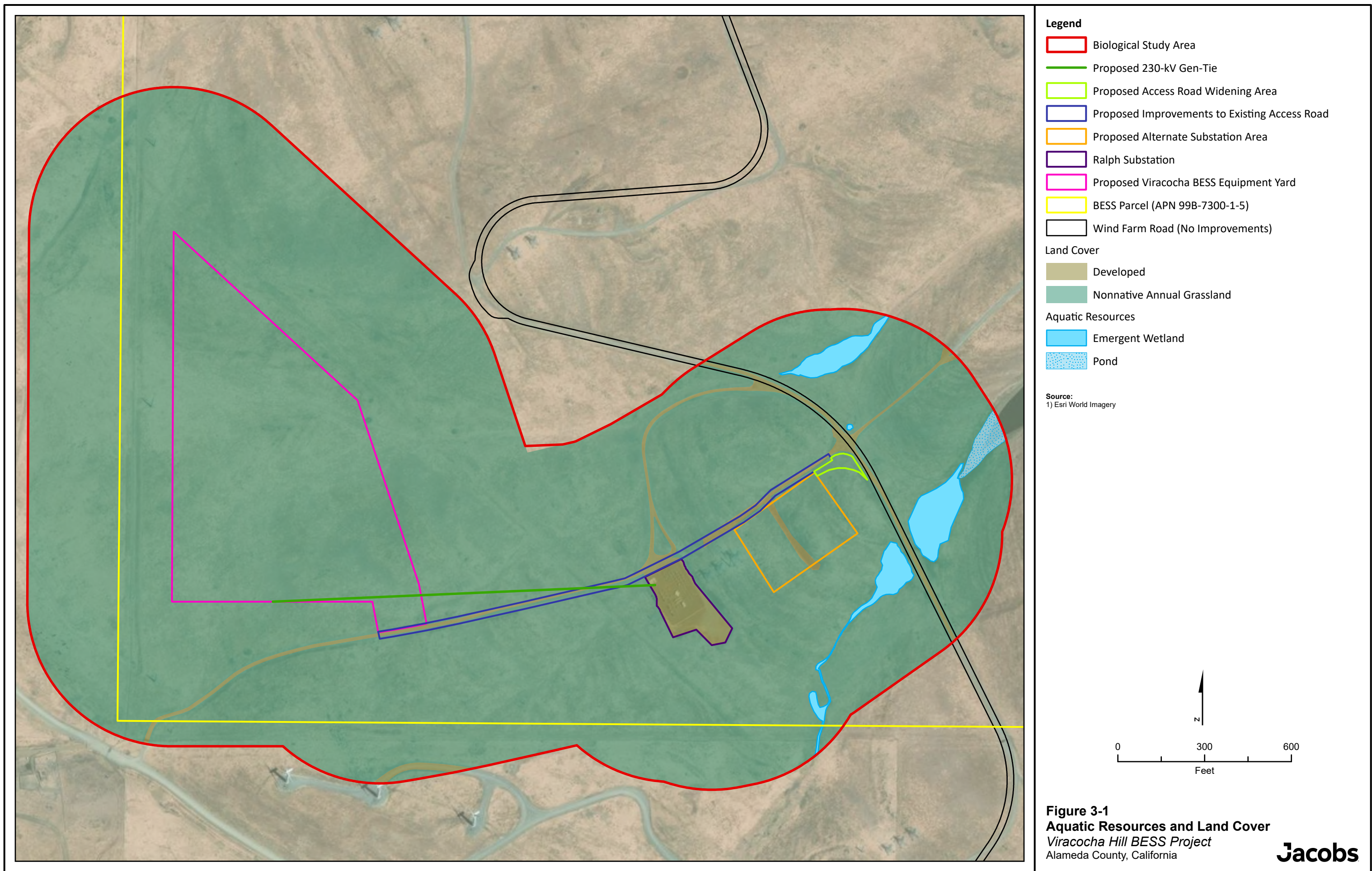


Figure 2-1
Project Components
Viracocha Hill BESS Project
Alameda County, California



Confidential Figure 1. CNDDB Records of Covered Species and Critical Habitat Within 5 Miles of the Study Area

Submitted under a request for confidential treatment.

Confidential Figure 2. State-listed Species Observations

Submitted under a request for confidential treatment.

Confidential Figure 3. Project Impacts

Submitted under a request for confidential treatment.

Appendix A

Special-status Species Database Lists





Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database



Query Criteria: BIOS selection

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Alkali Meadow <i>Alkali Meadow</i>	CTT45310CA	None	None	G3	S2.1	
alkali milk-vetch <i>Astragalus tener</i> var. <i>tener</i>	PDFAB0F8R1	None	None	G2T1	S1	1B.2
American badger <i>Taxidea taxus</i>	AMAJF04010	None	None	G5	S3	SSC
big tarplant <i>Blepharizonia plumosa</i>	PDAST1C011	None	None	G1G2	S1S2	1B.1
brittlescale <i>Atriplex depressa</i>	PDCHE042L0	None	None	G2	S2	1B.2
burrowing owl <i>Athene cunicularia</i>	ABNSB10010	None	Candidate Endangered	G4	S2	SSC
California alkali grass <i>Puccinellia simplex</i>	PMPOA53110	None	None	G2	S2	1B.2
California glossy snake <i>Arizona elegans occidentalis</i>	ARADB01017	None	None	G5T2	S2	SSC
California horned lark <i>Eremophila alpestris actia</i>	ABPAT02011	None	None	G5T4Q	S4	WL
California linderiella <i>Linderiella occidentalis</i>	ICBRA06010	None	None	G2G3	S2S3	
California red-legged frog <i>Rana draytonii</i>	AAABH01022	Threatened	None	G2G3	S2S3	SSC
California tiger salamander - central California DPS <i>Ambystoma californiense</i> pop. 1	AAAAA01181	Threatened	Threatened	G2G3T3	S3	WL
caper-fruited tropidocarpum <i>Tropidocarpum capparideum</i>	PDBRA2R010	None	None	G1	S1	1B.1
chaparral ragwort <i>Senecio aphanactis</i>	PDAST8H060	None	None	G3	S2	1B.2
coast horned lizard <i>Phrynosoma blainvillii</i>	ARACF12100	None	None	G4	S4	SSC
Congdon's tarplant <i>Centromadia parryi</i> ssp. <i>congdonii</i>	PDAST4R0P1	None	None	G3T2	S2	1B.1
curved-foot hygrotus diving beetle <i>Hygrotus curvipes</i>	IICOL38030	None	None	G2	S2	
diamond-petaled California poppy <i>Eschscholzia rhombipetala</i>	PDPAP0A0D0	None	None	G1	S1	1B.1
eulachon <i>Thaleichthys pacificus</i>	AFCHB04010	Threatened	None	G4	S1	SSC
ferruginous hawk <i>Buteo regalis</i>	ABNKC19120	None	None	G4	S3S4	WL



Selected Elements by Common Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
golden eagle <i>Aquila chrysaetos</i>	ABNKC22010	None	None	G5	S3	FP
green sturgeon - southern DPS <i>Acipenser medirostris pop. 1</i>	AFCAA01031	Threatened	None	G2T1	S1	SSC
heartscale <i>Atriplex cordulata var. cordulata</i>	PDCHE040B0	None	None	G3T2	S2	1B.2
lesser saltscale <i>Atriplex minuscule</i>	PDCHE042M0	None	None	G2	S2	1B.1
loggerhead shrike <i>Lanius ludovicianus</i>	ABPBR01030	None	None	G4	S4	SSC
longhorn fairy shrimp <i>Branchinecta longiantenna</i>	ICBRA03020	Endangered	None	G2	S2	
long-styled sand-spurrey <i>Spergularia macrotheca var. longistyla</i>	PDCAR0W062	None	None	G5T2	S2	1B.2
Mason's lilaeopsis <i>Lilaeopsis masonii</i>	PDAP119030	None	Rare	G2	S2	1B.1
midvalley fairy shrimp <i>Branchinecta mesoavallensis</i>	ICBRA03150	None	None	G2	S2S3	
Northern Claypan Vernal Pool <i>Northern Claypan Vernal Pool</i>	CTT44120CA	None	None	G1	S1.1	
northern harrier <i>Circus hudsonius</i>	ABNKC11011	None	None	G5	S3	SSC
northwestern pond turtle <i>Actinemys marmorata</i>	ARAAD02031	Proposed Threatened	None	G2	SNR	SSC
prairie falcon <i>Falco mexicanus</i>	ABNKD06090	None	None	G5	S4	WL
recurved larkspur <i>Delphinium recurvatum</i>	PDRAN0B1J0	None	None	G2?	S2	1B.2
San Joaquin coachwhip <i>Masticophis flagellum ruddocki</i>	ARADB21021	None	None	G5T2T3	S3	SSC
San Joaquin kit fox <i>Vulpes macrotis mutica</i>	AMAJA03041	Endangered	Threatened	G4T2	S3	
San Joaquin pocket mouse <i>Perognathus inornatus</i>	AMAFD01060	None	None	G3	S2S3	
San Joaquin spearscale <i>Extriplex joaquinana</i>	PDCHE041F3	None	None	G2	S2	1B.2
shining navarretia <i>Navarretia nigelliformis ssp. radians</i>	PDPLM0C0J2	None	None	G4T2T3	S2S3	1B.2
song sparrow ("Modesto" population) <i>Melospiza melodia pop. 1</i>	ABPBXA3013	None	None	G5T3?Q	S3?	SSC
spiny-sealed button-celery <i>Eryngium spinosepalum</i>	PDAP10Z0Y0	None	None	G2	S2	1B.2



Selected Elements by Common Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
steelhead - Central Valley DPS <i>Oncorhynchus mykiss irideus pop. 11</i>	AFCHA0209K	Threatened	None	G5T2Q	S2	SSC
Swainson's hawk <i>Buteo swainsoni</i>	ABNKC19070	None	Threatened	G5	S4	
tricolored blackbird <i>Agelaius tricolor</i>	ABPBXB0020	None	Threatened	G1G2	S2	SSC
Valley Needlegrass Grassland <i>Valley Needlegrass Grassland</i>	CTT42110CA	None	None	G3	S3.1	
Valley Sink Scrub <i>Valley Sink Scrub</i>	CTT36210CA	None	None	G1	S1.1	
vernal pool fairy shrimp <i>Branchinecta lynchi</i>	ICBRA03030	Threatened	None	G3	S3	
western ridged mussel <i>Gonidea angulata</i>	IMBIV19010	None	None	G3	S2	
white-tailed kite <i>Elanus leucurus</i>	ABNKC06010	None	None	G5	S3S4	FP
woolly rose-mallow <i>Hibiscus lasiocarpus var. occidentalis</i>	PDMAL0H0R3	None	None	G5T3	S3	1B.2

Record Count: 50



CNPS Rare Plant Inventory

Search Results

50 matches found. Click on scientific name for details

Search Criteria: , 9-Quad include [3712176:3712174:3712175:3712185:3712186:3712184:3712164:3712165:3712166]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	CA ENDEMIC	DATE ADDED	PHOTO
<i>Acanthomintha lanceolata</i>	Santa Clara thorn-mint	Lamiaceae	annual herb	Mar-Jun	None	None	G4	S4	4.2	Yes	1974-01-01	 © 2005 Barry Breckling
<i>Amsinckia grandiflora</i>	large-flowered fiddleneck	Boraginaceae	annual herb	(Mar)Apr-May	FE	CE	G1	S1	1B.1	Yes	1974-01-01	 © 2015 Zoya Akulova
<i>Androsace elongata</i> ssp. <i>acuta</i>	California androsace	Primulaceae	annual herb	Mar-Jun	None	None	G5? T3T4	S3S4	4.2		1994-01-01	 © 2008 Aaron Schusteff
<i>Arctostaphylos manzanita</i> ssp. <i>laevigata</i>	Contra Costa manzanita	Ericaceae	perennial evergreen shrub	Jan-Mar(Apr)	None	None	G5T2	S2	1B.2	Yes	1984-01-01	 © 2019 Susan McDougall
<i>Astragalus tener</i> var. <i>tener</i>	alkali milk-vetch	Fabaceae	annual herb	Mar-Jun	None	None	G2T1	S1	1B.2	Yes	1994-01-01	No Photo Available
<i>Atriplex cordulata</i> var. <i>cordulata</i>	heartscale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G3T2	S2	1B.2	Yes	1988-01-01	 © 1994 Robert E. Preston, Ph.D.

<i>Atriplex coronata</i> var. <i>coronata</i>	crownscale	Chenopodiaceae	annual herb	Mar-Oct	None	None	G4T3	S3	4.2	Yes	1994-01-01	 © 1994 Robert E. Preston, Ph.D.
<i>Atriplex depressa</i>	brittlescale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G2	S2	1B.2	Yes	1994-01-01	 © 2009 Zoya Akulova
<i>Atriplex minuscula</i>	lesser saltscale	Chenopodiaceae	annual herb	May-Oct	None	None	G2	S2	1B.1	Yes	1994-01-01	 © 2000 Robert E. Preston, Ph.D.
<i>Balsamorhiza macrolepis</i>	big-scale balsamroot	Asteraceae	perennial herb	Mar-Jun	None	None	G2	S2	1B.2	Yes	1974-01-01	 ©1998 Dean Wm. Taylor
<i>Blepharizonia plumosa</i>	big tarplant	Asteraceae	annual herb	Jul-Oct	None	None	G1G2	S1S2	1B.1	Yes	1994-01-01	No Photo Available
<i>Calochortus pulchellus</i>	Mt. Diablo fairy-lantern	Liliaceae	perennial bulbiferous herb	Apr-Jun	None	None	G2	S2	1B.2	Yes	1974-01-01	 © 1981 Steve Lowens
<i>Carex comosa</i>	bristly sedge	Cyperaceae	perennial rhizomatous herb	May-Sep	None	None	G5	S2	2B.1		1994-01-01	 Dean Wm. Taylor 1997
<i>Caulanthus lemmonii</i>	Lemmon's jewelflower	Brassicaceae	annual herb	Feb-May	None	None	G3	S3	1B.2	Yes	2001-01-01	No Photo Available
<i>Centromadia parryi</i> ssp. <i>congdonii</i>	Congdon's tarplant	Asteraceae	annual herb	(Apr)May-Oct(Nov)	None	None	G3T2	S2	1B.1	Yes	1994-01-01	No Photo Available
<i>Chloropyron molle</i> ssp. <i>hispidum</i>	hispid salty bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	Jun-Sep	None	None	G2T1	S1	1B.1	Yes	1974-01-01	No Photo Available
<i>Chloropyron palmatum</i>	palmate-bracted bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	May-Oct	FE	CE	G1	S1	1B.1	Yes	1974-01-01	No Photo Available

<i>Cicuta maculata</i> var. <i>bolanderi</i>	Bolander's water- hemlock	Apiaceae	perennial herb	Jul-Sep	None	None	G5T4T5	S2?	2B.1			1974- 01-01	 © 2007 Doreen L Smith
<i>Convolvulus simulans</i>	small-flowered morning-glory	Convolvulaceae	annual herb	Mar-Jul	None	None	G4	S4	4.2			1994- 01-01	No Photo Available
<i>Deinandra bacigalupii</i>	Livermore tarplant	Asteraceae	annual herb	Jun-Oct	None	CE	G1	S1	1B.1	Yes		2001- 01-01	No Photo Available
<i>Delphinium californicum</i> ssp. <i>interius</i>	Hospital Canyon larkspur	Ranunculaceae	perennial herb	Apr-Jun	None	None	G3T3	S3	1B.2	Yes		1984- 01-01	No Photo Available
<i>Delphinium recurvatum</i>	recurved larkspur	Ranunculaceae	perennial herb	Mar-Jun	None	None	G2?	S2	1B.2	Yes		1988- 01-01	No Photo Available
<i>Eriophyllum jepsonii</i>	Jepson's woolly sunflower	Asteraceae	perennial herb	Apr-Jun	None	None	G3	S3	4.3	Yes		1974- 01-01	No Photo Available
<i>Eryngium racemosum</i>	Delta button- celery	Apiaceae	annual/perennial herb	(May)Jun- Oct	None	CE	G1	S1	1B.1	Yes		1974- 01-01	No Photo Available
<i>Eryngium spinosepalum</i>	spiny-sepaled button-celery	Apiaceae	annual/perennial herb	Apr-Jun	None	None	G2	S2	1B.2	Yes		1980- 01-01	No Photo Available
<i>Eschscholzia rhombipetala</i>	diamond- petaled California poppy	Papaveraceae	annual herb	Mar-Apr	None	None	G1	S1	1B.1	Yes		1980- 01-01	No Photo Available
<i>Extriplex joaquinana</i>	San Joaquin spearscale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G2	S2	1B.2	Yes		1988- 01-01	No Photo Available
<i>Fritillaria agrestis</i>	stinkbells	Liliaceae	perennial bulbiferous herb	Mar-Jun	None	None	G3	S3	4.2	Yes		1980- 01-01	 © 2016 Aaron Schusteff
<i>Hesperervax caulescens</i>	hogwallow starfish	Asteraceae	annual herb	Mar-Jun	None	None	G3	S3	4.2	Yes		2001- 01-01	 © 2017 John Doyen

<i>Hesperolinon breweri</i>	Brewer's western flax	Linaceae	annual herb	May-Jul	None	None	G2	S2	1B.2	Yes	1974-01-01	 © 2014 Neal Kramer
<i>Hibiscus lasiocarpus</i> var. <i>occidentalis</i>	woolly rose-mallow	Malvaceae	perennial rhizomatous herb (emergent)	Jun-Sep	None	None	G5T3	S3	1B.2	Yes	1974-01-01	 © 2020 Steven Perry
<i>Lasthenia ferrisiae</i>	Ferris' goldfields	Asteraceae	annual herb	Feb-May	None	None	G3	S3	4.2	Yes	2001-01-01	 © 2009 Zoya Akulova
<i>Lathyrus jepsonii</i> var. <i>jepsonii</i>	Delta tule pea	Fabaceae	perennial herb	May-Jul(Aug-Sep)	None	None	G5T2	S2	1B.2	Yes	1974-01-01	 © 2003 Mark Fogiel
<i>Leptosiphon ambiguus</i>	serpentine leptosiphon	Polemoniaceae	annual herb	Mar-Jun	None	None	G4	S4	4.2	Yes	1994-01-01	 © 2010 Aaron Schusteff
<i>Lilaeopsis masonii</i>	Mason's lilaeopsis	Apiaceae	perennial rhizomatous herb	Apr-Nov	None	CR	G2	S2	1B.1	Yes	1974-01-01	No Photo Available
<i>Limosella australis</i>	Delta mudwort	Scrophulariaceae	perennial stoloniferous herb	May-Aug	None	None	G5	S2	2B.1		1994-01-01	 © 2020 Richard Sage
<i>Madia radiata</i>	showy golden madia	Asteraceae	annual herb	Mar-May	None	None	G3	S3	1B.1	Yes	1988-01-01	No Photo Available
<i>Myosurus minimus</i> ssp. <i>apus</i>	little mousetail	Ranunculaceae	annual herb	Mar-Jun	None	None	G5T2Q	S2	3.1		1980-01-01	No Photo Available
<i>Navarretia cotulifolia</i>	cotula navarretia	Polemoniaceae	annual herb	May-Jun	None	None	G4	S4	4.2	Yes	2001-01-01	 © 2020 Zoya Akulova
<i>Navarretia nigelliformis</i> ssp. <i>radians</i>	shining navarretia	Polemoniaceae	annual herb	(Mar)Apr-Jul	None	None	G4T2T3	S2S3	1B.2	Yes	1994-01-01	No Photo Available

<i>Oenothera deltoides</i> ssp. <i>howellii</i>	Antioch Dunes evening-primrose	Onagraceae	perennial herb	Mar-Sep	FE	CE	G5T1	S1	1B.1	Yes	1974-01-01	No Photo Available
<i>Plagiobothrys glaber</i>	hairless popcornflower	Boraginaceae	annual herb	Mar-May	None	None	GX	SX	1A	Yes	1974-01-01	No Photo Available
<i>Puccinellia simplex</i>	California alkali grass	Poaceae	annual herb	Mar-May	None	None	G2	S2	1B.2		2015-10-15	 © 2017 Chris Winchell
<i>Ravenella exigua</i>	chaparral harebell	Campanulaceae	annual herb	May-Jun	None	None	G2	S2	1B.2	Yes	1974-01-01	No Photo Available
<i>Scutellaria galericulata</i>	marsh skullcap	Lamiaceae	perennial rhizomatous herb	Jun-Sep	None	None	G5	S2	2B.2		1994-01-01	 © 2021 Scot Loring
<i>Senecio aphanactis</i>	chaparral ragwort	Asteraceae	annual herb	Jan-Apr(May)	None	None	G3	S2	1B.2		1994-01-01	 Neal Kramer
<i>Spergularia macrotheca</i> var. <i>longistyla</i>	long-styled sand-spurrey	Caryophyllaceae	perennial herb	Feb-May	None	None	G5T2	S2	1B.2	Yes	2017-06-16	No Photo Available
<i>Symphotrichum lentum</i>	Suisun Marsh aster	Asteraceae	perennial rhizomatous herb	(Apr)May-Nov	None	None	G2	S2	1B.2	Yes	1974-01-01	No Photo Available
<i>Trifolium hydrophilum</i>	saline clover	Fabaceae	annual herb	Apr-Jun	None	None	G2	S2	1B.2	Yes	2001-01-01	 © 2005 Dean Wm Taylor
<i>Tropidocarpum capparideum</i>	caper-fruited tropidocarpum	Brassicaceae	annual herb	Mar-Apr	None	None	G1	S1	1B.1	Yes	1974-01-01	No Photo Available

Showing 1 to 50 of 50 entries

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IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Alameda County, California



Local office

Sacramento Fish And Wildlife Office

☎ (916) 414-6600

📅 (916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

-
1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
 2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
San Joaquin Kit Fox <i>Vulpes macrotis mutica</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2873	Endangered

Birds

NAME	STATUS
California Condor <i>Gymnogyps californianus</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/8193	Endangered

Reptiles

NAME	STATUS
Alameda Whipsnake (=striped Racer) <i>Masticophis lateralis euryxanthus</i> Wherever found There is final critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/5524	Threatened
Northwestern Pond Turtle <i>Actinemys marmorata</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1111	Proposed Threatened

Amphibians

NAME	STATUS
California Red-legged Frog <i>Rana draytonii</i> Wherever found There is final critical habitat for this species. Your location overlaps the critical habitat. https://ecos.fws.gov/ecp/species/2891	Threatened

California Tiger Salamander *Ambystoma californiense* Threatened

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.

<https://ecos.fws.gov/ecp/species/2076>

Western Spadefoot *Spea hammondi* Proposed Threatened

No critical habitat has been designated for this species.

Insects

NAME	STATUS
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Monarch Butterfly <i>Danaus plexippus</i>	Proposed Threatened
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Wherever found

There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat.

<https://ecos.fws.gov/ecp/species/9743>

Valley Elderberry Longhorn Beetle <i>Desmocerus californicus dimorphus</i>	Threatened
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Wherever found

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.

<https://ecos.fws.gov/ecp/species/7850>

Crustaceans

NAME	STATUS
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Conservancy Fairy Shrimp <i>Branchinecta conservatio</i>	Endangered
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Wherever found

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.

<https://ecos.fws.gov/ecp/species/8246>

Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i>	Threatened
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Wherever found

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.

<https://ecos.fws.gov/ecp/species/498>

Wherever found

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.

<https://ecos.fws.gov/ecp/species/2246>

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

This location overlaps the critical habitat for the following species:

NAME	TYPE
California Red-legged Frog <i>Rana draytonii</i> https://ecos.fws.gov/ecp/species/2891#crithab	Final

Bald & Golden Eagles

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act ² and the Migratory Bird Treaty Act (MBTA) ¹. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds
<https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds>
- Nationwide avoidance and minimization measures for birds
<https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>
- Supplemental Information for Migratory Birds and Eagles in IPaC
<https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

There are Bald Eagles and/or Golden Eagles in your [project](#) area.

Measures for Proactively Minimizing Eagle Impacts

For information on how to best avoid and minimize disturbance to nesting bald eagles, please review the [National Bald Eagle Management Guidelines](#). You may employ the timing and activity-specific distance recommendations in this document when designing your project/activity to avoid and minimize eagle impacts. For bald eagle information specific to Alaska, please refer to [Bald Eagle Nesting and Sensitivity to Human Activity](#).

The FWS does not currently have guidelines for avoiding and minimizing disturbance to nesting Golden Eagles. For site-specific recommendations regarding nesting Golden Eagles, please consult with the appropriate Regional [Migratory Bird Office](#) or [Ecological Services Field Office](#).

If disturbance or take of eagles cannot be avoided, an [incidental take permit](#) may be available to authorize any take that results from, but is not the purpose of, an otherwise lawful activity. For assistance making this determination for Bald Eagles, visit the [Do I Need A Permit Tool](#). For assistance making this determination for golden eagles, please consult with the appropriate Regional [Migratory Bird Office](#) or [Ecological Services Field Office](#).

Ensure Your Eagle List is Accurate and Complete

If your project area is in a poorly surveyed area in IPaC, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the [Supplemental Information on Migratory Birds and Eagles](#), to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to bald or golden eagles on your list, see the "Probability of Presence Summary" below to see when these bald or golden eagles are most likely to be present and breeding in your project area.

Review the FAQs

The FAQs below provide important additional information and resources.

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31
Golden Eagle <i>Aquila chrysaetos</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read ["Supplemental Information on Migratory Birds and Eagles"](#), specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

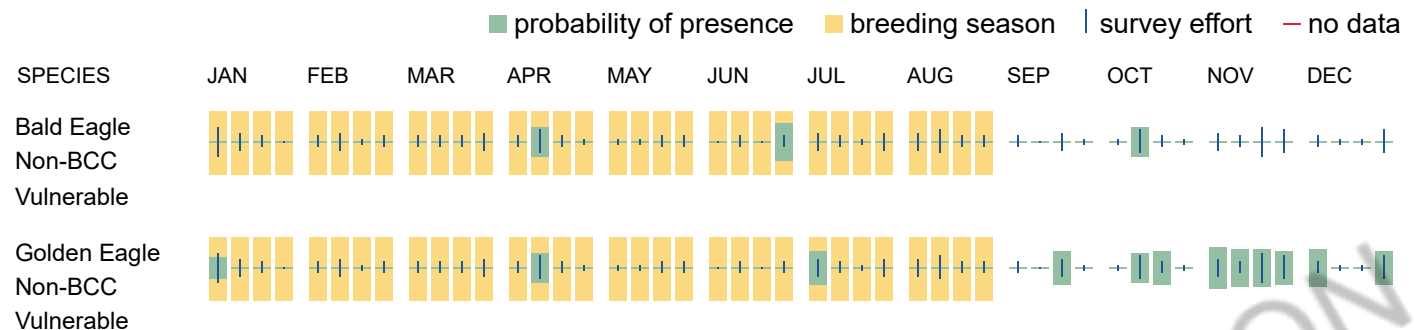
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (—)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Bald & Golden Eagles FAQs

What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are an eagle ([Bald and Golden Eagle Protection Act](#) requirements may apply).

Proper interpretation and use of your eagle report

On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort line or no data line (red horizontal) means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide you in knowing when to implement avoidance and minimization measures to eliminate or reduce potential impacts from your project activities or get the appropriate permits should presence be confirmed.

How do I know if eagles are breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the [RAIL Tool](#) and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If an eagle on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your "IPaC PROBABILITY OF PRESENCE SUMMARY" at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

Interpreting the Probability of Presence Graphs

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

How is the probability of presence score calculated? The calculation is done in three steps:

The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season ()

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ()

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data ()

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

Migratory birds

The Migratory Bird Treaty Act (MBTA) ¹ prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds
<https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>

- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC

<https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

Measures for Proactively Minimizing Migratory Bird Impacts

Your IPaC Migratory Bird list showcases [birds of concern](#), including [Birds of Conservation Concern \(BCC\)](#), in your project location. This is not a comprehensive list of all birds found in your project area. However, you can help proactively minimize significant impacts to all birds at your project location by implementing the measures in the [Nationwide avoidance and minimization measures for birds](#) document, and any other project-specific avoidance and minimization measures suggested at the link [Measures for avoiding and minimizing impacts to birds](#) for the birds of concern on your list below.

Ensure Your Migratory Bird List is Accurate and Complete

If your project area is in a poorly surveyed area, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the [Supplemental Information on Migratory Birds and Eagles document](#), to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

Review the FAQs

The FAQs below provide important additional information and resources.

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31
Belding's Savannah Sparrow <i>Passerculus sandwichensis beldingi</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8	Breeds Apr 1 to Aug 15

Bullock's Oriole <i>Icterus bullockii</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 21 to Jul 25
California Gull <i>Larus californicus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 1 to Jul 31
California Thrasher <i>Toxostoma redivivum</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jan 1 to Jul 31
Clark's Grebe <i>Aechmophorus clarkii</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jun 1 to Aug 31
Common Yellowthroat <i>Geothlypis trichas sinuosa</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/2084	Breeds May 20 to Jul 31
Golden Eagle <i>Aquila chrysaetos</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31
Marbled Godwit <i>Limosa fedoa</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9481	Breeds elsewhere
Northern Harrier <i>Circus hudsonius</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8350	Breeds Apr 1 to Sep 15
Nuttall's Woodpecker <i>Dryobates nuttallii</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9410	Breeds Apr 1 to Jul 20

Oak Titmouse <i>Baeolophus inornatus</i>	Breeds Mar 15 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9656	
Olive-sided Flycatcher <i>Contopus cooperi</i>	Breeds May 20 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	
Santa Barbara Song Sparrow <i>Melospiza melodia graminea</i>	Breeds Mar 1 to Sep 5
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/5513	
Tricolored Blackbird <i>Agelaius tricolor</i>	Breeds Mar 15 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3910	
Western Grebe <i>aechmophorus occidentalis</i>	Breeds Jun 1 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/6743	
Western Gull <i>Larus occidentalis</i>	Breeds Apr 21 to Aug 25
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	
Willet <i>Tringa semipalmata</i>	Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	
Wrentit <i>Chamaea fasciata</i>	Breeds Mar 15 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	
Yellow-billed Magpie <i>Pica nuttalli</i>	Breeds Apr 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9726	

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read ["Supplemental Information on Migratory Birds and Eagles"](#), specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

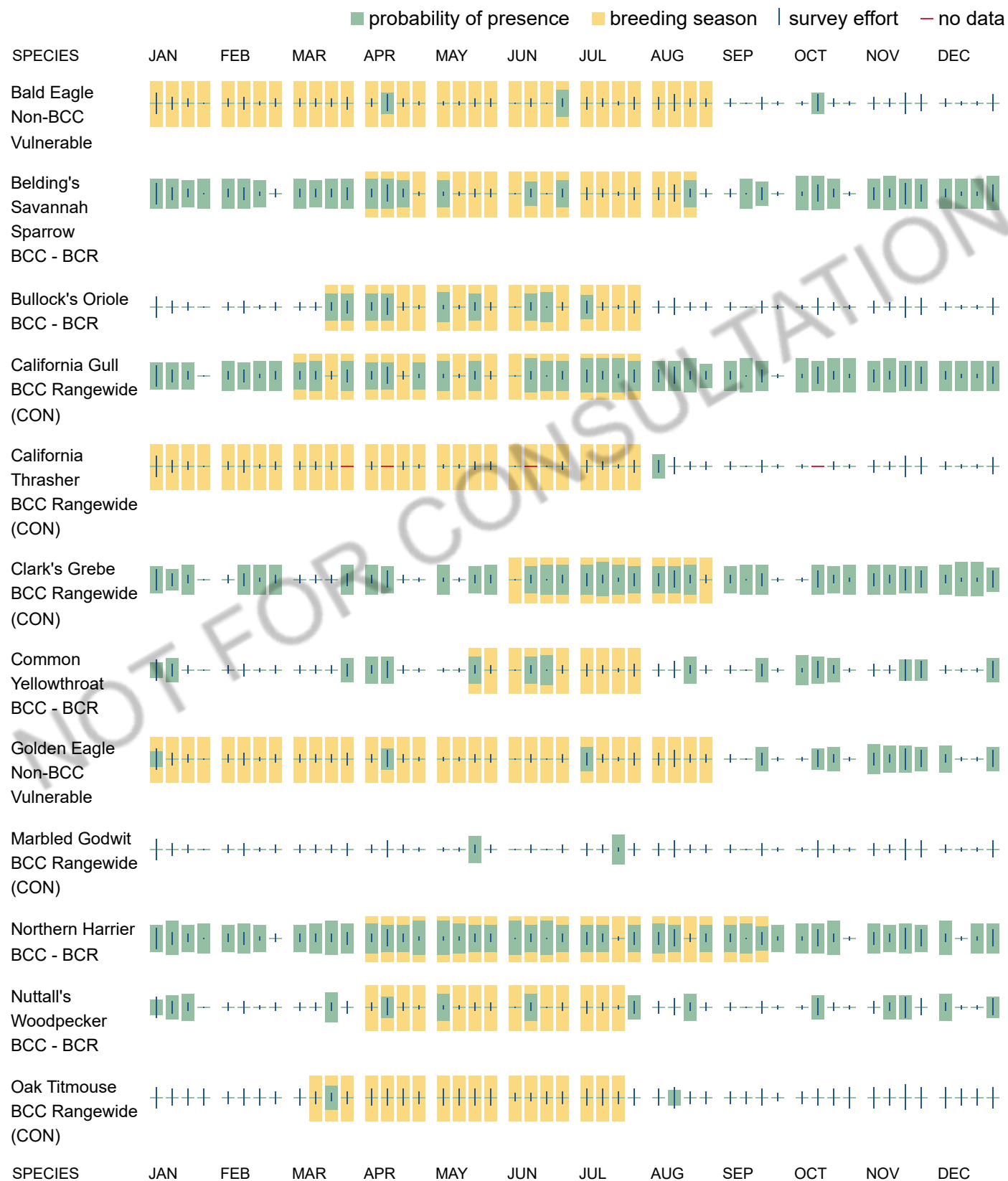
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

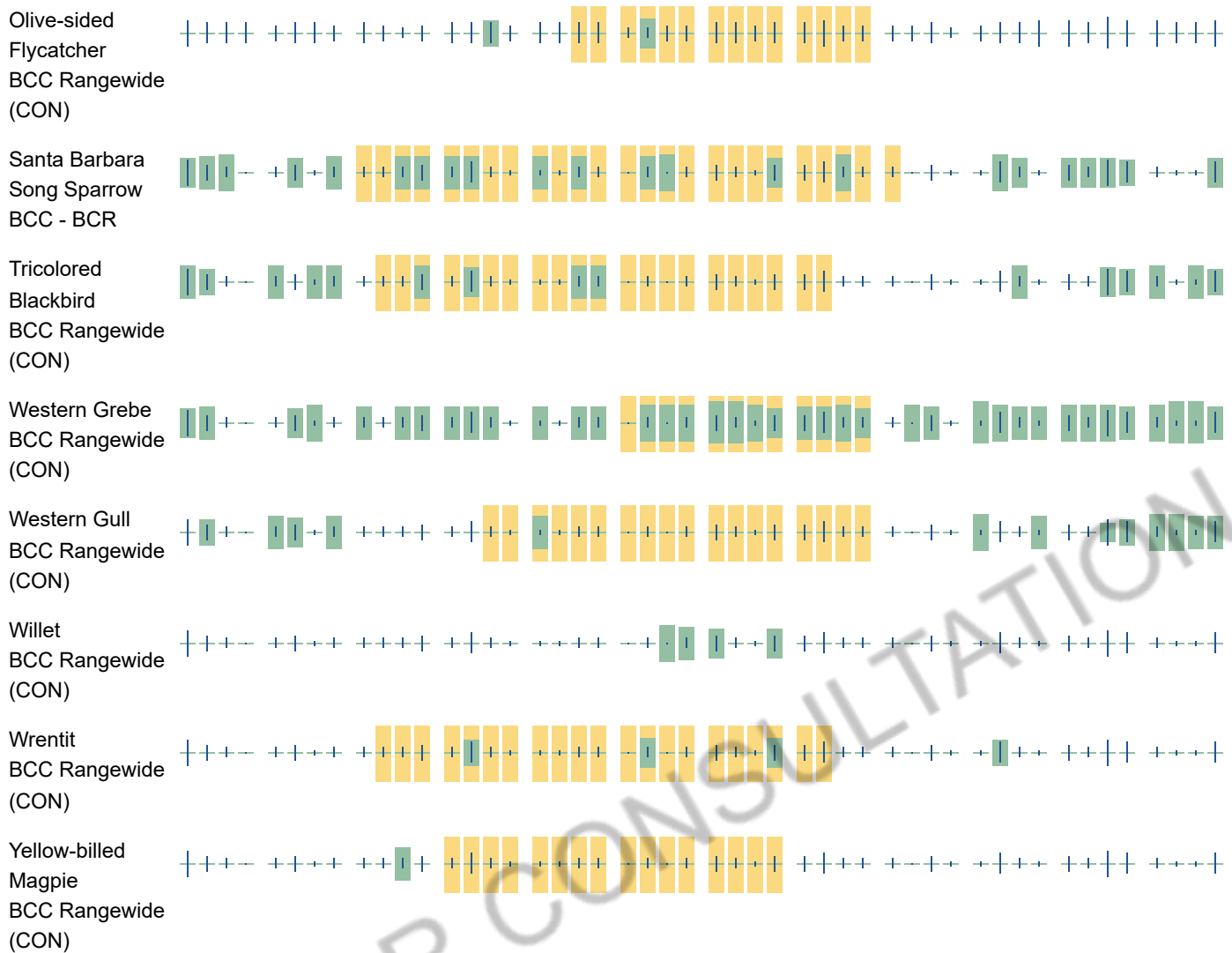
No Data (—)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





Migratory Bird FAQs

Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Avoidance & Minimization Measures for Birds](#) describes measures that can help avoid and minimize impacts to all birds at any location year-round. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is one of the most effective ways to minimize impacts. To see when birds are most likely to occur and breed in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location, such as those listed under the Endangered Species Act or the [Bald and Golden Eagle Protection Act](#) and those species marked as "Vulnerable". See the FAQ "What are the levels of concern for migratory birds?" for more information on the levels of concern covered in the IPaC migratory bird species list.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) with which your project intersects. These species have been identified as warranting special attention because they are BCC species in that area, an eagle ([Bald and Golden Eagle Protection Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, and to verify survey effort when no results present, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

Why are subspecies showing up on my list?

Subspecies profiles are included on the list of species present in your project area because observations in the AKN for **the species** are being detected. If the species are present, that means that the subspecies may also be present. If a subspecies shows up on your list, you may need to rely on other resources to determine if that subspecies may be present (e.g. your local FWS field office, state surveys, your own surveys).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the [RAIL Tool](#) and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your "IPaC PROBABILITY OF PRESENCE SUMMARY" at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Bald and Golden Eagle Protection Act](#) requirements (for eagles) or (for non-eagles) potential

susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially BCC species. For more information on avoidance and minimization measures you can implement to help avoid and minimize migratory bird impacts, please see the FAQ "Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds".

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Proper interpretation and use of your migratory bird report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list does not represent all birds present in your project area. It is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide implementation of avoidance and minimization measures to eliminate or reduce potential impacts from your project activities, should presence be confirmed. To learn more about avoidance and minimization measures, visit the FAQ "Tell me about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds".

Interpreting the Probability of Presence Graphs

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

How is the probability of presence score calculated? The calculation is done in three steps:

The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability

of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season ()

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ()

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data ()

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory

(NWI)

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

[PEM1A](#)

[PEM1Ch](#)

[PEM1Fh](#)

RIVERINE

[R4SBC](#)

[R5UBF](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION

Appendix B

Special-status Species with Potential to Occur Tables



Incidental Take Permit Application Under the California Endangered Species Act for the Proposed Viracocha Hill Battery Energy Storage System Project

Table A -1. State-listed Animals Species with Potential to Occur in the Study Area

Scientific Name	Common Name	Status ^[a]			Habitat	Potential For Occurrence within the BSA
		Federal	State	CDFW		
Amphibians						
<i>Ambystoma californiense</i>	California tiger salamander – Central California DPS Population 1	T	T	WL	Needs underground refuges, especially ground squirrel, gopher, or other fossorial mammal burrows, and for breeding uses vernal pools or other generally seasonal water sources.	Present. Highly suitable upland habitat with suitable burrows is present within the BSA. Suitable breeding habitat within known migratory distances for the species is also present in the form of ephemeral pools and stock ponds. This species has been incidentally observed by Jacobs biologists breeding approximately 0.75 mile south of the BSA. There are 74 CNDDDB occurrences within 5 miles of the BSA, with the closest occurrence located approximately 0.18 mile west of the BSA (CDFW 2025).
Reptiles						
<i>Masticophis lateralis euryxanthus</i>	Alameda whipsnake	T	T	-	Typically found in chaparral and scrub habitats but will also use adjacent grassland, oak savanna, and woodland habitats. Mostly south-facing slopes and ravines, with rock outcrops, deep crevices, or abandoned rodent burrows.	Absent. Although marginally suitable dispersal/grassland habitat is present within the BSA, the BSA lacks significant areas of shrub/scrub habitat that this species prefers. There are no CNDDDB occurrences within 5 miles of the BSA.
Birds						
<i>Agelaius tricolor</i>	Tricolored blackbird	-	T	SSC	Requires open water and protected nesting substrate, which may also occur in uplands, and foraging areas with insect prey within a few miles of the colony.	Present. A flock of approximately 200 tricolored blackbird was observed foraging in the BSA during 2025 surveys; however, the study area does not contain high-quality nesting habitat for this species and nesting is not expected. There are seven CNDDDB occurrences within 5 miles of the BSA with the closest approximately 0.75 mile east of the BSA, described as a nesting colony in cattails along the California Aqueduct (CDFW 2025).

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Scientific Name	Common Name	Status ^[a]			Habitat	Potential For Occurrence within the BSA
		Federal	State	CDFW		
<i>Athene cunicularia</i>	Western Burrowing owl	-	C	SSC	Occurs in open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester that requires burrowing mammal burrows, most notably California ground squirrel.	Present. Suitable foraging and nesting habitats are present within the BSA. There are 57 CNDDDB occurrences within 5 miles of the BSA. This species was observed in the BSA during 2024 and 2025 surveys.
<i>Buteo swainsoni</i>	Swainson's hawk	-	T	-	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannas, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	Present. Suitable foraging habitat is present within the BSA and suitable nesting habitat is present within 0.5 mile. There are eight CNDDDB occurrences within 5 miles of the BSA, with the closest occurrence being a nest located approximately 1.35 miles northeast of the BSA (CDFW 2025). This species was observed soaring over the BSA during 2025 surveys.
<i>Gymnogyps californianus</i>	California condor	E	E	-	Occurs in open savannah, grasslands, and foothill chaparral in mountain ranges of moderate altitude. Requires deep canyons containing clefts in rocky walls for nesting. Forages up to 100 miles from roost/nest.	Absent. There are no CNDDDB occurrences or eBird observations within 5 miles of the BSA.
<i>Haliaeetus leucocephalus</i>	Bald eagle	D	E	FP	Occurs near ocean shores, lake margins, and rivers for both nesting and wintering. Most nests are within 1 mile of water. Typically nests in large, old-growth or dominant live tree with open branches. Roosts communally in winter.	Present. No suitable nesting or high-quality foraging habitat is present within the BSA; however, species is known to winter in the APWRA and may forage at Bethany Reservoir, approximately 0.5 east of the BSA. Evidence of potential nesting within 1 mile of the BSA is very little, but potential nesting substrates, such as large eucalyptus trees and high-voltage power line towers, exist within 1 mile of the BSA. A pair of bald eagles were observed perched on a distribution tower approximately 0.72 mile southeast of the BSA during 2025 surveys.

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Scientific Name	Common Name	Status ^[a]			Habitat	Potential For Occurrence within the BSA
		Federal	State	CDFW		
Mammals						
<i>Vulpes macrotis mutica</i>	San Joaquin kit fox	E	T	-	Annual grasslands or grassy open stages with scattered shrubby vegetation. Needs loose-textured sandy soils for burrowing, and suitable prey base.	Moderate Potential. Suitable habitat occurs throughout the BSA, including suitable burrows that could be used by this species. There are 21 CNDDDB occurrences within 5 miles of the BSA, with the closest occurrence being a den located approximately 0.15 mile west of the BSA from 1983 (CDFW 2025).

^[a] Status abbreviations:

- = not listed
- C = Candidate
- CDFW = California Department of Fish and Wildlife
- CNDDDB = California Natural Diversity Database
- D = delisted
- E = Endangered
- FP = fully protected
- SSC = CDFW Species of Special Concern
- T = Threatened
- WL = Watch List

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Table B-2. Special-status Plant Species with Potential to Occur in the Study Area

Scientific Name	Common Name	Status ^[a]			Habitat Elevation (meters)	Blooming Period	Potential for Occurrence within the Study Area
		Federal	State	CNPS			
<i>Amsinckia grandiflora</i>	large-flowered fiddleneck	E	E	1B.1	Annual herb endemic to California found in cismontane woodland and valley and foothill grassland from 500 to 1,800 feet. Last remaining populations are on grasslands near Lawrence Livermore National Laboratory in Alameda County.	March-May	Low Potential. Suitable habitat is present within the BSA; however, the BSA is outside species known range. Species was not observed during 2025 surveys.
<i>Chloropyron palmatum</i>	Palmate-bracted bird's-beak	E	E	1B.1	Annual hemiparasitic herb found in alkaline soil of chenopod scrub and valley and foothill grassland from 16 to 510 feet. Known in Alameda, Colusa, Fresno, Glenn, Madera, and Yolo Counties. Presumed extirpated in San Joaquin County.	May-October	Low Potential. Alkali wetlands present within BSA. Species was not observed during 2025 surveys.
<i>Deinandra bacigalupii</i>	Livermore tarplant	-	E	1B.1	An annual herb found in alkaline soils of meadows and seeps from 492 to 607 feet. Known from fewer than five occurrences near Livermore.	June-October	Low Potential. Suitable habitat is present within the BSA; however, the BSA is outside species known range. Species was not observed during 2025 surveys.
<i>Eryngium racemosum</i>	Delta button-celery	-	E	1B.1	An annual or perennial herb found in vernal mesic clay depressions of riparian scrub from 10 to 100 feet. Known in Calaveras, Contra Costa, Merced, and Stanislaus Counties. Presumed extirpated in San Joaquin County.	June-October	Absent. No suitable habitat present in the BSA.
<i>Lilaeopsis masonii</i>	Mason's lilaeopsis	-	R	1B.1	Rhizomatous herb found in brackish and freshwater marshes and swamps and riparian scrub from 0 to 33 feet. Known in Alameda, Contra Costa, Marin, Napa, Sacramento, San Joaquin, and Solano Counties.	April-November	Absent. No suitable habitat present in the BSA.
<i>Oenothera deltoides</i> ssp. <i>howellii</i>	Antioch Dunes evening primrose	E	E	1B.1	Perennial herb found in remnant river bluffs and sand dunes east of Antioch from 0 to 100 feet.	March-September	Absent. No suitable habitat present in the BSA and BSA outside species known range.

^[a] Status abbreviations:

CNPS = California Native Plant Society

E = endangered

R = Rare

1B = Plants rare, threatened, or endangered in California and elsewhere

0.1 = Seriously threatened in California (over 80 percent of occurrences threatened / high degree and immediacy of threat)

Appendix C

Representative Site Photographs





Photo 1. View of nearby wind turbines, facing southwest (GPS coordinates: 37.767145°, -121.614972°). Photo taken April 8, 2025.



Photo 2. View of existing infrastructure in southeastern portion of the BSA, facing southwest (GPS coordinates: 37.765271°, -121.613419°). Photo taken June 26, 2025.





Photo 3. View of stock pond in eastern portion of the BSA, facing northeast (GPS coordinates: 37.768593°, -121.612773°). Photo taken April 8, 2025.



Photo 4. View of western side of BSA, facing west (GPS coordinates: 37.768498°, -121.622013°). Photo taken April 8, 2025.



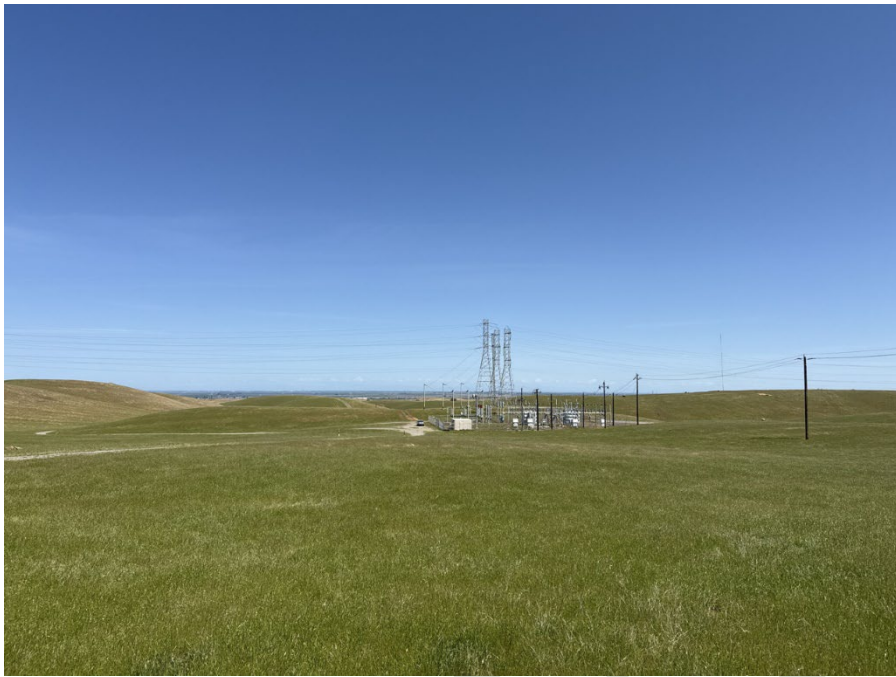


Photo 5. View of existing substation and transmission towers, facing east (GPS coordinates: 37.766779°, 121.618709°). Photo taken April 8, 2025.



Photo 6. View of Bethany Reservoir northeast of BSA, facing northeast (GPS coordinates: 37.775683°, -121.611785°). Photo taken April 8, 2025. Photopoint location not included on Confidential Figure 3.

