Appendix H
Biological Reports

Appendix H-1

Revised Biological Assessment

BIOLOGICAL ASSESSMENT

Scotts Valley 160-acre Fee-to-Trust Project

Prepared for: U.S. Fish and Wildlife Service
October 2024

acorn environmental

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Section 1 | Introduction

1.1 PURPOSE OF ASSESSMENT

The purpose of this biological assessment (BA) is to evaluate the potential effects of the proposed Scotts Valley Band of Pomo Indians (Tribe) 160-acre Vallejo Fee-to-Trust Project (Proposed Action) on species listed as endangered or threatened under the Federal Endangered Species Act (ESA). This biological assessment has been prepared in accordance with legal requirements found in Section 7 (a)(2) of the ESA (16 U.S.C 1536(c)). The purpose of a biological assessment is to evaluate the potential effects of an action on species listed and proposed for listing, as well as designated or proposed Critical Habitat, and to determine whether any such species or habitat are likely to be adversely affected by the action.

1.2 DESCRIPTION OF PROPOSED ACTION AND ACTION AREA

Action Area

The Scotts Valley Band of Pomo Indians (Tribe) has submitted an application to the U.S. Bureau of Indian Affairs (BIA) to acquire into trust four parcels, Assessor's Parcel Number (APN) 0182-010-010, 0182-020-020, 0182-020-080, and 0182-020-010, which total approximately 160 acres (proposed fee-to-trust property) and are located within the City of Vallejo, Solano County, California. The Action Area includes the totality of the proposed fee-to-trust property as well as approximately 4 acres contiguous to the proposed fee-to-trust property that may be impacted for the purpose of an emergency access drive. Following acquisition into trust, the Tribe intends to develop the Action Area for the purposes of gaming and economic development. **Figure 1** and **Figure 2** show the location of the Action Area, and **Figure 3** presents an aerial photograph of the Action Area and the immediate vicinity. The Action Area is located at the northeast corner of the intersection of Interstate 80 (I-80) and Columbus Parkway in Section 5, Township 3 North, Range 3 West, and Section 32, Township 4 North, Range 3 West, Mount Diablo Base and Meridian within the Cordelia 7.5-minute U.S. Geological Survey (USGS) quadrangle.

Proposed Action

The Proposed Action consists of the acquisition by the BIA of a 160-acre property within the City of Vallejo, Solano County, California into federal trust status for the Tribe. Following the acquisition of the land into trust, the Tribe proposes to develop a casino, Tribal housing, a Tribal administration building, and associated parking and infrastructure. A site plan is provided as **Figure 4**. The proposed casino would consist of eight stories and would include a gaming floor, restaurants, bars, and a ballroom/event space. Casino infrastructure would support guest and employee parking, a bus depot, a loading dock, and back-of house functions. Existing utility easements for overhead electrical transmission lines and water pipelines cross the Action Area and are shown on **Figure 4**.

In addition to the casino complex, Tribal housing and community development is proposed in the northern portion of the Action Area, including 24 single-family residences and a Tribal administration building. The Tribal administration building would provide offices for up to 30 Tribal employees.

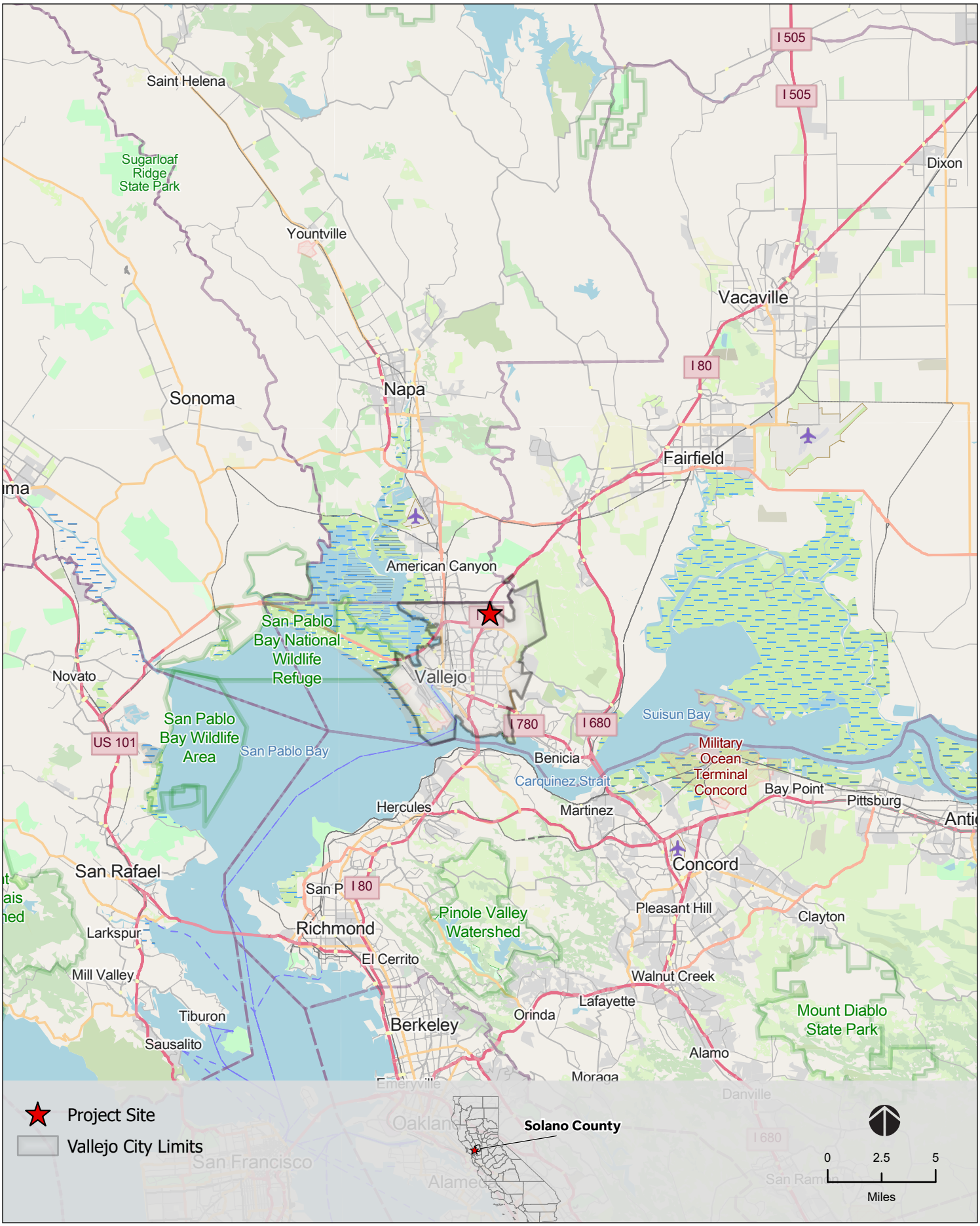

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Figure 1
Regional Location

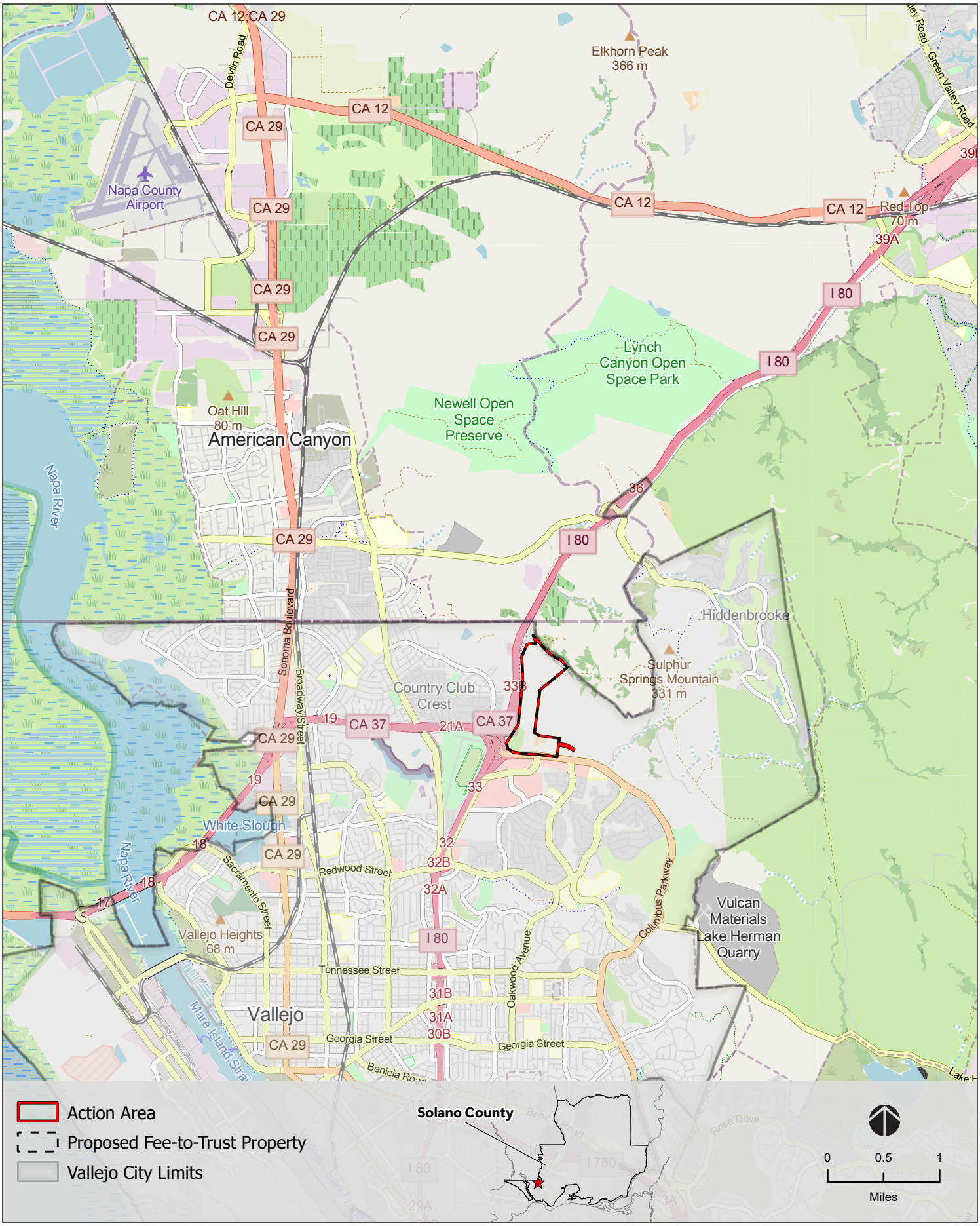

Figure 2

Site and Vicinity

Esri Community Maps Contributors, California State Parks, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS, Yolo County, Maxar; Google Earth, 8/22/2023; Acorn Environmental, 10/10/2024

Figure 3
Aerial Overview

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Figure 4
Site Plan

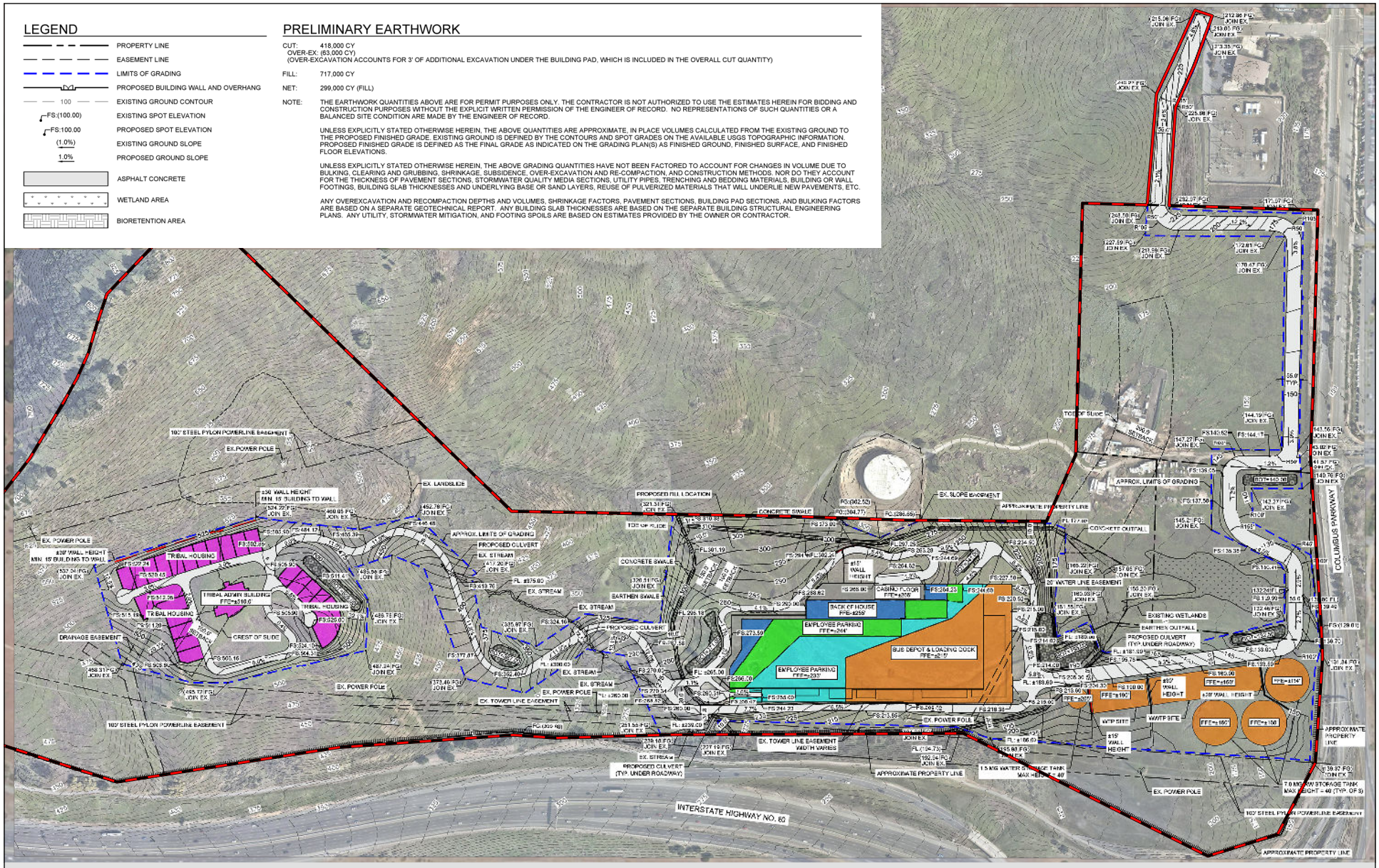
Access to the property would be via the intersection of an existing gravel road with Columbus Parkway. This existing access driveway would be upgraded and new paved roads would be constructed providing access to the proposed fee-to-trust property and development components. Additionally, **Figure 4** presents a potential emergency access route that would require an easement to be granted through City property east of the proposed fee-to-trust property to Ascot Court. This assessment conservatively assumes this road would be paved, though a gravel base may be sufficient. A barrier such as a gate would be placed to prevent regular use of the emergency access road.

As a component of the Proposed Action, the Tribe has committed to the establishment of an approximately 49.1-acre biological preserve within the Action Area that is designed to protect habitat of the greatest quality and value for special-status species. The Tribe intends to memorialize this commitment via a Tribal ordinance and a Memorandum of Understanding (MOU) between the Tribe, BIA, and U.S. Fish and Wildlife Service (USFWS). The biological preserve would be subject to a USFWS-approved management plan for the long-term protection of the habitat within the preserve. The management plan would address invasive species control, wildfire management, and other maintenance activities. The site plan provided in **Figure 4** outlines the footprint of ground disturbance as well as the biological preserve.

The approximate size of the Proposed Action footprint (project footprint) consists of approximately 60.0 acres, inclusive of the totality of grading areas and lands isolated within grading areas. Stockpiling of materials and staging of equipment would be within the project footprint and would not result in additional areas of impacts.

Drainage and Stormwater

A grading and drainage plan has been prepared for the Proposed Action and is included as **Figure 5**. Existing drainage conditions are comprised of a mixture of swales and channels that occur within naturally low-lying areas of the Action Area. These features collect runoff following storm events and do not receive sufficient water to be wetted for significant periods of time. Two primary drainages cross the Action Area and flow from the northeast to the southwest. Both of these features combine into a single channel that flows into a wetland complex, then into a double-pipe culvert south of the Action Area. This culvert directs stormwater under Auto Mall Parkway and into Rindler Creek, which is tributary to Lake Chabot. The northern of the two drainages would remain in its existing location. Where roadways cross this drainage, they would be designed with appropriately-sized culverts to maintain flows of this feature. Grading would occur in these areas to ensure the stability of the road, though changes to the route of the drainage would not occur. The southern drainage overlaps with the location of the proposed gaming facility. This feature would be re-routed via an earthen swale that would discharge into the same receiving water south of the riparian area that currently receives discharge from this feature and eventually discharges into the wetland complex (**Figure 5**). The earthen swale would be designed such that discharge rates would not exceed pre-development conditions. Additionally, sheet runoff from the east of the Action Area currently flows southwest across the Action Area, eventually collecting in the same wetland complex. Sheet flow from the adjacent property to the east would be collected in a proposed concrete-lined swale that would transition into an earthen swale prior to discharge into the wetland complex. Discharge into the wetland from two drainages and the concrete swale would be dissipated prior to discharge such that pre-development discharge rates would not be exceeded.



Steelman Partners 2024 and Source: Esri, USDA FSAKimley Horn, 9/2024; Acorn Environmental, 10/10/2024

Figure 5

Proposed Action Grading and Drainage

Stormwater would be collected within one of seven drainage management areas. Each drainage management area has been designed with a bioretention area that would collect pre-treated stormwater and further treat stormwater runoff from impervious surfaces (**Figure 5**). Bioretention sizing was based upon the 4 percent rule, which implements a low impact development (LID) treatment strategy where 4 percent of the area of impervious surfaces within a drainage management area are dedicated to landscaped bioretention.

Construction and Best Management Practices

Construction activities would consist of vegetation removal, grading activities, placement of foundations and erection of buildings, paving of access drives, and installation of utilities with the project footprint.

Construction is anticipated to occur over a single phase commencing in 2026 and lasting for approximately 18 months. Protective measures and best management practices (BMPs), including regulatory requirements and voluntary measures that would be implemented by the Tribe, have been incorporated into the design of the Proposed Action and include the following:

- Pets shall not be allowed on site during construction.
- Waste receptacles shall be made available within the Project Site and shall be properly maintained, with regular trash removal. All trash and food items should be promptly contained within closed, wildlife-proof containers. These should be regularly removed from the Project Site to reduce the attractiveness of the area to ravens and other predators.
- Construction equipment shall be cleaned prior to use in the Project Site in order to prevent the spread of invasive or noxious species to the Project Site. When applicable, weed-free dirt, mulch, gravel, and other materials should be used.
- Open trenches shall be covered at the end of each workday or shall have ramps installed at regular intervals to prevent the entrapment of wildlife. In addition, the project proponent, its agents, or contractors shall cover or fill all potential pitfalls to wildlife or cavities in which wildlife may become trapped when not attended. These include pits, trenches, vats, buckets, pipes, etc.
- Equipment and materials that could provide refuge for wildlife shall be checked prior to use or movement to ensure wildlife are not present. If present, wildlife shall be allowed to vacate the area unharmed on their own.
- Exterior lighting shall be downcast and shielded such that lighting and glare do not overspill the built environment.
- Uplighting, disruptive flashing lights, or materials that cause excessive glare shall not be used.
- Coverage under the National Pollutant Discharge Elimination System (NPDES) General Construction Permit shall be obtained from the U.S. Environmental Protection Agency (EPA) for construction site runoff during the construction phase in compliance with the Clean Water Act (CWA).
- A Stormwater Pollution Prevention Plan (SWPPP) shall be prepared, implemented, and maintained throughout the construction phase of the development, consistent with General Construction Permit requirements. The SWPPP would include, but would not be limited to, the following BMPs to minimize storm water effects to water quality during construction:
    - Grading activities shall be limited to the immediate area required for construction.
    - Temporary erosion control measures (such as silt fences, fiber rolls, staked straw bales, temporary re-vegetation, rock bag dams, erosion control blankets, and sediment traps) shall be employed as needed for disturbed areas. Plastic monofilament or similar materials that could entangle wildlife shall not be used.

- Construction activities shall be scheduled to minimize land disturbance during peak runoff periods to the extent feasible.
- Disturbed areas shall be paved, re-vegetated, and/or stabilized following construction activities.
- A spill prevention and countermeasure plan shall be developed that identifies proper storage, collection, and disposal measures for potential pollutants used on-site.
- Petroleum products shall be stored, handled, used, and disposed of properly in accordance with provisions of the CWA (33 USC §§ 1251 to 1387).
- Construction materials shall be stored, covered, and isolated to prevent runoff loss and contamination of surface and groundwater.
- Fuel and vehicle maintenance areas shall be limited to the impact area.
- Sanitary facilities shall be provided for construction workers.
- To minimize dust generation during construction, soil will be wetted down with water prior to ground disturbance as needed.
- Generated waste shall be properly disposed of.

1.3 LISTED SPECIES AND CRITICAL HABITAT

Critical Habitat

A small portion along the northern border of the Action Area is designated as critical habitat for California red-legged frog (**Figure 6**). This feature extends to the north and east of the Action Area. This feature is a spur of critical habitat that straddles the Hiddenbrooke development and development within the City of Vallejo. Only a sliver of this spur overlaps with the Action Area, outside of the project footprint and wholly within the biological preserve area. This spur appears to be centered along American Canyon Creek, indicating that this spur may have been intended to capture American Canyon Creek and an associated buffer. American Canyon Creek is located north and on the opposite side of an elevated ridge from the Action Area. Both the Action Area and American Canyon Creek fall within the American Canyon Creek-Frontal San Pablo Bay Estuaries (180500020401) watershed (USEPA, 2024). However, the majority of critical habitat near the Action Area is within the Sulphur Springs Creek (180500010105) watershed.

USFWS Species List

An official USFWS species list was generated online using the USFWS IPaC Trust Resource Report System (**Attachment A**). The following protected resources were identified:

Plants

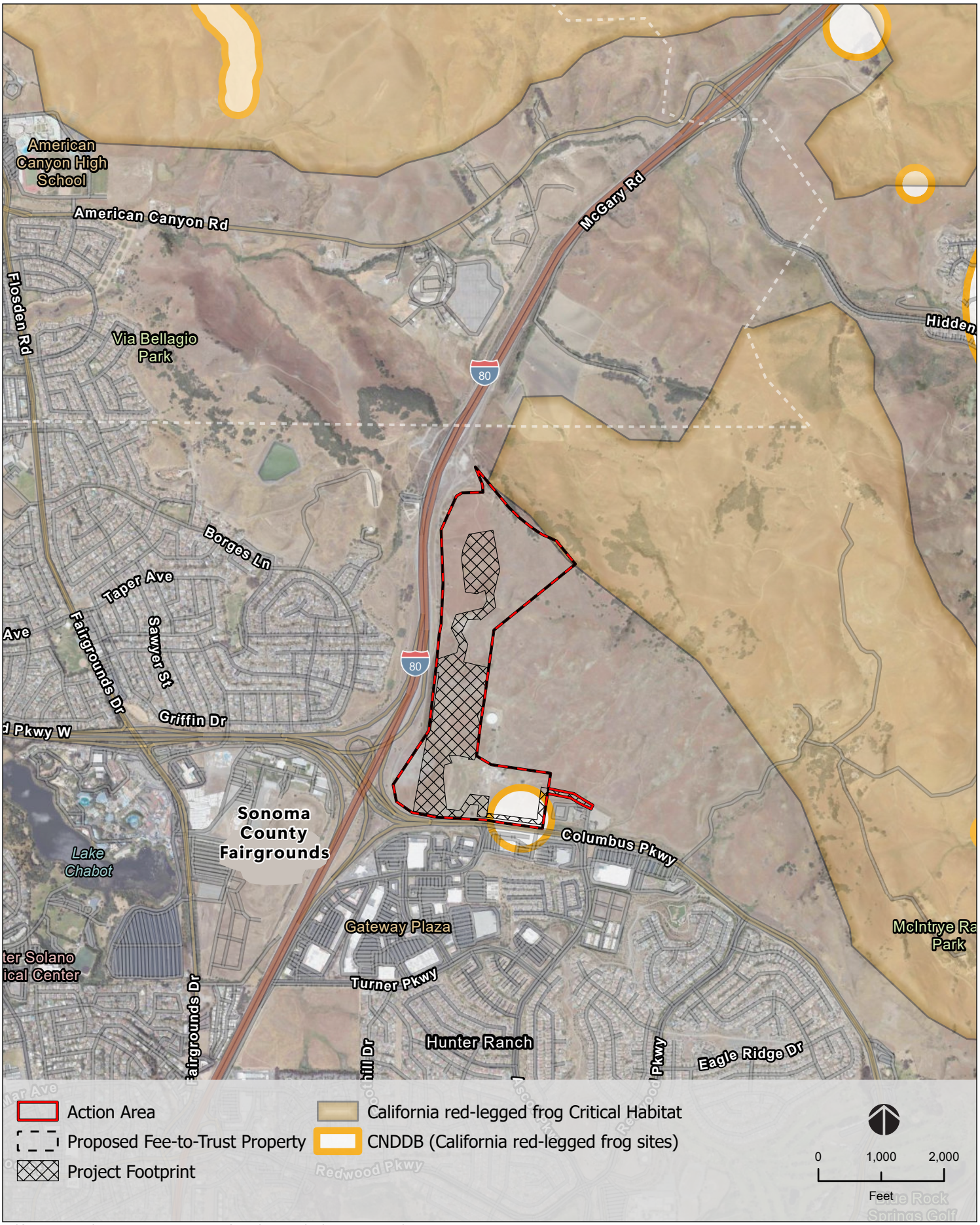
- Showy Indian Clover (*Trifolium amoenum*) – Endangered
- Tiburon Paintbrush (*Castilleja affinis ssp. neglecta*) - Endangered

Mammals

- Salt Marsh Harvest Mouse (*Reithrodontomys raviventris*) - Endangered

Birds

- California Least Tern (*Sternula antillarum browni*) – Endangered
- California Ridgway's Rail (*Rallus obsoletus obsoletus*) – Endangered
- Western Snowy Plover (*Charadrius nivosus nivosus*) – Threatened



California State Parks, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS, Source: Esri, USDA FSA, Airbus,USGS,NGA,NASA,CGIAR,NCEAS,NLS,OS,NMA,Geodatastyrelsen,GSA,GSI and the GIS User Community; Acorn Environmental, 10/10/2024

Figure 6

California Red-Legged Frog Habitat

Reptiles

- Northwestern Pond Turtle (*Actinemys marmorata*) - Proposed Threatened

Amphibians

- California Red-legged Frog (*Rana draytonii*) – Threatened
- Western Spadefoot (*Spea hammondii*) – Proposed Threatened

Insects

- Callippe Silverspot Butterfly (*Speyeria callippe callippe*) - Endangered
- Monarch Butterfly (*Danaus plexippus*) - Candidate

Crustaceans

- Vernal Pool Fairy Shrimp (*Branchinecta lynchi*) – Threatened

1.4 HISTORICAL OCCURRENCES OF LISTED SPECIES

The California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) does not report any listed species or special-status species within the Action Area. The CNDDB does have a historical occurrence of California red-legged frog immediately southeast of the Action Area associated with Rindler Creek, discussed further in **Section 4.5**. The location of this occurrence is shown in **Figure 6**. The CNDDB accuracy buffer of the occurrence overlaps with the Action Area, however, Rindler Creek does not cross the Action Area. Additionally, a prior biological survey of the Action Area identified Callippe silverspot butterfly within the Action Area, discussed further in **Section 4.6**. There are no other known historical occurrences of listed species within a mile of the Action Area.

1.5 HABITAT CONSERVATION PLANS

The Action Area is located within the plan area of the draft Solano Multispecies Habitat Conservation Plan (SMHCP). The City of Vallejo is a plan participant, and the full geographical extent of the City falls within the plan area, which indicates that the Action Area is part of the plan area (SCWA, 2012). The SMHCP is currently in administrative draft form, and a final plan has not yet been adopted. Covered species include California red-legged frog, Callippe silverspot butterfly, northwestern pond turtle, monarch butterfly, and salt marsh harvest mouse.

1.6 CONSULTATION TO DATE

The BIA and USFWS provided technical assistance throughout the project planning and environmental analysis processes and were consulted throughout completion of this BA. A site visit was completed on April 3, 2024 by Acorn Environmental staff accompanied by BIA Regional Wildlife Biologist Peter DeJongh and USFWS Ecological Services Senior Biologist Joseph Terry. The visit was focused on understanding the existing ecological conditions of the site, examining the site's potential to sustain protected species, and discussing strategies to incorporate adequate mitigation measures into the project design to offset project impacts to protected species.

Section 2 | Methods

2.1 PRELIMINARY DATA GATHERING AND RESEARCH

Prior to conducting the field survey, the following information sources were reviewed:

- Previous biological resource studies pertaining to the Action Area: Huffman Broadway Group (2005 and 2006); Jennings (2008); AES (2016); Monk & Associates, Inc. (2022); Montrose Environmental Solutions (2022 and 2023)
- USGS 7.5 degree-minute topographic quadrangles of the Action Area and vicinity
- Aerial photography of the Action Area
- The California Natural Diversity Database (CNDDB)(CDFW, 2024a)
- A query of the California Native Plant Society's database *Inventory of Rare and Endangered Plants of California* (online edition) (CNPS, 2024a)
- USFWS National Wetlands Inventory (NWI) mapper (**Figure 7**)
- USFWS species list (**Attachment A**)

2.2 FIELD SURVEY

Field visits have previously been conducted within the Action Area in October 2005, and on November 8, 2005; May 17 and 23, 2006; July 5, 2006; January 31, 2007; February 10, 2007; March 28, 2007; April 4 and 11, 2007; July 10, 2007; December 17, 2015; November 15, 2019; April 22, May 22, and August 11, 2020; September 7, 2022; and June 27, 2023 (Huffman Broadway Group 2005 and 2006; Jennings 2008; AES 2016; Monk & Associates, Inc., 2022; Montrose Environmental Solutions, 2022 and 2023). Consulting biologist Dr. G.O. Graening performed an updated biological field assessment and aquatic resources delineation of the Action Area on April 3, and May 4, 2024, and collected data on wildlife and plant species present, as well as habitat types and jurisdictional waters. Consulting botanist Tim Nosal, M.S. performed an updated protocol botanical survey of the Action Area on April 7 and June 1, 2024. Variable-intensity pedestrian surveys were performed. Fauna and flora observed were recorded in a field notebook and identified to the lowest possible taxon. Survey efforts emphasized the search for federally-listed species with potential to occur in the vicinity of the Action Area. Habitat types occurring in the Action Area were mapped using hand-held GPS receivers, and information on habitat conditions and the suitability of habitats to support listed species was also recorded.

It is noted that surveyors did not have access to the emergency access drive footprint outside of the proposed fee-to-trust property (4.0 acres) during surveying efforts. Conditions on the emergency access drive were based upon what was observable from accessible areas, condition of adjacent habitat, and a desktop review.

2.3 MAPPING AND OTHER ANALYSES

Locations of species' occurrences and habitat boundaries within the Action Area were mapped using hand-held GPS receivers, and color aerial photographs were interpreted and then all the data was digitized to produce the habitat maps. The boundaries of potentially jurisdictional water resources within the Action Area were identified and measured in the field and similarly digitized to calculate acreages and to produce aquatic resources delineation maps.

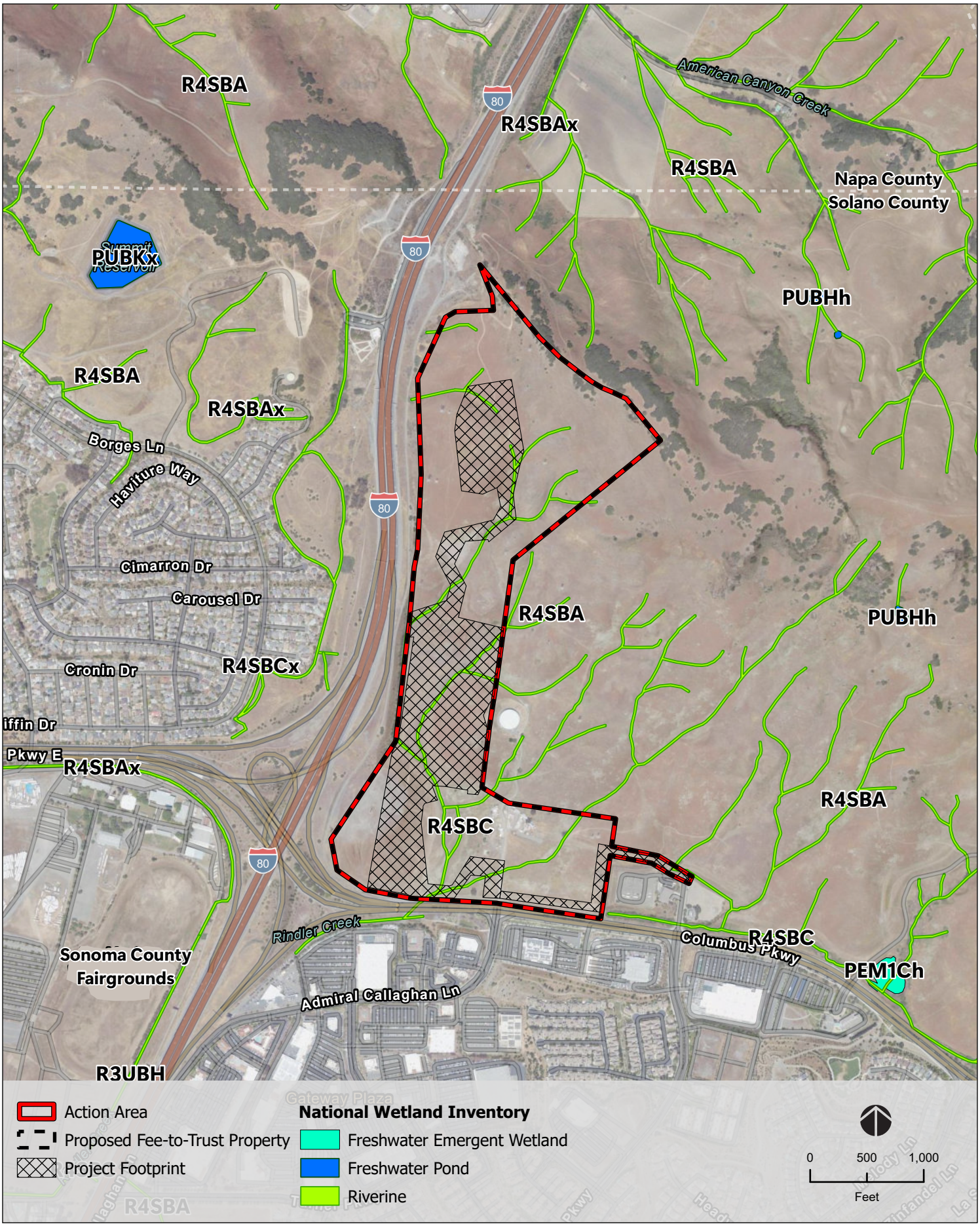


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Figure 7
National Wetland Inventory

Geographic analyses were performed using geographical information system software (ArcGIS Pro, ESRI, Inc.). Vegetation communities (assemblages of plant species growing in an area of similar biological and environmental factors) were classified by Vegetation Series (distinctive associations of plants, described by dominant species and particular environmental setting) using the CNPS Vegetation Classification system (CNPS, 2024b).

Wetlands and other aquatic habitats were classified using USFWS National Wetlands Inventory Classification System for Wetland and Deepwater Habitats, or "Cowardin class" (Cowardin et al., 1979). A formal wetland delineation was conducted and identified features based upon the three requisite wetland parameters (hydrophytic vegetation, hydric soils, hydrologic regime) defined in the U.S. Army Corps of Engineers (USACE) Wetlands Delineation Manual (Environmental Laboratory, 1987). Corresponding data points were selected and data sheets generated. The delineation will be submitted to USACE for verification.

Wildlife habitats were classified according to the CDFW's California Wildlife Habitat Relationships System (CDFW, 2024b). Species' habitat requirements and life histories were identified using the following sources: Baldwin et al. (2012); Calflora (2024a); CDFW (2024b); and University of California at Berkeley (2024).

Section 3 | Results of Surveys

3.1 ENVIRONMENTAL SETTING

The Action Area is located within the Central Coast geographic subregion, which is contained within the Central Western California region of the larger California Floristic Province (Baldwin et al. 2012). The Action Area falls within Climate Zone 17 "Marine effects in Southern Oregon, Northern, and Central California." Climate Zone 17 experiences a mild climate with cool, wet winters and cool summers with frequent fog and wind. Temperatures in this zone do not fall below 20 degrees Fahrenheit with an average high of 97 degrees Fahrenheit (Sunset, 2024).

The topography is a series of undulating hill slopes and valleys on the flank of Sulphur Springs Mountain. Elevations range between 130 feet above mean sea level in the southern portion of the Action Area to approximately 800 feet above mean sea level in the northern portion. The Action Area is largely undeveloped open space used primarily for cattle and horse grazing, except for a corridor of electrical transmission lines. There is also an elevated and graded pad in the southern portion of the Action Area that may have been contemplated as a development site in the past, but no built features are located on it. The existing access driveway also leads to numerous wooden shacks that are currently used as horse shelters. A mixture of wire and t-post fencing and chain link fencing bounds the grazing areas within the Action Area. Surrounding development includes commercial development to the south, rangeland to the north and east, and highways, a large vista rest stop, and residential developments to the west.

3.2 SOIL TYPES

USDA soil survey data maps the following soil units within the Action Area:

- Dibble-Los Osos clay loam series (30-50% slope, eroded, not hydric)
- Clear Lake clay series (2-5% slope, hydric)
- Toomes stony loam series (30-75% slope, eroded, not hydric)

Additionally, metamorphic rock outcrops are present in the northern portions of the Action Area.

3.3 HABITAT TYPES

Habitat types that occur within the Action Area consist of riparian scrub, freshwater marsh, oak woodland, pasture, ruderal/developed, and annual grassland/rock outcrop. These habitats are shown on **Figure 8** and discussed further below. Representative site photographs are provided in **Attachment B**, and a list of plant species observed during the 2024 site visits and prior site visits within the Action Area is included as **Attachment C**. **Table 1** below summarizes the acreages of these habitat types as they occur within the Action Area, the project footprint, and the biological preserve area. In addition to the habitat types discussed below, ephemeral channels were observed in areas of steep topography and/or connecting marsh habitat. These are linear features that lack wetland habitat and are dry except during or immediately following a rain event, but are represented in **Table 1** below to illustrate the complete level of impact to existing drainage features. The acres within the biological preserve do not count habitat within the PG&E easements.

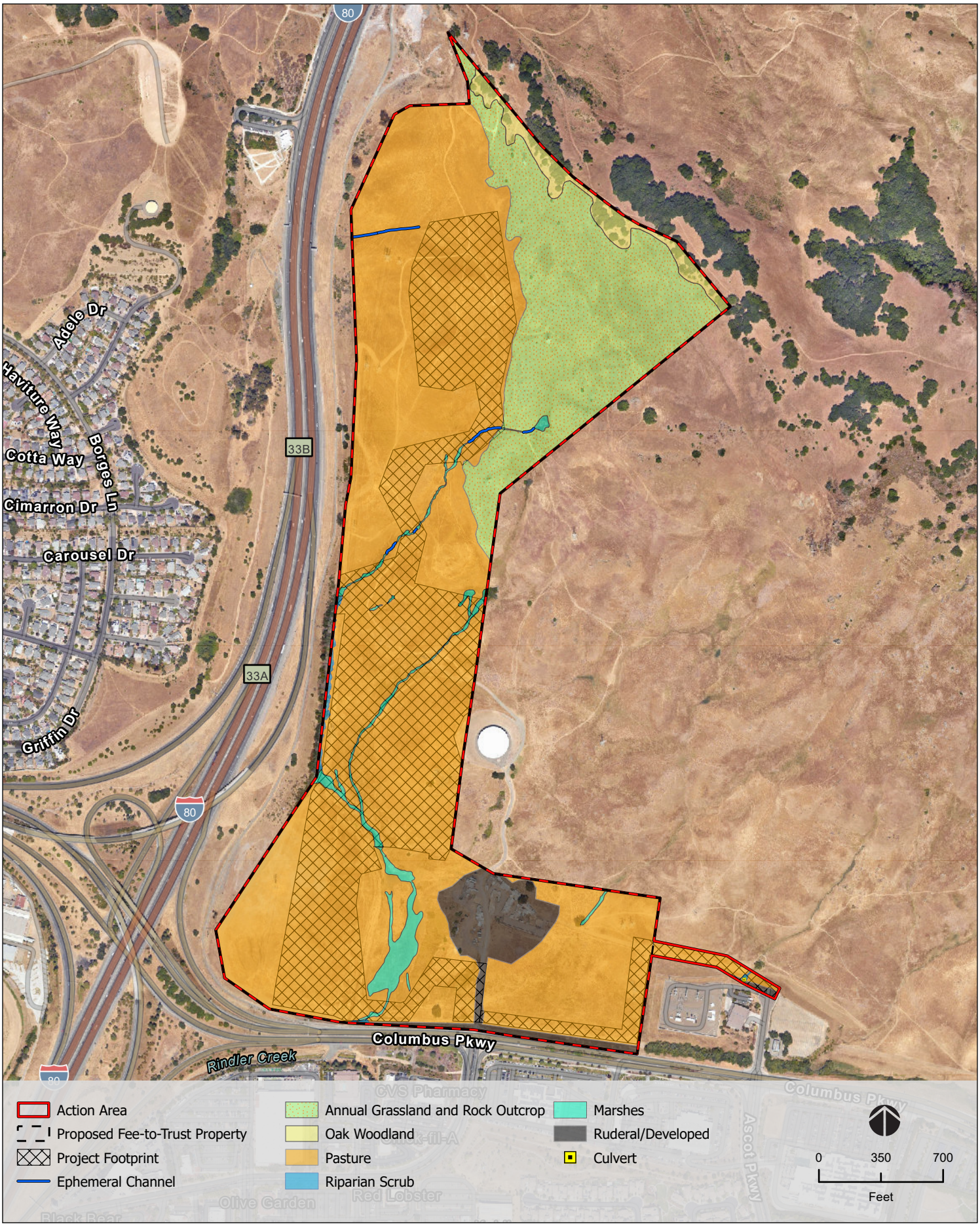

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Figure 8
Habitat Types

Table 1: Habitat Types within the Action Area

Habitat Type	Total Acreage within Action Area	Acreage within Biological Preserve*	Acreage within Project Footprint
Riparian scrub	0.4	0.0	0.1
Freshwater marsh	3.4	0.3	1.1
Pasture	118.3	17.6	58.3
Oak woodland	3.7	3.3	0.0
Ruderal/developed	7.5	0.0	0.5
Annual grassland/ rock outcrop	30.8	27.8	0.04
Channels	755 linear feet (lf)	285 lf	227 lf
Totals	**164.0**	**49.1**	**60.0**

* Note: There is a total of approximately 49.1 acres within the Biological Preserve. The individual habitat types appear to total slightly less due to rounding. Similarly, the Action Area is approximately 164.0 acres but appears slightly larger due to rounding

Ruderal/Developed (7.5 acres)

Ruderal/developed habitats are those areas that are highly modified from their natural state and are subject to intensive land management, paving, or similar. Within the Action Area, ruderal developed areas included an unpaved access drive and informal parking areas, fencing, and horse shelters. Vegetation was sparse to absent in this area. Where vegetation did occur, it was dominated primarily by non-native grasses and weedy forbs. Of the 7.5 acres of ruderal/developed habitat within the Action Area, 0.5 acres fall within the project footprint.

Riparian Scrub (0.4 acres)

This community is found on the western edge of the Action Area; it is associated with an off-site, intermittent drainage that is fed by both the flank of Sulphur Springs Mountain as well as road runoff from I-80. The vegetation is dominated by arroyo willow (*Salix lasiolepis*) with an understory of Himalayan blackberry (*Rubus discolor*) and poison oak (*Toxicodendron diversilobum*), and limited areas of broad-leaved cattail (*Typha latifolia*). Vegetation along the edge of the riparian habitat included sweet fennel (*Foeniculum vulgare*) and coyote brush (*Baccharis pilularis*). The riparian habitat transitions to either marsh or pasture, depending upon the local topography. Of the 0.4 acres of riparian scrub habitat within the Action Area, 0.1 acres fall within the project footprint.

Freshwater Marsh (3.4 acres)

Freshwater marsh habitat was observed in the valleys of hills. The dominant plants in these areas are rushes (e.g. *Juncus bufonius*) and spikerushes (*Eleocharis*). Facultative grasses and forbs are also present, such as perennial ryegrass (*Lolium perenne*), Bermuda grass (*Cynodon dactylon*), curly dock (*Rumex crispus*), common monkeyflower (*Mimulus guttattus*), and pennyroyal (*Mentha* sp.). Ponded areas contain floating plants such as watercress (*Nasturtium officinale*). The water quality of these marshes has been impacted by cattle, which are allowed to wallow and graze in the wetlands.

Approximately 1.1 acres of freshwater marsh falls within the project footprint. These impacts would be related to re-alignment of existing drainages and grading associated with implementing road crossings. A total of 0.3 acres of freshwater marsh falls within the biological preserve area and 2.0 acres elsewhere

within the Action Area. An existing drainage totaling approximately 1,520 linear feet of channels and marshes would be rerouted. Following construction, the re-routed length of this feature would be 920 linear feet of earthen swales. It is anticipated that a series of marshes would line the re-routed drainage similar to the existing drainage.

Pasture (118.3 acres)

The majority of the Action Area is a simplified non-native grassland containing perennial ryegrass (*Lolium perenne*), wild oats (*Avena fatua*), soft chess (*Bromus hordeaceus*), and other pasture grasses. These areas are subject to significant grazing pressure and may have been plowed or conditioned previously. Non-native forbs are abundant, such as thistles (*Silybum*, *Carduus*), filarees (*Erodium*), star thistle (*Centaurea solstitialis*), bristly ox-tongue (*Picris echioides*), poison hemlock (*Conium maculatum*), fennel (*Foeniculum vulgare*), black mustard (*Brassica nigra*), and spiny cocklebur (*Xanthium spinosum*). Large patches of artichoke thistle (*Cynara cardunculus*) were also observed within this habitat. Approximately 58.3 acres of pasture falls within the project footprint, with an additional 17.6 acres within the biological preserve area. The remainder of pasture habitat elsewhere within the Action Area.

Annual Grassland/Rock Outcrop (30.8 acres)

This non-native annual grassland community is similar to the pasture community described above, but contains a greater diversity of species and greater number of native species. This is due in part to the rocky terrain, which is more difficult for cattle to graze, and because the metamorphic soils and rock outcrops provide additional habitat niches. Native wildflowers were abundant, such as California poppy (*Eschscholzia californica*), golden violet (*Viola pedunculata*), owl's clover (*Castilleja*), and blue dicks (*Dichelostemma capitatum*). Seeps were common at the base of rock outcrops, and these wet areas created microhabitats for specialized plants, such as ferns and succulents (*Dudleya* spp.). The project footprint intersects with 0.04 acres of this habitat. The remaining acres falls within the biological preserve area or within a PG&E easement.

Oak Woodland (3.7 acres)

A narrow strip of oak woodland occurs along the northern boundary of the Action Area along a hilltop crest. This habitat contains a significant canopy cover of coast live oak (*Quercus agrifolia*). Ground cover vegetation is similar to species observed within the annual grassland/rock outcrop habitat. The totality of this habitat type is outside of the project footprint and within the biological preserve area and PG&E easement area.

3.4 WILDLIFE USE

Wildlife species observed within the Action Area are included in **Attachment C** and are compiled from the current 2024 surveys and previous surveys (Huffman Broadway Group 2005 and 2006; Jennings 2008; AES 2016; Monk & Associates, Inc., 2022; Montrose Environmental Solutions, 2022 and 2023).

3.5 WATER RESOURCES

National Wetland Inventory

NWI reports several linear aquatic features within the Action Area, as shown on **Figure 7**. All NWI features within the Action Area are described as "Riverine" habitat. These features were confirmed to exist during

the aquatic resources delineation; they consist of riverine wetlands that are associated with drainage channels and swales.

Wetlands

Freshwater marshes (emergent wetlands) are present throughout the middle of the Action Area in the drainages between hills and in other low-lying areas; these areas total approximately 3.4 acres and are dominated by rushes and sedges, as described in **Section 3.3** under the freshwater marsh header.

Channels

Where gradients are steeper, channels form and have exposed bedrock. There are 767 linear feet of channels, and these channels link with marshes to form extensive drainage systems through the grassland and pasture habitats.

Gullies have formed in a graded area in the southern portion of the Action Area. These are isolated erosional features that terminate in upland fields and are not connected directly to the channel-mash drainages. In lower gradient areas, there are various grass-lined swales that transmit water briefly after storms. These features do not form channels but help to drain the grasslands and pastures.

Section 4 | Species Accounts

4.1 PLANTS

Showy Indian Clover (*Trifolium amoenum*)

Endangered

Showy Indian clover is an annual flowering plant in the pea family that produces large, purple, white-tipped flowers from April to June (USFWS, 2024a; Calflora, 2024b). Showy Indian clover was first described by Edward L. Greene from specimens collected in 1890 near Vanden, Solano County, California. The range of the species was originally from Mendocino County south to Sonoma, Marin, Alameda, and Santa Clara counties, and east to Napa and Solano counties. The species previously occurred in a variety of habitats including low, wet swales, grasslands, and grassy hillsides up to 1,020 feet in elevation. It was considered extinct until 1993 when a single plant was discovered in Occidental, Sonoma County that is now extirpated. In 1996, the Dillon Beach population was discovered in Marin County, which was the only known population at the time of listing. The USFWS and its partners had since established a population at Point Reyes National Seashore as well as another at the Bodega Marine Reserve in Sonoma County that was extirpated by 2012. Only the Dillon Beach and Point Reyes National Seashore populations, both possessing the "prostrate" phenotype, are known to remain in the wild (USFWS, 2024a).

Suitable habitat for Showy Indian clover is present in the Action Area in the hilly northern half of the Action Area that contains marshes and annual grassland/rock outcrop habitats. Botanical surveys conducted on June 27, 2023, and April 7, and June 1, 2024 did not detect this species. This is within the bloom window for this species, and five other clovers were in bloom in the Action Area: hop clover (*Trifolium dubium*), rose clover (*T. hirtum*), thimble clover (*T. microdon*), subterranean clover (*T. subterraneum*), and white tipped clover (*T. variegatum*).

Tiburon Paintbrush (*Castilleja affinis ssp. neglecta*)

Endangered

Tiburon paintbrush is a semi-woody flowering plant in the snapdragon family that can grow up to two feet tall. It flowers along an upright stalk with the densest blooms at the top, which gives it the characteristic paintbrush appearance. Tiburon paintbrush flowers are usually yellow, but can be found in yellowish-pink and sometimes red (USFWS, 2024b). The Tiburon paintbrush is a hemiparasite that requires the presence of other nearby flowering plants to uptake nutrients from the roots of other plants (CDFW, 2024c). This species occurs on serpentine soils in bunchgrass habitat. Associated species include California gilia (*Gilia achilleifolia subsp. multicaulisin*), California poppy, dwarf plantain (*Plantago erecta*), purple needlegrass (*Stipa pulchra*), Tiburon buckwheat (*Eriogonum luteolum var. caninum*), and serpentine reedgrass (*Calamagrostis ophitidus*) (CDFW, 2024c). This species is native to California and is currently found in seven sites across Marin, Santa Clara, and Napa counties. Its historical range is thought to be comparable to its current range (USFWS, 2024b). The nearest reported occurrence in the CNDDB is 2.5 miles north of the Action Area on a site with serpentine soils.

Although within the general range of the species, the Action Area does not contain the requisite serpentine soil habitat for Tiburon paintbrush. Botanical surveys conducted on June 27, 2023, and April 7,

and June 1, 2024 did not detect this species. The April 2024 botanical survey was timed correctly, as two other species in the genus were in bloom: purple owl's clover (*Castilleja exserta*) and Indian paintbrush (*Castilleja attenuata*).

4.2 MAMMALS

Salt Marsh Harvest Mouse (*Reithrodontomys raviventris*)

Endangered

The salt marsh harvest mouse is a specialized rodent adapted to live within saline or subsaline marsh habitats in and around the San Fransisco Bay Estuary and the Suisun Bay area (USFWS, 2024b). Within tidal and diked marshes, this species requires a high cover of pickleweed. Additionally, this species requires sufficient escape habitat and vegetative cover during high tide periods (USFWS, 2024b). Threats to the ongoing survival of this species include loss and fragmentation of habitat from development, as well as potential climate change risks and associated sea level rise.

There is no suitable habitat for salt marsh harvest mouse within the Action Area, as there is no hydrologic connection with an ocean bay, slough, or other brackish waters. As suitable habitat is absent, there is no potential for this species to occur.

4.3 BIRDS

California Least Tern (*Sternula antillarum browni*)

Endangered

California least terns are colonial nesters that nest between mid-April to mid-September in groups of 15 to 300 pairs (USFWS, 2024c). There are 23 known nesting sites along beaches, river mouths, estuaries, and coastal embayments. Foraging activities take place within nearshore waters, such as river mouths and estuaries, and target slender-bodied fish such as anchovies and topsmelt (USFWS, 2024c). When inland, these birds stay close to the shore. Primary threats to this species include coastal development as well as high levels of human disturbance along recreational beaches.

There is no suitable habitat for California least tern within the Action Area. As suitable habitat is absent, there is no potential for this species to occur.

California Ridgway's Rail (*Rallus obsoletus obsoletus*)

Endangered

California Ridgway's rail inhabits saltwater marshes, freshwater marshes near saltwater marshes, and mangrove swamps in California, Arizona, Nevada, and coastal western Mexico. Populations are declining largely due to wetland loss and degradation (NatureServe, 2024a). In the Delta, Ridgway's rail forages in mudflats in tidal sloughs. Nesting occurs in marshlands near tidal ponds. Foraging occurs within mud or sand and their diet consists of mussels, clams, small crabs, and spiders (NatureServe, 2024a).

There is no suitable habitat or prey base for California Ridgeway's rail within the Action Area. As suitable habitat is absent, there is no potential for this species to occur.

Western Snowy Plover (*Charadrius nivosus nivosus*)

Threatened

The western snowy plover is an inhabitant of sandy beaches with sparse vegetation, as well as nearby dry salt flats of lagoons, dredge spoils, levees and flats on salt-evaporation ponds, river bars, and alkaline/saline lakes (USFWS, 2024d). This bird feeds on aquatic invertebrates. Nesting occurs on nearshore habitat utilizing pebbles, shell fragments, or similar. Main threats to this species include recreational use of suitable beach habitat creating unsuitable levels of disturbance, as well as habitat degradation (USFWS, 2024d).

There is no suitable habitat for western snowy plover within the Action Area. As suitable habitat is absent, there is no potential for this species to occur.

4.4 REPTILES

Northwestern Pond Turtle (*Actinemys marmorata*)

Proposed Threatened

The species is known to occur in a wide variety of aquatic habitats including rivers and streams, lakes, ponds, reservoirs, permanent and ephemeral shallow wetlands, stock ponds, and sewage treatment lagoons (Holland, 1994). Optimal habitat seems to be characterized by the presence of adequate emergent basking sites, emergent vegetation, and the presence of suitable refugia in the form of undercut banks, submerged vegetation, mud, rocks, and logs. The CNDDB reports the nearest records to be in the Sky Valley area in Sulphur Springs Creek approximately 2 miles east of the Action Area, and another record in the sloughs of American Canyon 3 miles northwest of the Action Area. In-stream dispersal distances have been recorded of over 0.12 miles. Long distance overland dispersal between waterbodies has been recorded at up to approximately 1.0 miles in California and 3.1 miles in Oregon (NatureServe, 2024b). It is assumed that suitable upland habitat within 500 meters of suitable aquatic habitat may be used for nesting or aestivation.

The Action Area contains suitable upland dispersal habitat for northwestern pond turtle in the marsh and channel system that runs through the center of the Action Area. Additionally, terrestrial habitat across the totality of the Action Area is considered by USFWS to be suitable overland dispersal habitat given the distance from CNDDB occurrences within aquatic habitat and the overland dispersal capabilities of this species. The potential for the Action Area to serve as dispersal habitat is limited by the presence of dispersal barriers in the form of major highways along the western and southern boundary of the Action Area.

Since there are no ponds or other permanent water sources within the Action Area, there is no breeding habitat in the Action Area. Suitable breeding aquatic habitat is not present within 500 meters of the Action Area; therefore, suitable nesting/aestivation habitat is not present in the Action Area. The nearest ponds or other permanent waters are: 800 meters to the east of the Action Area in a marsh in upper Rindler Creek; 1,400 meters to southwest in lower Rindler Creek; 900 meters to the north in American Canyon Creek; 2,500 meters to southeast in Blue Rock Springs Golf Course; 1,150 meters to the southwest in Lake Chabot; a drinking water reservoir 700 meters to the west.

4.5 AMPHIBIANS

California Red-legged Frog (*Rana draytonii*)

Threatened

The historical range of the CRLF extended from the vicinity of Point Reyes National Seashore in Marin County southward to northwestern Baja California, Mexico and inland to approximately Redding, CA in Shasta County (61 Federal Register 25813), with the current range including Sonoma and Mendocino Counties (USFWS, 2023a). CRLF has sustained a 70 percent reduction in its geographic range (USFWS, 2024e). CRLF has been observed in a number of aquatic and terrestrial habitats, including marshes, streams, lakes, reservoirs, ponds and other permanent, or near permanent, sources of water. Although they occur in ephemeral streams or ponds, CRLF are expected to thrive in permanent deep-water pools with dense stands of overhanging willows (*Salix* spp.) and emergent vegetation. However, they have been observed in a variety of aquatic environments, including stock ponds and artificial pools with little to no vegetation. CRLF are usually observed near water but can move long distances over land between water sources during the rainy season (USFWS, 2024e). Non-breeding aquatic habitat for this species includes moist habitat such as freshwater marsh (61 Federal Register 25814; California Herps, 2024; CCC, 2017). Threats to this species include habitat loss/alteration and competition and predation by non-native species (USFWS, 2024e).

Critical habitat has been designated for CRLF, and the Action Area contains a very small portion of this critical habitat on the northern property boundary (**Figure 6**). According to the CNDDB, a CRLF population was documented in Rindler Creek in 1997 and 1998, approximately 500 feet to the east of the Action Area. The CNDDB occurrence note is "Rindler Creek vicinity, on the north side of Columbus Parkway, 0.4 mile east of I-80, Vallejo." The CNDDB accuracy buffer of the occurrence overlaps with the Action Area; however, Rindler Creek does not cross the Action Area but is instead routed underground into a municipal storm sewer system. Several adults and up to 38 juveniles were sighted. In 1998, one adult and one juvenile were relocated to a stock pond on PG&E's Swett Ranch. There does not appear to be any recent data on the status of the population in Rindler Creek. The other nearest occurrences reported in the CNDDB are a population in the Sky Valley area in Sulphur Springs Creek, 2 miles east of the Action Area, and another population in American Canyon/American Canyon Creek, 2.5 miles north of the Action Area. **Figure 6** displays the Action Area in relation to designated critical habitat and historical CRLF observations.

Herpetologist Mark Jennings performed protocol surveys for CRLF in the Action Area on January 31, February 10, March 28, April 4 and 11, and July 1 and 10, 2007. No CRLF were detected, but Pacific chorus frogs and rough-skinned newt were detected (Jennings, 2008). Jennings (2008) concluded that the Action Area did not contain suitable breeding habitat for CRLF because there was a lack of deep pools of water in the Action Area, because of the presence of predators such as raccoons and wading birds, and because of the significant distance between the Action Area and known CRLF populations.

The aquatic resources delineation performed by Acorn Environmental biologists confirmed that the Action Area contains no ponds, perennial channels, or other permanent water resources. Therefore, the Action Area does not contain breeding habitat for CRLF. However, the Action Area does contain marshes and terrestrial habitat that could be used by CRLF as dispersal habitat, and the marshes remain sufficiently moist to provide suitable non-breeding aquatic habitat.

Western Spadefoot (*Spea hammondii*)

Proposed Threatened

Western spadefoot breeds within temporary pools between January to June and requires pooled water for breeding activity and for the tadpole life stage (CDFW, 2000; ADW, 2024). Vegetation within pooled areas is necessary for egg attachment. Adults spend the majority of the dry season underground and therefore require friable soils for burrowing. Generally, where one western spadefoot toad burrow occurs, more are present. Suitable burrowing habitat could occur within grasslands, chaparral, scrub, and oak woodlands where tree canopy coverage is not too high (CDFW, 2000; ADW, 2024). Burrows are often located away from breeding areas, with juveniles dispersing in the late spring into summer. Adults are active at night when they engage in foraging for insects and other invertebrates.

The Action Area contains no ponds, perennial channels, or other permanent water resources. There is one marsh in the center of the Action Area that was previously documented as containing chorus frog tadpoles. Western spadefoot can breed in seasonal wetlands that remain wet for 30 days. The observance of chorus frog tadpoles suggests that at least occasionally this feature holds water long enough to support breeding western spadefoot. The draft SMHCP discussed **in Section 1.5** has been developed in consultation with the USFWS and includes those species with the potential to occur within the plan area, including the Action Area. Western spadefoot was not included within the draft SMHCP, and therefore was determined to be outside of the plan area, including the Action Area. Additionally, the nearest known occurrence of this species is recorded in CNDDB over 30 miles from the Action Area. Based upon this, the Action Area is outside of the extant range of this species.

4.6 INSECTS

Callippe Silverspot Butterfly (*Speyeria callippe callippe*)

Endangered

Callippe silverspot butterfly occurs within California grasslands. California golden violet (*Viola pedunculata*) is the sole larval host plant for this species (USFWS, 2024f). Although the larval stage feeds exclusively on California golden violet, a variety of other plant species can provide nectar sources for adult foraging. The butterfly stage lasts up to 14 days and generally occurs from mid-May through July. Adults congregate on hilltops to select a suitable mate before laying up to 600 eggs on their host plant (USFWS, 2024f). Larvae hatch approximately one week later, retreat to the ground level, and enter diapause. Diapause lasts from early summer of their hatching until the following spring when adult flights occur. Threats to this species include habitat loss, degradation, and fragmentation as well as wildfire and use of pesticides (USFWS, 2024f).

According to botanical surveys performed in 2023 and 2024, the northern third of the Action Area contains the breeding host plant (California golden violet), and this area corresponds generally to the soils derived from metamorphic rock (USDA mapped soil type "*ToG2: Toomes stony loam, 30 to 75 percent slopes, eroded*"; NRCS, 2024). **Figure 9** shows the locations of this host plant observed during the April and June 2024 surveys as well as the differentiation of the Action Area into "host plant habitat" and "nectar resource habitat." Non-suitable habitat includes those areas that are ruderal/developed and contain sparse to no vegetation. The nectar resource habitat is the portion of the Action Area that does not contain host plants, but does contain other flowers that can be used by Callippe silverspot adults as nectar resources. A wildlife survey conducted on June 27, 2023 detected Callippe silverspot butterflies within the

Action Area (Montrose Environmental Solutions, 2023). The field notes state: "*A small population of yellow pansies was observed within the hilltop area/hillcrest present a few feet outside the boundary of the Subject Property and included a cohort of positively identified Callippe silverspot butterflies numbering approximately ten individuals*." **Figure 9** shows the location of the observed Callippe silverspot butterflies. **Table 2** below summarizes the suitable habitat for this species and the proportion that falls within the biological preserve and the project footprint.

Table 2: Callippe Silverspot Habitat Types in Action Area

Callippe Silverspot Habitat Type	Total Acreage within Action Area	Acreage within Biological Preserve	Acreage within Project Footprint
Host Plant and Nectar Habitat	42.4	34.8	3.0
Nectar Habitat	114.1	14.3	56.5
Non-Suitable Habitat	7.5	-	0.5
Total	**164.0**	**49.1**	**60.0**

Monarch Butterfly (*Danaus Plexippus*)

Candidate

The monarch butterfly is a candidate species and not yet formally proposed for listing. During the breeding season, monarchs lay their eggs on their obligatory milkweed host plant (primarily plants in the genus *Asclepias*, but also *Cynanchum*, *Funastrum*, *Gonolobus*, and *Matelea*), and larvae emerge after two to five days (USFWS 2024g). Larvae develop through five molts over a period of 9 to 18 days, feeding on milkweed and sequestering toxic chemicals as a defense against predators. The larva then pupates into a chrysalis before emerging 6 to 14 days later as an adult butterfly. There are multiple generations of monarchs produced during the breeding season, with most adult butterflies living approximately two to five weeks; overwintering adults enter into reproductive diapause (suspended reproduction) and live six to nine months (USFWS, 2024g).

Monarchs in temperate climates, such as western North America, undergo long-distance migration, and live for an extended period of time. In the fall, monarchs begin migrating to their overwintering sites. This migration can take monarchs distances of over 3,000 km and last for over two months. In early spring (February-March), surviving monarchs break diapause and mate at the overwintering sites before dispersing. The same individuals that undertook the initial southward migration begin flying back through the breeding grounds and their offspring start the cycle of generational migration over again (USFWS, 2024g).

The botanical surveys performed in 2023 and 2024 did not detect any milkweeds or other host plants for monarch butterfly; therefore, potential habitat is limited to nectar foraging habitat. Within the Action Area, suitable foraging habitat for Monarch butterfly occurs primarily in the northern third of the Action Area in the area mapped as containing the USDA soil type "*ToG2: Toomes stony loam."* This area is shown on **Figure 9** as the host plant habitat for Callippe silverspot butterfly, but also represents the higher quality Monarch butterfly foraging habitat as it contains a greater abundance of flower species and densities than does the rest of the Action Area. The balance of the Action Area, with the exception of ruderal/developed habitat, still contains some level of flowering plants that can serve as nectar resources, but at a lower density due to grazing pressure, increased human activity, and soil regimes.

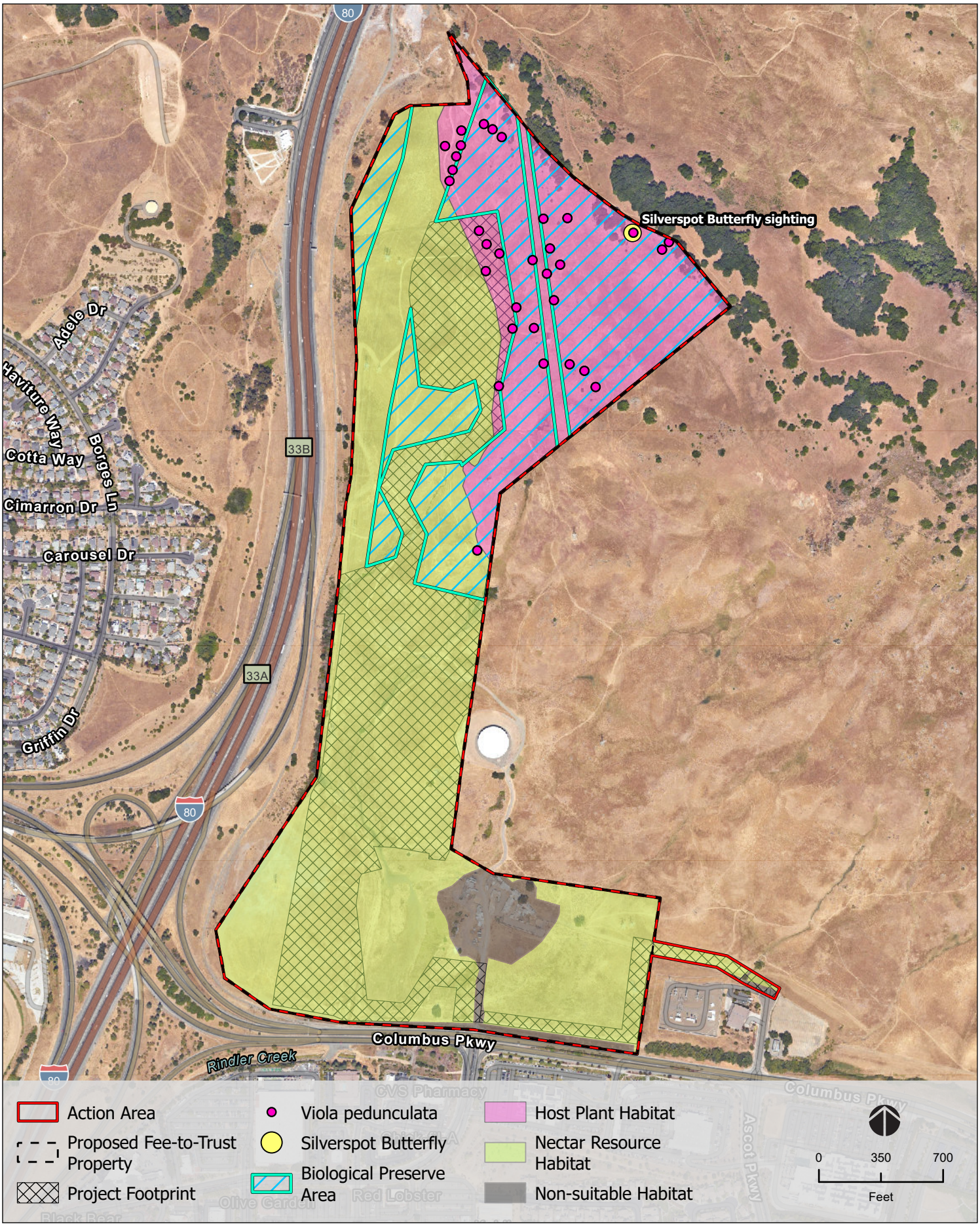

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Figure 9

Callippe Silverspot Butterfly Habitat

4.7 CRUSTACEANS

Vernal Pool Fairy Shrimp (*Branchinecta lynchi*)

Threatened

The vernal pool fairy shrimp is a small, freshwater crustacean that is found in vernal pools in California. They have slender bodies, large, stalked compound eyes and 11 pairs of swimming legs that also function as gills. They glide gracefully through the water upside down, swimming by beating their legs in a complex, wavelike movement that passes from front to back. Unlike other types of shrimp, the vernal pool fairy shrimp does not have a hard outer shell. Vernal pool fairy shrimp are restricted to vernal pools found in California and southern Oregon. They are currently found in 32 counties across California's Central Valley, central coast, and southern California, and in Jackson County in southern Oregon (USFWS, 2024h).

The Action Area does not contain vernal pools; seasonal wetlands are emergent marshes that are choked with rushes and sedges, and do not contain persistent pools of water suitable for vernal pool crustaceans. There is no potential for vernal pool fairy shrimp to occur in the Action Area.

Section 5 | Effects Determination

Based on guidance provided by the ESA Section 7 Effects Determination Guidance, possible effects determinations for the Proposed Action are:

- **No effect:** The proposed action will not affect the listed species or critical habitat.
- **May affect but is not likely to adversely affect:** The proposed action will affect a listed species in a way that is discountable, insignificant, or completely beneficial. Discountable effects are extremely unlikely to occur; insignificant effects are impacts small enough that they never reach the scale where a take occurs, and completely beneficial effects are positive effects without any adverse effects to the species.
- **May affect and is likely to adversely affect:** The proposed action will either directly or indirectly, or through its interrelated and interdependent actions, adversely affect a listed species.

These guidelines were used in determining conclusions of this BA and are discussed for the critical habitat and listed species below.

5.1 POTENTIAL ADVERSE EFFECTS ON CRITICAL HABITAT

Designated critical habitat occurs within the northern edge of the Action Area for CRLF as shown in **Figure 6**. The Proposed Action does not involve any habitat conversion or ground disturbance in, or near, this critical habitat. The biological preserve area identified in **Figure 4** captures and preserves the totality of the CRLF critical habitat that overlaps with the Action Area. Implementation of the Proposed Action will have no effect on designated critical habitat for any federally listed species.

5.2 POTENTIAL ADVERSE EFFECTS ON LISTED SPECIES

The following is a discussion of potential adverse impacts by species that could occur as a result of the Proposed Action. Each species identified in the USFWS species list included as **Attachment A** is discussed herein.

Showy Indian Clover

Suitable habitat for showy Indian clover is present in the Action Area in the hilly northern half of the Action Area that contains marshes and annual grassland/rock outcrop habitats. Botanical surveys conducted on June 27, 2023 and April 7 and June 1, 2024 did not detect this species. The Action Area is not located within any of the known populations of showy Indian clover, which is restricted to those locations. The biological preserve would capture the majority of the suitable habitat for this species within the Action Area. As this species is absent from the Action Area and suitable habitat would be preserved, the Proposed Action would have no effect on showy Indian clover.

Tiburon Paintbrush

As discussed in **Section 4.1**, this species occurs on serpentine soils in bunchgrass habitat, and the Action Area does not contain the requisite habitat. Botanical surveys conducted on June 27, 2023 and April 7, and June 1, 2024 did not detect this species, although more common species of *Castilleja* were present

and identifiable. Because of the lack of suitable habitat and the negative results of focused botanical surveys for the species, it is concluded that Tiburon paintbrush has no potential to occur in the Action Area. Therefore, the Proposed Action would have no effect on Tiburon paintbrush.

Salt Marsh Harvest Mouse

As discussed in **Section 4.2**, there is no suitable habitat for salt marsh harvest mouse in the Action Area, and this species does not have potential to occur. Therefore, the Proposed Action would have no effect on salt marsh harvest mouse.

California Least Tern

As discussed in **Section 4.3**, there is no suitable habitat for California least tern in the Action Area, and this species does not have potential to occur. Therefore, the Proposed Action would have no effect on California least tern.

California Ridgway's Rail

As discussed in **Section 4.3**, there is no suitable habitat for California Ridgway's rail in the Action Area, and this species does not have potential to occur. Therefore, the Proposed Action would have no effect on California Ridgway's rail.

Western Snowy Plover

As discussed in **Section 4.3**, there is no suitable habitat for western snowy plover in the Action Area, and this species does not have potential to occur. Therefore, the Proposed Action would have no effect on western snowy plover.

Northwestern Pond Turtle

Northwestern pond turtle is not known to occur in the Action Area, general wildlife surveys did not detect it, and implementation of the Proposed Action is therefore not expected to result in direct take (mortality) of a known population. As discussed in **Section 4.4**, northwestern pond turtle will travel up to 500 meters from suitable breeding habitat for nesting and aestivation. **Figure 10** presents suitable breeding habitat for northwestern pond turtle in relation to the Action Area. As shown on **Figure 10**, no suitable breeding habitat occurs within 500 meters of the Action Area. Since there are no perennial ponds or channels or other permanent water sources in the Action Area or within 500 meters of the Action Area, there is no aestivation or nesting habitat in the Action Area.

Northwestern pond turtles are known to disperse up to 4.3 miles within waterbodies and up to 3 miles across terrestrial upland habitat (Federal Register, 2023). The nearest records of northwestern pond turtle in relation to the Action Area are in Sulphur Springs Creek approximately 2 miles east, and in the sloughs of American Canyon 3 miles northwest. Therefore, according to USFWS, both aquatic and terrestrial habitat within the Action Area could be used as dispersal habitat. Although northwestern pond turtle is only likely to utilize the marsh and channel system that runs through the center of the Action Area, this report conservatively assesses for loss of terrestrial and aquatic dispersal habitat within the Action Area. It is further noted that dispersal habitat within the Action Area is of lower quality and is less likely to be utilized due to the adjacent major freeways bounding the Action Area to the west and south, and the ongoing human disturbance associated with cattle and horse grazing.

California State Parks, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS, Source: Esri, USDA FSA, Airbus,USGS,NGA,NASA,CGIAR,NCEAS,NLS,OS,NMA,Geodatastyrelsen,GSA,GSI and the GIS User Community; Acorn Environmental, 10/10/2024

Figure 10

Suitable Aquatic Breeding Habitat for Northwestern Pond Turtle

The grading area of the Proposed Action is 60.0 acres, 0.5 of which is ruderal/developed habitat that is unsuitable for this species. Therefore, the Proposed Action would result in the loss of 59.5 acres of low-quality dispersal habitat. Approximately 104 acres, or 63.4 percent of the Action Area would remain undeveloped and could still be utilized by dispersing northwestern pond turtle. Additionally, impacts to the marsh habitat suitable for dispersal would primarily be related to re-routing of an existing drainage. The drainage that would be re-routed is currently approximately 1,520 linear feet. The re-routed drainage would total approximately 920 linear feet and is expected to largely replace the marsh habitat. Finally, as part of project design, seven bioretention ponds would be installed throughout the Action Area in order to collect treated stormwater runoff. Therefore, the Proposed Action would result in a loss of a portion of the dispersal habitat within the Action Area, but would remain useable as dispersal habitat following construction and would provide dispersal habitat of greater value to northwestern pond turtle through the replacement of terrestrial habitat with pond habitat.

It is also possible that northwestern pond turtle could migrate into the Action Area between the time of the last wildlife surveys and the beginning of construction. To ensure that northwestern pond turtles are not directly impacted by project activities, the following avoidance measures are identified in **Section 6**: pre-construction surveys, the erection of wildlife exclusion fencing, worker environmental awareness training, and periodic biological monitoring. These measures would ensure that there will be no take of northwestern pond turtle during the construction phase. In order to prevent mortality during the operational phase from vehicular traffic, the borders of the paved area shall be designed with a raised curb to prevent northwestern pond turtle from accessing vehicle areas, and bridges or culverts shall be designed over wetlands to allow ongoing access of the undeveloped areas of the Action Area to dispersing northwestern pond turtle.

With the implementation of avoidance, minimization, and mitigation measures specified in **Section 6** and consideration of project design and BMPs, the Proposed Action may affect but is not likely to adversely affect northwestern pond turtle.

Although an adverse impact would not occur, it is noted that the compensatory mitigation proposed for CRLF discussed below involves the preservation of lands in the Action Area or off-site, which will similarly benefit northwestern pond turtle by the preservation of suitable habitat. The Tribe has already committed to preserving a portion of the Action Area (**Figure 4**) that contains 0.3 acres of non-breeding aquatic habitat and 48.8 acres of adjacent dispersal lands.

California Red-legged Frog

Designated critical habitat occurs within the northern edge of the Action Area for California red-legged frog, within the biological preserve area. The Proposed Action does not involve any habitat conversion or ground disturbance in, or near, this critical habitat as discussed in **Section 5.1**. California red-legged frog is not known to occur in the Action Area; therefore implementation of the Proposed Action is not expected to result in direct take (mortality) of a known population. Additionally, the stormwater infrastructure in the Action Area would be designed to infiltrate most stormwater events within 48 hours and would infiltrate a 100-year storm event within 72 hours. This rate of infiltration would avoid attracting breeding CRLF and potentially stranding egg masses. Therefore, indirect loss would not occur from stormwater design.

The Action Area does not contain aquatic breeding habitat for CRLF. However, the Action Area does contain marshes that could be used by CRLF as aquatic dispersal habitat or non-breeding aquatic habitat.

According to USFWS guidance, all lands within 3 miles of a known CRLF population should be considered suitable dispersal habitat for CRLF because such dispersal distances have been documented. As discussed in **Section 4.5**, there are three historic observations of three separate CRLF populations within three miles of the Action Area. Therefore, the entire Action Area could be utilized by CRLF for dispersal, with the exception of areas that are already ruderal/developed, and marsh habitat could be used for as non-breeding aquatic habitat. Therefore, implementation of the Proposed Action would impact approximately 1.1 acres of non-breeding aquatic habitat and 58.4 acres of upland dispersal habitat. Additionally, take of CRLF could occur should construction activities commence within marsh habitat during the dry season (generally following the last spring rains and concluding following the inception of fall rains). Therefore, preconstruction surveys and exclusion identified in **Section 6** would be timed during the active season for CRLF to ensure take would not occur.

The likelihood that CRLF would disperse across the Action Area is higher than northwestern pond turtle given the closer proximity of suitable breeding habitat and the historical occurrence of this species within a portion of Rindler Creek near the Action Area. As discussed above for northwestern pond turtle, dispersal habitat is of lower quality due to adjacent development, major roadways, and ongoing disturbance. The majority of the Action Area (66.5 percent) would remain undeveloped. As discussed above, culverts and/or bridges would be installed to ensure continue access through the Action Area for dispersal. Therefore, the Action Area would continue to remain suitable to serve as dispersal habitat for CRLF.

Loss of suitable non-breeding aquatic habitat would be considered an adverse effect to CRLF. However, impacts to the marsh habitat would be related to re-routing of one of the on-site drainage features and culverting or bridging over aquatic habitat at roadway crossings. An earthen, vegetated swale would be placed to re-route the existing drainage into a naturally occurring low lying area that would drain into the same feature as the existing drainage. The drainage that would be re-routed is currently approximately 1,520 linear feet. The re-routed drainage would total approximately 920 linear feet and is expected to largely replace the lost non-breeding aquatic habitat. The re-routed drainage would be designed to mimic the existing drainage and would be expected to hold the same volume of water across a similar area as the existing drainage. Therefore, permanent loss of non-breeding aquatic habitat would largely be offset. However, in order to provide a conservative analysis, this report assumes a loss of 1.1 acres of non-breeding aquatic habitat and that such a loss would constitute an adverse effect on CRLF.

Section 6 outlines recommended mitigation to offset loss of this habitat at a 3:1 ratio in-kind through the biological preserve area. The biological preserve area captures 0.3 acres of suitable non-breeding aquatic habitat, and would mitigate for 0.1 acres of impacts to aquatic non-breeding habitat. **Section 6** recommends that the remaining impacts be offset by purchase of CRLF mitigation credits from a conservation bank that is approved by USFWS to sell CRLF mitigation credits and has a service area that includes the Action Area. The mitigation banks serving the Action Area are a mixture of upland and aquatic habitat. While aquatic habitat within the conservation banks would be of greater value than aquatic habitat within the project footprint, upland habitat is of lesser value than aquatic habitat. Mitigation credits cannot specifically be purchased for aquatic versus upland habitat. Therefore, the proposed mitigation measures require a 6:1 credit purchase ratio for impacted aquatic habitat. Although the Project Site would still be passable by CRLF following construction, **Section 6** includes compensatory mitigation at a 3:1 ratio for the loss in acreage of terrestrial dispersal habitat.

Section 6 outlines the habitat preservation and compensatory mitigation actions to ensure that adequate habitat is preserved and properly managed for the benefit of CRLF to offset habitat loss resulting from implementation of the Proposed Action.

It is possible that CRLF could migrate into, or colonize, the Action Area between the time of the last wildlife surveys and the beginning of construction. To ensure that CRLFs are not directly impacted by project activities, the following avoidance measures are identified in **Section 6**: pre-construction surveys, the erection of wildlife exclusion fencing, worker environmental awareness training, and periodic biological monitoring. These measures would ensure that there will be no take of CRLF during the construction phase.

As stated above, the Proposed Project may affect and is likely to adversely affect CRLF via habitat loss. Avoidance, minimization, and mitigation measures are recommended in **Section 6** to address this effect.

Western Spadefoot

As discussed in **Section 4.5**, the Action Area is outside of the extant range of this species and general wildlife surveys did not detect it. Therefore, the Proposed Action would have no effect on western spadefoot.

Callippe Silverspot Butterfly

Callippe silverspot was detected in wildlife surveys in 2023, therefore implementation of the Proposed Action could result in direct take (mortality) of individuals of a known population. The Action Area contains both host breeding plants and nectar resource plants; **Figure 9** identifies the locations of "host plant habitat" and "nectar resource habitat" based upon the presence or absence of the breeding plant *Viola pedunculata*. The project footprint would result in impacts to approximately 3.0 acres of the host plant habitat and 56.5 acres of nectar resource habitat. Thus, project implementation may affect and is likely to adversely affect Callippe silverspot.

Compensatory mitigation is proposed in **Section 6** to reduce the adverse effect. Host plant habitat is of the greatest value, and **Section 6** therefore recommends a mitigation ratio of 3:1 in-kind for impacts to host plant habitat. The loss of nectar resources would still be considered an adverse impact to this species, though this habitat is not as valuable as host plant habitat. Therefore, **Section 6** recommends a mitigation ratio of 3:1 in-kind or 2:1 for higher quality host plant for the loss of nectar resource habitat. Therefore, the Proposed Action would require an offset of 9.0 acres of host plant habitat and 169.5 acres of nectar resource habitat.

The biological preserve area would preserve and manage 34.8 acres of Callippe silverspot host plant habitat and 14.3 acres of nectar resource habitat. Therefore, 9.0 acres of host plant habitat within the biological preserve area would meet the recommended 3:1 ratio for the Proposed Action's impacts to host plant habitat. The remaining 25.8 acres of host plant habitat within the biological preserve area would be counted towards lost nectar resource habitat. There would be a mitigation deficit for impacts to nectar resource habitat. **Section 6** recommends that the remaining impacts to nectar resource habitat be offset by purchase of mitigation credits from a conservation bank that is approved by USFWS to sell Callippe silverspot mitigation credits and has a service area that includes the Action Area.

Section 6 outlines the habitat preservation and compensatory mitigation actions to ensure that adequate habitat is preserved and properly managed for the benefit of Callippe silverspot to offset habitat loss

resulting from implementation of the Proposed Action.

Monarch Butterfly

Wildlife surveys performed in 2023 and 2024 did not detect monarch butterflies. The botanical surveys performed in 2023 and 2024 did not detect milkweeds or other host plants for monarch butterfly. No roost habitat is present within the Action Area and no trees need to be removed for project construction. Implementation of the Proposed Action is therefore not expected to result in direct take (mortality) of a known population. Potential impacts would be limited to loss of suitable foraging habitat.

Project implementation would impact 59.5 acres of land that contains some nectar resources for monarch butterflies. The Proposed Action would avoid 97 acres (62 percent) of suitable nectar resource habitat. Specifically, the area shown as suitable host plant habitat for Callippe silverspot represents the area of highest quality nectar resource habitat for Monarch butterfly as this area has a higher density and variety of flowering plants. The Proposed Action would therefore avoid 39.4 acres (92.9 percent) of the higher quality foraging habitat for Monarch butterfly. Therefore, although this species has not been observed within the Action Area, the Proposed Action would maintain the majority of foraging habitat and over 90 percent of the higher quality foraging habitat.

According to USFWS (2023), the Action Area does not contain overwintering habitat (i.e., specific tree groves on the California coastline), but it is in an overwintering zone of the coast (i.e., within five miles of the coast from Mendocino County south through Santa Barbara County). In this zone, USFWS (2023) has specific land management recommendations that have been adopted as avoidance and minimization measures (see **Section 6**). These land management recommendations will reduce adverse effects on butterflies through the elimination of pesticide use and incompatible landscaping. With the implementation of land management and BMP guidance from USFWS, the Proposed Project may affect but is not likely to adversely affect Monarch butterfly.

Although an adverse effect would not occur, according to the USFWS, compensatory mitigation provided for Callippe silverspot butterfly would also benefit monarch butterfly. The two species can co-exist, and they would both benefit from the preservation of lands containing nectar resources.

Vernal Pool Fairy Shrimp

Vernal pool fairy shrimp are restricted to vernal pools. The Action Area does not contain vernal pools; there is no potential for vernal pool fairy shrimp to occur in the Action Area. Therefore, the Proposed Action would have no effect on vernal pool fairy shrimp.

5.3 INDIRECT EFFECTS AND CUMULATIVE EFFECTS

For the purposes of this assessment, indirect effects consist of the potential off-site degradation of natural habitats, such as the increase in noise or lighting or by the discharge of pollutants to receiving waterbodies. The existing noise environment has significant sources of noise, primarily vehicular traffic from the adjacent high-volume roadways, I-80 and Auto Mall Parkway. There is also noise from the commercial center to the south and the strong winds generated by the maritime climate and mountainous topography. Noise from the Proposed Action will add an increment of noise to the environment (from the operation of air conditioners, fans, generators, etc.), but is not likely to significantly increase the existing noisy environment. Likewise, light pollution exists in the surrounding environment from commercial activities and from vehicles. The proposed commercial and residential buildings will employ light shielding,

low-intensity efficient bulbs, and other light pollution mitigation measures. The Proposed Action will not generate significant new levels of light pollution. Additionally, the Tribe has committed to project BMPs outlined in **Section 1.2**, including use of downcast and shielded light.

The Proposed Action may also result in connections to municipal utilities. Should municipal connections be required, these actions would be limited to connections to existing infrastructure, or placement of infrastructure within the existing adjacent roadways/road shoulders. These areas are already paved/graveled, or otherwise disturbed and would not provide habitat for federally-listed species.

During construction of the proposed facilities and roads, surface water quality has the potential to be degraded from storm water transport of sediment from disturbed soils or by accidental release of hazardous materials or petroleum products from sources such as heavy equipment servicing or refueling. This is a potentially adverse effect for projects that disturb at least 1 acre of ground. On tribal trust land, the Tribe must enroll in the USEPA's 2022 Construction General Permit. On non-federal land, the landowner must enroll under the State Water Quality Control Board's Construction General Permit prior to the initiation of construction. In conjunction with enrollment under either of these permit programs, a Storm Water Pollution Prevention Plan, Erosion Control Plan, and a Hazardous Materials Management/Spill Response Plan must be created and implemented during construction to avoid or minimize the potential for erosion, sedimentation, or accidental release of hazardous materials. Implementation of these measures mandated by law would reduce potential construction-related impacts to water quality. BMPs that would be included within the SWPPP are outlined in **Section 1.2**.

During operation of the proposed facilities and parking lots, surface water quality has the potential to be degraded from stormwater transport of pollutants to receiving waterbodies. This could result in indirect impacts to habitat quality, particularly aquatic habitats. As discussed in **Section 1.2**, the Tribe has included BMPs as a component of project design to ensure that the hydrology of the site is not modified by changes to impervious surfaces and the landform, and that stormwater is treated before discharge.

Other development projects in the City of Vallejo consist of infill development and are separated from the Action Area by heavy development and major roadways (City of Vallejo, 2024). These actions are separated by biological barriers to those species potentially impacted by the Proposed Action and would not cumulatively contribute to potential impacts from the Proposed Action. As these projects are largely infill, they occur in areas of poor quality habitat that are either developed or ruderal in nature.

Section 6 | Avoidance, Minimization, and Mitigation Measures

Measure 1: Preconstruction Surveys and Exclusionary Fencing

To ensure that CRLF and northwestern pond turtle are not present in construction areas, pre-construction clearance surveys shall be conducted by a qualified biologist. A qualified biologist is defined as a person who has the educational background, training, and work experience (handling experience and/or permits) required to perform a specific biological task and have been approved by the USFWS. If any of these species are discovered during the survey, project construction activities shall not begin until the species have voluntarily vacated the construction area or USFWS has been consulted and avoidance and minimization measures established and then implemented.

The pre-construction survey shall occur during the wet season after fall rains have commenced and before the conclusion of spring rains, when northwestern pond turtle and CRLF are most active and most readily identifiable. Once the pre-construction surveys confirm that CRLF and northwestern pond turtle are not present, the construction crew shall immediately install animal exclusion fencing to separate construction areas from the marshes and channels outside of the impact area. The fencing shall be constructed out of plastic weed cloth or construction fabric, shall be keyed into the ground, and shall be supported by stakes and wire mesh, as needed. Fencing shall also be opaque, a minimum three feet in height, and installed with a smooth material such that it cannot be climbed. A qualified biologist shall oversee the installation of the exclusionary fencing to ensure its suitability. A qualified biologist shall also make regular inspections during the preconstruction period and during the construction periods when grading and other ground disturbance activities are occurring to ensure the integrity of the fence.

Measure 2: Worker Environmental Awareness Training

All construction personnel shall receive worker environmental awareness training before they enter the construction site. The training program shall include, at a minimum, descriptions of the focal species (Callippe silverspot and monarch butterflies, CRLF, and northwestern pond turtle), and how to identify and avoid these focal species. Personnel shall be trained to halt work in the event that one of these focal species is observed within the work area and allow the individual to leave the work site on its own. Personnel shall be instructed to limit work activities to the designated construction areas and to properly store equipment and materials in the designated laydown area. A qualified biologist shall make regular inspections during the construction periods when grading and other ground disturbance activities are occurring to ensure best management practices are being adequately followed.

Measure 3: Dispersal Access for Northwestern Pond Turtle and California Red-Legged Frog

The Proposed Action shall be designed such that culverts, free-span bridges, or similar shall be installed where roadways cross drainages. Road crossings shall be designed such that CRLF and northwestern pond turtle can freely pass underneath the road crossings. Additionally, a permanent barrier such as a curb shall be installed around the perimeter of paved areas, with the exception of points of access, to discourage

CRLF and northwestern pond turtle from entering the build environment. Designs of the barrier shall be submitted to USFWS for coordination and approval.

Measure 4: Compensatory Mitigation for California Red-legged Frog

Preservation of CRLF non-breeding aquatic habitat within the biological preserve area shall mitigate for impacts to CRLF non-breeding aquatic habitat at a 3:1 ratio. Preservation of terrestrial CRLF dispersal habitat shall be offset through the preservation of terrestrial dispersal habitat within the biological preserve area at a 3:1 ratio. This area shall be protected via Tribal ordinance and a Memorandum of Understanding with USFWS and the BIA. Funds shall be set aside for management of the preserve, and a management plan shall be adopted by the Tribe in consultation with, and approved by, the USFWS and BIA. The Memorandum of Understanding shall be agreed upon by the Tribe, USFWS, and BIA prior to construction.

Mitigation for the balance of the impacted non-breeding aquatic habitat shall be achieved through the purchase of habitat credits at a 6:1 ratio. Mitigation for the balance of the impacted terrestrial dispersal habitat shall be achieved through the purchase of habitat credits at a 3:1 ratio. This would occur through a bank that contains suitable habitat for the target species, such as: North Bay Highlands Conservation Bank, Ohlone West Conservation Bank; Oursan Ridge Conservation Bank; or Ridge Top Ranch Wildlife Conservation Bank. The selected bank must be approved by the USFWS to sell CRLF credits and must include the Action Area within the service area. Credits shall be purchased prior to construction. Joint species credits may be purchased to satisfy this mitigation.

Measure 5: Compensatory Mitigation for Callippe Silverspot Butterfly

Impacts to host plant habitat shall be offset by preservation of host plant habitat within the biological preserve area at a 3:1 ratio. Impacts to nectar resource habitat shall be mitigated through a combination of the biological preserve area and purchase of mitigation credits. Impacts to nectar resource habitat offset through the biological preserve shall occur at a 3:1 ratio for in-kind preservation of nectar resource habitat, or at a 2:1 ratio for preservation of host-plant habitat. These ratios are summarized in the table below.

The biological preserve area shall be protected via Tribal ordinance and a Memorandum of Understanding with USFWS and the BIA. Funds shall be set aside for management of the preserve, and a management plan shall be adopted by the Tribe in consultation with, and approved by, the USFWS and BIA. The Memorandum of Understanding shall be agreed upon by the Tribe, USFWS, and BIA prior to construction.

Habitat	Recommended mitigation ratio
High-quality host plant and foraging	3:1 in-kind through biological preserve area
Lower quality foraging only	2:1 through high-quality host plant and foraging in biological preserve area, or 3:1 in-kind through biological preserve area, or 3:1 purchase of mitigation credits

Mitigation for the balance of the impacted nectar resource habitat not offset through the biological preserve area shall be achieved through purchase of mitigation credits in a conservation bank. This would occur through a bank that contains suitable habitat for the target species, such as: Ohlone West Conservation Bank or Ridge Top Ranch Wildlife Conservation Bank. Mitigation achieved through this

method would be at a 3:1 ratio. The selected bank must be approved by the USFWS to sell Callippe silverspot credits and must include the Action Area within the service area. Credits shall be purchased prior to construction. Joint species credits may be purchased to satisfy this mitigation.

Measure 6: Land Management Recommendations for Butterfly Protection

To protect Callippe silverspot butterfly and monarch butterfly, the following land management recommendations should be implemented:

- Use of insecticides shall be prohibited; use of herbicides will follow USFWS-approved BMPs
- Utilize only native species in landscaping, erosion control, and habitat restoration
- Time vegetation management activities (such as trimming, mowing, and brush-clearing) to between August 15 – April 30 when the Callippe silverspot is not in flight.
- In the appropriate identification window prior to impacts (generally the February-April blooming period but to be verified by a qualified biologist at a reference site where the host plant is known to occur), a qualified biologist shall survey the Action Area for California golden violet. A qualified biologist is defined as a person who has the educational background, training, and work experience (handling experience and/or permits) required to perform a specific biological task and have been approved by the USFWS. The qualified biologist shall demarcate a 25 foot buffer around host plants. To the maximum extent feasible, the 25-foot buffer shall be maintained around all host plants outside of the project footprint.

The Action Area does not contain monarch overwintering habitat, but it is in the overwintering zone of the coast. In this zone, USFWS (2023) recommends implementation of the Coastal California Overwintering Habitat / Western Monarch Butterfly Conservation Recommendations (see **Attachment D**). A brief summary of the applicable recommendations is as follows:

- Use only native, locally sourced, insecticide-free plants for habitat restoration and enhancement actions. If plants are grown via contract, use grow specifications that limit pesticide residues.
- Protect monarchs, Callippe silverspot, and other pollinators, and their habitats from pesticides, including insecticides, fungicides and herbicides. Avoid applying herbicides to blooming flowers between October 1 – August 15 when monarch butterflies are likely around (October 1 – April 30) and when Callippe silverspot butterflies are in flight (May 1 - August 15).
- To assist in maintaining normal migration behavior, do not plant any type of milkweed.
- Maximize use of non-chemical weed and pest prevention.
- Select a mosaic plant palate of native species that bloom throughout the year.

Section 7 | References

Analytical Environmental Services, 2016. Biological Resources Survey of the Carlson Property, City of Vallejo, California.

Animal Diversity Web (ADW), 2024. Spea hammondii Western Spadefoot. Available online at: https://animaldiversity.org/accounts/Spea_hammondii/. Accessed April 2024.

Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, and T.J. Rosatti, editors. 2012. The Jepson Manual: Vascular Plants of California, second edition, thoroughly revised and expanded. University of California Press, Berkeley, California. 1,600 pp.

California Climate Commons (CCC), 2017. Central Valley Landscape Conservation Project Climate Change Vulnerability Assessment (January 2017 version) California Red-Legged Frog. Available online at: http://climate.calcommons.org/sites/default/files/basic/Red%20Legged%20Frog%20VA.pdf. Accessed May 2024.

CDFW, 2000. California Wildlife Habitat Relationships System California Department of Fish and Wildlife California Interagency Wildlife Task Group. Western Spadefoot. Available online at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=1470. Accessed April 2024.

CDFW, 2024a. California Natural Diversity Database. Accessed via subscription. Available online at: https://wildlife.ca.gov/Data/CNDDB/Maps-and-Data. Accessed April 2024.

CDFW, 2024b. California Wildlife Habitat Relationships System. Available online at: https://wildlife.ca.gov/Data/CWHR. Accessed April 2024.

CDFW, 2024c. Tiburon Paintbrush (*Castilleja affinis subsp. neglecta*). Available online at: https://wildlife.ca.gov/Conservation/Plants/Endangered/Castilleja-affinis-ssp-neglecta. Accessed April 2024.

CaliforniaHerps, 2024. California Red-legged Frog - *Rana draytonii*. Available online at: https://californiaherps.com/frogs/pages/r.draytonii.html. Accessed May 2024.

California Native Plant Society (CNPS). 2024a. Inventory of Rare and Endangered Plants. Internet database available at: https://rareplants.cnps.org/Search/Advanced. Accessed April 2024.

CNPS, 2024b. A Manual of California Vegetation. Available online at: https://vegetation.cnps.org/. Accessed April 2024.

Calflora, 2024a. Calflora, the on-line gateway to information about native and introduced wild plants in California. Database available: https://www.calflora.org/search.html. Accessed April 2024.

Calflora, 2024b. Showy Indian clover. Available online at: https://www.calflora.org/app/taxon?crn=8047. Accessed April 2024.

City of Vallejo, 2024. Development Projects. Available online at: https://www.cityofvallejo.net/our_city/departments_divisions/planning_development_services/economic_development_department/development_projects. Accessed April 2024.

Cowardian et al., 1979. Classification of Wetlands and Deepwater Habitats of the United States. Available online at: https://www.nrc.gov/docs/ML1801/ML18019A904.pdf. Accessed April 2024.

Environmental Laboratory, 1987. Corps of Engineers Wetlands Delineation Manual. Available online at: https://www.lrh.usace.army.mil/Portals/38/docs/USACE%2087%20Wetland%20Delineation%20Manual.pdf. Accessed April 2024.

Holland, D.C. 1994. The western pond turtle: habitat and history. U.S. Department of Energy, Bonneville Power Administration, Portland, Oregon. 11 chapters + appendices. Available online at: https://relicensing.pcwa.net/documents/Library/PCWA-L%20450.pdf. Accessed April 2024.

Huffman-Broadway Group, Inc., 2005. Draft Ecological Constraints Study Columbus Parkway Area of Study, City of Vallejo, California. 42 pp.

Huffman-Broadway Group, Inc., 2006. Biological Assessment, Crossroads Development, Carlson Property, City of Vallejo, California.

Jennings, M.R. 2008. Survey for the California red-legged frog (*Rana draytonii*) on the Carlson Project Site, Vallejo, Solano County, California. 33 pp.

Monk & Associates, Inc. 2022. Biological Resources Analysis: Solano Ranch Project, City Of Vallejo, California. Revised April 29, 2022. Prepared for GTL Properties, LLC. Prepared by Monk & Associates, Inc., Walnut Creek, California. 85 pp.

Montrose Environmental Solutions, 2022. Biological technical memo: Biological Resources Survey at the Vallejo site (adjacent to I-80 and Columbus Parkway). 23 pp.

Montrose Environmental Solutions, 2023. Bio/Botanical Survey Results (technical email)[of the Action Area].

Natural Resources Conservation Service (NRCS), 2024. Web Soil Survey. Available online at: https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx. Accessed April 2024.

NatureServe, 2024a. *Rallus obsoletus obsoletus* California Ridgway's Rail. Available online at: https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.1010073/Rallus_obsoletus_obsoletus. Accessed April 2024.

NatureServe, 2024b. *Actinemys marmorata* Northwestern Pond Turtle. Available online at: https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.103571/Actinemys_marmorata. Accessed May 2024.

Solano County Water Agency (SCWA), 2012. Solano Multispecies Habitat Conservation Plan Final Administrative Draft. Available online at: https://www.scwa2.com/solano-multispecies-habitat-conservation-plan/. Accessed April 2024.

Sunset Western Garden Collection, 2024. Sunset Climate Zones. Available online at: https://sunsetplantcollection.com/climate-zones/zone/san-francisco-bay-area-inland/. Accessed

April 2024.

U.S. Environmental Protection Agency (USEPA), 2024. How's My Waterway? Available online at: https://mywaterway.epa.gov/community/180500020401/overview. Accessed May 2024.

USFWS, 2023a. ECOS California red-legged frog (*Rana draytonii*). Available online at: https://ecos.fws.gov/ecp/species/2891. Accessed May, 2024.

USFWS, 2023b. Western Monarch Butterfly Conservation Recommendations. 7 pp. Available online at: https://xerces.org/sites/default/files/publications/21-015_03.pdf. Accessed April 2024.

USFWS, 2024a. FWS Species Focus. Showy Indian Clover. Available online at: https://www.fws.gov/species/showy-indian-clover-trifolium-amoenum. Accessed April 2024.

USFWS, 2024b. FWS Species Focus. Salt Marsh Harvest Mouse. Available online at: https://www.fws.gov/species/salt-marsh-harvest-mouse-reithrodontomys-raviventris. Accessed April 2024.

USFWS, 2024c. FWS Species Focus. California Least Tern. Available online at: https://www.fws.gov/species/california-least-tern-sterna-antillarum-browni. Accessed April 2024.

USFWS, 2024d. ECOS Western Snowy Plover (*Charadrius nivosus nivosus*). Available online at: https://ecos.fws.gov/ecp/species/8035. Accessed April 2024.

USFWS, 2024e. FWS Species Focus. California Red-Legged Frog. Available online at: https://www.fws.gov/species/california-red-legged-frog-rana-draytonii. Accessed April 2024.

USFWS, 2024f. FWS Species Focus. Callippe Silverspot Butterfly. Available online at: https://www.fws.gov/species/callippe-silverspot-butterfly-speyeria-callippe-callippe. Accessed April 2024.

USFWS, 2024g. ECOS Monarch butterfly (*Danaus plexippus*). Available online at: https://ecos.fws.gov/ecp/species/9743. Accessed April 2024.

University of California at Berkeley. 2024. Jepson Online Interchange for California Floristics. Jepson Flora Project, University Herbarium and Jepson Herbarium, University of California at Berkeley. Internet database available at http://ucjeps.berkeley.edu/interchange.html. Accessed April 2024.

Section 8 | Qualifications of Preparers

G.O. Graening, Ph.D., M.S.E.

G.O. Graening holds a Doctorate in Biological Sciences and a Master of Science in Biological Engineering and is a certified arborist (International Society of Arboriculture). Dr. Graening has 30 years of experience in biological assessment and research. Dr. Graening also served as an adjunct professor of biology at California State University Sacramento for 10 years and was an active researcher in the area of conservation biology and groundwater ecology.

Kelli Raymond, B.S.

Ms. Raymond holds a B.S. in Animal Biology with a focus on Wildlife Ecology. She has approximately 10 years of experience collecting field data and preparing environmental assessments. Ms. Raymond has worked in several states across the U.S. performing biological resources surveys, including plant surveys, bat acoustic and flyout monitoring, and wildlife utilization monitoring. She also has experience live handling numerous wildlife species, including fish, migratory birds, and big game. Ms. Raymond is experienced in the preparation of Biological Assessments and Section 7 consultation with both the USFWS and NMFS under the federal Endangered Species Act.

Attachment A

USFWS Species List

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To: 04/02/2024 15:21:21 UTC
Project Code: 2024-0071372
Project Name: Scotts Valley FTT

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

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through IPaC by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at: https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see Migratory Bird Permit | What We Do | U.S. Fish & Wildlife Service (fws.gov).

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

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

This species list is provided by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

PROJECT SUMMARY

Project Code: 2024-0071372
Project Name: Scotts Valley FTT
Project Type: Acquisition of Lands
Project Description: FTT and economic development
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@38.1462182,-122.21407914662836,14z

Counties: Solano County, California

ENDANGERED SPECIES ACT SPECIES

There is a total of 12 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. 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.

MAMMALS

NAME	STATUS
Salt Marsh Harvest Mouse *Reithrodontomys raviventris* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/613	Endangered

BIRDS

NAME	STATUS
California Least Tern *Sternula antillarum browni* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8104	Endangered
California Ridgway"s Rail *Rallus obsoletus obsoletus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4240	Endangered
Western Snowy Plover *Charadrius nivosus nivosus* Population: Pacific Coast population DPS-U.S.A. (CA, OR, WA), Mexico (within 50 miles of Pacific coast) There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8035	Threatened

REPTILES

NAME	STATUS
Northwestern Pond Turtle *Actinemys marmorata* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1111	Proposed Threatened

AMPHIBIANS

NAME	STATUS
California Red-legged Frog *Rana draytonii* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened
Western Spadefoot *Spea hammondii* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5425	Proposed Threatened

INSECTS

NAME	STATUS
Callippe Silverspot Butterfly *Speyeria callippe callippe* There is **proposed** critical habitat for this species. Species profile: https://ecos.fws.gov/ecp/species/3779	Endangered

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

CRUSTACEANS

NAME	STATUS
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened

FLOWERING PLANTS

NAME	STATUS
Showy Indian Clover *Trifolium amoenum* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6459	Endangered
Tiburon Paintbrush *Castilleja affinis ssp. neglecta* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2687	Endangered

CRITICAL HABITATS

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
California Red-legged Frog *Rana draytonii* https://ecos.fws.gov/ecp/species/2891#crithab	Final

IPAC USER CONTACT INFORMATION

Agency: Scotts Valley Band of Pomo Indians of California
Name: Kelli Raymond
Address: 5170 Golden Foothill Parkway
City: El Dorado Hills
State: CA
Zip: 95762
Email kraymond@acorn-env.com
Phone: 9162358224

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Bureau of Indian Affairs

Attachment B

Site Photographs

View looking south of southeastern corner of Action Area and entrance gate.

View looking north along western boundary of Action Area with willow scrub and emergent marsh

View looking west of a graded commercial pad with an erosion gully in a pasture setting

View looking southeast in the middle edge of the Action Area at degraded marsh and horses grazing on neighboring property

View looking northwest in the middle of the Action Area of marsh and electrical transmission lines, with the roadbed of Interstate 80 in the background and a channel and riparian habitat at the base.

Closeup view of the riparian vegetation (primarily arroyo willow)

View looking north of the primary drainage system, which is a series of intermittent channels and wetland pools

View looking south from the northern portion of the Action Area showing the metamorphic rock outcrop and steep slopes

View looking southwest from the northern portion of the Action Area showing the metamorphic rock outcrop and steep slopes and annual grassland

View looking south of pasture and rolling hills and drainage systems in the valleys, with I-80 on the right.

View looking north at the area proposed for tribal housing.

Attachment C

Species Observed

Plants and Animals Observed During the Acorn Environmental Field Surveys on April 3 and 7, May 4, and June 1, 2024, and Prior Field Surveys by Others

Common Name	Scientific Name
PLANTS	
Yarrow	*Achillea millefolium*
Mountain dandelion	*Agoseris sp.*
Bentgrass	*Agrostis sp.*
Silver hairgrass	*Aira caryophyllea*
Crinkled onion	*Allium crispum*
Greater ammi	*Ammi majus*
Common fiddleneck	*Amsinckia intermedia*
Rigid fiddleneck	*Amsinckia retrorsa*
Dog fennel	*Anthemis cotula*
Narrowleaf milkweed	*Asclepias fascicularis*
Hastate orache	*Atriplex prostrata*
Slender wild oat	*Avena barbata*
Coyote brush	*Baccharis pilularis*
Mediterranean lineseed	*Bellardia trixago*
False brome	*Brachypodium distachyon*
Black mustard	*Brassica nigra*
Quaking grass	*Briza minor*
Elegant brodiaea	*Brodiaea elegans*
Weedy brome	*Bromus caroli-henrici*
Ripgut brome	*Bromus diandrus*
Soft chess	*Bromus hordeaceus*
Madrid brome	*Bromus madritensis*
Red brome	*Bromus rubens*
Red maids	*Calandrinia ciliata*
Yellow mariposa lily	*Calochortus luteus*
Superb mariposa lily	*Calochortus superbus*
Western morning glory	*Calystegia occidentalis*
Shepherd's purse	*Capsella bursa-pastoris*
Italian thistle	*Carduus pycnocephalus*
Slender flowered thistle	*Carduus tenuiflorus*
Valley tassels	*Castilleja attenuata*
Purple owl's clover	*Castilleja exserta*
Purple star thistle	*Centaurea calcitrapa*
Maltese star thistle	*Centaurea melitensis*
Yellow star thistle	*Centaurea solstitialis*
Meadow chickweed	*Cerastium arvense subsp. strictum*
Sticky mouse-eared chickweed	*Cerastium glomeratum*
Wavy leaf soap plant	*Chlorogalum pomeridianum*
Bull thistle	*Cirsium vulgare*
Clarkia	*Clarkia sp.*
Miner's lettuce	*Claytonia perfoliata*

Poison hemlock	*Conium maculatum*
Field bindweed	*Convolvulus arvensis*
Brass-buttons	*Cotula coronopifolia*
Pygmy weed	*Crassula tillaea*
Artichoke thistle	*Cynara cardunculus*
Cardoon	*Cynaria cardunculus*
Bermuda grass	*Cynodon dactylon*
Rattlesnake weed	*Daucus pusillus*
Bush monkeyflower	*Diplacus aurantiacus*
Stinkwort	*Dittrichia graveolens*
Canyon dudleya	*Dudleya cymosa*
Mexican tea	*Dysphania ambrosioides*
Creeping spikerush	*Eleocharis macrostachya*
Tall willowherb	*Epilobium brachycarpum*
Naked buckwheat	*Eriogonum nudum*
Broad leaved filaree	*Erodium botrys*
Red-stemmed filaree	*Erodium cicutarium*
White stem filaree	*Erodium moschatum*
Coyote thistle	*Eryngium sp.*
Yellow monkeyflower	*Erythranthe guttata*
California fawn lily	*Erythronium californicum*
California poppy	*Eschscholzia californica*
Blue gum	*Eucalyptus globulus*
Petty spurge	*Euphorbia peplus*
Pacific fescue	*Festuca microstachys*
Rattail sixweeks grass	*Festuca myuros*
Italian ryegrass	*Festuca perennis*
Fennel	*Foeniculum vulgare*
California coffeeberry	*Frangula californica*
Bedstraw	*Galium aparine*
Wall bedstraw	*Galium parisiense*
Nit grass	*Gastridium phleoides*
Cutleaf geranium	*Geranium dissectum*
Bird’s eye gilia	*Gilia tricolor*
Waxy mannagrass	*Glyceria declinata*
Salt heliotrope	*Heliotropium curassavicum*
Bristly oxtongue	*Helminthotheca echioides*
Hayfield tarplant	*Hemizonia congesta*
Few flowered evax	*Hesperevax sparsifolia var sparsiflora*
California western flax	*Hesperolinon californicum*
Shortpod mustard	*Hirschfeldia incana*
Meadow barley	*Hordeum brachyantherum*
Mediterranean barley	*Hordeum marinum ssp. gussoneanum*
Hare barley	*Hordeum murinum subsp. leporinum*
Wall barley	*Hordeum murinum*
Smooth cat’s-ear	*Hypochaeris glabra*

Rough cat's-ear	*Hypochaeris radiata*
Hyssop loosestrife	*Lythrum hyssopifolia*
Black walnut	*Juglans nigra*
Baltic rush	*Juncus balticus*
Toad rush	*Juncus bufonius*
Iris-leaved rush	*Juncus xiphioides*
Willow lettuce	*Lactuca saligna*
Prickly lettuce	*Lactuca serriola*
Bitter lettuce	*Lactuca virosa*
California goldfields	*Lasthenia californica*
Hawkbit	*Leontodon saxatilis*
Field pepperweed	*Lepidium campestre*
Perennial pepperweed	*Lepidium latifolium*
Shining peppergrass	*Lepidium nitidum*
Jepson's leptosiphon	*Leptosiphon jepsonii*
California cottonrose	*Logfia filaginoides*
Lomatium	*Lomatium sp.*
Bird's-foot trefoil	*Lotus corniculatus*
Western lupine	*Lupinus formosus*
Scarlet pimpernel	*Lysimachia arvensis*
Hyssop loosestrife	*Lythrum hyssopifolia*
Alkali mallow	*Malvella leprosa*
California man-root	*Marah fabacea*
German chamomile	*Matricaria chamomilla*
California burclover	*Medicago polymorpha*
California melic grass	*Melica californica*
Silverpuffs	*Microseris sp.*
Seep monkeyflower	*Mimulus guttatus*
Watercress	*Nasturtium officinale*
Olive	*Olea europaea*
Bermuda buttercup	*Oxalis pes-caprae*
Goldback fern	*Pentagramma triangularis*
Kellogg's Yampah	*Perideridia kelloggii*
Common phacelia	*Phacelia distans*
Imbricate phacelia	*Phacelia imbricata*
Phacelia	*Phacelia sp.*
Dwarf plantain	*Plantago erecta*
English plantain	*Plantago lanceolata*
Annual bluegrass	*Poa annua*
One-sided bluegrass	*Poa secunda*
Bluegrass	*Poa sp.*
Licorice fern	*Polypodium arenastrum*
Rabbit's-foot grass	*Polypogon monspeliensis*
Cherry plum	*Prunus cerasifera*
Cudweed	*Pseudognaphalium sp.*
Fairy mist	*Pterostegia drymarioides*

Pear	*Pyrus sp.*
Coast live oak	*Quercus agrifolia*
California buttercup	*Ranunculus californicus*
White water buttercup	*Ranunculus lobbii*
Prickleseed buttercup	*Ranunculus muricatus*
Western buttercup	*Ranunculus occidentalis*
Black locust	*Robinia pseudoacacia*
Himalayan blackberry	*Rubus armeniacus*
Sheep sorrel	*Rumex acetosella*
Curly dock	*Rumex crispus*
Fiddleleaf dock	*Rumex pulcher*
Arroyo willow	*Salix lasiolepis*
Blue elderberry	*Sambucus nigra ssp. caerulea*
Poison sanicle	*Sanicula bipinnata*
Purple sanicle	*Sanicula bipinnatifida*
California bee plant	*Scrophularia californica*
Old man of spring	*Senecio vulgare*
Field madder	*Sherardia arvensis*
Windmill pinks	*Silene gallica*
Milk thistle	*Silybum marianum*
Blue-eyed grass	*Sisyrinchium bellum*
White nightshade	*Solanum americanum*
South American soliva	*Soliva sessilis*
Sow thistle	*Sonchus oleraceus*
White hedge nettle	*Stachys albens*
Hedge nettle	*Stachys pycnantha*
Purple needlegrass	*Stipa pulchra*
Tall sock-destroyer	*Torilis arvensis*
Dwarf sack clover	*Trifolium depauperatum*
Poison-oak	*Toxicodendron diversilobum*
Hop clover	*Trifolium dubium*
Strawberry clover	*Trifolium fragiferum*
Rose clover	*Trifolium hirtum*
Thimble clover	*Trifolium microdon*
Subterranean clover	*Trifolium subterraneum*
White tipped clover	*Trifolium variegatum*
Ithuriel's spear	*Triteleia laxa*
California bay	*Umbellularia californica*
Dwarf nettle	*Urtica urens*
Spring vetch	*Vicia sativa*
Winter vetch	*Vicia villosa*
California golden violet	*Viola pedunculata*
Narrow leaf mule ears	*Wyethia angustifolia*
Spiny cocklebur	*Xanthium spinosum*
Muehlenberg's centaury	*Zeltnera muehlenbergii*
ANIMALS	

red-winged blackbird	*Agelaius phoeniceus*
American pipit	*Anthus rubescens*
western scrub-jay	*Aphelocoma californica*
yellow faced bumblebee	*Bombus* sp.
cow	*Bos taurus*
California toad	*Bufo boreas halophilus*
red-tailed hawk	*Buteo jamaicensis*
red-shouldered hawk	*Buteo lineatus*
Anna's hummingbird	*Calypte anna*
turkey vulture	*Cathartes aura*
killdeer	*Charadrius vociferus*
Northern harrier	*Circus hudsonius*
California striped racer	*Coluber lateralis lateralis*
rock dove	*Columbia livia*
American crow	*Corvus brachyrhynchos*
common raven	*Corvus corax*
horse	*Equus caballus*
Brewer's blackbird	*Euphagus cyanocephalus*
American kestrel	*Falco sparverius*
Feral cat	*Felis catus*
house finch	*Haemorhous mexicanus*
barn swallow	*Hirundo rustica*
black-tailed jackrabbit	*Lepus californicus*
song sparrow	*Melospiza melodia*
California towhee	*Melozone crissalis*
California vole	*Microtus californicus*
northern mockingbird	*Mimus polyglottos*
brown-headed cowbird	*Molothrus ater*
Columbian black-tailed deer	*Odocoileus hemionus columbianus*
California ground squirrel	*Otospermophilus beecheyi*
savannah sparrow	*Passerculus sandwichensis*
deer mouse	*Peromyscus maniculatus*
Cliff swallow	*Petrochelidon pyrrhonota*
raccoon	*Procyon lotor*
bushtit	*Psaltriparus minimus*
Sierran treefrog	*Pseudacris sierra*
skipper butterfly	*Pyrginae*
black phoebe	*Sayornis nigricans*
Say's phoebe	*Sayornis saya*
northwestern fence lizard	*Sceloporus occidentalis occidentalis*
Yellow-rumped warbler	*Setophaga coronata*
Callippe silverspot butterfly	*Speyeria callippe callippe*
lesser goldfinch	*Spinus psaltria*
American goldfinch	*Spinus tristis*
northern rough-winged sparrow	*Stelgidopteryx serripennis*
western meadowlark	*Sturnella neglecta*

European starling	*Sturnus vulgaris*
violet green swallow	*Tachycineta thalassina*
northern rough-skinned newt	*Taricha granulosa granulosa*
Botta's pocket gopher	*Thomomys bottae*
Bewick's wren	*Thryomanes bewickii*
Western kingbird	*Tyrannus verticalis*
mourning dove	*Zenaida macroura*
golden-crowned sparrow	*Zonotrichia atricapilla*
white-crowned sparrow	*Zonotrichia leucophrys*

Attachment D

USFWS Western Monarch Butterfly Conservation Reccommendations

U.S. FISH & WILDLIFE SERVICE

February 10, 2023

Western Monarch Butterfly Conservation Recommendations:

Purpose: Section 7(a)(1) of the Endangered Species Act of 1973 (ESA), directs federal agencies to use their authorities to further the purpose of the ESA, by conducting conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary activities that an action agency may undertake to avoid and minimize the adverse effects of a proposed action, implement recovery plans, or to develop information that is useful for the conservation of listed species. The purpose of the following conservation recommendations is to encourage federal agencies to incorporate monarch butterflies into their Environmental Assessments and Biological Assessments associated with Section 7 Biological Opinions, when in consultation with the U.S. Fish & Wildlife Service. These recommendations are organized by habitat zone, so that they may be cut/paste, as applicable and contingent upon project location. There is potential utility for these recommendations beyond Section 7, and they are intended to promote benefits for other pollinators as well.

Background: The western migratory monarch butterfly population has declined by more than 90 percent since the 1980s. An estimated 4.5 million monarchs overwintered on the California coast in the 1980s, whereas in 2022, the population estimate for overwintering monarchs was 335,000 butterflies. The population decline is likely due to multiple stressors across the monarch's range, including the loss and degradation of overwintering habitat; pesticide use, particularly insecticides; loss of breeding and migratory habitat; climate change; parasites and disease. Historically, the majority of western monarchs spent the winter in forested groves near the coast from Mendocino County, California, south into northern Baja California, Mexico. In recent years, monarchs have not clustered in the southern-most or northern-most parts of their overwintering range, and there are year-round residents in some areas of the coast. This resident phenomenon is likely due to a combination of climate change and an abundance of residential-planted non-native, tropical milkweed that is available for monarchs year-round. Migratory western monarchs depart the overwintering sites in mid-winter to early-spring. Throughout the spring and summer, monarchs breed, lay their eggs on milkweed, and migrate across multiple generations within California and other states west of the Rocky Mountains. In an attempt to reverse the severe population decline of western monarch butterflies, and to protect other pollinators as well, we encourage implementation of the conservation recommendations listed below. Please see Figure 1 for suggested areas to focus voluntary conservation actions in California. Western monarch conservation actions outside of California are also important, especially for the larger pollinator community. Recommendations for other western states are addressed in the "All Breeding and Migratory Zones" section of this document.

Please contact Samantha Marcum (samantha_marcum@fws.gov) or Cat Darst (cat_darst@fws.gov) with questions or suggestions on these recommendations.

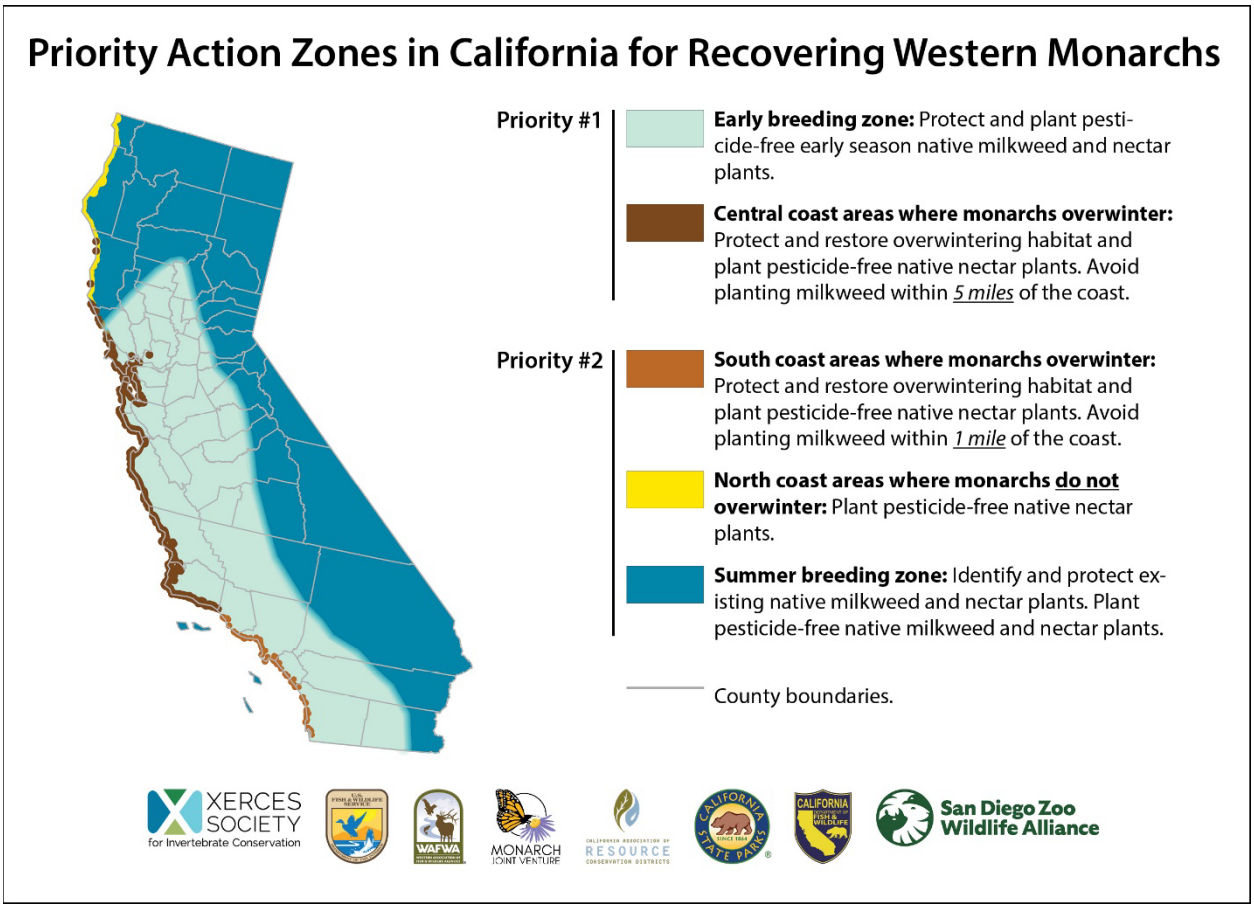

Figure 1. Priority Monarch Habitat Restoration Areas in California.

Coastal California Overwintering Habitat: Western monarchs migrate to the California coast, and cluster in a specific set of forested tree groves during the fall and winter each year. Overwintering sites provide protection from inclement weather and possess suitable vegetation and microclimate conditions for monarchs (e.g., roosting/clustering trees, wind protection, dappled sunlight, nectar sources, water and/or dew for hydration, high humidity, and an absence of freezing temperatures). Overwintering sites consist of a core zone (cluster area), shelter zone (wind protection and outer site boundaries surrounding core zone) and support zone (area within 500 feet of an overwintering site that provides nectar, hydration, and microclimate protection). In the overwintering zone of the coast (i.e., within five miles of the coast from Mendocino County south through Santa Barbara County, and within one mile of the coast from Ventura County south through San Diego County), we recommend the following:

1. Protect, manage, enhance and restore monarch butterfly overwintering sites (Find an Overwintering Site) and surrounding habitat.
2. Use only native, insecticide-free plants for habitat restoration and enhancement actions. If plants are grown via contract, use grow specifications that limit pesticide residues.

Please contact Samantha Marcum (samantha_marcum@fws.gov) or Cat Darst (cat_darst@fws.gov) with questions or suggestions on these recommendations.

3. Conduct overwintering site habitat assessments and develop and implement long-term management plans. Management plan actions may include, but are not limited to:

    a. Enhance habitat within overwintering sites and within 500 feet (support zone) of sites by planting tree species where monarchs are known to cluster (e.g., Monterey pine *(Pinus radiata)*, Monterey cypress *(Cupressus macrocarpa)*, Coast redwood *(Sequoia sempervirens)*, coast live oak *(Quercus agrifolia),* Douglas fir *(Pseudotsuga menzesii),* Torrey pine (*Pinus torreyana*), western sycamore *(Platanus racemosa),* bishop pine *(Pinus muricata)*, as appropriate for location.

    b. Avoid the removal of living trees or shrubs within 500 feet of overwintering sites, except for specific grove enhancement purposes (e.g., if select thinning is recommended to benefit monarchs), and/or for human safety concerns substantiated by a hazard tree assessment. Dead or fallen trees may be removed, chipped, or pile burned within the overwintering site outside of the overwintering season in order to reduce disease and fuels buildup.

    c. Reduce fuel loads and minimize the risk of catastrophic wildfire within overwintering habitat through selective thinning of small diameter (8" or less) trees in the support zone and, in some instances, the shelter zone of overwintering sites. The risks and benefits of fuels management should be assessed on a case-by-case basis for each site.

    d. Conduct management activities (e.g., tree trimming, mowing, burning and grazing) in monarch overwintering sites from March 1-September 30 (outside of estimated timeframe when monarchs are likely present), in coordination with a monarch biologist. Planting trees, shrubs, and forbs (without use of heavy machinery) for restoration is acceptable during the overwintering season.

    e. Enhance nectar sources by planting fall/winter/early spring blooming native forbs, shrubs, or trees within overwintering sites and within five miles of the coast (Nectar Planting Lists).

4. Protect monarchs, other pollinators, and their habitats from pesticides, including insecticides, fungicides and herbicides. Specific recommendations may vary by site.

    a. Avoid the use pesticides within 500 feet of overwintering sites, particularly when monarchs may be present.

    b. Use non-chemical weed and pest prevention and management methods, and monitor pest pressure to minimize reliance on pesticides for managing insects, mites, weeds, and diseases (Cal-IPC Non-chemical BMPs).

    c. If pesticides are used in or adjacent to overwintering habitat, then conduct applications from March 1-September 30, when possible, and adhere to the following guidance to lessen potentially harmful effects:

i. Avoid the use of neonicotinoids or other systemic insecticides, including coated seeds, any time of the year in monarch habitat due to their ecosystem persistence, systemic nature, and toxicity (Xerces Systemic Insecticides List).

ii. Avoid insecticides that target lepidopterans, including biological pesticides (IRAC Lepidoptera Insecticide Mode of Action Classification).

iii. If herbicides are used, apply when plants are more responsive to treatment and when monarchs and other pollinators are less likely to be nectaring on the plants.

iv. Avoid pesticide application to blooming plants when monarchs may be present.

v. Use targeted application methods, avoid large-scale broadcast applications and take precautions to limit off-site movement of pesticides (e.g., drift from wind and discharge from surface water flows).

vi. Protect habitat areas from pesticide drift with a pesticide-free spatial buffer and/or evergreen vegetative buffer of trees with flowers that are not attractive to pollinators. The appropriate width of monarch and pollinator habitat spatial buffers depends on several factors, including weather and wind conditions, but at a minimum, the habitat should be at least 40 feet from ground-based pesticide applications, 60 feet from air-blast sprayers, and 200 feet from aerial applications or any systemic insecticide applications or plants grown from treated seeds.

vii. If pesticides are used for vector control treatments (e.g., mosquitoes), avoid treatment unless monitoring indicates that the species and numbers exceed a public health threshold. For any mosquito treatments, first employ prevention steps such as reducing standing water. Where possible, draw mosquitoes away from sensitive sites (e.g., using dry ice traps) to limit treatment effects in sensitive habitat areas.

5. To assist in maintaining normal migration behavior, do not plant any type of milkweed at or adjacent to overwintering sites.

   a. To minimize the spread of the pathogen *Ophryocystis elektroscirrha* (OE), and to encourage natural monarch migration, do not plant non-native tropical milkweed (*Asclepias curassavica*) anywhere. OE is able to build up on tropical milkweed, because these plants are evergreen, and they do not die back in the winter. OE can be lethal to monarchs.

   b. Remove tropical milkweed and replace with native nectar plants (Nectar Planting Lists).

6. To contribute to regional and population-level assessments, monitor monarchs and assess conditions of overwintering sites during Thanksgiving and New Year's counts. When possible, report when monarchs arrive and depart the overwintering sites each year (Western Monarch Count).

Please contact Samantha Marcum (samantha_marcum@fws.gov) or Cat Darst (cat_darst@fws.gov) with questions or suggestions on these recommendations.

7. To provide benefits for monarchs and other pollinators anywhere along the coast, install a mosaic of native nectar plants that bloom throughout the year (Nectar Planting Lists).

Breeding and Migratory Habitat: Monarch butterflies breed and migrate across multiple generations each year throughout the western U.S. The early breeding zone (i.e., Priority 1 in Figure 1) is an area in California where monarchs likely breed and/or lay their eggs on milkweed after departing the overwintering sites in mid-winter to early spring each year. Early-emerging milkweed species are an important resource for monarchs in the early breeding zone and may be associated with the population trends of western monarchs: these plants are essential to create the next generation of migratory butterflies. For monarch breeding and migratory habitat, we recommend the following:

Priority 1 Zone:

1. Enhance and maintain habitat in the early breeding zone of California, by identifying and protecting existing habitat, planting native, insecticide-free milkweed, including early-emerging species (e.g., *Asclepias vestita, A. californica, A. cordifolia, A. erosa*), and planting native nectar plants that are available to monarchs in late winter, spring and fall (January-April, August-October) (Nectar Planting Lists; Milkweed Seed Finder).

For All Breeding and Migratory Zones:

2. Use only native, insecticide-free plants for habitat restoration and enhancement actions. If plants are grown via contract, use grow specifications that limit harmful pesticide residues.

3. Enhance and maintain habitat in the Priority 2 zone of California (Figure 1, above) and in other western States, by identifying and protecting existing habitat, and planting milkweed species and flowering plants that are appropriate for the location (Nectar Planting Lists; Milkweed Seed Finder).

4. Conduct management activities such as mowing, burning and grazing in monarch breeding and migratory habitat outside of the estimated timeframe when monarchs are likely present, as is feasible (Figure 2, Recommended Management Timing Map, below).

5. Protect monarchs, other pollinators, and their habitats from pesticides, including insecticides, fungicides and herbicides.

    a. Use non-chemical pest prevention and management methods and monitor pest pressure to minimize reliance on pesticides for managing insects, mites, weeds, and diseases. For example, employ non-chemical weed control techniques, when feasible (Cal-IPC Non-chemical BMPs).

    b. If pesticides are used in monarch habitat, lessen their potential for harm by adhering to the following guidance:

i. Avoid the use of neonicotinoids or other systemic insecticides, including coated seeds, any time of the year in monarch habitat due to their ecosystem persistence, systemic nature, and toxicity (Xerces Systemic Insecticides List).

ii. Avoid the application of pesticides on milkweed plants and define buffer zones to protect habitat from nearby areas where pesticides are applied (See ix, below).

iii. Avoid the application of pesticides on blooming plants when adult monarchs may be present, when feasible (Figure 2, Recommended Management Timing Map, below).

iv. Conduct applications outside of the time period when monarchs are expected to be present (Figure 2, Recommended Management Timing Map, below).

v. Avoid insecticides that target lepidopterans, including biological pesticides (IRAC Lepidoptera Insecticide Mode of Action Classification).

vi. Avoid the use of strobilurin fungicides on milkweeds.

vii. If herbicides are used, apply when plants are more responsive to treatment, and when monarchs and other pollinators are less likely to be nectaring on the plants.

viii. Use targeted application methods, avoid large-scale broadcast applications, and take precautions to limit off-site movement (e.g., wind drift, discharge from surface water flows).

ix. Protect habitat areas from pesticide drift with a pesticide-free spatial buffer and/or evergreen vegetative buffer of trees with flowers that are not attractive to pollinators. The appropriate width of monarch and pollinator habitat spatial buffers depends on several factors, including weather and wind conditions, but at a minimum, the habitat should be at least 40 feet from ground-based pesticide applications, 60 feet from air-blast sprayers, and 200 feet from aerial applications or any systemic insecticide applications or plants grown from treated seeds.

x. If pesticides are used for vector control treatments (e.g., mosquitoes), avoid treatment unless monitoring indicates that the species and numbers exceed a public health threshold. For any mosquito treatments, first employ prevention steps such as reducing standing water. Where possible, draw mosquitoes away from sensitive sites (e.g., using dry ice traps) to limit treatment effects in sensitive habitat areas.

6. To minimize the spread of the pathogen *Ophryocystis elektroscirrha* (OE), do not plant non-native tropical milkweed (*Asclepias curassavica*) anywhere. OE can build up on tropical milkweed and infect monarchs, because these plants are evergreen and do not die back in the winter. OE can be lethal to monarchs.

Please contact Samantha Marcum (samantha_marcum@fws.gov) or Cat Darst (cat_darst@fws.gov) with questions or suggestions on these recommendations.

7. Remove tropical milkweed and replace with native milkweed and nectar plants appropriate for the location (Nectar Planting Lists; Milkweed Seed Finder).

8. Report milkweed and monarch observations from all life stages, including breeding butterflies, to the Western Monarch Milkweed Mapper or via the project portal in the iNaturalist smartphone app.

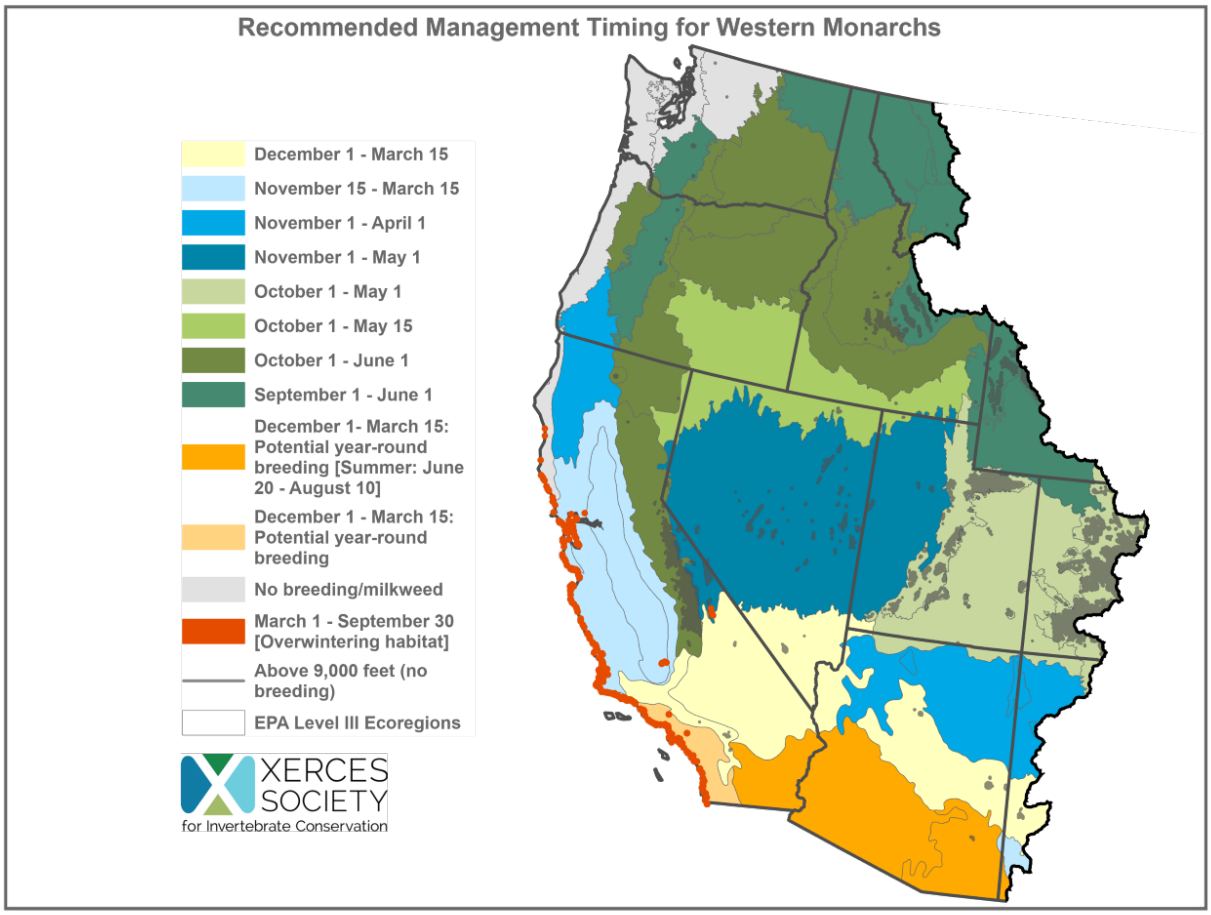

Figure 2. Recommended management windows in the western U.S. by zone.

Notes: The management timing windows illustrated in Figure 2 represent approximate recommendations of timeframes to conduct management actions. These timeframes are based upon the best available current information and may be updated in the future. Each year and site is different, so when possible, please consider surveying milkweed plants for the early life stages of monarchs prior to burning, mowing, grazing or applying pesticides.

Please contact Samantha Marcum (samantha_marcum@fws.gov) or Cat Darst (cat_darst@fws.gov) with questions or suggestions on these recommendations.

Appendix H-2

Aquatic Resources Delineation

AQUATIC RESOURCES DELINEATION

Scotts Valley 160-acre Fee-to-Trust Project

Prepared for: U.S. Army Corps of Engineers
June 2024

acorn environmental

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Section 1 | Introduction

1.1 PURPOSE AND SCOPE OF REPORT

Acorn Environmental conducted a formal delineation of jurisdictional water bodies within the approximately 160-acre Study Area located in the City of Vallejo, Solano County, California. This report presents the results of the field survey conducted in accordance with the USACE Wetlands Delineation Manual to determine which portions of the Study Area may qualify as potentially jurisdictional waters of the United States. USACE is ultimately responsible for determining the limits of their jurisdiction, and this report has been prepared to assist the USACE with their determination. This report also identifies which portions of this property may qualify as potentially jurisdictional waters of the State of California. The State of California is ultimately responsible for determining the limits of their jurisdiction, and this report has also been prepared to assist State agencies with their determination.

1.2 DESCRIPTION OF STUDY AREA

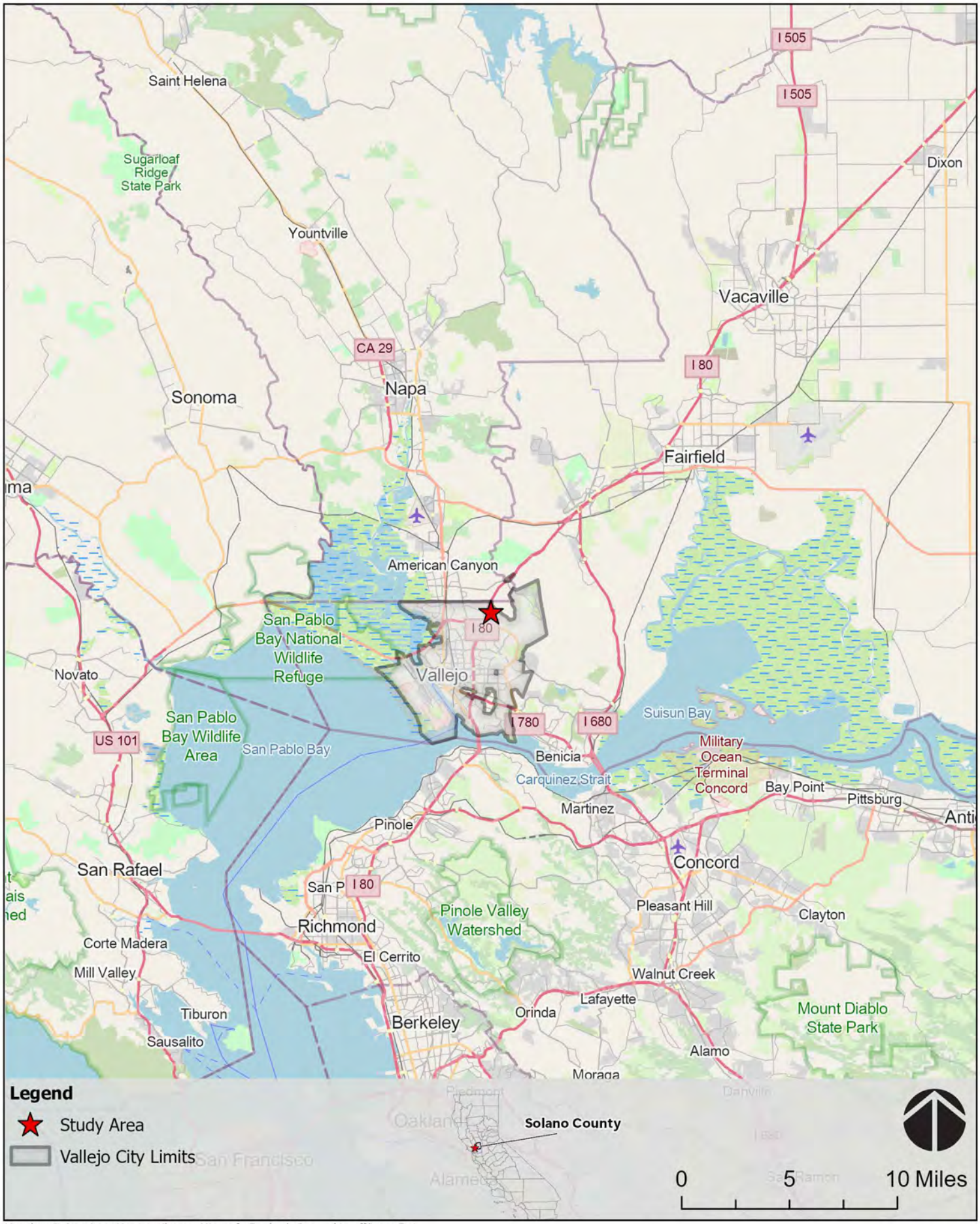
Figure 1 and **Figure 2** show the location of the Study Area, and **Figure 3** presents an aerial photograph of the Study Area and the immediate vicinity. The Study Area is located at the northeast corner of the intersection of Interstate 80 (1-80) and Columbus Parkway in Vallejo, California, Section 5, Township 3 North, Range 3 West, and Section 32, Township 4 North, Range 3 West, Mount Diablo Base and Meridian within the Cordelia 7.5-minute U.S. Geological Survey (USGS) quadrangle. The Study Area consists of four parcels totaling 160 acres: Assessor's Parcel Numbers (APNs) 182-010-010, 0182-020-010, 0182-020-020, and 0182-020-080).

1.3 REGULATORY SETTING

Real property in California that contains water resources is subject to various federal and state regulations, and activities occurring in these water resources may require permits, licenses, variances, or similar authorization from federal, state and local agencies. Following is a brief, but not exhaustive, summary of such regulations, as they apply particularly to field delineations of jurisdictional waterbodies.

Federal Regulations

At the federal level, the Federal Water Pollution Control Act, more commonly referred to as the Clean Water Act (CWA) (33 United States Code [USC] 1344), is the primary law regulating wetlands and surface waters. In Section 404 of the CWA, waters of the US are defined as: all waters used in interstate or foreign commerce; all interstate waters including interstate wetlands; all other waters such as intrastate lakes, rivers, streams (including intermittent and ephemeral streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes or natural ponds, where the use, degradation, or destruction of which could affect interstate commerce; impoundments of these waters; tributaries of these waters; or wetlands adjacent to these waters (33 CFR Part 328).



Map data © OpenStreetMap contributors, Microsoft, Facebook, Inc. and its affiliates, Esri Community Maps contributors, Map layer by Esri

FIGURE 1

REGIONAL LOCATION

FIGURE 2
USGS TOPOGRAPHIC

Esri Community Maps Contributors, California State Parks, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census

FIGURE 3
AERIAL OVERVIEW

With non-tidal waters, in the absence of adjacent wetlands, the extent of federal jurisdiction is defined by the ordinary high water mark - the line on the shore established by the fluctuations of water, and indicated by a clear, natural line impressed on the bank, shelving, changes in soil character, destruction of terrestrial vegetation, or the presence of litter and debris. Wetlands are defined as: "…those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." (Federal Register 1980, 1982).

Any person, firm, or agency planning to alter of work in navigable waterbodies, including the discharge of dredged or fill material, must first obtain authorization from the United States Army Corps of Engineers (USACE). Section 10 of the Rivers and Harbors Act of 1899 (33 USC 403) prohibits the obstruction or alteration of navigable waters of the US without a permit from USACE. Section 301 of the Federal Water Pollution Control Act, as amended ("Clean Water Act") prohibits the discharge of pollutants, including dredged or fill material, into waters of the US without a Section 404 permit from USACE (33 USC 1344). If the proposed project involves species (or their habitat) listed under the federal Endangered Species Act of 1973, USACE must initiate consultation with United States Fish and Wildlife Service (USFWS) or National Marine Fisheries Service pursuant to Section 7 (16 USC 1536; 40 CFR Part 402). Wetland features that exhibit vernal pool characteristics may be protected under the federal Endangered Species Act or California Endangered Species Act, because several crustaceans listed as threatened or endangered are dependent upon vernal pool habitat.

Under CWA Section 401, every applicant for a federal permit or license for any activity which may result in a discharge to a water body must obtain certification that the proposed activity will comply with State water quality standards. The applicable Regional Water Quality Control Board must certify that a USACE Section 404 Permit action meets state water quality objectives by issuing a Water Quality Certification. California Department of Fish and Game provides comment on USACE permit actions under the Fish and Wildlife Coordination Act. Under CWA Section 402, any construction project that disturbs at least one acre of land requires enrollment in the State's construction general permitting program under the National Pollutant Discharge Elimination System and implementation of a storm water pollution prevention plan.

State Regulations

Waters of the State are regulated primarily under the California Water Code and the California Code of Regulations Title 23: Water and Title 27: Environmental Protection. All water features in California, on public and private lands, in both natural and artificial channels, including isolated wetland features and impermanent drainages that are not claimed as waters of the US, are considered waters of the State. Waters of the State are protected under the Porter-Cologne Water Quality Control Act (California Water Code, Division 7: Water Quality) and are regulated by the State Water Resources Control Board (SWRCB) and its 9 Regional Water Quality Control Boards.

All parties proposing to discharge materials that could affect waters of the State must file a report of waste discharge with the appropriate regional board. The regional board will then respond to the report by issuing waste discharge requirements (WDRs) in a public hearing, or by waiving WDRs (with or without conditions) for that proposed discharge. Both of the terms "discharge of waste" and "waters of the State" are broadly defined in the Porter-Cologne Act, such that discharges of waste include fill, any material resulting from human activity (including construction), or any other "discharge" that may directly or indirectly impact waters of the State.

Additional statewide regulations that protect wetlands and riparian areas include the Wetlands Conservation Policy (Executive Order W-59-93), also known as the State's "No Net Loss" Policy for Wetlands; and the Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program (State Water Board Resolution No. 2004-0030).

California Fish and Game Code (§1600-1607, 5650F) protects fishery resources by regulating "...any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake." California Department of Fish and Wildlife (CDFW) requires notification prior to project commencement, and issuance of a Lake or Streambed Alteration Agreement, if a proposed project will result in the alteration or degradation of waters of the State. The limit of CDFW jurisdiction is currently interpreted to be the "stream zone", defined as "that portion of the stream channel that restricts lateral movement of water" and delineated at "the top of the bank or the outer edge of any riparian vegetation, whichever is more landward". CDFW reviews the proposed actions and, if necessary, submits to the applicant a proposal for measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by the CDFW and the applicant is the Streambed Alteration Agreement.

Section 2 | Environmental Setting

The Study Area is located within the Central Coast geographic subregion, which is contained within the Central Western California region of the larger California Floristic Province (Baldwin et al. 2012).

The Study Area falls within Climate Zone 17 “Marine effects in Southern Oregon, Northern, and Central California.” Climate Zone 17 experiences a mild climate with cool, wet winters and cool summers with frequent fog and wind. Temperatures in this zone do not fall below 20 degrees Fahrenheit with an average high of 97 degrees Fahrenheit (Sunset, 2024).

The topography of the Study Area ranges from flat in the southern portion of the Study Area, to steep in the northern portion. Elevations on the site range from 130 feet in the southern portion of the site to approximately 800 feet on the northern portion. The Study Area is currently undeveloped open space, transmission power corridor, and pasture and equine facilities. Surrounding development includes commercial development to the south, rangeland to the north and east, and highways, a large vista rest stop, and residential developments to the west.

Section 3 | Methods

The delineation was conducted in accordance with the manuals relevant to the region, including the following:

- 1987 Corps of Engineers Wetland Delineation Manual
- 2008 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)
- 2008 A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States.
- 2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0). U.S. Army Engineer Research and Development Center Environmental Laboratory, Vicksburg, MS. 153 pp.

3.1 PRELIMINARY DATA GATHERING AND RESEARCH

Prior to conducting the field survey, the following information sources were reviewed:

- USGS 7.5-degree minute topographic quadrangle maps and aerial photography;
- United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soil survey maps (**Figure 4**);
- Federal Emergency Management Agency (FEMA) Flood Insurance Rate (Flood Hazard Boundary) Maps;
- USFWS National Wetland Inventory Maps (**Figure 5**); and
- Previously prepared environmental reports for the Study Area.

3.2 DETERMINATION PROCEDURES

The purpose of the field determination was to: 1) identify water features that are subject to federal jurisdiction within the Study Area; and 2) if present, determine the boundary of each water feature. The entire Study Area was assessed in such a manner as to view all areas to the degree necessary to determine the vegetation community types and the presence or absence of jurisdictional water features. Wetland field determination procedures followed the USACE Wetlands Delineation Manual technical guidelines for a Level 2 Routine Field Determination (Environmental Laboratory 1987). Additionally, the appropriate USACE regional supplement was also consulted.

The diagnostic environmental characteristics of hydrophytic vegetation, hydric soils, and wetland hydrology (i.e., 3-parameter approach) were used as the standard for determining if specific areas qualified as wetlands (Environmental Laboratory 1987). A subject area was determined to be a wetland if all 3 requisite characteristics were present; as a general rule, evidence of a minimum of one positive indicator for each parameter must be found in order to make a positive wetland determination. These parameters are discussed below.

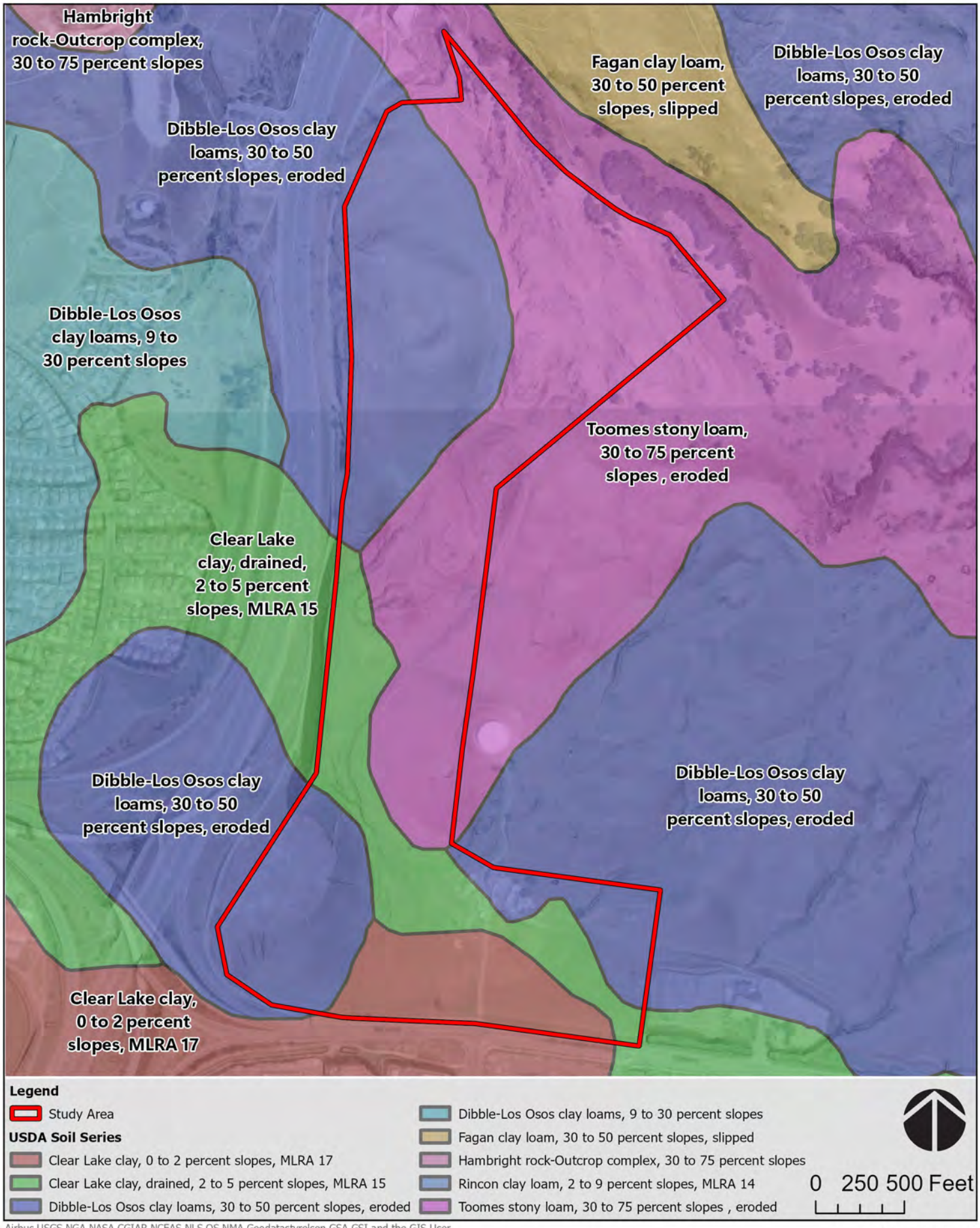


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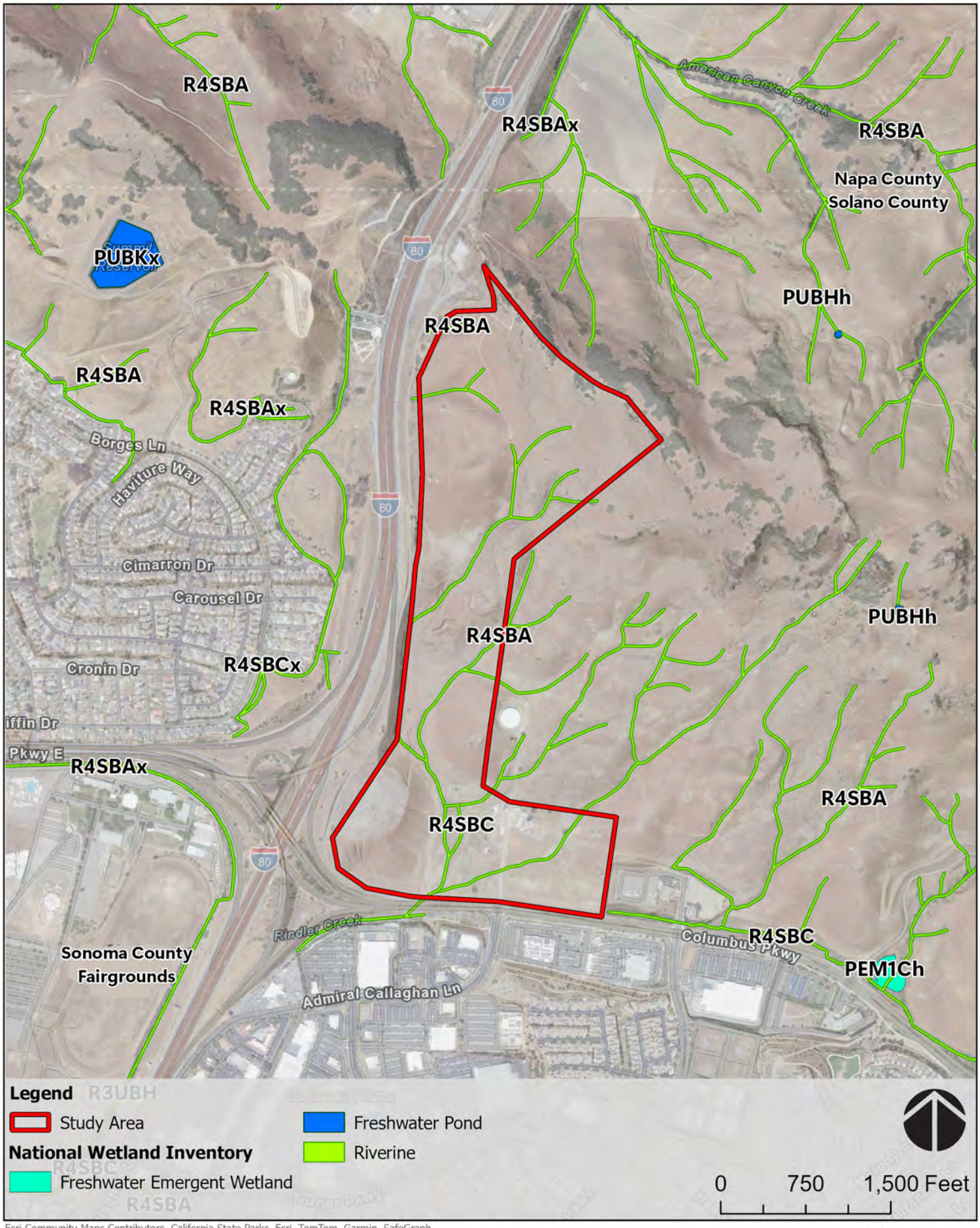
FIGURE 4
USDA SOIL SERIES



Esri Community Maps Contributors, California State Parks, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census

FIGURE 5

NATIONAL WETLAND INVENTORY

Hydrophytic Vegetation

Hydrophytic vegetation is defined as "...*the sum total of macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils sufficient in duration to exert a controlling influence on the plant species present*." (Environmental Laboratory 1987). Hydrophytic vegetation indicators included: prevalence of vegetation; majority of dominant plant species are obligate or facultative wetland plants (hydrophytes); morphological or physiological adaptations to saturated soil conditions; and species listed on the National List of Plant Species that Occur in Wetlands (USACE 2024). This National List divides plant species into categories based upon their frequency of occurrence in wetlands. These categories are: OBL = obligate wetland plants that occur almost always in wetlands under natural conditions (estimated probability greater than 99%); FACW = facultative wetland plants that usually occur in wetlands, but occasionally occur in non-wetlands (estimated probability 67 – 99%); FAC = facultative wetland plants that are equally likely to occur in wetlands or non-wetlands (estimated probability 34 – 66 %); FACU – facultative upland plants that usually occur in non-wetlands, but occasionally are found in wetlands (estimated probability 1 – 33 %); UPL = obligate upland plants that almost always occur in non-wetlands (estimated probability greater than 99%); NI and UNK = insufficient information to determine status; NL = not listed; NA = no agreement by Regional Panel on status; NO = species does not occur in specified region; * (asterisk) indicates tentative assignment; + (positive) or – (negative) sign indicates higher or lower frequency in its category, respectively. During field investigations, the percentage of hydrophytic plant coverage was determined based on the ratio of wetland indicator species coverage present to the total plant coverage present. More than 50 percent of the dominant plant species cover must be FAC, FACW, or OBL to meet the hydrophytic vegetation criterion.

Hydric Soils

Hydric soils are defined as soils that are "...formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part." (Environmental Laboratory 1987). A minimum one week of inundation or 14 consecutive days of saturation during the growing season is a typical requirement. The criteria for establishing the presence of hydric soils vary among different soil types and drainage classes. Hydric soil indicators include evidence of reducing or redoximorphic conditions (including sulfidic odor, organic streaking), gleyed, mottled, or low-chroma soils, iron and manganese concretions, and low dissolved oxygen concentration (aquic moisture regime); organic soils (histosols); or mineral soils saturated and rich in organics (histic epipedon) (NRCS 2006). Richardson and Vepraskas (2001) present a thorough discussion of wetland soil science. In the absence of visible field indicators, hydric soil conditions may be determined according to two criteria: 1) all dominant plant species have an indicator status of OBL and/or FACW (at least one dominant plant species must be OBL); and 2) areas below the level of ordinary high water are frequently flooded for long duration or very long duration during the growing season and possess and aquic (reducing) moisture regime. Soils are also classified as hydric on non-hydric by NRCS (2024).

Wetland Hydrology

Wetland hydrology "...*encompasses all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface at some time during the growing season*" (Environmental Laboratory 1987). Many factors influence site-specific hydrology, including the precipitation, stratigraphy, topography, soil permeability, and plant cover of the site. In general, inundation or saturation must occur for at least 5 percent of the growing season to qualify as wetland hydrology. The degree of inundation or saturation at the subject site can vary widely from year to year depending on rainfall patterns within the

watershed. Primary wetland hydrology indicators include visual observations of inundation or soil saturation, water marks and water-stained leaves, sediment deposits, drift lines, and drainage patterns in wetlands.

Data Collection Procedures

Sampling locations were established within potential wetland areas and within adjacent uplands, where present, to determine the boundary of wetlands. At each sampling point, the location was georeferenced using a GPS receiver and marked on an aerial photograph; a numbered pin flag or lathe was placed, where necessary, to assist other surveyors. Information on vegetation, soils, and hydrology was recorded on a USACE Routine Wetland Determination Data Form.

Dominant and subdominant plant species in each vegetative stratum (e.g., tree, shrub, forb) that occurred within approximately 5 to 10 feet of the sampling point were identified and recorded, and their wetland indicator status determined. All visible flora observed were recorded in a field notebook and identified to the lowest possible taxon; a hand lens was used where necessary. When a specimen could not be identified in situ, a photograph or voucher specimen (depending upon scientific permit requirements) was taken and identified later in the laboratory using a dissecting scope where necessary. Taxonomic determinations and nomenclature followed these references: plants—Pavlik (1991), Brenzel (2007), Stuart and Sawyer (2001), Lanner (2002), Baldwin et al. (2012), Calflora (2024), University of California at Berkeley (2024 a, b).

Where necessary, a soil pit was dug with a spade to expose at least 16 inches of soil profile, and the sample evaluated for hydric soil indicators. Munsell Soil Color Charts (2000 edition, Gretagmacbeth, Inc.) were used to determine soil matrix and mottle color (hue, value, and chroma), and soil type and particle size was also noted. NRCS (1999) Soil Taxonomy handbook was referenced for soil classification where necessary. Based on the results of the 3-parameter test, the extent of each potential wetland was mapped in the field using a GPS receiver capable of submeter accuracy and/or demarcated on aerial photographs for later “heads-up” digitization. Wetlands and other aquatic habitats were classified using the USFWS “Classification System for Wetland and Deepwater Habitats”, or “Cowardin class” (Cowardin et al., 1979; USFWS 2014). A determination was made whether normal environmental conditions exist; atypical conditions followed a modified procedure described in the USACE Manual (Environmental Laboratory 1987). Geographic analyses, including acreage calculations, were performed using geographical information system software (ArcGIS 10, ESRI, Inc.).

For identification of water features other than wetlands that are subject to federal or State jurisdiction, 2 principal field characteristics were evaluated: 1) the presence of a channel; and 2) the presence of an ordinary high water mark. The ordinary high water mark is defined in 33 CFR Part 329.11 as the line on the shore established by the fluctuations of water, and indicated by a clear, natural line impressed on the bank, shelving, changes in soil character, destruction of terrestrial vegetation, or the presence of litter and debris. Other characteristics were noted, where possible: description of hydrologic feature type, length, approximate discharge volume, gradient, range between low and high water mark, width of riparian vegetation, etc. For determination of whether these water bodies constituted waters of the US, USACE regulations (33 CRF 328) were consulted. Data sheets for these non-wetland water bodies were completed at representative locations and were included in **Attachment A**.

Regulatory Considerations

A joint USEPA/USACE memorandum dated 2008 provided guidance to implementing the Supreme Court's decision in the consolidated cases Rapanos v. United States and Carabell v. United States (hereafter referred to simply as "Rapanos") which addressed the jurisdiction over waters of the United States under the Clean Water Act. In Rapanos, the Supreme Court restricted where the federal government can apply the Clean Water Act, specifically by determining whether a wetland or tributary is a "water of the United States." According to USEPA & USACE (2008), jurisdiction will continue to be asserted over "all waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide." These waters are referred to as traditional navigable waters. The agencies will also continue to assert jurisdiction over wetlands adjacent to traditional navigable waters, where "adjacent" means "bordering, contiguous, or neighboring." Finding a continuous surface connection is not required to establish adjacency under this definition (USEPA & USACE 2008).

A non-navigable tributary of a traditional navigable water is a non-navigable water body whose waters flow into a traditional navigable water either directly or indirectly by means of other tributaries. Clean Water Act jurisdiction will continue to be held over non-navigable tributaries that are "relatively permanent" – waters that typically (e.g., except due to drought) flow year-round or waters that have a continuous flow at least seasonally (e.g., typically three months). Justice Scalia emphasizes that relatively permanent waters do not include tributaries "whose flow is 'coming and going at intervals...broken, fitful.'" Therefore, "relatively permanent" waters do not include ephemeral tributaries which flow only in response to precipitation and intermittent streams which do not typically flow year-round or have continuous flow at least seasonally (USEPA & USACE 2008). However, CWA jurisdiction over these waters will be evaluated under the significant nexus standard described next.

The agencies will assert jurisdiction over the following types of waters when they have a significant nexus with a traditional navigable water: (1) non-navigable tributaries that are not relatively permanent, (2) wetlands adjacent to non-navigable tributaries that are not relatively permanent, and (3) wetlands adjacent to, but not directly abutting, a relatively permanent tributary (e.g., separated from it by uplands, a berm, dike or similar feature). The agencies will assess the flow characteristics and functions of the tributary itself, together with the functions performed by any wetlands adjacent to that tributary, to determine whether collectively they have a significant nexus with traditional navigable waters. A waterbody possesses the requisite nexus, and thus becomes jurisdictional, if the waterbody, either alone or in combination with similarly situated lands in the region, significantly affects the chemical, physical, and biological integrity of other covered waters more readily understood as 'navigable' (USEPA & USACE 2008).

To assist in the interpretation of the Rapanos criteria, the USACE Jurisdictional Determination Form Instructional Guidebook was consulted (USACE & USEPA 2007).

Section 4 | Results

4.1 FIELD SURVEY

Dr. G.O. Graening conducted the field assessment on April 3 and May 4, 2024. Complete coverage, variable-intensity pedestrian surveys were performed of the Study Area, modified to account for differences in terrain, vegetation density, and visibility. Sampling points were established at key locations and analyzed for the presence or absence of wetland (or for channels, ordinary high water mark) indicators; these points are documented in the Data Sheets in **Attachment A**. The results of the analyses of Study Area vegetation, soils, and hydrology are presented in the following sections, followed by the recommended jurisdictional determination.

4.2 VEGETATION

The Study Area is located within the Central Coast geographic subregion, which is contained within the Central Western California region of the larger California Floristic Province (Baldwin et al. 2012). The Study Area falls within Climate Zone 17 "Marine effects in Southern Oregon, Northern, and Central California." Climate Zone 17 experiences a mild climate with cool, wet winters and cool summers with frequent fog and wind. Temperatures in this zone do not fall below 20 degrees Fahrenheit with an average high of 97 degrees Fahrenheit (Sunset, 2024).

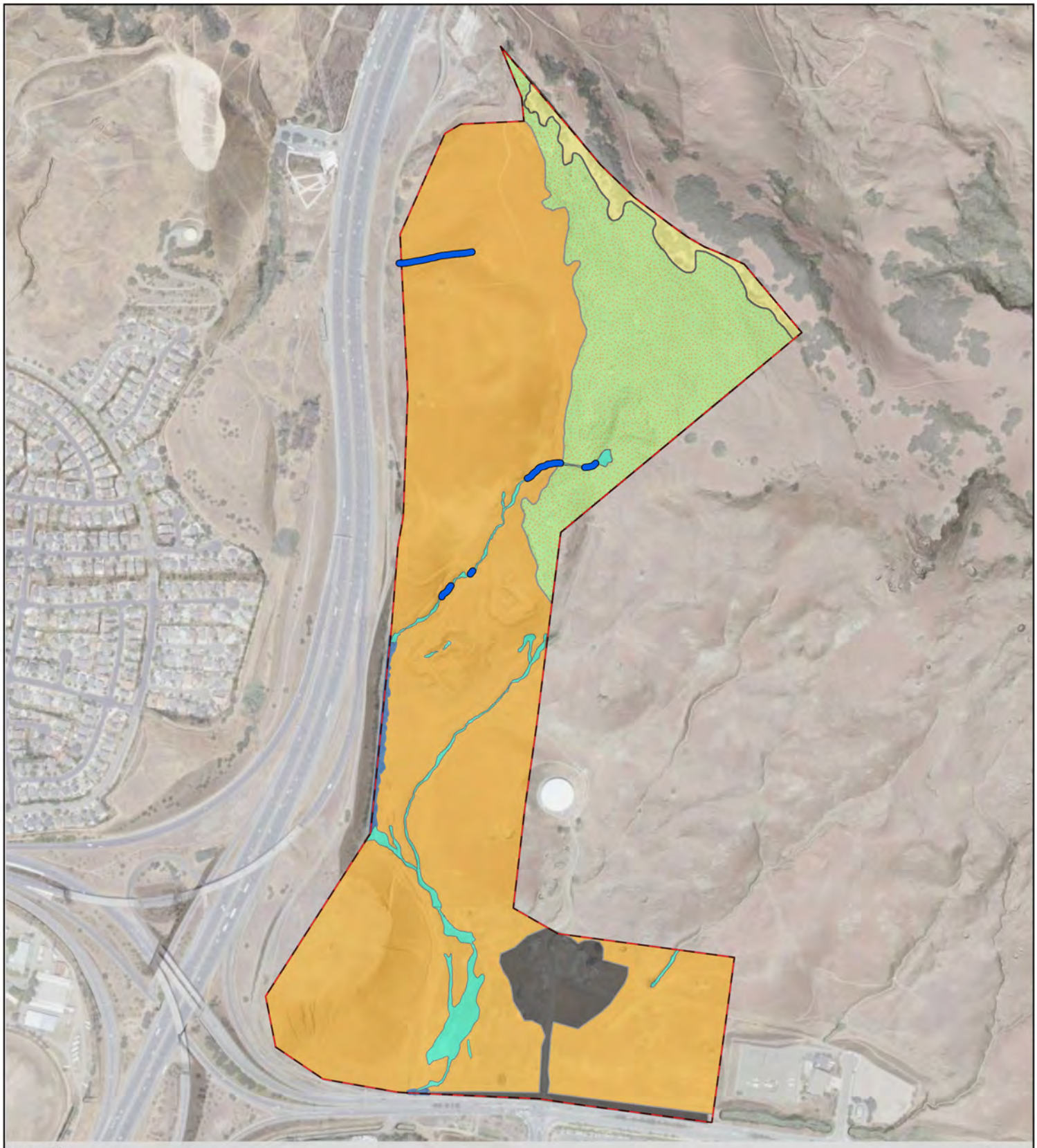
The Study Area currently contains the following terrestrial natural communities/habitat types:

- Ruderal/developed
- Riparian scrub
- Freshwater marsh
- Pasture
- Annual grassland/rock outcrop
- Oak woodland

Classification and description of terrestrial plant communities follows the methodology accepted by CDFW (2014b), which is based upon Sawyer and Keeler-Wolf's (1995) Manual of California Vegetation. Plant specimens difficult to identify were sent fresh to the Jepson Herbarium (University of California at Berkeley). Obligate wetland plants are present within the Study Area. Habitats are shown on **Figure 6** and are discussed below. **Attachment B** contains a table of plant species observed within the Study Area, and site photos are provided in **Attachment C**.

Ruderal/Developed

Ruderal/developed habitats are those areas that are highly modified from their natural state and are subject to intensive land management, paving, or similar. Within the Action Area, ruderal developed areas included an unpaved access drive and informal parking areas, fencing, and horse shelters. Vegetation was sparse to absent in this area. Where vegetation did occur, it was dominated primarily by non-native grasses and weedy forbs.



Source: Esri, USDA FSA, Airbus,USGS,NGA,NASA,CGIAR,NCEAS,NLS,OS,NMA,Geodatastyrelsen,GSA,GSI and the GIS User

FIGURE 6
HABITAT TYPES

Riparian Scrub

The vegetation in the valley foothill riparian scrub habitat found at the site was dominated by arroyo willow (*Salix lasiolepis*) with an understory of primarily Himalayan blackberry (*Rubus discolor*) and poison oak (*Toxicodendron diversilobum*) and limited areas of broad-leaved cattail (*Typha latifolia*). Vegetation along the edge of the riparian habitat included sweet fennel (*Foeniculum vulgare*) and coyote brush (*Baccharis pilularis*).

Freshwater Marsh

Freshwater marsh habitat was observed within the on-site drainages. Vegetation within the freshwater marsh includes perennial ryegrass (*Lolium perenne*), common monkeyflower (*Mimulus guttattus*), Bermuda grass (*Cynodon dactylon*), curly dock (*Rumex crispus*), rushes (*Juncus* sp.), pennyroyal (*Mentha* sp.), as well as limited areas of broad-leaved cattail (*Typha latifolia*).

Pasture

The majority of the Study Area is a simplified non-native grassland containing perennial ryegrass (*Lolium perenne*), wild oats (*Avena fatua*), soft chess (*Bromus hordeaceus*), and other pasture grasses. These areas are subject to significant grazing pressure, and may have been plowed or conditioned previously. Non-native forbs are abundant, such as thistles (*Silybum*, *Carduus*), filarees (*Erodium*), star thistle (*Centaurea solstitialis*), bristly ox-tongue (*Picris echioides*), poison hemlock (*Conium maculatum*), fennel (*Foeniculum vulgare*), black mustard (*Brassica nigra*), and spiny cocklebur (*Xanthium spinosum*). Large patches of artichoke thistle (*Cynara cardunculus*) were also observed within this habitat.

Annual Grassland/Rock Outcrop

Species occurring in the annual grassland area are primarily non-native grasses common to disturbed environments. Plant species common in the grassland area include perennial ryegrass (*Lolium perenne*), wild oats (*Avena fatua*), soft chess (*Bromus hordeaceus*), tarweed (*Hemizonia* sp.) and star thistle (*Centaurea solstitialis*), with other less common species identifiable at this time of year including bristly ox-tongue (*Picris echioides*), poison hemlock (*Conium maculatum*), sweet fennel (*Foeniculum vulgare*), black mustard (*Brassica nigra*) and spiny cocklebur (*Xanthium spinosum*). Metamorphic rock outcrops were located sporadically throughout the northern portion of this habitat. Large patches of artichoke thistle (*Cynara cardunculus*) were also observed within this area.

Oak Woodland

A narrow strip of oak woodland occurs along the northern boundary of the Action Area along a hilltop crest. This habitat contains a significant canopy cover of coast live oak (*Quercus agrifolia*). Ground cover vegetation is similar to species observed within the annual grassland/rock outcrop habitat.

4.3 SOIL TYPES

USDA NRCS mapped soil units occurring within the Study Area are listed and described in **Table 1** below and are shown in **Figure 4**. One soil unit within the Study Area was found to be designated “hydric” by NRCS. NRCS provides this disclaimer: “Lists of hydric soils along with soil survey maps are good off-site ancillary tools to assist in wetland determinations, but they are not a substitute for observations made during on-site investigations.”

Table 1: Soils within the Study Area

Soil Type	Soil Characteristics	Hydric Soil?
Dibble-Los Osos clay loam series (30-50% slope, eroded)	Not Prime Farmland Well drained Very high runoff class 80+ inches to groundwater	No
Clear Lake clay series (2-5% slope)	Prime Farmland if irrigated Poorly drained High runoff class 0-48 inches to groundwater	Yes
Toomes stony loam series (30-75% slope, eroded)	Not Prime Farmland Well drained High runoff class 80+ inches to groundwater	No

Source: NRCS, 2024

4.4 HYDROLOGY

Drainage collects in swales and ephemeral channels that run in a southerly direction, and eventually combine into a single channel that flows into a double-pipe culvert. This culvert directs stormwater under Auto Mall Parkway and into Rindler Creek, which is tributary to Lake Chabot. Annual precipitation averages approximately 21 inches (Climate Data, 2024). According to the FEMA Flood Hazard Boundary Map of the region, the Study Area is outside of both the 100-year and 500-year floodplains (FEMA, 2024).

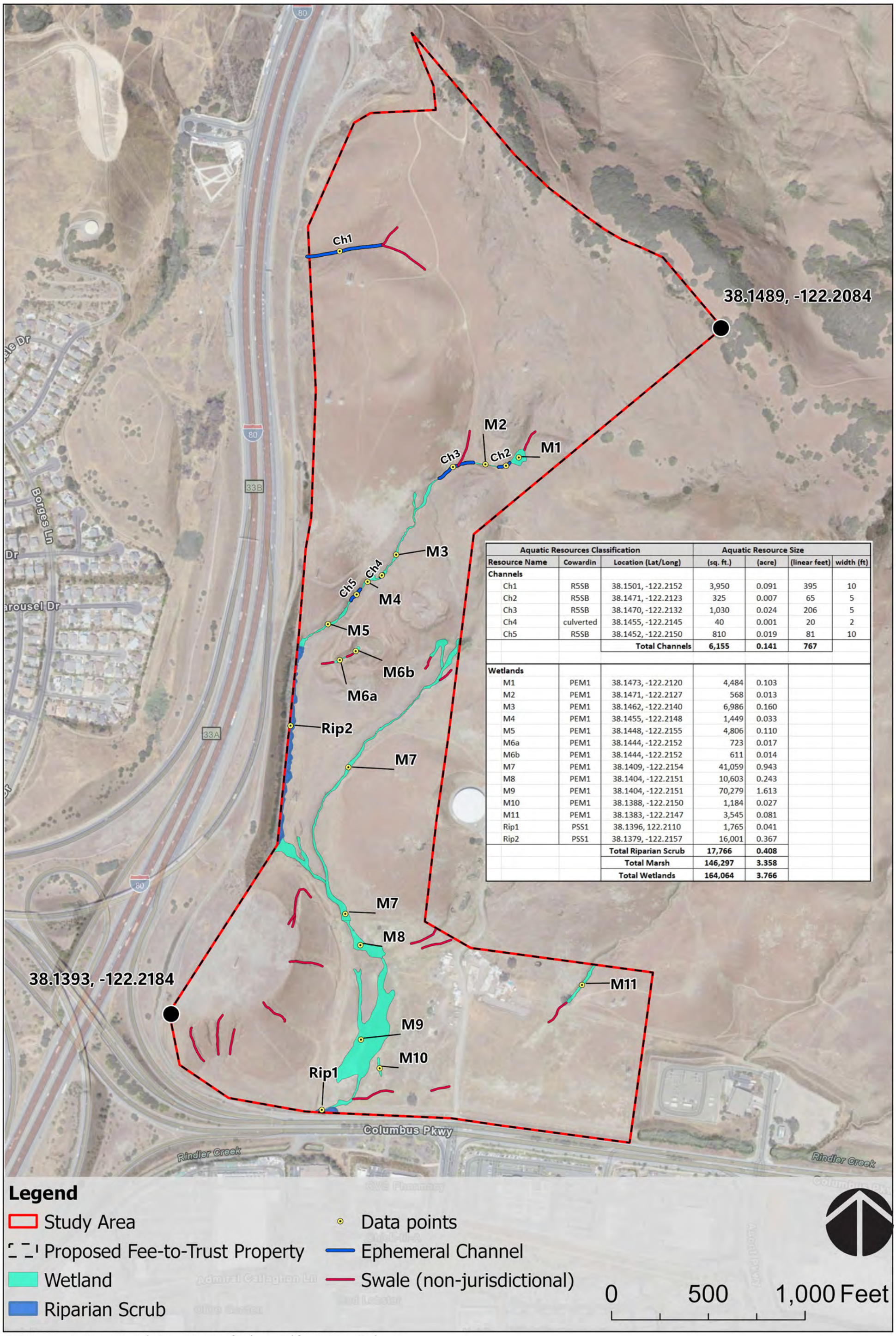
4.5 NATIONAL WETLANDS INVENTORY AND PRIOR DELINEATION EFFORTS

The USFWS National Wetland Inventory (NWI) digital map of the Study Area is included as **Figure 5** and was reviewed prior to the delineation field efforts and visited in the field to verify presence and accuracy of mapping. All NWI features within the Study Area are described as “Riverine” habitat. NWI reports the location of these features as being determined via a review of aerial imagery collected in 2009. Note, however, that this database was not used to conclude that a wetland was present or absent in the Study Area.

A Preliminary Jurisdictional Determination (PJD) was completed for three of the four project parcels: 0182-020-010, 0182-020-020, and 0182-020-080. A previous delineation for these parcels was field verified by the USACE on May 3, 2013 and the revised map was finalized on September 19, 2013 (Corps File No. 26379N, 26381N and 26382N).

4.6 DELINEATION RESULTS AND JURISDICTIONAL RECOMMENDATIONS

All hydrologic features were identified and mapped within the Study Area and subjected to the delineation criteria set forth by each regulatory agency. These features are summarized in the following tables and mapped in **Figure 7**. This map has not been verified by USACE or SWRCB, and thus represents an unofficial



Aquatic Resources Classification			Aquatic Resource Size			
Resource Name	Cowardin	Location (Lat/Long)	(sq. ft.)	(acre)	(linear feet)	width (ft)
Channels						
Ch1	R5SB	38.1501, -122.2152	3,950	0.091	395	10
Ch2	R5SB	38.1471, -122.2123	325	0.007	65	5
Ch3	R5SB	38.1470, -122.2132	1,030	0.024	206	5
Ch4	culverted	38.1455, -122.2145	40	0.001	20	2
Ch5	R5SB	38.1452, -122.2150	810	0.019	81	10
		Total Channels	**6,155**	**0.141**	**767**	
Wetlands						
M1	PEM1	38.1473, -122.2120	4,484	0.103		
M2	PEM1	38.1471, -122.2127	568	0.013		
M3	PEM1	38.1462, -122.2140	6,986	0.160		
M4	PEM1	38.1455, -122.2148	1,449	0.033		
M5	PEM1	38.1448, -122.2155	4,806	0.110		
M6a	PEM1	38.1444, -122.2152	723	0.017		
M6b	PEM1	38.1444, -122.2152	611	0.014		
M7	PEM1	38.1409, -122.2154	41,059	0.943		
M8	PEM1	38.1404, -122.2151	10,603	0.243		
M9	PEM1	38.1404, -122.2151	70,279	1.613		
M10	PEM1	38.1388, -122.2150	1,184	0.027		
M11	PEM1	38.1383, -122.2147	3,545	0.081		
Rip1	PSS1	38.1396, 122.2110	1,765	0.041		
Rip2	PSS1	38.1379, -122.2157	16,001	0.367		
		Total Riparian Scrub	**17,766**	**0.408**		
		Total Marsh	**146,297**	**3.358**		
		Total Wetlands	**164,064**	**3.766**		

FIGURE 7

AQUATIC RESOURCE DELINATION MAP

demarcation of the potential limits of jurisdiction. Various survey points were established for the delineation of this Study Area, and corresponding data sheets can be found in **Attachment A**.

Water Resources Potentially Subject to Federal Jurisdiction

Identified hydrologic features were subjected to the three-parameter test, the Hydrology Criterion (Scalia Test), and the Significant Nexus (Kennedy) Test. Based upon these criteria, the following features within the Study Area were determined to be potentially subject to USACE jurisdiction: channel segments Ch1, Ch2, Ch3, Ch4, and Ch5; riverine marshes M1, M2, M3, M4, M5, M6a, M6b, M7, M8, M9, M10, and M11; and riparian scrub Rip1 and Rip2 (see **Table 2** and **Figure 7**).

Table 2: Potentially-Jurisdictional Aquatic Resources

Aquatic Resources Classification			Aquatic Resources Size			
Resource Name	**Cowardin**	**Location (Lat/Long)**	**Square Feet**	**Acres**	**Linear Feet**	**Width (ft)**
CHANNELS						
Ch1	R5SB	38.1501, -122.2152	3,950	0.091	395	10
Ch2	R5SB	38.1471, -122.2123	325	0.007	65	5
Ch3	R5SB	38.1470, -122.2132	1,030	0.024	206	5
Ch4	culverted	38.1455, -122.2145	40	0.001	20	2
Ch5	R5SB	38.1452, -122.2150	810	0.019	81	10
		Total Channels	**6,155**	**0.141**	**767**	**N/A**
WETLANDS						
M1	PEM1	38.1473, -122.2120	4,484	0.103	N/A	N/A
M2	PEM1	38.1471, -122.2127	568	0.013	N/A	N/A
M3	PEM1	38.1462, -122.2140	6,986	0.160	N/A	N/A
M4	PEM1	38.1455, -122.2148	1,449	0.033	N/A	N/A
M5	PEM1	38.1448, -122.2155	4,806	0.110	N/A	N/A
M6a	PEM1	38.1444, -122.2152	723	0.017	N/A	N/A
M6b	PEM1	38.1444, -122.2152	611	0.014	N/A	N/A
M7	PEM1	38.1409, 122.2154	41,059	0.943	N/A	N/A
M8	PEM1	38.1404, -122.2151	10,603	0.243	N/A	N/A
M9	PEM1	38.1404, -122.2151	70,279	1.613	N/A	N/A
M10	PEM1	38.1388, -122.2150	1,184	0.027	N/A	N/A
M11	PEM1	38.1383, -122.2147	3,545	0.081	N/A	N/A
		Riverine Marsh Subtotal	*146,297*	*3.358*	*N/A*	*N/A*
Rip1	PSS1	38.1396, -122.2110	1,765	0.041	N/A	N/A
Rip2	PSS1	38.1379, -122.2157	16,001	0.367	N/A	N/A
		Riparian Scrub Subtotal	*17,766*	*0.408*	*N/A*	*N/A*
		Total Wetlands	**164,064**	**3.766**	**N/A**	**N/A**

Channels

Ephemeral channels collect water from upland swales and sheet runoff. These channels are segmented by marshes where gradients transition from steep to shallow. There are 5 channel segments (Ch1, Ch2, Ch3, Ch4, Ch5) with widths ranging from 2 to 10 feet. The five channels total 767 linear feet in length and 0.141 acres in area. Channels were differentiated by upland swales by the following channel indicators: destruction of vegetation, shelving, bank erosion, litter/debris packing, and exposed bedrock.

Wetlands

Twelve riverine marshes are present (M1, M2, M3, M4, M5, M6a, M6b, M7, M8, M9, M10, M11) that total 3.358 acres. Boundaries were determined by the transition from hydrophytes (primarily rushes) to upland grasses and from high clay soils to lower clay soils. Ponded water and emergent vegetation, such as cattails, were present in larger wetlands.

Two areas of riparian scrub (Rip1 and Rip2) occurred adjacent to channels and totaled 0.408 acres. The vegetation communities consisted of willow thickets and blackberry brambles. Soils were saturated and high in clay (and thus hydric).

No vernal pools or other isolated wetlands were detected within the Study Area.

Upland Features not Expected to be Subject to Federal Regulation

The upland swales that were delineated are understood not to be jurisdictional (see **Figure 7**). Hydrophytes were not the dominant vegetation. They all fail the Scalia Test for relatively permanent flow. They all fall under the category described by USEPA & USACE (2008) as:

> "*Swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent, or short duration flow) are generally not waters of the United States because they are not tributaries or they do not have a significant nexus to downstream traditional navigable waters. In addition, ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water are generally not waters of the United States because they are not tributaries or they do not have a significant nexus to downstream traditional navigable waters*."

Water Resources Potentially Subject to State Jurisdiction

All identified hydrologic features were subjected to the 3-parameter test, the broad definition of waters of the State as currently enforced by SWRCB, and the "stream zone" as currently enforced by CDFW. Based upon these criteria, the same features that were potentially subject to federal jurisdiction were determined to be potentially subject to State jurisdiction: channel segments Ch1, Ch2, Ch3, Ch4, and Ch5; riverine marshes M1, M2, M3, M4, M5, M6a, M6b, M7, M8, M9, M10, and M11; and riparian scrub Rip1 and Rip2 (see **Table 2** and **Figure 7**).

Note also that the two riparian scrub features meet the criteria of the "stream zone" as regulated by CDFW.

Upland Features Not Expected To Be Subject to State Regulation

The upland swales that were delineated are understood not to be jurisdictional (see **Figure 7**). Hydrophytes were not the dominant vegetation and channel indicators were not present.

The Study area is not located within a Coastal Zone.

Section 5 | References

Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, and T.J. Rosatti, editors. 2012. The Jepson Manual: Vascular Plants of California, second edition, thoroughly revised and expanded. University of California Press, Berkeley, California. 1,600 pp.

Calflora, 2024. Calflora, the on-line gateway to information about native and introduced wild plants in California. Database available: https://www.calflora.org/.

Climate Data, 2024. Vallejo Climate. Available online at: https://en.climate-data.org/north-america/united-states-of-america/california/vallejo-1461/. Accessed April 2024.

Cowardin, L. M., V. Carter, and E. T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. Office of Biological Services, U. S. Fish and Wildlife Service, Washington, District of Columbia. 45 pp.

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. U.S. Army Engineer Waterways Experiment Station. Vicksburg, Mississippi. 92 pp.

Federal Emergency Management Agency (FEMA), 2024. FEMA Flood Map Service Center: Search By Address. Available online at: https://msc.fema.gov/portal/search?AddressQuery=vallejo. Accessed April 2024.

Natural Resources Conservation Service. 2006. Field Indicators of Hydric Soils in the United States: A guide for identifying and delineating hydric soils, Version 6.0 (2006). Published in cooperation with the National Technical Committee for Hydric Soils. NRCS Soils Website. Available electronically on the Internet at http://soils.usda.gov/use/hydric/.

Natural Resources Conservation Service (NRCS), 2024. Web Soil Survey. Available online at: https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx. Accessed April 2024.

Sawyer, J. O., and T. Keeler-Wolf. 1995. A manual of California vegetation. California Native Plant Society, Sacramento, California. Available electronically at http://davisherb.ucdavis.edu/cnpsActiveServer/index.html.

Sunset Western Garden Collection, 2024. Sunset Climate Zones. Available online at: https://sunsetplantcollection.com/climate-zones/zone/san-francisco-bay-area-inland/. Accessed April 2024.

United States Army Corps of Engineers. 2024. National List of Vascular Plant Species That Occur in Wetlands. Available electronically at: https://nwpl.sec.usace.army.mil/

USFWS, 2024a. National Wetlands Inventory Program, Division of Habitat and Resource Conservation. Internet site at http://www.fws.gov/wetlands/.

USFWS, 20243b. Environmental Conservation Online System. Species Accounts. Available at: https://ecos.fws.gov/ecp/species/.

University of California at Berkeley. 2024a. Jepson Online Interchange for California Floristics. Jepson Flora Project, University Herbarium and Jepson Herbarium, University of California at Berkeley. Internet database available at http://ucjeps.berkeley.edu/interchange.html.

Section 6 | Qualifications of Preparers

G.O. Graening, Ph.D., M.S.E.

G.O. Graening holds a Doctorate in Biological Sciences and a Master of Science in Biological Engineering. Dr. Graening has 30 years of experience in biological assessment and research, including the performance of numerous wetland delineations and aquatic restoration projects. Dr. Graening also served as an adjunct professor of biology at California State University Sacramento for 10 years and was an active researcher in the area of conservation biology and groundwater ecology.

Attachment A

Data Sheets

DATA FORM - ROUTINE WETLAND DETERMINATION

Project ID: Scotts Valley Tribe Gaming
Client:
Investigator: Dr. Ged Gruening
Do normal circumstances exist on the site? Yes
Is it an atypical situation? no
Is the area a potential problem area? no

Date: May 4, 2024
State: CA
County: Solano
Township, Range, Section:
Plant Community:
Sample Plot: wetland

VEGETATION

Tree stratum	% Cover	Dominant?	Indicator status
n/a			

Shrub stratum	% Cover	Dominant?	Indicator status
Rumex	<5	N	FACW

Hebaceous stratum	% Cover	Dominant?	Indicator status
Juncus bufonius	80	Y	OBL
Eleocharis	10		OBL

Percent of dominant species that are OBL, FACW, or FAC (excluding FAC-): 1 of 1 = 100 %

Comments: hydrophytes dominant

HYDROLOGY

Depth of surface water: 0-1"
Depth to free water in pit: 0-1"
Depth to saturated soil: 0

Primary Indicators:		Secondary Indicators:	
✓	Inundated		Oxidized rhizosphere in upper 12 in.
✓	Saturated in upper 12 in.		
	Water marks	✓	Water-stained leaves
	Drift lines		Local soil survey data
	Sediment deposits		FAC neutral test
✓	Drainage patterns in wetlands		Other

Comments:

SOILS

Mapped Soil Unit: Clear Lake Clay Series
Taxonomy:
Matches Profile? Yes
Drainage Class:

Depth	Matrix Color	Mottle Color	Mottle Abundance, Size, Contrast	Soil Texture
0-2	n/a	n/a	n/a	organics, plants
2-18	GLEY1 5G/1	n/a	n/a	loamy clay

	Histol	✓	Reducing conditions (test)	✓	Gleyed
	Histic epipedon	✓	High organic content surface layer		Organic streaking
	Sulfidic odor		Redox concentrations (w/in 10")		Organic pan
✓	Probable aquic moisture regime		Concretions (w/in 3", >2mm)	✓	On hydric soils list

Comments: hydric soils

WETLAND DETERMINATION

Hydrophytic Vegetation? ✓
Hydric Soils? ✓
Wetland Hydrology? ✓

Is this sample plot within a wetland? Yes

Comments:

Photo of test pit showing upland soils (sandy loam, oxidized, not saturated)

Photo of test pit showing wetland soils (clay, reduced, saturated, ponded)

DATA FORM - ROUTINE WETLAND DETERMINATION

Project ID: Scotts Valley Tribe Gaming
Client:
Investigator: Dr. Geo Greening

Do normal circumstances exist on the site? Yes
Is it an atypical situation? no
Is the area a potential problem area? no

Date: May 4, 2024
State: CA
County: Solano
Township, Range, Section:
Plant Community:
Sample Plot: Upland

VEGETATION

Tree stratum	% Cover	Dominant?	Indicator status
n/a			

Shrub stratum	% Cover	Dominant?	Indicator status
Vicia			
Trifolium			
Cardunus			

Hebaceous stratum	% Cover	Dominant?	Indicator status
Bromus	40	Y	UPL
Hordeum	40	Y	FAC-

Percent of dominant species that are OBL, FACW, or FAC (excluding FAC-): 0 of 2 = 0 %

Comments:

HYDROLOGY

Depth of surface water: n/a
Depth to free water in pit: > 18 "
Depth to saturated soil: ~ 18 "

Primary Indicators:		Secondary Indicators:	
	Inundated		Oxidized rhizosphere in upper 12 in.
	Saturated in upper 12 in.		
	Water marks		Water-stained leaves
	Drift lines		Local soil survey data
	Sediment deposits		FAC neutral test
	Drainage patterns in wetlands		Other

Comments: no hydro indicators

SOILS

Mapped Soil Unit: Dibble-Los Osos clay loam
Taxonomy:
Matches Profile?
Drainage Class:

Depth	Matrix Color	Mottle Color	Mottle Abundance, Size, Contrast	Soil Texture
0-3	2.5Y 4/3	n/a	n/a	Sandy loam
3-18	2.5Y 4/3	n/a	n/a	clayey loam

	Histol		Reducing conditions (test)		Gleyed
	Histic epipedon		High organic content surface layer		Organic streaking
	Sulfidic odor		Redox concentrations (w/in 10")		Organic pan
	Probable aquic moisture regime		Concretions (w/in 3", >2mm)		On hydric soils list

Comments: no hydric indicators

WETLAND DETERMINATION

Hydrophytic Vegetation? no
Hydric Soils? no
Wetland Hydrology? no

Is this sample plot within a wetland? No

Comments:

Attachment B

List of Plants Detected

Plants Observed During the April 3 and 7, 2024 Field Surveys and Animals Observed during the April 3 and 7, 2024 and Prior Field Surveys

Common Name	Scientific Name
Silver hairgrass	*Aira caryophyllea*
Crinkled onion	*Allium crispum*
Common fiddleneck	*Amsinckia intermedia*
Slender wild oat	*Avena barbata*
Coyote brush	*Baccharis pilularis*
Mustard	*Brassica sp.*
Quaking grass	*Briza minor*
Brodiaea	*Brodiaea sp.*
Ripgut brome	*Bromus diandrus*
Soft chess	*Bromus hordeaceus*
Red brome	*Bromus rubens*
Red maids	*Calandrinia ciliata*
Shepherd's purse	*Capsella bursa-pastoris*
Italian thistle	*Carduus pycnocephalus*
Slender flowered thistle	*Carduus tenuiflorus*
Valley tassels	*Castilleja attenuata*
Purple owl's clover	*Castilleja exserta*
Purple star thistle	*Centaurea calcitrapa*
Yellow star thistle	*Centaurea solstitialis*
Sticky mouse-eared chickweed	*Cerastium glomeratum*
Wavy leaf soap plant	*Chlorogalum pomeridianum*
Bull thistle	*Cirsium vulgare*
Clarkia	*Clarkia sp.*
Miner's lettuce	*Claytonia perfoliata*
Field bindweed	*Convolvulus arvensis*
Pygmy weed	*Crassula tillaea*
Cardoon	*Cynaria cardunculus*
Bush monkeyflower	*Diplacus aurantiacus*
Stinkwort	*Dittrichia graveolens*
Canyon dudleya	*Dudleya cymosa*
Spikerush	*Eleocharis sp.*
Tall willowherb	*Epilobium brachycarpum*
Naked buckwheat	*Eriogonum nudum*
Broad leaved filaree	*Erodium botrys*
Red-stemmed filaree	*Erodium cicutarium*
White stem filaree	*Erodium moschatum*
Coyote thistle	*Eryngium sp.*
Yellow monkeyflower	*Erythranthe guttata*
California fawn lily	*Erythronium californicum*
Petty spurge	*Euphorbia peplus*
Pacific fescue	*Festuca microstachys*
Rattail sixweeks grass	*Festuca myuros*

Common Name	Scientific Name
Italian ryegrass	*Festuca perennis*
Fennel	*Foeniculum vulgare*
California coffeeberry	*Frangula californica*
Bedstraw	*Galium aparine*
Wall bedstraw	*Galium parisiense*
Cutleaf geranium	*Geranium dissectum*
Bird's eye gilia	*Gilia tricolor*
Waxy mannagrass	*Glyceria declinata*
Few flowered evax	*Hesperevax sparsifolia var sparsiflora*
Shortpod mustard	*Hirschfeldia incana*
Meadow barley	*Hordeum brachyantherum*
Mediterranean barley	*Hordeum marinum ssp. gussoneanum*
Wall barley	*Hordeum murinum*
Smooth cat's-ear	*Hypochaeris glabra*
Rough cat's-ear	*Hypochaeris radiata*
Baltic rush	*Juncus balticus*
Toad rush	*Juncus bufonius*
Iris-leaved rush	*Juncus xiphioides*
California goldfields	*Lasthenia californica*
Hawkbit	*Leontodon saxatilis*
Field pepperweed	*Lepidium campestre*
Shining peppergrass	*Lepidium nitidum*
Jepson's leptosiphon	*Leptosiphon jepsonii*
California cottonrose	*Logfia filaginoides*
Lomatium	*Lomatium sp.*
Scarlet pimpernel	*Lysimachia arvensis*
Hyssop loosestrife	*Lythrum hyssopifolia*
California man-root	*Marah fabacea*
California burclover	*Medicago polymorpha*
California melic grass	*Melica californica*
Silverpuffs	*Microseris sp.*
Watercress	*Nasturtium officinale*
Bermuda buttercup	*Oxalis pes-caprae*
Goldback fern	*Pentagramma triangularis*
Yampah	*Perideridia sp.*
Common phacelia	*Phacelia distans*
Imbricate phacelia	*Phacelia imbricata*
Phacelia	*Phacelia sp.*
Dwarf plantain	*Plantago erecta*
English plantain	*Plantago lanceolata*
One-sided bluegrass	*Poa secunda*
Bluegrass	*Poa sp.*
Licorice fern	*Polypodium sp.*
Fairy mist	*Pterostegia drymarioides*
Coast live oak	*Quercus agrifolia*

Common Name	Scientific Name
California buttercup	*Ranunculus californicus*
White water buttercup	*Ranunculus lobbii*
Prickleseed buttercup	*Ranunculus muricatus*
Western buttercup	*Ranunculus occidentalis*
Black locust	*Robinia pseudoacacia*
Himalayan blackberry	*Rubus armeniacus*
Curly dock	*Rumex crispus*
Fiddleleaf dock	*Rumex pulcher*
Arroyo willow	*Salix lasiolepis*
Blue elderberry	*Sambucus nigra ssp. caerulea*
Poison sanicle	*Sanicula bipinnata*
Purple sanicle	*Sanicula bipinnatifida*
California bee plant	*Scrophularia californica*
Old man of spring	*Senecio vulgare*
Windmill pinks	*Silene gallica*
Milk thistle	*Silybum marianum*
Blue-eyed grass	*Sisyrinchium bellum*
White nightshade	*Solanum americanum*
South American soliva	*Soliva sessilis*
Sow thistle	*Sonchus oleraceus*
White hedge nettle	*Stachys albens*
Hedge nettle	*Stachys pycnantha*
Purple needlegrass	*Stipa pulchra*
Tall sock-destroyer	*Torilis arvensis*
Poison-oak	*Toxicodendron diversilobum*
Hop clover	*Trifolium dubium*
Rose clover	*Trifolium hirtum*
Thimble clover	*Trifolium microdon*
Subterranean clover	*Trifolium subterraneum*
White tipped clover	*Trifolium variegatum*
Triplet lily	*Triteleia sp.*
California bay	*Umbellularia californica*
Spring vetch	*Vicia sativa*
Winter vetch	*Vicia villosa*
California golden violet	*Viola pedunculata*
Narrow leaf mule ears	*Wyethia angustifolia*

Attachment C

Site Photographs

View looking south of southeastern corner of Study Area and entrance gate.

View looking north along western boundary of Study Area with willow scrub and emergent marsh

View looking west of a graded commercial pad with an erosion gully in a pasture setting

View looking southeast in the middle edge of the Study Area at degraded marsh and horses grazing on neighboring property

View looking northwest in the middle of the Study Area of marsh and electrical transmission lines, with the roadbed of Interstate 80 in the background and a channel and riparian habitat at the base.

Closeup view of the riparian vegetation (primarily arroyo willow)

View looking north of the primary drainage system, which is a series of intermittent channels and wetland pools

View looking south from the northern portion of the Study Area showing the metamorphic rock outcrop and steep slopes

View looking southwest from the northern portion of the Action Area showing the metamorphic rock outcrop and steep slopes and annual grassland

View looking south of pasture and rolling hills and drainage systems in the valleys, with I-80 on the right.

View looking north at the area proposed for tribal housing.

Appendix H-3
Botanical Report

BOTANICAL REPORT

Scotts Valley 160-acre Fee-to-Trust Project

June 2024

acorn environmental

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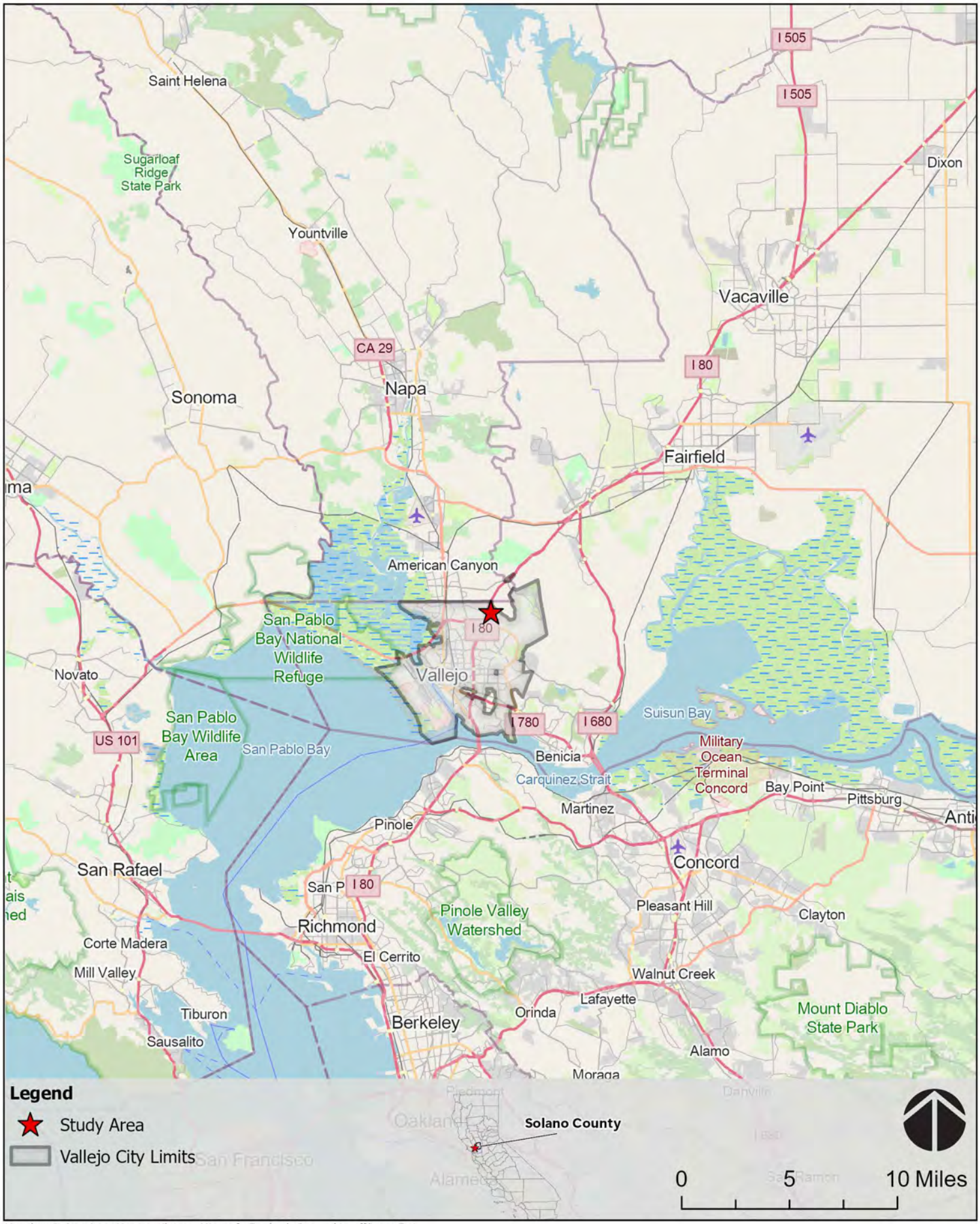
List of Figures

List of Attachments

Section 1 | Description and Location of the Study Area

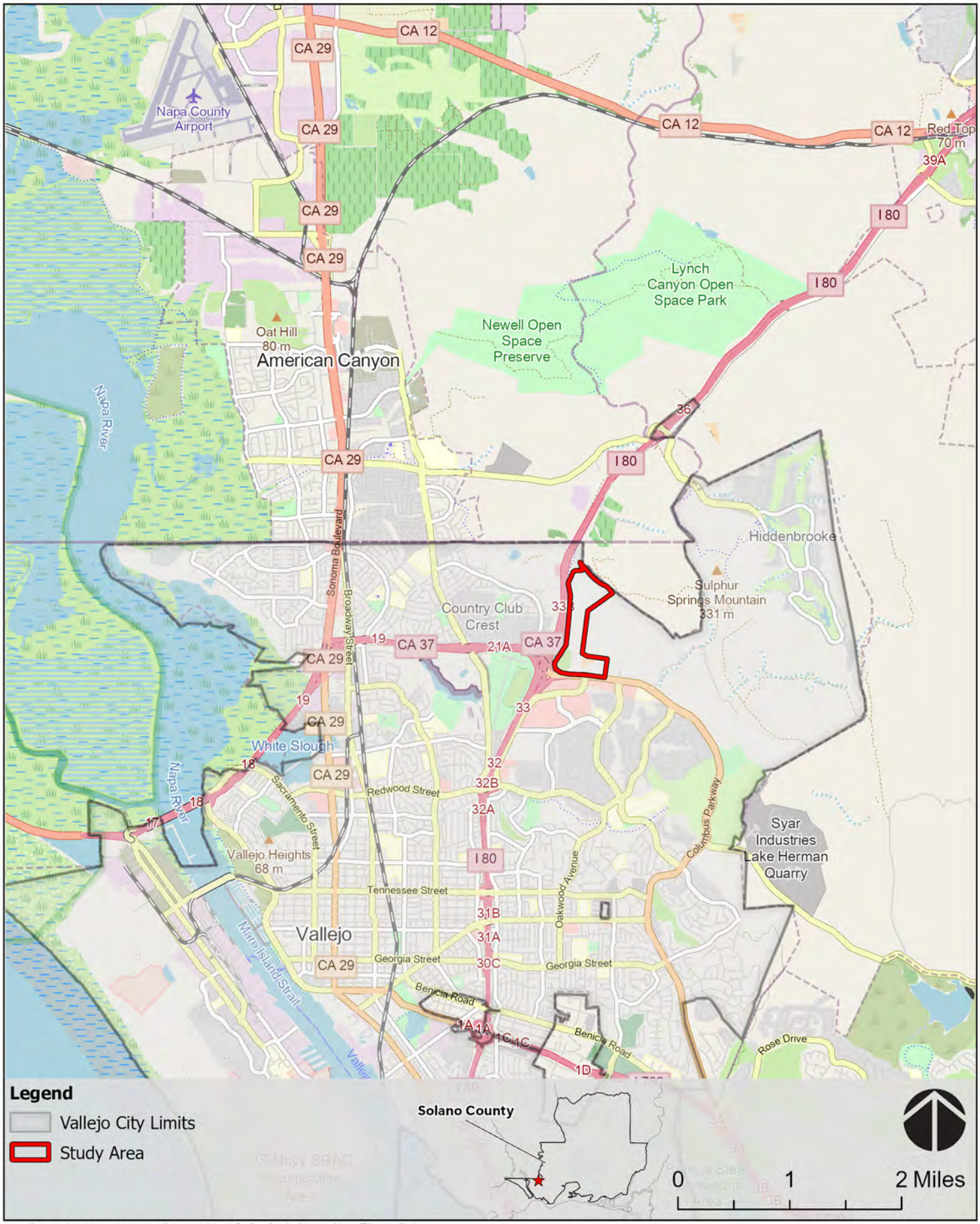
Figure 1 and **Figure 2** show the location of the Study Area, and **Figure 3** presents an aerial photograph of the Study Area and the immediate vicinity. The Study Area is located at the northeast corner of the intersection of Interstate 80 (I-80) and Columbus Parkway in Vallejo, California, Section 5, Township 3 North, Range 3 West, and Section 32, Township 4 North, Range 3 West, Mount Diablo Base and Meridian within the Cordelia 7.5-minute U.S. Geological Survey (USGS) quadrangle. The Study Area consists of four parcels totaling 160 acres: Assessor's Parcel Numbers (APNs) 182-010-010, 0182-020-010, 0182-020-020, and 0182-020-080).



Map data © OpenStreetMap contributors, Microsoft, Facebook, Inc. and its affiliates, Esri Community Maps contributors, Map layer by Esri

FIGURE 1

REGIONAL LOCATION



Map data © OpenStreetMap contributors, Microsoft, Facebook, Inc. and its affiliates, Esri Community Maps contributors, Map layer by Esri

FIGURE 2
SITE AND VICINITY

Esri Community Maps Contributors, California State Parks, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census

FIGURE 3
AERIAL OVERVIEW

Section 2 | Biological Setting

The Study Area is located within the Central Coast geographic subregion, which is contained within the Central Western California region of the larger California Floristic Province (Baldwin et al. 2012).

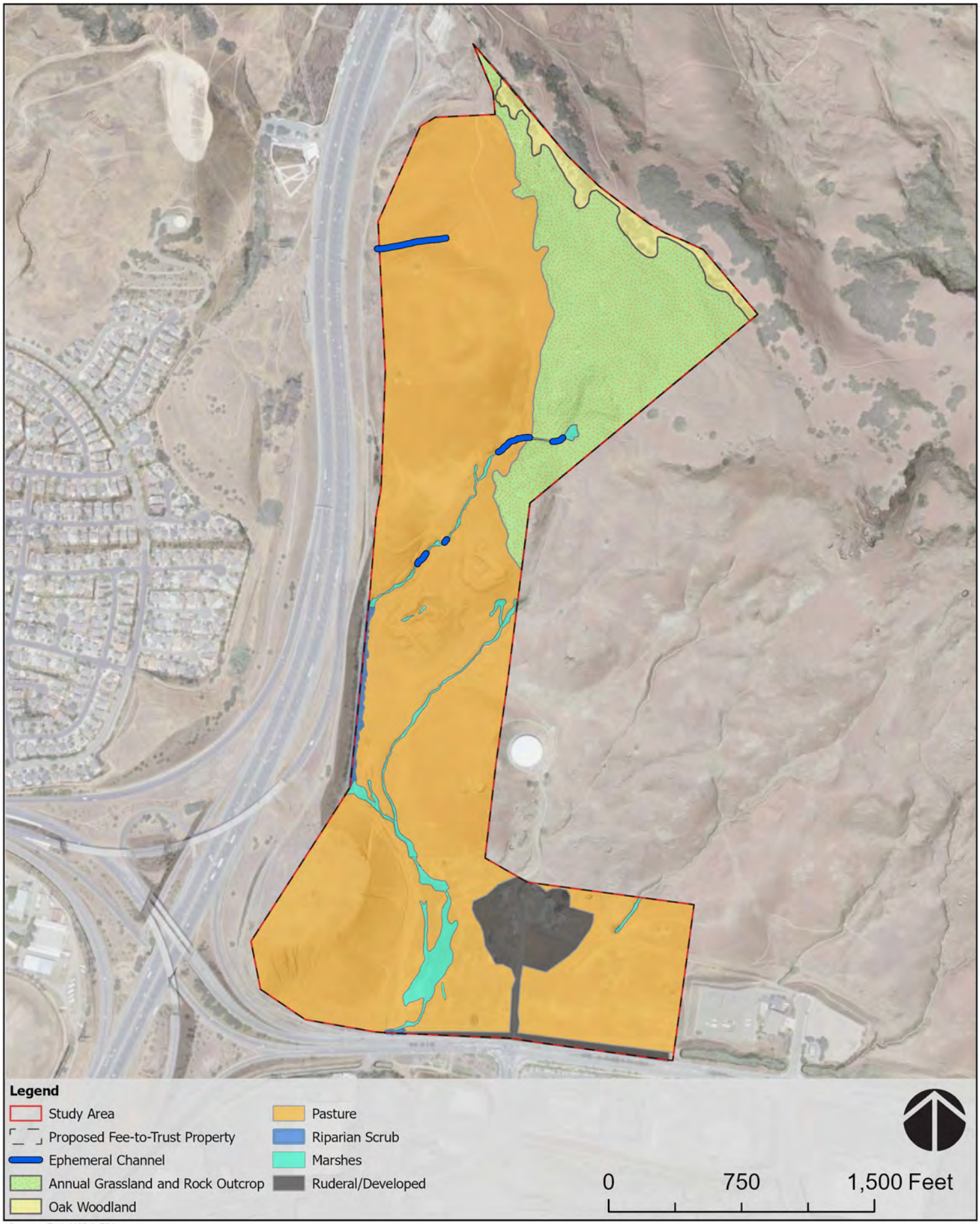
The Study Area falls within Climate Zone 17 “Marine effects in Southern Oregon, Northern, and Central California.” Climate Zone 17 experiences a mild climate with cool, wet winters and cool summers with frequent fog and wind. Temperatures in this zone do not fall below 20 degrees Fahrenheit with an average high of 97 degrees Fahrenheit (Sunset, 2024).

The topography of the Study Area ranges from flat in the southern portion of the Study Area, to steep in the northern portion. Elevations on the site range from 140 feet in the southern portion of the site to approximately 830 feet on the northern portion. The Study Area is currently undeveloped open space, transmission power corridor, and pasture and equine facilities. Habitats are shown in **Figure 4**. Surrounding development includes commercial development to the south, rangeland to the north and east, and highways, a large vista rest stop, and residential developments to the west.

Drainage collects in swales and ephemeral channels that run in a southerly direction, and eventually combine into a single channel that flows into a double-pipe culvert. This culvert directs stormwater under Auto Mall Parkway and into Rindler Creek, which is tributary to Lake Chabot. Annual precipitation averages approximately 21 inches (Climate Data, 2024).

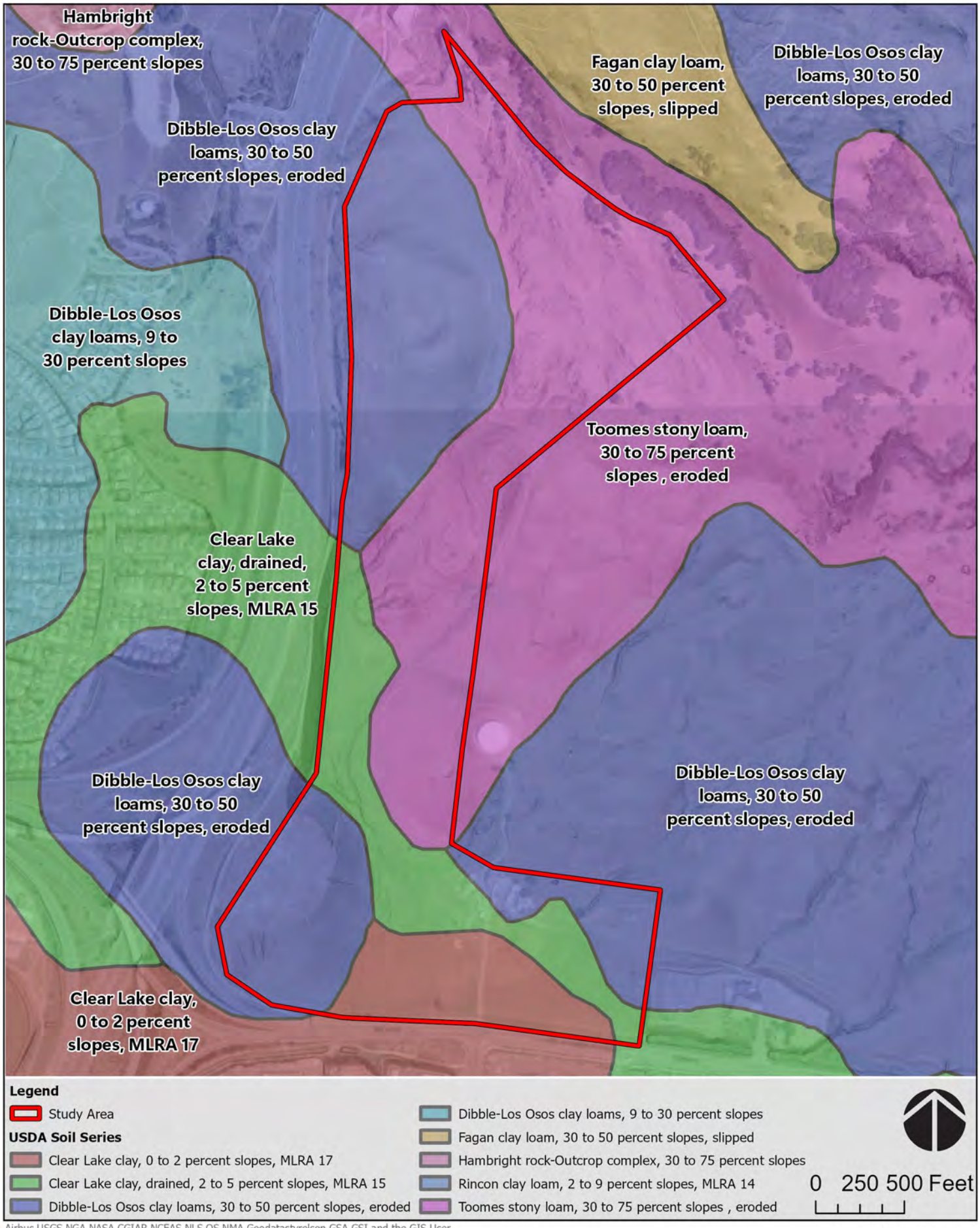
USDA NRCS mapped soil units occurring within the Study Area are as follows (and mapped in **Figure 5**):

- Dibble-Los Osos clay loam series (30-50% slope, eroded), not hydric
- Clear Lake clay series (2-5% slope), hydric
- Toomes stony loam series (30-75% slope, eroded)



Source: Esri, USDA FSA, Airbus,USGS,NGA,NASA,CGIAR,NCEAS,NLS,OS,NMA,Geodatastyrelsen,GSA,GSI and the GIS User

FIGURE 4
HABITAT TYPES



Airbus,USGS,NGA,NASA,CGIAR,NCEAS,NLS,OS,NMA,Geodatastyrelsen,GSA,GSI and the GIS User Community, Yolo County, Maxar

FIGURE 5
USDA SOIL SERIES

Section 3 | Survey Methodology

Survey methodology followed the following protocols:

- California Department of Fish and Wildlife (CDFW). 2018. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities.
- U.S. Fish and Wildlife Service (USFWS). 1996. Guidelines for conducting and reporting botanical inventories for federally listed, proposed and candidate plants. Sacramento Fish and Wildlife Office, Sacramento, California. 2 pp.
- California Native Plant Society. 2001. CNPS botanical survey guidelines.

3.1 PRELIMINARY DATA GATHERING AND RESEARCH

Prior to conducting the field survey, the following information sources were reviewed:

- Aerial photography of the Study Area (current and historical)
- USGS 7.5 degree-minute topographic quadrangles
- USFWS National Wetland Inventory
- USDA Natural Resources Conservation Service soil survey maps
- California Natural Diversity Database (CNDDB), electronically updated monthly by subscription
- California Native Plant Society's database *Inventory of Rare and Endangered Plants of California* (online edition).

No reference sites were deemed necessary to visit.

3.2 FIELD SURVEYS

Dates of botanical field surveys (indicating the botanical field surveyor(s) that surveyed each area on each survey date), and total person-hours spent:

- Dr. G.O. Graening, April 3 and May 4, 2024, full days
- Tim Nosal, MS., April 7 and June 1, 2024, full days

The qualifications of the botanical field surveyors and report authors are summarized at the end of this report.

A variable-intensity pedestrian survey of the Study Area was performed, and modified to account for differences in terrain, vegetation density, and visibility. All visible taxa observed were recorded in a field notebook. Survey efforts emphasized the search for any special-status species that had documented occurrences in the CNDDB within the vicinity of the Study Area and those species on the CNPS or USFWS species lists.

Taxa were identified to the taxonomic level necessary to determine whether or not they are a special-status plant. When a specimen could not be identified in the field, a photograph was taken and/or a specimen was pressed and identified in the laboratory using a dissecting scope where necessary. Dr. Graening holds the following scientific collection permits: CDFW Scientific Collecting Permit No. SC-

006802; and CDFW Plant Voucher Specimen Permit 09004. Tim Nosal holds CDFW Plant Voucher Specimen Permit 2081(a)-16-102-V. Taxonomic determinations were facilitated by referencing museum specimens or by various texts, including the following: Powell and Hogue (1979); Pavlik (1991); (1993); Brenzel (2012); Stuart and Sawyer (2001); Lanner (2002); Sibley (2003); Baldwin et al. (2012); Calflora (2022); CDFW (2022b, c); NatureServe 2022; and University of California at Berkeley (2022a,b).

3.3 MAPPING AND OTHER ANALYSIS

The locations of any special-status species or vegetation communities sighted were marked on aerial photographs and/or georeferenced with a geographic positioning system (GPS) receiver. Vegetation community types occurring in the Study Area were mapped on aerial photographs, and information on habitat conditions and the suitability of the habitats to support special-status species was also recorded.

Locations of any species' occurrences and sensitive natural community boundaries detected within the Study Area were digitized to produce the final maps. Geographic analyses were performed using geographical information system software (ArcGIS 11, ESRI, Inc.). Vegetation communities (assemblages of plant species growing in an area of similar biological and environmental factors) were classified by Vegetation Series (distinctive associations of plants, described by dominant species and particular environmental setting) using the CNPS Vegetation Classification system (Sawyer and Keeler-Wolf, 1995). Species' habitat requirements and life histories were identified using the following sources: Baldwin et al. (2012); CNPS (2022), Calflora (2022); CDFW (2022a, b, c); and University of California at Berkeley (2022a, b).

3.4 PREVIOUS STUDIES

Field surveys were previously conducted on the 128.2 acre-property identified by APN 182-010-010 on the following dates: October 2005, and on November 8, 2005; May 17 and 23, 2006; July 5, 2006; January 31, 2007; February 10, 2007; March 28, 2007; April 4 and 11, 2007; July 10, 2007; December 17, 2015; September 7, 2022; and June 27, 2023 (Huffman Broadway Group 2005 and 2006; Jennings 2008; AES 2016; Montrose Environmental Solutions, 2022 and 2023). Some of these were protocol botanical surveys. No special-status plants were detected.

Protocol botanical field surveys were previously conducted within the 32.5-acre property identified by APNs 0182-020-010, -020, and -080 on the following dates: November 15, 2019; April 22, May 22, and August 11, 2020 (Monk & Associates, Inc. 2022). No special-status plants were detected.

3.5 LIST OF SENSITIVE NATURAL COMMUNITIES WITH POTENTIAL TO OCCUR IN THE REGION

No critical habitat for any federally-listed plant species occurs within the Study Area.

The CNDDB reported no special-status habitats within the Study Area, but the CNDDB did report the following special-status habitats within the vicinity (10-mile buffer): Coastal Brackish Marsh; Northern Claypan Vernal Pool; Northern Coastal Salt Marsh; Northern Vernal Pool; Serpentine Bunchgrass

3.6 LIST OF SPECIAL-STATUS PLANTS WITH POTENTIAL TO OCCUR IN THE REGION

A list of special-status plant species with potential to occur in the region was compiled based upon the following:

- A spatial query of the CNDDB using a 10-mile buffer around the Study Area.
- A 9-quadrangle query of the California Native Plant Society's database *Inventory of Rare and Endangered Plants of California* (online edition).
- Official USFWS species list generated online using the USFWS IPaC Trust Resource Report System (USFWS, 2024).

The databases were queried and any reported occurrences of any special-status plant species were plotted in relation to the Study Area boundary using GIS software. The CNDDB reported no special-status plant species occurrences within the Study Area. Within a 10-mile buffer of the Study Area, the CNDDB reported numerous special-status species occurrences, summarized in **Attachment A**.

Section 4 | Results

4.1 List of Plant Taxa Detected During Field Survey(S)

All plant taxa detected during the botanical field survey are listed in the **Attachment B**. Photos of the Study Area are provided in **Attachment C**. During the field survey, one rare plant species was detected within the Study Area: Jepson's leptosiphon (*Leptosiphon jepsonii*), which is ranked by CNPS as CRPR 1B.2 (**Figure 6**).

Deposition locations of voucher specimens: none collected.

4.2 List of Vegetation Communities Detected During Field Surveys

Terrestrial habitats that occur within the Study Area consist of riparian scrub, freshwater marsh, pasture, and annual grassland/rock outcrop. Ruderal/developed areas are also present. Ephemeral channels are mapped within several of these habitats. These habitats are shown on **Figure 6** and discussed further below. Representative site photographs are provided in **Attachment C**.

Riparian Scrub

This community is found on the western edge of the Study Area; it is associated with an intermittent drainage that is fed by both the flank of Sulphur Springs Mountain as well as road runoff from I-80. The vegetation is dominated by arroyo willow (*Salix lasiolepis*) with an understory of Himalayan blackberry (*Rubus discolor*) and poison oak (*Toxicodendron diversilobum*), and limited areas of broad-leaved cattail (*Typha latifolia*). Vegetation along the edge of the riparian habitat included sweet fennel (*Foeniculum vulgare*) and coyote brush (*Baccharis pilularis*). The riparian habitat transitions to either marsh or pasture, depending upon the local topography.

Freshwater Marsh

Freshwater marsh habitat was observed in the valleys of hills. The dominant plants in these areas are rushes (e.g. *Juncus bufonius*) and spikerushes (*Eleocharis*). Facultative grasses and forbs are also present, such as perennial ryegrass (*Lolium perenne*), Bermuda grass (*Cynodon dactylon*), curly dock (*Rumex crispus*), common monkeyflower (*Mimulus guttattus*), and pennyroyal (*Mentha* sp.). Ponded areas contain floating plants such as watercress (*Nasturtium officinale*). The water quality of these marshes has been impacted by cattle and horses, which are allowed to wallow and graze in the wetlands.

FIGURE 6
RARE PLANT LOCATIONS

Pasture

The majority of the Study Area is a simplified non-native grassland containing perennial ryegrass (*Lolium perenne*), wild oats (*Avena fatua*), soft chess (*Bromus hordeaceus*), and other pasture grasses. These areas are subject to significant grazing pressure and may have been plowed or conditioned previously. Non-native forbs are abundant, such as thistles (*Silybum*, *Carduus*), filarees (*Erodium*), star thistle (*Centaurea solstitialis*), bristly ox-tongue (*Picris echioides*), poison hemlock (*Conium maculatum*), fennel (*Foeniculum vulgare*), black mustard (*Brassica nigra*), and spiny cocklebur (*Xanthium spinosum*). Large patches of artichoke thistle (*Cynara cardunculus*) were also observed within this habitat.

Annual Grassland/Rock Outcrop

This non-native annual grassland community is similar to the pasture community described above, but contains a greater diversity of species and greater number of native species. This is due in part to the rocky terrain, which is more difficult for cattle to graze, and because the metamorphic soils and rock outcrops provide additional habitat niches. Native wildflowers were abundant, such as California poppy (*Eschscholzia californica*), golden violet (*Viola pedunculata*), owl's clover (*Castilleja*), and blue dicks (*Dichelostemma capitatum*). Seeps were common at the base of rock outcrops, and these wet areas created microhabitats for specialized plants, such as ferns and succulents (*Dudleya* spp.).

Oak Woodland

A narrow strip of oak woodland occurs along the northern boundary of the Study Area along a hilltop crest. This habitat contains a significant canopy cover of coast live oak (*Quercus agrifolia*). Ground cover vegetation is similar to species observed within the annual grassland/rock outcrop habitat.

Ruderal/Developed

Ruderal/developed habitats are those areas that are highly modified from their natural state and are subject to intensive land management, paving, or similar. Within the Study Area, ruderal developed areas included an unpaved access drive and informal parking areas, fencing, and horse shelters. Vegetation was sparse to absent in this area. Where vegetation did occur, it was dominated primarily by non-native grasses and invasive forbs.

4.3 ADEQUACY OF BOTANICAL FIELD SURVEYS

Potential for a false negative botanical field survey:

> A false negative is very unlikely since multiple surveys were performed over the span of the floristic window (early and late season) over several years, and by more than one botanist.

Did climatic conditions affect the botanical field survey results?

> There were no unusual climatic conditions. Some survey years were wetter, and some were dryer, and the surveys covered different seasons.

Did the timing of botanical field surveys affect the comprehensiveness of botanical field surveys?

> Since the timing of surveys covered the entire floristic season, the surveys were completely comprehensive.

No further botanical field surveys are deemed necessary.

Section 5 | Qualifications of Surveyors and Authors

G.O. GRAENING, Ph.D., M.S.E.

Dr. Graening holds a PhD in Biological Sciences and a Master of Science in Biological and Agricultural Engineering. Dr. Graening is an adjunct Professor at California State University at Sacramento, and is an active researcher in the area of conservation biology; his publication list is available online at http://www.csus.edu/indiv/g/graeningg/pubs.htm. Dr. Graening is also a Certified Arborist (ISA # WE-6725A). Dr. Graening has 26 years of experience in environmental assessment, including previous employment (prior to joining Acorn Environmental) with The Nature Conservancy, Tetra Tech Inc., CH2M Hill, Inc., and Natural Investigations Company.

TIMOTHY R. D. NOSAL, M.S.

Mr. Nosal holds a B.S. and M.S. in Biological Sciences. Mr. Nosal has statewide experience performing sensitive plant and animal surveys in addition to terrestrial vegetation investigations. Mr. Nosal has over 25 years of experience in botanical surveys, environmental assessment, and teaching with employers that include California Department of Fish and Wildlife, State Water Resources Control Board, American River College, MTI College and Pacific Municipal Consultants. Mr. Nosal has intensive experience with the flora of the Pine Hill region, including leading numerous field trips exploring the botany of the region, co-authoring a fuel management plan for Pine Hill, and a Master's thesis on Stebbins's morning glory (*Calystegia stebbinsii*), an endangered plant of the region.

Section 6 | References

Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, and T.J. Rosatti, editors. 2012. The Jepson Manual: Vascular Plants of California, second edition, thoroughly revised and expanded. University of California Press, Berkeley, California. 1,600 pp.

Calflora. 2022. Calflora, the on-line gateway to information about native and introduced wild plants in California. Internet database available at http://calflora.org/.

California Department of Fish and Wildlife. 2018. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities. California Natural Resources Agency, Department of Fish and Wildlife, Sacramento, California. 12 pp.

California Department of Fish and Wildlife. 2022. RareFind, California Natural Diversity Data Base. Biogeographic Data Branch, Sacramento, California. (updated monthly by subscription service)

California Department of Fish and Wildlife. 2022. List of California Terrestrial Natural Communities Recognized by the California Natural Diversity Database. Available on the Internet at: https://wildlife.ca.gov/Data/VegCAMP/Natural-Communities.

California Native Plant Society. 2022. Inventory of Rare and Endangered Plants. Rare Plant Scientific Advisory Committee, David P. Tibor, convening editor. California Native Plant Society. Sacramento, California. Internet database available at http://cnps.web.aplus.net/cgi-bin/inv/inventory.cgi.

California Native Plant Society. 2001. CNPS botanical survey guidelines. Pages 38-40 in California Native Plant Society's inventory of rare and endangered vascular plants of California (D.P. Tibor, editor). Sixth edition. Special Publication No. 1, California Native Plant Society, Sacramento, 387 pp.

Climate Data, 2024. Vallejo Climate. Available online at: https://en.climate-data.org/north-america/united-states-of-america/california/vallejo-1461/. Accessed April 2024.

Huffman-Broadway Group, Inc., 2005. Draft Ecological Constraints Study Columbus Parkway Area of Study, City of Vallejo, California. 42 pp.

Huffman-Broadway Group, Inc., 2006. Biological Assessment, Crossroads Development, Carlson Property, City of Vallejo, California.

Jepson Flora Project (eds.) 2023. Jepson eFlora, https://ucjeps.berkeley.edu/eflora/

Lanner, R. M. 2002. Conifers of California. Cachuma Press, Los Olivos, California. 274 pp.

Monk & Associates, Inc. 2022. Biological Resources Analysis: Solano Ranch Project, City Of Vallejo, California. Revised April 29, 2022. Prepared for GTL Properties, LLC. Prepared by Monk & Associates, Inc., Walnut Creek, California. 85 pp.

Montrose Environmental Solutions, 2022. Biological technical memo: Biological Resources Survey at the Vallejo site (adjacent to I-80 and Columbus Parkway). 23 pp.

Montrose Environmental Solutions, 2023. Bio/Botanical Survey Results (technical email)[of the Action Area].

Natural Resources Conservation Service. 2022. Web Soil Survey. National Cooperative Soil Survey, U.S. Department of Agriculture. NRCS Soils Website (Internet database and digital maps) available at: https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm.

Pavlik, B. M., P. C. Muick, S. G. Johnson, and M. Popper. 1991. Oaks of California. Cachuma Press and the California Oak Foundation. Los Olivos, California. 184 pp.

Sawyer, J. O., and T. Keeler-Wolf. 1995. A manual of California vegetation. California Native Plant Society, Sacramento, California. Available electronically at http://davisherb.ucdavis.edu/cnpsActiveServer/index.html.

Stuart, J. D., and J. O. Sawyer. 2001. Trees and Shrubs of California. California Natural History Guides. University of California Press, Berkeley, California. 467 pp.

Sunset Western Garden Collection, 2024. Sunset Climate Zones. Available online at: https://sunsetplantcollection.com/climate-zones/zone/san-francisco-bay-area-inland/. Accessed April 2024.

University of California at Berkeley. 2022a. Jepson Online Interchange for California Floristics. Jepson Flora Project, University Herbarium and Jepson Herbarium, University of California at Berkeley. Internet database available at http://ucjeps.berkeley.edu/interchange.html.

University of California at Berkeley. 2022b. CalPhotos. Biodiversity Sciences Technology Group, University of California at Berkeley. Internet database available at http://calphotos.berkeley.edu/

U.S. Fish and Wildlife Service. 1996. Guidelines for conducting and reporting botanical inventories for federally listed, proposed and candidate plants. Sacramento Fish and Wildlife Office, Sacramento, California. 2 pp.

United States Fish and Wildlife Service. 2022. Wetlands Digital Data. National Wetlands Inventory Center. Digital maps downloaded from the Internet at https://www.fws.gov/wetlands/.

Attachment A

Special-Status Plant Table

Special-Status Plant Species with Potential to Occur in the Vicinity of the Study Area

Common Name *Scientific Name*	Status	Habitat*	Potential to Occur
Franciscan onion *Allium peninsulare var. Franciscanum*	1B.2	Cismontane woodland, valley and foothill grassland. Clay soils; often on serpentine. Dry hillsides. 100-300 m.	Yes. Potential habitat present in Study Area where grassland and oak woodland habitats occur.
Alkali milk-vetch *Astragalus tener var. Tener*	1B.2	Alkali playa, valley and foothill grassland, vernal pools. Low ground, alkali flats, and flooded lands; in annual grassland or in playas or vernal pools. 1-170m.	No. No suitable habitat present.
Vernal pool smallscale *Atriplex persistens*	1B.2	Alkaline vernal pools. 10-115 m.	No. No suitable habitat present.
Big-scale balsamroot *Balsamorhiza macrolepis*	1B.2	Valley and foothill grassland, cismontane woodland. Sometimes on serpentine. 35-1,000 m.	Yes. Potential habitat present in Study Area where grassland and oak woodland habitats occur.
Big tarplant *Blepharizonia plumosa*	1B.1	Valley and foothill grassland. Dry hills and plains in annual grassland. Clay to clay-loam soils; usually on slopes and often in burned areas. 15-455 m.	Yes. Potential habitat present in Study Area where grassland habitats occur.
Narrow-anthered brodiaea *Brodiaea leptandra*	1B.2	Broadleafed upland forest, chaparral, lower montane coniferous forest. 110-915 m.	Yes. Potential habitat present in Study Area where oak woodland habitats occur.
Mt. Diablo fairy-lantern *Calochortus pulchellus*	1B.2	Chaparral, cismontane woodland, riparian woodland, valley and foothill grassland. On wooded and brushy slopes. 200-800 m.	Yes. Potential habitat present in Study Area where grassland and oak woodland habitats occur.
Lyngbye's sedge *Carex lyngbyei*	2B.2	Marshes and swamps (brackish or freshwater). 0 m.	Yes. Potential habitat present in Study Area where marshes occur.
Tiburon paintbrush *Castilleja affinis*	1B.2, CT, FE	Valley grassland, serpentine soils.	No. Suitable soils absent.
Holly-leaved ceanothus *Ceanothus purpureus*	1B.2	Chaparral. Rocky, volcanic slopes. 120-640m.	No. No suitable habitat present.
Congdon's tarplant *Centromadia parryi ssp. congdonii*	1B.1	Valley and foothill grassland. Alkaline soils, sometimes described as heavy white clay. 1-230 m.	Yes. Potential habitat present where grassland and clay soils occur.
Pappose tarplant *Centromadia parryi ssp. parryi*	1B.2	Coastal prairie, meadows and seeps, coastal salt marsh, valley and foothill grassland. Vernally mesic, often alkaline sites. 2-420 m.	No. No suitable habitat present.

Bolander's water-hemlock *Cicuta maculata var. bolanderi*	2B.1	Marshes, fresh or brackish water. 0-200 m.	Yes. Potential habitat present in Study Area where marshes occur.
Western leatherwood *Dirca occidentalis*	1B.2	Broadleafed upland forest, chaparral, closed-cone coniferous forest, cismontane woodland, coast coniferous forest, riparian forest, riparian woodland. On brushy slopes, mesic sites; mostly in mixed evergreen and foothill woodland communities. 30-550 m.	Yes. Potential habitat present in Study Area where oak woodland habitats occur.
Dwarf downingia *Downingia pusilla*	2B.2	Valley and foothill grassland (mesic sites), vernal pools. Vernal lake and pool margins with a variety of associates. In several types of vernal pools. 1-485 m.	No. No suitable habitat present.
Greene's narrow-leaved daisy *Erigeron greenei*	1B.2	Chaparral. Serpentine and volcanic substrates, generally in shrubby vegetation. 75-1,060 m.	No. No suitable habitat present.
Mt. Diablo buckwheat *Eriogonum truncatum*	1B.1	Chaparral, coastal scrub, valley and foothill grassland. Dry, exposed clay or sandy substrates. 3-350 m.	Yes. Potential habitat present in Study Area where grassland habitats occur.
Jepson's coyote-thistle *Eryngium jepsonii*	1B.2	Vernal pools.	No. No suitable habitat present.
San Joaquin spearscale *Extriplex joaquinana*	1B.2	Chenopod scrub, alkali meadow, valley and foothill grassland. In seasonal alkali wetlands or alkali sink scrub with *distichlis spicata*, *frankenia*, etc. 1-250 m.	No. No suitable habitat present.
Fragrant fritillary *Fritillaria liliacea*	1B.2	Coastal scrub, valley and foothill grassland, coastal prairie. Often on serpentine; various soils reported though usually clay, in grassland. 3-410 m.	Yes. Potential habitat present in Study Area where grassland habitats occur.
Diablo helianthella *Helianthella castanea*	1B.2	Broadleaved upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland. Usually in chaparral/oak woodland interface in rocky, azonal soils. Often in partial shade. 25-1,150 m.	Yes. Potential habitat present in Study Area where grassland and oak woodland habitats occur.
Bridges' coast range shoulderband *Helminthoglypta nickliniana bridgesi*	CSSC	Inhabits open hillsides of alameda and contra costa counties. Tends to colonize under tall grasses and weeds.	Yes. Potential habitat present in Study Area where grassland habitats occur.
Brewer's western flax *Hesperolinon breweri*	1B.2	Chaparral, cismontane woodland, valley and foothill grassland. Often in rocky serpentine soil in serpentine chaparral and serpentine grassland. 30-885 m.	Yes. Potential habitat present in Study Area where grassland and oak woodland habitats occur.

Carquinez goldenbush *Isocoma arguta*	1B.1	Valley and foothill grassland. Alkaline soils, flats, lower hills. On low benches near drainages and on tops and sides of mounds in swale habitat. 1-20 m.	Yes. Potential habitat present in Study Area where grassland habitats occur.
Delta tule pea *Lathyrus jepsonii var. jepsonii*	1B.2	Freshwater and brackish marshes. Often found with typha, aster lentus, rosa calif., juncus spp., scirpus, etc. Usually on marsh and slough edges.	No. No suitable habitat present.
Legenere *Legenere limosa*	1B.1	Vernal pools. Many historical occurrences are extirpated. In beds of vernal pools. 1-880 m.	No. No suitable habitat present.
Jepson's leptosiphon *Leptosiphon jepsonii*	1B.2	Chaparral, cismontane woodland. Open to partially shaded grassy slopes. On volcanics or the periphery of serpentine substrates. 100-500 m.	Yes. Potential habitat present in Study Area where grassland and oak woodland habitats occur.
Mason's lilaeopsis *Lilaeopsis masonii*	1B.1	Freshwater and brackish marshes, riparian scrub. Tidal zones, in muddy or silty soil formed through river deposition or riverbank erosion. 0-10 m.	No. No suitable habitat present.
Delta mudwort *Limosella australis*	2B.1	Delta bays and backwaters.	No. No suitable habitat present.
Baker's navarretia *Navarretia leucocephala ssp. bakeri*	1B.1	Cismontane woodland, meadows and seeps, vernal pools, valley and foothill grassland, lower montane coniferous forest. Vernal pools and swales; adobe or alkaline soils. 5-950 m.	No. No suitable habitat present.
California alkali grass *Puccinellia simplex*	1B.2	Alkaline soils.	No. No suitable habitat present.
California beaked-rush *Rhinophoral californica*	1B.1	Bogs and fens, marshes and swamps, lower montane coniferous forest, meadows and seeps. Freshwater seeps and open marshy areas. 45-1,010 m.	Yes. Potential habitat present in Study Area where mash habitats occur.
Chaparral ragwort *Senecio aphanitic*	2B.2	Chaparral, cismontane woodland, coastal scrub. Drying alkaline flats. 15-800 m.	Yes. Potential habitat present in Study Area where oak woodland habitats occur.
Napa checkerbloom *Sidalcea hickmanii ssp. napensis*	1B.1	Chaparral. Rhyolitic substrates. 415-610 m.	No. No suitable habitat present.
Long-styled sand-spurrey *Spergularia macrotheca var. longistyla*	1B.2	Moist coastal and inland habitat, often in alkaline and saline substrates.	No. No suitable habitat present.
Northern slender pondweed *Stuckenia filiformis ssp. alpina*	2B.2	Ponds.	No. No suitable habitat present.

Suisun Marsh aster *Symphyotrichum lentum*	1B.2	Marshes and swamps (brackish and freshwater). Most often seen along sloughs with phragmites, scirpus, blackberry, typha, etc. 0-3 m.	No. No suitable habitat present.
Napa bluecurls *Trichostema ruygtii*	1B.2	Cismontane woodland, chaparral, valley and foothill grassland, vernal pools, lower montane coniferous forest. Often in open, sunny areas. Also has been found in vernal pools. 30-590 m.	Yes. Potential habitat present in Study Area where grassland and oak woodland habitats occur.
Showy Indian Clover *Trifolium amoenum*	1B.1, FE	Generally a wetland species. Valley grassland, wetland-riparian.	Yes. Potential habitat present in marshes and annual grassland/rock outcrop habitats.
Saline clover *Trifolium hydrophilum*	1B.2	Marshes and swamps, valley and foothill grassland, vernal pools. Mesic, alkaline sites. 0-300 m.	No. No suitable habitat present.
Oval-leaved viburnum *Viburnum ellipticum*	2B.3	Chaparral, cismontane woodland, lower montane coniferous forest. 215-1,400 m.	Yes. Potential habitat present in Study Area where oak woodland habitats occur.
* Habitat requirements are derived from the CNDDB general and microhabitats unless otherwise noted.			

Attachment B

Plants Observed within the Study Area

Plants Observed During the April 3 and 7, 2024 Field Surveys and Animals Observed during the April 3 and 7, 2024 and Prior Field Surveys

Common Name	Scientific Name
Silver hairgrass	*Aira caryophyllea*
Crinkled onion	*Allium crispum*
Common fiddleneck	*Amsinckia intermedia*
Slender wild oat	*Avena barbata*
Coyote brush	*Baccharis pilularis*
Mustard	*Brassica sp.*
Quaking grass	*Briza minor*
Brodiaea	*Brodiaea sp.*
Ripgut brome	*Bromus diandrus*
Soft chess	*Bromus hordeaceus*
Red brome	*Bromus rubens*
Red maids	*Calandrinia ciliata*
Shepherd's purse	*Capsella bursa-pastoris*
Italian thistle	*Carduus pycnocephalus*
Slender flowered thistle	*Carduus tenuiflorus*
Valley tassels	*Castilleja attenuata*
Purple owl's clover	*Castilleja exserta*
Purple star thistle	*Centaurea calcitrapa*
Yellow star thistle	*Centaurea solstitialis*
Sticky mouse-eared chickweed	*Cerastium glomeratum*
Wavy leaf soap plant	*Chlorogalum pomeridianum*
Bull thistle	*Cirsium vulgare*
Clarkia	*Clarkia sp.*
Miner's lettuce	*Claytonia perfoliata*
Field bindweed	*Convolvulus arvensis*
Pygmy weed	*Crassula tillaea*
Cardoon	*Cynaria cardunculus*
Bush monkeyflower	*Diplacus aurantiacus*
Stinkwort	*Dittrichia graveolens*
Canyon dudleya	*Dudleya cymosa*
Spikerush	*Eleocharis sp.*
Tall willowherb	*Epilobium brachycarpum*
Naked buckwheat	*Eriogonum nudum*
Broad leaved filaree	*Erodium botrys*
Red-stemmed filaree	*Erodium cicutarium*
White stem filaree	*Erodium moschatum*
Coyote thistle	*Eryngium sp.*
Yellow monkeyflower	*Erythranthe guttata*
California fawn lily	*Erythronium californicum*
Petty spurge	*Euphorbia peplus*
Pacific fescue	*Festuca microstachys*
Rattail sixweeks grass	*Festuca myuros*

Common Name	Scientific Name
Italian ryegrass	*Festuca perennis*
Fennel	*Foeniculum vulgare*
California coffeeberry	*Frangula californica*
Bedstraw	*Galium aparine*
Wall bedstraw	*Galium parisiense*
Cutleaf geranium	*Geranium dissectum*
Bird's eye gilia	*Gilia tricolor*
Waxy mannagrass	*Glyceria declinata*
Few flowered evax	*Hesperevax sparsifolia var sparsiflora*
Shortpod mustard	*Hirschfeldia incana*
Meadow barley	*Hordeum brachyantherum*
Mediterranean barley	*Hordeum marinum ssp. gussoneanum*
Wall barley	*Hordeum murinum*
Smooth cat's-ear	*Hypochaeris glabra*
Rough cat's-ear	*Hypochaeris radiata*
Baltic rush	*Juncus balticus*
Toad rush	*Juncus bufonius*
Iris-leaved rush	*Juncus xiphioides*
California goldfields	*Lasthenia californica*
Hawkbit	*Leontodon saxatilis*
Field pepperweed	*Lepidium campestre*
Shining peppergrass	*Lepidium nitidum*
Jepson's leptosiphon	*Leptosiphon jepsonii*
California cottonrose	*Logfia filaginoides*
Lomatium	*Lomatium sp.*
Scarlet pimpernel	*Lysimachia arvensis*
Hyssop loosestrife	*Lythrum hyssopifolia*
California man-root	*Marah fabacea*
California burclover	*Medicago polymorpha*
California melic grass	*Melica californica*
Silverpuffs	*Microseris sp.*
Watercress	*Nasturtium officinale*
Bermuda buttercup	*Oxalis pes-caprae*
Goldback fern	*Pentagramma triangularis*
Yampah	*Perideridia sp.*
Common phacelia	*Phacelia distans*
Imbricate phacelia	*Phacelia imbricata*
Phacelia	*Phacelia sp.*
Dwarf plantain	*Plantago erecta*
English plantain	*Plantago lanceolata*
One-sided bluegrass	*Poa secunda*
Bluegrass	*Poa sp.*
Licorice fern	*Polypodium sp.*
Fairy mist	*Pterostegia drymarioides*
Coast live oak	*Quercus agrifolia*

Common Name	Scientific Name
California buttercup	*Ranunculus californicus*
White water buttercup	*Ranunculus lobbii*
Prickleseed buttercup	*Ranunculus muricatus*
Western buttercup	*Ranunculus occidentalis*
Black locust	*Robinia pseudoacacia*
Himalayan blackberry	*Rubus armeniacus*
Curly dock	*Rumex crispus*
Fiddleleaf dock	*Rumex pulcher*
Arroyo willow	*Salix lasiolepis*
Blue elderberry	*Sambucus nigra ssp. caerulea*
Poison sanicle	*Sanicula bipinnata*
Purple sanicle	*Sanicula bipinnatifida*
California bee plant	*Scrophularia californica*
Old man of spring	*Senecio vulgare*
Windmill pinks	*Silene gallica*
Milk thistle	*Silybum marianum*
Blue-eyed grass	*Sisyrinchium bellum*
White nightshade	*Solanum americanum*
South American soliva	*Soliva sessilis*
Sow thistle	*Sonchus oleraceus*
White hedge nettle	*Stachys albens*
Hedge nettle	*Stachys pycnantha*
Purple needlegrass	*Stipa pulchra*
Tall sock-destroyer	*Torilis arvensis*
Poison-oak	*Toxicodendron diversilobum*
Hop clover	*Trifolium dubium*
Rose clover	*Trifolium hirtum*
Thimble clover	*Trifolium microdon*
Subterranean clover	*Trifolium subterraneum*
White tipped clover	*Trifolium variegatum*
Triplet lily	*Triteleia sp.*
California bay	*Umbellularia californica*
Spring vetch	*Vicia sativa*
Winter vetch	*Vicia villosa*
California golden violet	*Viola pedunculata*
Narrow leaf mule ears	*Wyethia angustifolia*

Attachment C

Site Photographs

View looking south of southeastern corner of Study Area and entrance gate.

View looking north along western boundary of Study Area with willow scrub and emergent marsh

View looking west of a graded commercial pad with an erosion gully in a pasture setting

View looking southeast in the middle edge of the Study Area at degraded marsh and horses grazing on neighboring property

View looking northwest in the middle of the Study Area of marsh and electrical transmission lines, with the roadbed of Interstate 80 in the background and a channel and riparian habitat at the base.

Closeup view of the riparian vegetation (primarily arroyo willow)

View looking north of the primary drainage system, which is a series of intermittent channels and wetland pools

View looking south from the northern portion of the Study Area showing the metamorphic rock outcrop and steep slopes

View looking southwest from the northern portion of the Study Area showing the metamorphic rock outcrop and steep slopes and annual grassland

View looking south of pasture and rolling hills and drainage systems in the valleys, with I-80 on the right.

View looking north at the central and northern portion of the Study Area.

Appendix H-4
Biological Technical Memorandum

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Biological Technical Memorandum: Scotts Valley 160-Acre Fee-to-Trust Project

July 3, 2024

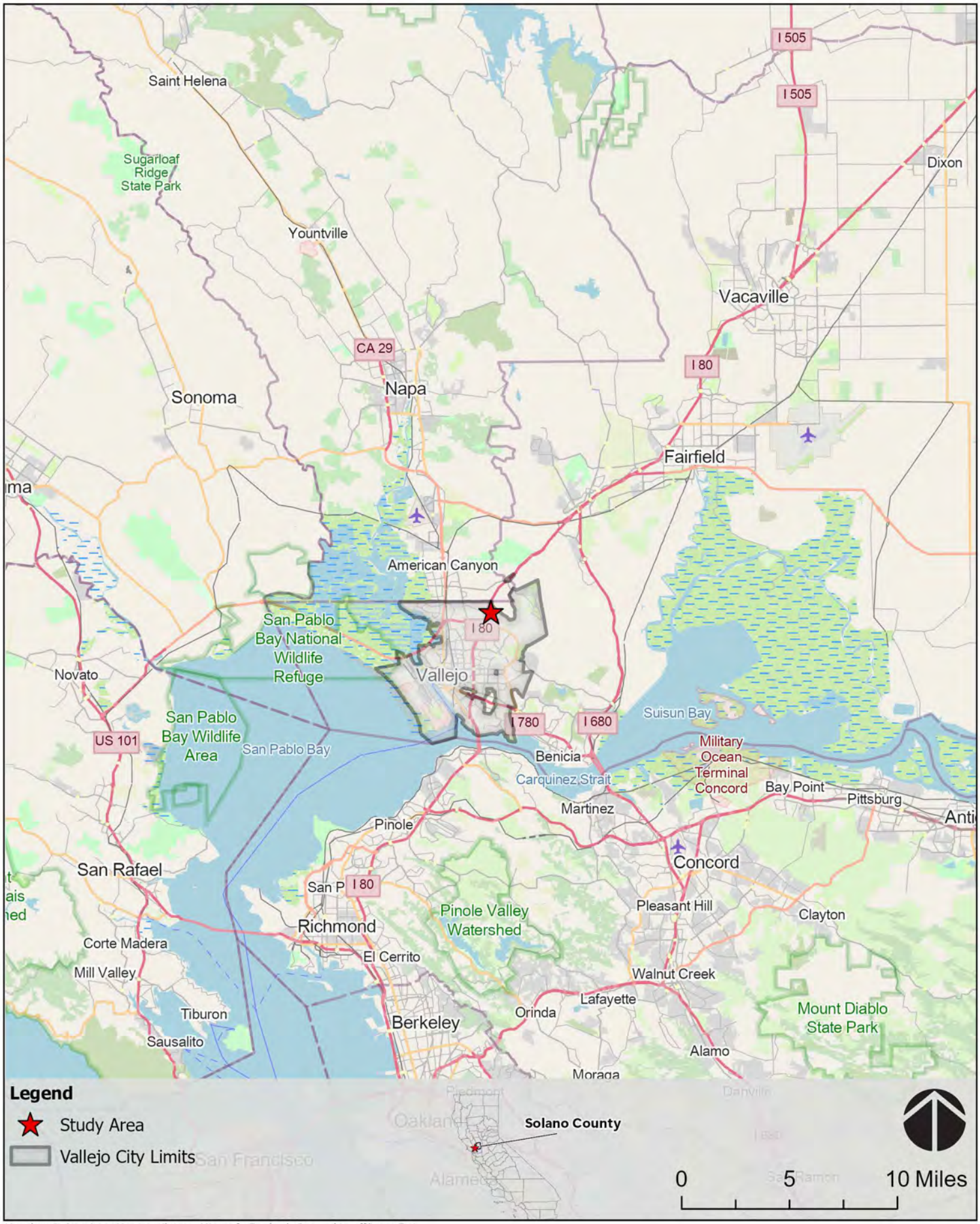
Introduction

The Scotts Valley Band of Pomo Indians (Tribe) has submitted an application to the U.S. Bureau of Indian Affairs (BIA) to acquire into trust four parcels, Assessor's Parcel Number (APN) 0182-010-010, 0182-020-020, 0182-020-080, and 0182-020-010, which total approximately 160 acres (proposed fee-to-trust property) and are located within the City of Vallejo, Solano County, California. Following acquisition into trust, the Tribe intends to develop the proposed fee-to-trust property for the purposes of gaming and economic development (Proposed Project). For the purposes of this report, the Study Area includes the totality of the proposed fee-to-trust property. **Figure 1** and **2** show the location of the Study Area, and **Figure 3** presents an aerial photograph of the Study Area and the immediate vicinity. The Study Area is located at the northeast corner of the intersection of Interstate 80 (I-80) and Columbus Parkway in Section 5, Township 3 North, Range 3 West, and Section 32, Township 4 North, Range 3 West, Mount Diablo Base and Meridian within the Cordelia 7.5-minute U.S. Geological Survey (USGS) quadrangle.

The Proposed Project consists of the acquisition by the BIA of the proposed fee-to-trust property into federal trust status for the Tribe. Following the acquisition of the land into trust, the Tribe proposes to develop a casino, Tribal housing, a Tribal administration building, and associated parking and infrastructure. A site plan is provided as **Figure 4**. The proposed casino would consist of eight stories and would include a gaming floor, restaurants, bars, and a ballroom/event space. Casino infrastructure would support guest and employee parking, a bus depot, a loading dock, and back-of house functions.

In addition to the casino complex, Tribal housing and community development is proposed in the northern portion of the Study Area, including 24 single-family residences and a Tribal administration building. The Tribal administration building would provide offices for up to 30 Tribal employees.

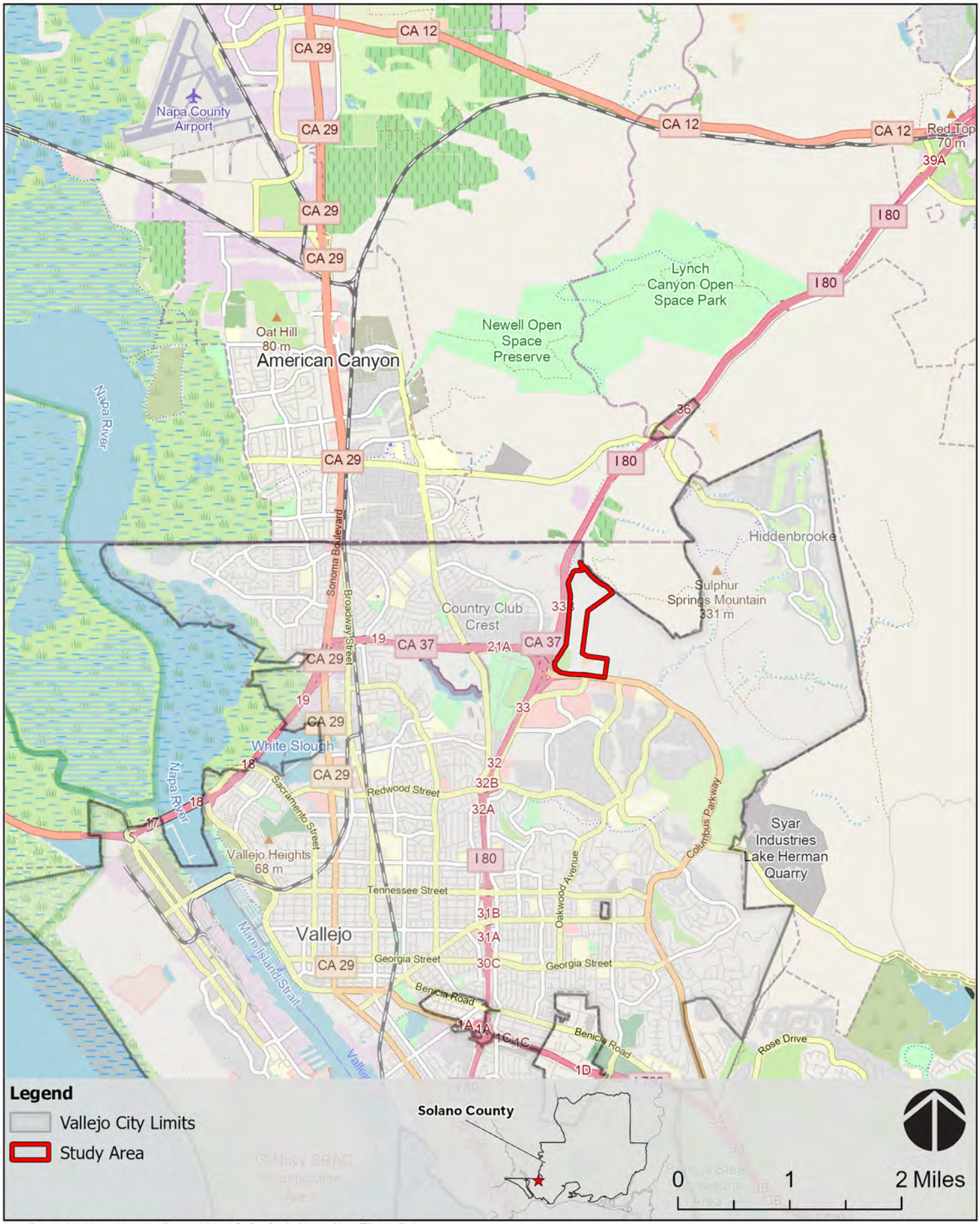
Access to the property would be via the intersection of an existing gravel road with Columbus Parkway. This existing access driveway would be upgraded and new paved roads would be constructed. As a component of the Proposed Project, the Tribe has committed to the establishment of an approximately 45.1-acre biological preserve within the Study Area that is designed to protect habitat of the greatest quality and value for special-status species. The Tribe intends to memorialize this commitment via a Tribal ordinance and a Memorandum of Understanding (MOU) between the Tribe, BIA, and U.S. Fish and Wildlife Service (USFWS). The site plan provided in **Figure 4** outlines the footprint of ground disturbance as well as the biological preserve.



Map data © OpenStreetMap contributors, Microsoft, Facebook, Inc. and its affiliates, Esri Community Maps contributors, Map layer by Esri

FIGURE 1

REGIONAL LOCATION



Map data © OpenStreetMap contributors, Microsoft, Facebook, Inc. and its affiliates, Esri Community Maps contributors, Map layer by Esri

FIGURE 2
SITE AND VICINITY

Esri Community Maps Contributors, California State Parks, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census

FIGURE 3
AERIAL OVERVIEW

Esri Community Maps Contributors, County of Solano, California State Parks, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of

FIGURE 4
SITE PLAN

The approximate size of the Proposed Project footprint (project footprint) consists of approximately 53.6 acres, inclusive of the totality of grading areas and lands isolated within grading areas. Stockpiling of materials and staging of equipment would be within the project footprint and would not result in additional areas of impacts.

The Proposed Project would adhere to the following Best Management Practices (BMPs) as it relates to biological and aquatic resources:

- Pets shall not be allowed on site during construction.
- Waste receptacles shall be made available within the Project Site and shall be properly maintained, with regular trash removal. All trash and food items should be promptly contained within closed, wildlife-proof containers. These should be regularly removed from the Project Site to reduce the attractiveness of the area to ravens and other predators.
- Construction equipment shall be cleaned prior to use in the Project Site in order to prevent the spread of invasive or noxious species to the Project Site. When applicable, weed-free dirt, mulch, gravel, and other materials should be used.
- Open trenches shall be covered at the end of each workday or shall have ramps installed at regular intervals to prevent the entrapment of wildlife. In addition, the project proponent, its agents, or contractors shall cover or fill all potential pitfalls to wildlife or cavities in which wildlife may become trapped when not attended. These include pits, trenches, vats, buckets, pipes, etc.
- Equipment and materials that could provide refuge for wildlife shall be checked prior to use or movement to ensure wildlife are not present. If present, wildlife shall be allowed to vacate the area unharmed on their own.
- Exterior lighting shall be downcast and shielded such that lighting and glare do not overspill the built environment.
- Uplighting, disruptive flashing lights, or materials that cause excessive glare shall not be used.
- The Proposed Action shall install stormwater treatment devices and create a stormwater detention basin, or series of basins, which are sized properly to collect, treat, detain, and release stormwater effectively. Treatment devices shall consist of some combination of the following: bioswales, infiltration trenches, oil-water separators, permeable pavement, rain gardens, and sediment traps. Ideally, the detention basins would be designed to sustain constructed wetlands and serve as habitat for federally-protected aquatic animals (California red-legged frog (CRLF), and northwestern pond turtle).
- Coverage under the National Pollutant Discharge Elimination System (NPDES) General Construction Permit shall be obtained from the U.S. Environmental Protection Agency (EPA) for construction site runoff during the construction phase in compliance with the Clean Water Act (CWA).
- A Stormwater Pollution Prevention Plan (SWPPP) shall be prepared, implemented, and maintained throughout the construction phase of the development, consistent with General Construction Permit requirements. The SWPPP would include, but would not be limited to, the following BMPs to minimize storm water effects to water quality during construction:
    - Grading activities shall be limited to the immediate area required for construction.
    - Temporary erosion control measures (such as silt fences, fiber rolls, staked straw bales, temporary re-vegetation, rock bag dams, erosion control blankets, and sediment traps) shall be employed as needed for disturbed areas. Plastic monofilament or similar materials that could entangle wildlife shall not be used.
    - Construction activities shall be scheduled to minimize land disturbance during peak runoff periods to the extent feasible.

- Disturbed areas shall be paved, re-vegetated, and/or stabilized following construction activities.
- A spill prevention and countermeasure plan shall be developed that identifies proper storage, collection, and disposal measures for potential pollutants used on-site.
- Petroleum products shall be stored, handled, used, and disposed of properly in accordance with provisions of the CWA (33 USC §§ 1251 to 1387).
- Construction materials shall be stored, covered, and isolated to prevent runoff loss and contamination of surface and groundwater.
- Fuel and vehicle maintenance areas shall be limited to the impact area.
- Sanitary facilities shall be provided for construction workers.
- To minimize dust generation during construction, soil will be wetted down with water prior to ground disturbance as needed.
- Generated waste shall be properly disposed of.

The purpose of this memorandum is to provide an analysis of state-listed species that may occur within the Study Area. A separate Biological Assessment has been prepared to facilitate consultation with USFWS pursuant to Section 7 of the Endangered Species Act.

Methods

Database Queries

State-listed species with the potential to occur within the Study Area and vicinity were compiled based upon the following:

- A spatial query of the California Natural Diversity Database (CNDDB);
- A query of the California Native Plant Society's database Inventory of Rare and Endangered Plants of California (online edition); and
- A review of previous biological reports prepared for the Study Area.

Biological Field Survey

Field visits have previously been conducted within the Study Area in October 2005, and on November 8, 2005; May 17 and 23, 2006; July 5, 2006; January 31, 2007; February 10, 2007; March 28, 2007; April 4 and 11, 2007; July 10, 2007; September 19, 2013; December 17, 2015; November 15, 2019; April 22, 2020; May 22, 2020; August 11, 2020; September 7, 2022; and June 27, 2023 (Huffman Broadway Group 2005 and 2006; Jennings 2008; AES 2016; Montrose Environmental Solutions, 2022 and 2023; Monk and Associates, 2022).

Consulting biologist Dr. G.O. Graening performed an updated biological field assessment and a formal wetland delineation of the Study Area on April 3, 2024 and May 4, 2024. During these surveys, data on wildlife and plant species present, as well as habitat types and jurisdictional waters were collected. Consulting botanist Tim Nosal, M.S. performed a botanical survey of the Study Area on April 7, 2024 and June 1, 2024. Variable-intensity pedestrian surveys were performed for all surveys. Fauna and flora were identified to the lowest possible taxon. Habitat types occurring in the Study Area were mapped on aerial photographs, and information on habitat conditions and the suitability of habitats to support listed species was also recorded.

Habitat Mapping

Locations of species' occurrences and habitat boundaries within the Study Area were recorded on aerial photographs and digitized to produce habitat maps. Boundaries of potentially jurisdictional water resources within the Study Area were similarly digitized to calculate acreages and produce aquatic resources delineation maps. Geographic analyses were performed using geographical information system software (ArcGIS 10, ESRI, Inc.). Vegetation communities were classified by Vegetation Series using the CNPS Vegetation Classification system (CNPS, 2024). For the purposes of this assessment, "State-listed species" has been defined to include: 1) species listed as Threatened or Endangered under CESA or proposed candidates for listing; 2) Fully Protected species, as designated by the CDFW; and 3) plant species meeting the definition of 'Rare' or 'Endangered' under California Environmental Quality Act Guidelines 14 CCR § 15125 (c) and/or 14 CCR § 15380, including plants listed on CNPS Lists 1A (presumed extinct in California), 1B (rare, threatened, or endangered in California and elsewhere), 2A (presumed extirpated in California, but more common elsewhere), and 2B (rare, threatened, or endangered in California, but more common elsewhere.

Results

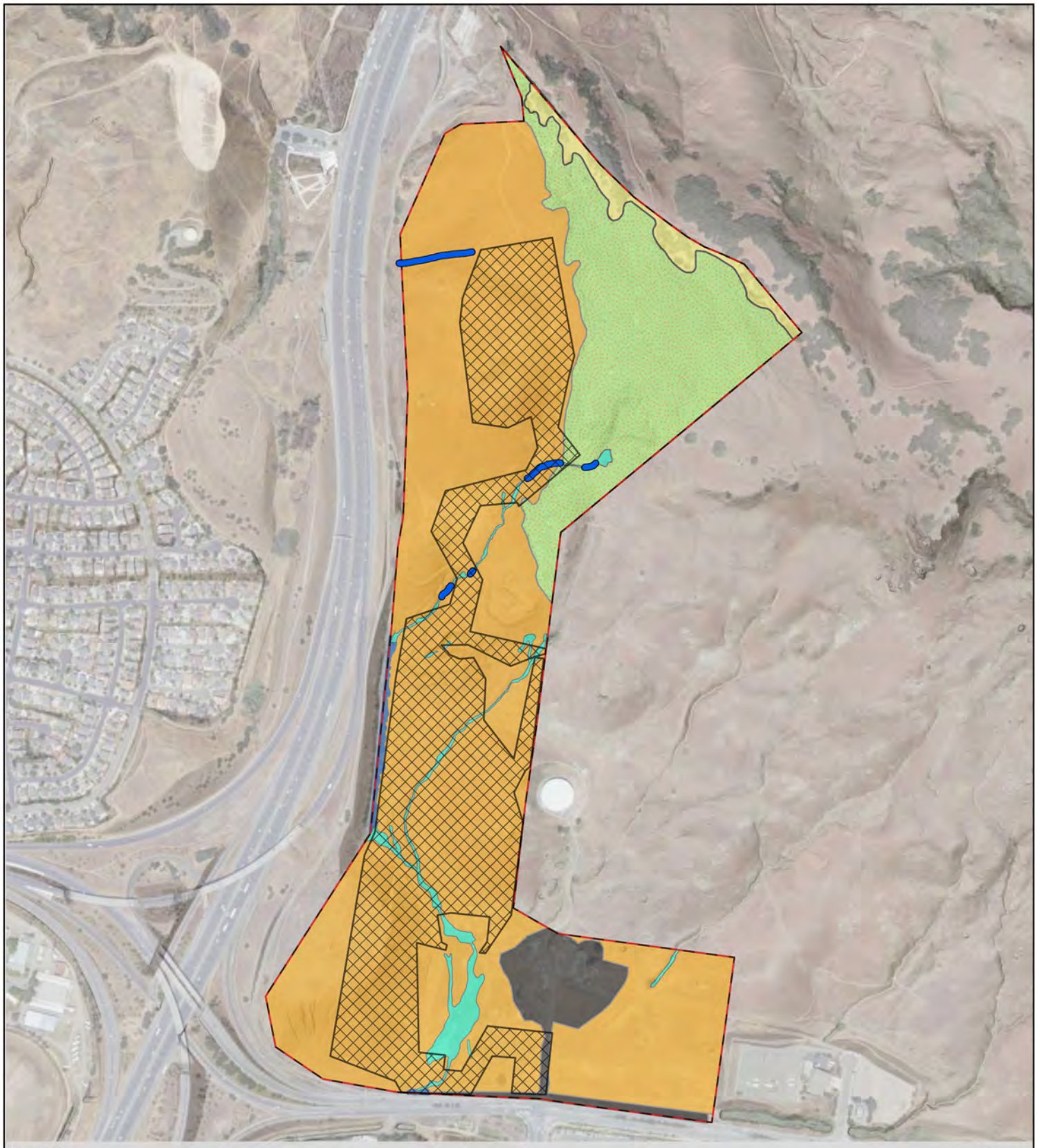
Environmental Setting

The Study Area is within the Central Coast geographic subregion, within the Central Western California region of the larger California Floristic Province (Baldwin et al., 2012). The Study Area falls within Climate Zone 17 "Marine effects in Southern Oregon, Northern, and Central California." Climate Zone 17 experiences a mild climate with cool, wet winters and cool summers with frequent fog and wind. Temperatures in this zone do not fall below 20 degrees Fahrenheit with an average high of 97 degrees Fahrenheit (Sunset, 2024).

The topography is a series of undulating hill slopes and valleys on the flank of Sulphur Springs Mountain. Elevations range between 130 feet above mean sea level in the southern portion of the Study Area to approximately 800 feet above mean sea level in the northern portion. The Study Area is largely undeveloped open space used primarily for cattle and horse grazing, except for a corridor of electrical transmission lines. There is also an elevated and graded pad in the southern portion of the Study Area that may have been contemplated as a development site in the past, but no built features are located on it. The existing access driveway also leads to numerous wooden shacks that are currently used as horse shelters. A mixture of wire and t-post fencing and chain link fencing bounds the grazing areas within the Study Area. Surrounding development includes commercial development to the south, rangeland to the north and east, and highways, a large vista rest stop, and residential developments to the west.

Habitat Types

Terrestrial habitats that occur within the Study Area consist of riparian scrub, freshwater marsh, pasture, and annual grassland/rock outcrop. These habitats are shown on **Figure 5** and discussed further below. Representative site photographs are provided in **Attachment A**, and a list of plant species observed during the 2024 site visits and animal species observed throughout all site visits is included as **Attachment B**. In addition to the habitat types discussed below, approximately 767 linear feet of channels was observed over five distinct channels.



Source: Esri, USDA FSA, Airbus,USGS,NGA,NASA,CGIAR,NCEAS,NLS,OS,NMA,Geodatastyrelsen,GSA,GSI and the GIS User

FIGURE 5
HABITAT TYPES

Ruderal/Developed (7.4 acres)

Ruderal/developed habitats are those areas that are highly modified from their natural state and are subject to intensive land management, paving, or similar. Within the Study Area, ruderal developed areas included an unpaved access drive and informal parking areas, fencing, and horse shelters. Vegetation was sparse to absent in this area. Where vegetation did occur, it was dominated primarily by non-native grasses and invasive forbs.

Oak Woodland (3.7 acres)

A narrow strip of oak woodland occurs along the northern boundary of the Study Area along a hilltop crest. This habitat contains a significant canopy cover of coast live oak (*Quercus agrifolia*). Ground cover vegetation is similar to species observed within the annual grassland/rock outcrop habitat.

Freshwater Marsh (3.4 acres)

Freshwater marsh habitat was observed in the valleys of hills. The dominant plants in these areas are rushes (e.g. *Juncus bufonius*) and spikerushes (*Eleocharis*). Facultative grasses and forbs are also present, such as perennial ryegrass (*Lolium perenne*), Bermuda grass (*Cynodon dactylon*), curly dock (*Rumex crispus*), common monkeyflower (*Mimulus guttattus*), and pennyroyal (*Mentha* sp.). Ponded areas contain floating plants such as watercress (*Nasturtium officinale*). The water quality of these marshes has been impacted by cattle, which are allowed to wallow and graze in the wetlands.

Pasture (114.3 acres)

The majority of the Study Area is a simplified non-native grassland containing perennial ryegrass (*Lolium perenne*), wild oats (*Avena fatua*), soft chess (*Bromus hordeaceus*), and other pasture grasses. These areas are subject to significant grazing pressure, and may have been plowed or conditioned previously. Non-native forbs are abundant, such as thistles (*Silybum*, *Carduus*), filarees (*Erodium*), star thistle (*Centaurea solstitialis*), bristly ox-tongue (*Picris echioides*), poison hemlock (*Conium maculatum*), fennel (*Foeniculum vulgare*), black mustard (*Brassica nigra*), and spiny cocklebur (*Xanthium spinosum*). Large patches of artichoke thistle (*Cynara cardunculus*) were also observed within this habitat.

Annual Grassland/Rock Outcrop (30.8 acres)

This non-native annual grassland community is similar to the pasture community described above, but contains a greater diversity of species and greater number of native species. This is due in part to the rocky terrain, which is more difficult for cattle to graze, and because the metamorphic soils and rock outcrops provide additional habitat niches. Native wildflowers were abundant, such as California poppy (*Eschscholzia californica*), golden violet (*Viola pedunculata*), owl's clover (*Castilleja*), and blue dicks (*Dichelostemma capitatum*). Seeps were common at the base of rock outcrops, and these wet areas created microhabitats for specialized plants, such as ferns and succulents (*Dudleya* spp.).

Wildlife and Wildlife Use

A list of animal species that have been observed during biological surveys completed on the Study Area is included in **Attachment B**. It is possible that the drainage features and adjacent upland habitat may provide dispersal habitat for some species, however, there is significant disturbance on and around the Study Area, including grazing, I-80 traffic, and urban land use. An active killdeer nest was detected just off the southeastern boundary of the Study Area. Although no further nests were detected, nesting birds may utilize vegetation throughout the Study Area.

Special-Status Species

For the purposes of this assessment, "special-status species" has been defined to include: 1) species listed as Threatened or Endangered under CESA or proposed candidates for listing; 2) Fully Protected species, as designated by the CDFW; and 3) plant species meeting the definition of 'Rare' or 'Endangered' under California Environmental Quality Act Guidelines 14 CCR § 15125 (c) and/or 14 CCR § 15380, including plants listed on CNPS Lists 1A (presumed extinct in California), 1B (rare, threatened, or endangered in California and elsewhere), 2A (presumed extirpated in California, but more common elsewhere), and 2B (rare, threatened, or endangered in California, but more common elsewhere).

A table of state-listed species with the potential to occur in the vicinity of the Study Area is included as **Attachment C**. **Attachment C** details the listing status, habitat requirements, and potential to occur within the Study Area for each species. Species with no potential to occur within the Study Area were ruled out based on factors such as unsuitable soils, lack of appropriate habitat, geographic range, or level of disturbance. The Proposed Project would result in impacts to the following habitats, summarized in **Table 1**.

Table 1: Habitat Types within Study Area

Habitat Type	Total Acreage within Study Area	Acreage within Biological Preserve*	Acreage within Project Footprint
Riparian scrub	0.4	0.0	0.0
Freshwater marsh	3.4	0.3	1.1
Pasture	114.3	10.7	51.8
Oak woodland	3.7	3.7	0.0
Ruderal/developed	7.4	0.0	0.4
Annual grassland/ rock outcrop	30.8	30.5	0.3
Channels	767 linear feet (lf)	65 lf	307 lf
Totals	**160.0**	**45.1**	**53.6**

* Note: There are a total of approximately 45.1 acres within the Biological Preserve. The individual habitat types appear to total slightly higher due to rounding.

The table below summarizes those state-protected species that may occur within the project footprint and therefore have the potential to be impacted by the Proposed Project. Grasslands includes both annual grasslands and pasture habitat.

Table 2: State-Protected Species That May Occur Within the Study Area

Species	Potential to Occur
Mammals	
Pallid bat	May forage over the Study Area. Roost habitat avoided.
Townsend's big-eared bat	May forage over the Study Area. Roost habitat avoided.
Hoary bat	May forage over the Study Area. Roost habitat avoided.
Big free-tailed bat	May forage over the Study Area. Roost habitat avoided.
Birds	
Golden eagle	May forage over grassland habitat. No nesting habitat present.
Great blue heron	May forage in the marsh habitat. No nesting habitat present.
Short-eared owl	May forage over grassland habitat. No nesting habitat present.

Burrowing owl	May forage in grassland habitat. Active burrows were not observed but could be established over time.
Ferruginous hawk	May forage over grassland habitat. No nesting habitat present.
Swainson's hawk	May forage over grassland habitat. No nesting habitat present.
Northern harrier	May forage over grassland habitat. No nesting habitat present.
White-tailed kite	May forage over grassland habitat. No nesting habitat present.
American peregrine falcon	May forage over grassland habitat. No nesting habitat present.
Invertebrates	
Obscure bumble bee	May occur within grassland habitat.
Crotch bumble bee	May occur within grassland habitat.
Western bumble bee	May occur within grassland habitat.
Plants	
Franciscan onion	May occur within grasslands.
Big-scale balsamroot	May occur within grasslands.
Big tarplant	May occur within grasslands.
Mt. Diablo fairy-lantern	May occur within grasslands.
Lyngbye's sedge	May occur within marshes.
Congdon's tarplant	May occur in grasslands within areas of clay soils.
Bolander's water-hemlock	May occur within marshes.
Mt. Diablo buckwheat	May occur within grasslands.
Fragrant fritillary	May occur within grasslands.
Diablo helianthella	May occur within grasslands.
Bridges' coast range shoulderband	May occur within grasslands.
Brewer's western flax	May occur within grasslands.
Carquinez goldenbush	May occur within grasslands.
Jepson's leptosiphon	May occur within grasslands.
California beaked-rush	May occur within marshes.
Napa bluecurls	May occur within grasslands.

Impact Assessment and Recommendations

State-listed mammals with the potential to occur on the Study Area are limited to bats that may forage over the project footprint or roost in trees or rock outcrops in the proposed biological preserve. The Proposed Project includes BMPs that would avoid uplighting, excessive noise, or other actions that would impact ongoing foraging over the project footprint or foraging and roosting beyond the project footprint. Therefore, impacts to state-protected mammals would be less than significant.

Although the land would be in trust prior to construction, state-protected birds would still be protected under the Migratory Bird Treaty Act of 1918. Construction activities that commence within the general nesting season have the potential to impact nesting birds. **Measure BIO-1** below is recommended to ensure that potential impacts to nesting birds are fully avoided. As discussed above, the Proposed Project has been designed with BMPs to avoid operational sensory disturbances to migratory birds, including state-listed birds that may occur on or in the vicinity of the Study Area.

Invertebrates with the potential to occur within the Study Area include three bumble bees. These species may forage across the Study Area, with the exception of the ruderal/developed habitat, which contained little to no vegetation. The highest quality nectar resource habitat occurs in the northern portion of the Study Area within the annual grassland/rock outcrop habitat. This area contains a wider variety and higher

density of flowering plants due to the soil regimes and decreased grazing pressure and level of disturbance in this area. The Proposed Project would avoid over half of the nectar resource habitat and would place within a biological preserve over 90 percent of the higher quality nectar resources. This would provide ample foraging opportunities for bumble bees that may pass through the Study Area.

One special-status plant has been observed during surveys of the Study Area: Jepson's leptosiphon. This plant is ranked 1B.2 by the California Native Plant Society. Although this plant is not afforded specific protections on land held in trust, the Proposed Project avoids all locations of this plant and preserves over 90 percent of the suitable habitat for this species. All locations of this plant are within the biological preserve area. Therefore, impacts to this plant would not occur.

No other special-status plant species have been observed within the Study Area and are believed to be absent from the project footprint based upon extensive survey efforts and therefore would not be impacted.

Measure BIO-1: Nesting Birds

- If construction activities commence during the general nesting season (February 15 to September 1), a preconstruction nest survey shall be conducted by a qualified biologist on and within 100 feet of proposed construction, as accessible within 7 days of initiating ground disturbance. If active nests are identified, the qualified biologist shall determine a suitable avoidance buffer based on the needs of the species observed.
- Avoidance measures include establishment of a buffer zone using construction fencing or similar, or the postponement of construction until after the nesting season, or until after a qualified biologist has determined the nest is no longer active. Avoidance buffers may vary in size depending on habitat characteristics, project-related activities, and disturbance levels.
- Should work activity cease for 14 days or more during the nesting season, surveys shall be repeated to ensure birds and have not established nests during inactivity.

References

Analytical Environmental Services, 2016. Biological Resources Survey of the Carlson Property, City of Vallejo, California.

Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, and T.J. Rosatti, editors. 2012. The Jepson Manual: Vascular Plants of California, second edition, thoroughly revised and expanded. University of California Press, Berkeley, California. 1,600 pp.

California Native Plant Society (CNPS), 2024. Manual of California Vegetation. Available online at: https://vegetation.cnps.org/. Accessed April 2024.

Huffman-Broadway Group, Inc., 2005. Draft Ecological Constraints Study Columbus Parkway Area of Study, City of Vallejo, California. 42 pp.

Huffman-Broadway Group, Inc., 2006. Biological Assessment, Crossroads Development, Carlson Property, City of Vallejo, California.

Jennings, M.R. 2008. Survey for the California red-legged frog (*Rana draytonii*) on the Carlson Project

Site, Vallejo, Solano County, California. 33 pp.

Monk and Associates, 2022. Biological Resources Analysis Solano Ranch Project City Of Vallejo, California.

Montrose Environmental Solutions, 2022. Biological technical memo: Biological Resources Survey at the Vallejo site (adjacent to I-80 and Columbus Parkway). 23 pp.

Montrose Environmental Solutions, 2023. Bio/Botanical Survey Results (technical email)[of the Action Area].

Sunset Western Garden Collection, 2024. Sunset Climate Zones. Available online at: https://sunsetplantcollection.com/climate-zones/zone/san-francisco-bay-area-inland/. Accessed April 2024.

Attachment A

Site Photographs

View looking south of southeastern corner of Study Area and entrance gate.

View looking north along western boundary of Study Area with willow scrub and emergent marsh

View looking west of a graded commercial pad with an erosion gully in a pasture setting

View looking southeast in the middle edge of the Study Area at degraded marsh and horses grazing on neighboring property

View looking northwest in the middle of the Study Area of marsh and electrical transmission lines, with the roadbed of Interstate 80 in the background and a channel and riparian habitat at the base.

Closeup view of the riparian vegetation (primarily arroyo willow)

View looking north of the primary drainage system, which is a series of intermittent channels and wetland pools

View looking south from the northern portion of the Study Area showing the metamorphic rock outcrop and steep slopes

View looking southwest from the northern portion of the Action Area showing the metamorphic rock outcrop and steep slopes and annual grassland

View looking south of pasture and rolling hills and drainage systems in the valleys, with I-80 on the right.

View looking north at the area proposed for tribal housing.

Attachment B

Species Observed

Plants and Animals Observed During the Acorn Environmental Field Surveys on April 3 and 7, May 4, and June 1, 2024, and Prior Field Surveys by Others

Common Name	Scientific Name
PLANTS	
Yarrow	*Achillea millefolium*
Mountain dandelion	*Agoseris sp.*
Bentgrass	*Agrostis sp.*
Silver hairgrass	*Aira caryophyllea*
Crinkled onion	*Allium crispum*
Greater ammi	*Ammi majus*
Common fiddleneck	*Amsinckia intermedia*
Rigid fiddleneck	*Amsinckia retrorsa*
Dog fennel	*Anthemis cotula*
Narrowleaf milkweed	*Asclepias fascicularis*
Hastate orache	*Atriplex prostrata*
Slender wild oat	*Avena barbata*
Coyote brush	*Baccharis pilularis*
Mediterranean lineseed	*Bellardia trixago*
False brome	*Brachypodium distachyon*
Black mustard	*Brassica nigra*
Quaking grass	*Briza minor*
Elegant brodiaea	*Brodiaea elegans*
Weedy brome	*Bromus caroli-henrici*
Ripgut brome	*Bromus diandrus*
Soft chess	*Bromus hordeaceus*
Madrid brome	*Bromus madritensis*
Red brome	*Bromus rubens*
Red maids	*Calandrinia ciliata*
Yellow mariposa lily	*Calochortus luteus*
Superb mariposa lily	*Calochortus superbus*
Western morning glory	*Calystegia occidentalis*
Shepherd's purse	*Capsella bursa-pastoris*
Italian thistle	*Carduus pycnocephalus*
Slender flowered thistle	*Carduus tenuiflorus*
Valley tassels	*Castilleja attenuata*
Purple owl's clover	*Castilleja exserta*
Purple star thistle	*Centaurea calcitrapa*
Maltese star thistle	*Centaurea melitensis*
Yellow star thistle	*Centaurea solstitialis*
Meadow chickweed	*Cerastium arvense subsp. strictum*
Sticky mouse-eared chickweed	*Cerastium glomeratum*
Wavy leaf soap plant	*Chlorogalum pomeridianum*
Bull thistle	*Cirsium vulgare*
Clarkia	*Clarkia sp.*
Miner's lettuce	*Claytonia perfoliata*

Poison hemlock	*Conium maculatum*
Field bindweed	*Convolvulus arvensis*
Brass-buttons	*Cotula coronopifolia*
Pygmy weed	*Crassula tillaea*
Artichoke thistle	*Cynara cardunculus*
Cardoon	*Cynaria cardunculus*
Bermuda grass	*Cynodon dactylon*
Rattlesnake weed	*Daucus pusillus*
Bush monkeyflower	*Diplacus aurantiacus*
Stinkwort	*Dittrichia graveolens*
Canyon dudleya	*Dudleya cymosa*
Mexican tea	*Dysphania ambrosioides*
Creeping spikerush	*Eleocharis macrostachya*
Tall willowherb	*Epilobium brachycarpum*
Naked buckwheat	*Eriogonum nudum*
Broad leaved filaree	*Erodium botrys*
Red-stemmed filaree	*Erodium cicutarium*
White stem filaree	*Erodium moschatum*
Coyote thistle	*Eryngium sp.*
Yellow monkeyflower	*Erythranthe guttata*
California fawn lily	*Erythronium californicum*
California poppy	*Eschscholzia californica*
Blue gum	*Eucalyptus globulus*
Petty spurge	*Euphorbia peplus*
Pacific fescue	*Festuca microstachys*
Rattail sixweeks grass	*Festuca myuros*
Italian ryegrass	*Festuca perennis*
Fennel	*Foeniculum vulgare*
California coffeeberry	*Frangula californica*
Bedstraw	*Galium aparine*
Wall bedstraw	*Galium parisiense*
Nit grass	*Gastridium phleoides*
Cutleaf geranium	*Geranium dissectum*
Bird’s eye gilia	*Gilia tricolor*
Waxy mannagrass	*Glyceria declinata*
Salt heliotrope	*Heliotropium curassavicum*
Bristly oxtongue	*Helminthotheca echioides*
Hayfield tarplant	*Hemizonia congesta*
Few flowered evax	*Hesperevax sparsifolia var sparsiflora*
California western flax	*Hesperolinon californicum*
Shortpod mustard	*Hirschfeldia incana*
Meadow barley	*Hordeum brachyantherum*
Mediterranean barley	*Hordeum marinum ssp. gussoneanum*
Hare barley	*Hordeum murinum subsp. leporinum*
Wall barley	*Hordeum murinum*
Smooth cat’s-ear	*Hypochaeris glabra*

Rough cat's-ear	*Hypochaeris radiata*
Hyssop loosestrife	*Lythrum hyssopifolia*
Black walnut	*Juglans nigra*
Baltic rush	*Juncus balticus*
Toad rush	*Juncus bufonius*
Iris-leaved rush	*Juncus xiphioides*
Willow lettuce	*Lactuca saligna*
Prickly lettuce	*Lactuca serriola*
Bitter lettuce	*Lactuca virosa*
California goldfields	*Lasthenia californica*
Hawkbit	*Leontodon saxatilis*
Field pepperweed	*Lepidium campestre*
Perennial pepperweed	*Lepidium latifolium*
Shining peppergrass	*Lepidium nitidum*
Jepson's leptosiphon	*Leptosiphon jepsonii*
California cottonrose	*Logfia filaginoides*
Lomatium	*Lomatium sp.*
Bird's-foot trefoil	*Lotus corniculatus*
Western lupine	*Lupinus formosus*
Scarlet pimpernel	*Lysimachia arvensis*
Hyssop loosestrife	*Lythrum hyssopifolia*
Alkali mallow	*Malvella leprosa*
California man-root	*Marah fabacea*
German chamomile	*Matricaria chamomilla*
California burclover	*Medicago polymorpha*
California melic grass	*Melica californica*
Silverpuffs	*Microseris sp.*
Seep monkeyflower	*Mimulus guttatus*
Watercress	*Nasturtium officinale*
Olive	*Olea europaea*
Bermuda buttercup	*Oxalis pes-caprae*
Goldback fern	*Pentagramma triangularis*
Kellogg's Yampah	*Perideridia kelloggii*
Common phacelia	*Phacelia distans*
Imbricate phacelia	*Phacelia imbricata*
Phacelia	*Phacelia sp.*
Dwarf plantain	*Plantago erecta*
English plantain	*Plantago lanceolata*
Annual bluegrass	*Poa annua*
One-sided bluegrass	*Poa secunda*
Bluegrass	*Poa sp.*
Licorice fern	*Polypodium arenastrum*
Rabbit's-foot grass	*Polypogon monspeliensis*
Cherry plum	*Prunus cerasifera*
Cudweed	*Pseudognaphalium sp.*
Fairy mist	*Pterostegia drymarioides*

Pear	*Pyrus sp.*
Coast live oak	*Quercus agrifolia*
California buttercup	*Ranunculus californicus*
White water buttercup	*Ranunculus lobbii*
Prickleseed buttercup	*Ranunculus muricatus*
Western buttercup	*Ranunculus occidentalis*
Black locust	*Robinia pseudoacacia*
Himalayan blackberry	*Rubus armeniacus*
Sheep sorrel	*Rumex acetosella*
Curly dock	*Rumex crispus*
Fiddleleaf dock	*Rumex pulcher*
Arroyo willow	*Salix lasiolepis*
Blue elderberry	*Sambucus nigra ssp. caerulea*
Poison sanicle	*Sanicula bipinnata*
Purple sanicle	*Sanicula bipinnatifida*
California bee plant	*Scrophularia californica*
Old man of spring	*Senecio vulgare*
Field madder	*Sherardia arvensis*
Windmill pinks	*Silene gallica*
Milk thistle	*Silybum marianum*
Blue-eyed grass	*Sisyrinchium bellum*
White nightshade	*Solanum americanum*
South American soliva	*Soliva sessilis*
Sow thistle	*Sonchus oleraceus*
White hedge nettle	*Stachys albens*
Hedge nettle	*Stachys pycnantha*
Purple needlegrass	*Stipa pulchra*
Tall sock-destroyer	*Torilis arvensis*
Dwarf sack clover	*Trifolium depauperatum*
Poison-oak	*Toxicodendron diversilobum*
Hop clover	*Trifolium dubium*
Strawberry clover	*Trifolium fragiferum*
Rose clover	*Trifolium hirtum*
Thimble clover	*Trifolium microdon*
Subterranean clover	*Trifolium subterraneum*
White tipped clover	*Trifolium variegatum*
Ithuriel's spear	*Triteleia laxa*
California bay	*Umbellularia californica*
Dwarf nettle	*Urtica urens*
Spring vetch	*Vicia sativa*
Winter vetch	*Vicia villosa*
California golden violet	*Viola pedunculata*
Narrow leaf mule ears	*Wyethia angustifolia*
Spiny cocklebur	*Xanthium spinosum*
Muehlenberg's centaury	*Zeltnera muehlenbergii*
ANIMALS	

red-winged blackbird	*Agelaius phoeniceus*
American pipit	*Anthus rubescens*
western scrub-jay	*Aphelocoma californica*
yellow faced bumblebee	*Bombus* sp.
cow	*Bos taurus*
California toad	*Bufo boreas halophilus*
red-tailed hawk	*Buteo jamaicensis*
red-shouldered hawk	*Buteo lineatus*
Anna's hummingbird	*Calypte anna*
turkey vulture	*Cathartes aura*
killdeer	*Charadrius vociferus*
Northern harrier	*Circus hudsonius*
California striped racer	*Coluber lateralis lateralis*
rock dove	*Columbia livia*
American crow	*Corvus brachyrhynchos*
common raven	*Corvus corax*
horse	*Equus caballus*
Brewer's blackbird	*Euphagus cyanocephalus*
American kestrel	*Falco sparverius*
Feral cat	*Felis catus*
house finch	*Haemorhous mexicanus*
barn swallow	*Hirundo rustica*
black-tailed jackrabbit	*Lepus californicus*
song sparrow	*Melospiza melodia*
California towhee	*Melozone crissalis*
California vole	*Microtus californicus*
northern mockingbird	*Mimus polyglottos*
brown-headed cowbird	*Molothrus ater*
Columbian black-tailed deer	*Odocoileus hemionus columbianus*
California ground squirrel	*Otospermophilus beecheyi*
savannah sparrow	*Passerculus sandwichensis*
deer mouse	*Peromyscus maniculatus*
Cliff swallow	*Petrochelidon pyrrhonota*
raccoon	*Procyon lotor*
bushtit	*Psaltriparus minimus*
Sierran treefrog	*Pseudacris sierra*
skipper butterfly	*Pyrginae*
black phoebe	*Sayornis nigricans*
Say's phoebe	*Sayornis saya*
northwestern fence lizard	*Sceloporus occidentalis occidentalis*
Yellow-rumped warbler	*Setophaga coronata*
Callippe silverspot butterfly	*Speyeria callippe callippe*
lesser goldfinch	*Spinus psaltria*
American goldfinch	*Spinus tristis*
northern rough-winged sparrow	*Stelgidopteryx serripennis*
western meadowlark	*Sturnella neglecta*

European starling	*Sturnus vulgaris*
violet green swallow	*Tachycineta thalassina*
northern rough-skinned newt	*Taricha granulosa granulosa*
Botta's pocket gopher	*Thomomys bottae*
Bewick's wren	*Thryomanes bewickii*
Western kingbird	*Tyrannus verticalis*
mourning dove	*Zenaida macroura*
golden-crowned sparrow	*Zonotrichia atricapilla*
white-crowned sparrow	*Zonotrichia leucophrys*

Attachment C

Species Table

Special-Status Species with Potential to Occur in the Vicinity of the Project Site

Common Name *Scientific Name*	Status	Life History/Habitat*	Potential to Occur
Mammals			
Pallid bat *Antrozous pallidus*	CSSC	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	Yes. Suitable habitat occurs in the rock outcrops and oak woodlands in the hilly northern portion of the project site.
Townsend's big-eared bat *Corynorhinus townsendii*	CSSC	Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls & ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	Yes. Suitable habitat occurs in the rock outcrops and oak woodlands in the hilly northern portion of the project site.
Hoary bat *Lasiurus cinereus*	CSSC	Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths. Requires water.	Yes. Suitable habitat occurs in the rock outcrops and oak woodlands in the hilly northern portion of the project site.
Big free-tailed bat *Nyctinomops macrotis*	CSSC	Low-lying arid areas in southern California. Need high cliffs or rocky outcrops for roosting sites. Feeds principally on large moths.	Yes. Suitable habitat occurs in the rock outcrops and oak woodlands in the hilly northern portion of the project site.
Suisun shrew *Sorex ornatus sinuosus*	CSSC	Tidal marshes of the northern shores of San Pablo and Suisun bays. Requires dense low-lying cover and driftweed and other litter above the mean hightide line for nesting and foraging.	No. No tidal marsh habitat present in project site.
Birds			
Cooper's hawk *Accipiter cooperii*	CSSC	Woodland, chiefly of open, interrupted or marginal type. Nest sites mainly in riparian growths of deciduous trees, in canyon bottoms on river flood-plains; also, within live oaks.	Yes. Potential habitat present in project site where riparian and oak woodland habitats occur.
Tricolored blackbird *Agelaius tricolor*	CT	Highly colonial species, most numerous in central valley and vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few km of the colony.	No. No open water in project site.
Golden eagle *Aquila chrysaetos*	CSSC	Rolling foothills, mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	Yes. Potential foraging habitat present in project site where grassland habitats occur.
Great blue heron *Ardea herodias*	CSSC	Colonial nester in tall trees, cliffsides, and sequestered spots on marshes. Rookery sites in close proximity to foraging areas: marshes, lake margins, tide-flats, rivers and streams, wet meadows.	Yes. Potential foraging habitat present in project site where marshes occur.

Short-eared owl *Asio flammeus*	CSSC	Found in swamp lands, both fresh and salt; lowland meadows; irrigated alfalfa fields. Tule patches/tall grass needed for nesting/daytime seclusion. Nests on dry ground in depression concealed in vegetation.	Yes. Potential foraging habitat present in project site where grassland habitats occur.
Burrowing owl *Athene cunicularia*	CSSC	Open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Yes. Potential habitat present in project site where grassland habitats occur.
Ferruginous hawk *Buteo regalis*	CSSC	Open grasslands, sagebrush flats, desert scrub, low foothills and fringes of pinyon-juniper habitats. Eats mostly lagomorphs, ground squirrels, and mice. Population trends may follow lagomorph population cycles.	Yes. Potential foraging habitat present in project site where grassland habitats occur.
Swainson's hawk *Buteo swainsoni*	CT	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	Yes. Potential foraging habitat present in project site where grassland habitats occur.
Northern harrier *Circus hudsonius*	CSSC	Inhabits prairies, open areas, and marshes.	Yes. Suitable habitat present.
Yellow rail *Coturnicops noveboracensis*	CSSC	Summer resident in eastern Sierra Nevada in Mono County. Large fresh-water marshlands.	No. No large marshes or other bodies of water present in project site.
Snowy egret *Egretta thula*	CSSC	Colonial nester, with nest sites situated in protected beds of dense tules. Rookery sites situated close to foraging areas: marshes, tidal-flats, streams, wet meadows, and borders of lakes.	No. No tule marshes or other bodies of water present in project site.
White-tailed kite *Elanus leucurus*	CSSC	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	Yes. Potential foraging habitat present in project site where grassland and oak woodland habitats occur.
American peregrine falcon *Falco peregrinus anatum*	CSSC	Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape or a depression or ledge in an open site.	Yes. Potential foraging habitat present in project site where grassland habitats occur.
Saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	CSSC	Resident of the San Francisco bay region, in fresh and salt water marshes. Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.	No. No large marshes or other bodies of water present in project site.
Caspian tern *Hydroprogne caspia*	CSSC	Nests on sandy or gravely beaches and shell banks in small colonies inland and along the coast. Inland fresh-water lakes and marshes; also, brackish or salt waters of estuaries and bays.	No. No coastal habitat present in project site.
California black rail *Laterallus jamaicensis coturniculus*	CT	Inhabits freshwater marshes, wet meadows & shallow margins of saltwater marshes bordering larger bays. Needs water depths of about 1 inch that does not fluctuate during the year and dense vegetation for nesting habitat.	No. No large marshes or other bodies of water present in project site.

Suisun song sparrow *Melospiza melodia maxillaris*	CSSC	Resident of brackish-water marshes surrounding Suisun bay. Inhabits cattails, tules and other sedges, and salicornia; also known to frequent tangles bordering sloughs.	No. No tidal marsh habitat present in project site.
San Pablo song sparrow *Melospiza melodia samuelis*	CSSC	Resident of salt marshes along the north side of San Francisco and San Pablo bays. Inhabits tidal sloughs in the salicornia marshes; nests in grindelia bordering slough channels.	No. No tidal marsh habitat present in project site.
Black-crowned night heron *Nycticorax nycticorax*	CSSC	Colonial nester, usually in trees, occasionally in tule patches. Rookery sites located adjacent to foraging areas: lake margins, mud-bordered bays, marshy spots.	No. No large marshes or other bodies of water present in project site.
Osprey *Pandion haliaetus*	CSSC	Ocean shore, bays, fresh-water lakes, and larger streams. Large nests built in tree-tops within 15 miles of a good fish-producing body of water.	No. No large bodies of water present in project site.
Bank swallow *Riparia riparia*	CT	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	No. No riparian or river habitat present in project site.
Fish			
Delta smelt *Hypomesus transpacificus*	FT, CE	Sacramento-San Joaquin Delta. Seasonally in Suisun Bay, Carquinez Strait and San Pablo Bay. Seldom found at salinities > 10 ppt. Most often at salinities < 2ppt.	No. No fish-bearing waters present in project site.
Sacramento splittail *Pogonichthys macrolepidotus*	CSSC	Endemic to the lakes and rivers of the central valley, but now confined to the delta, Suisun Bay and associated marshes. Slow moving river sections, dead end sloughs. Requires flooded vegetation for spawning and foraging for young.	No. No fish-bearing waters present in project site.
Longfin smelt *Spirinchus thaleichthys*	FC, CT	Euryhaline, nektonic, and anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column.	No. No fish-bearing waters present in project site.
Invertebrates			
Obscure bumble bee *Bombus caliginosus*	CSSC	Grasslands.	Yes. Potential habitat present in project site where grassland habitats occur.
Crotch bumble bee *Bombus crotchii*	CSSC	Grasslands.	Yes. Potential habitat present in project site where grassland habitats occur.
Western bumble bee *Bombus occidentalis*	CSSC	Grasslands. Once common and widespread, species has declined precipitously from central California to southern British Columbia, perhaps from disease.	Yes. Potential habitat present in project site where grassland habitats occur.
An isopod *Calasellus californicus*	CSSC	Known from perennial springs in Lake, Napa, Marin, Santa Cruz, and Santa Clara Counties.	No. No perennial springs present in project site.

Western ridged mussel *Gonidea angulata*	CSSC	Primarily creeks and rivers and less often lakes. Originally in most of state, now extirpated from central & southern California.	No. No perennial rivers or lakes in project site.
California linderiella *Linderiella occidentalis*	CSSC	Seasonal pools in unplowed grasslands with old alluvial soils underlain by hardpan or in sandstone depressions. Water in the pools has very low alkalinity and conductivity.	No. No vernal pools present in project site.
Wilbur Springs shorebug *Saldula usingeri*	CSSC	Requires springs/creeks with high concentrations of sodium, chlorine, and lithium. Found only on wet substrate of spring outflows.	No. No mineral springs present in project site.
California freshwater shrimp *Syncaris pacifica*	FE, CE	Endemic to Marin, Napa, and Sonoma Counties. Found in low elevation, low gradient streams where riparian cover is moderate. Shallow pools away from main streamflow. Winter: undercut banks w/exposed roots. Summer: leafy branches touching water.	No. No perennial springs or streams present in project site.
Reptiles			
Alameda whipsnake *Masticophis lateralis euryxanthus*	FT, CT	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 abundant rodent burrows, with shrubs.	No. The Study Area falls within the plan area of the draft Solano Multispecies Habitat Conservation Plan (SMHCP). The SMHCP has been developed in consultation with the USFWS and includes those species with the potential to occur within the plan area, including the Study Area. Alameda whipsnake was not included within the draft SMHCP, and therefore was determined to be outside of the plan area, including the Study Area. The nearest record of this species in relation to the Study Area is nine miles south of the Study Area; this area is separated from the Study Area by the Sacramento River/Carquinez Strait. This species is not known to occur within Solano County.
Amphibians			
Foothill yellow-legged frog *Rana boylii*	CE	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. Need at least some cobble-sized substrate for egg-laying. Need at least 15 weeks to attain metamorphosis.	No. No perennial springs or streams present in project site.

Plants			
Franciscan onion *Allium peninsulare var. Franciscanum*	1B.2	Cismontane woodland, valley and foothill grassland. Clay soils; often on serpentine. Dry hillsides. 100-300 m.	Yes. Potential habitat present in project site where grassland and oak woodland habitats occur.
Alkali milk-vetch *Astragalus tener var. Tener*	1B.2	Alkali playa, valley and foothill grassland, vernal pools. Low ground, alkali flats, and flooded lands; in annual grassland or in playas or vernal pools. 1-170m.	No. No suitable habitat present.
Vernal pool smallscale *Atriplex persistens*	1B.2	Alkaline vernal pools. 10-115 m.	No. No suitable habitat present.
Big-scale balsamroot *Balsamorhiza macrolepis*	1B.2	Valley and foothill grassland, cismontane woodland. Sometimes on serpentine. 35-1,000 m.	Yes. Potential habitat present in project site where grassland and oak woodland habitats occur.
Big tarplant *Blepharizonia plumosa*	1B.1	Valley and foothill grassland. Dry hills and plains in annual grassland. Clay to clay-loam soils; usually on slopes and often in burned areas. 15-455 m.	Yes. Potential habitat present in project site where grassland habitats occur.
Narrow-anthered brodiaea *Brodiaea leptandra*	1B.2	Broadleafed upland forest, chaparral, lower montane coniferous forest. 110-915 m.	Yes. Potential habitat present in project site where oak woodland habitats occur.
Mt. Diablo fairy-lantern *Calochortus pulchellus*	1B.2	Chaparral, cismontane woodland, riparian woodland, valley and foothill grassland. On wooded and brushy slopes. 200-800 m.	Yes. Potential habitat present in project site where grassland and oak woodland habitats occur.
Lyngbye's sedge *Carex lyngbyei*	2B.2	Marshes and swamps (brackish or freshwater). 0 m.	Yes. Potential habitat present in project site where marshes occur.
Holly-leaved ceanothus *Ceanothus purpureus*	1B.2	Chaparral. Rocky, volcanic slopes. 120-640m.	No. No suitable habitat present.
Congdon's tarplant *Centromadia parryi ssp. congdonii*	1B.1	Valley and foothill grassland. Alkaline soils, sometimes described as heavy white clay. 1-230 m.	Yes. Potential habitat present where grassland and clay soils occur.
Pappose tarplant *Centromadia parryi ssp. parryi*	1B.2	Coastal prairie, meadows and seeps, coastal salt marsh, valley and foothill grassland. Vernally mesic, often alkaline sites. 2-420 m.	No. No suitable habitat present.
Bolander's water-hemlock *Cicuta maculata var. bolanderi*	2B.1	Marshes, fresh or brackish water. 0-200 m.	Yes. Potential habitat present in project site where marshes occur.
Western leatherwood *Dirca occidentalis*	1B.2	Broadleafed upland forest, chaparral, closed-cone coniferous forest, cismontane woodland, coast coniferous forest, riparian forest, riparian	Yes. Potential habitat present in project site where oak woodland habitats occur.

		woodland. On brushy slopes, mesic sites; mostly in mixed evergreen and foothill woodland communities. 30-550 m.	
Dwarf downingia *Downingia pusilla*	2B.2	Valley and foothill grassland (mesic sites), vernal pools. Vernal lake and pool margins with a variety of associates. In several types of vernal pools. 1-485 m.	No. No suitable habitat present.
Greene's narrow-leaved daisy *Erigeron greenei*	1B.2	Chaparral. Serpentine and volcanic substrates, generally in shrubby vegetation. 75-1,060 m.	No. No suitable habitat present.
Mt. Diablo buckwheat *Eriogonum truncatum*	1B.1	Chaparral, coastal scrub, valley and foothill grassland. Dry, exposed clay or sandy substrates. 3-350 m.	Yes. Potential habitat present in project site where grassland habitats occur.
Jepson's coyote-thistle *Eryngium jepsonii*	1B.2	Vernal pools.	No. No suitable habitat present.
San Joaquin spearscale *Extriplex joaquinana*	1B.2	Chenopod scrub, alkali meadow, valley and foothill grassland. In seasonal alkali wetlands or alkali sink scrub with *distichlis spicata*, *frankenia*, etc. 1-250 m.	No. No suitable habitat present.
Fragrant fritillary *Fritillaria liliacea*	1B.2	Coastal scrub, valley and foothill grassland, coastal prairie. Often on serpentine; various soils reported though usually clay, in grassland. 3-410 m.	Yes. Potential habitat present in project site where grassland habitats occur.
Diablo helianthella *Helianthella castanea*	1B.2	Broadleaved upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland. Usually in chaparral/oak woodland interface in rocky, azonal soils. Often in partial shade. 25-1,150 m.	Yes. Potential habitat present in project site where grassland and oak woodland habitats occur.
Bridges' coast range shoulderband *Helminthoglypta nickliniana bridgesi*	CSSC	Inhabits open hillsides of alameda and contra costa counties. Tends to colonize under tall grasses and weeds.	Yes. Potential habitat present in project site where grassland habitats occur.
Brewer's western flax *Hesperolinon breweri*	1B.2	Chaparral, cismontane woodland, valley and foothill grassland. Often in rocky serpentine soil in serpentine chaparral and serpentine grassland. 30-885 m.	Yes. Potential habitat present in project site where grassland and oak woodland habitats occur.
Carquinez goldenbush *Isocoma arguta*	1B.1	Valley and foothill grassland. Alkaline soils, flats, lower hills. On low benches near drainages and on tops and sides of mounds in swale habitat. 1-20 m.	Yes. Potential habitat present in project site where grassland habitats occur.
Delta tule pea *Lathyrus jepsonii var. jepsonii*	1B.2	Freshwater and brackish marshes. Often found with typha, aster lentus, rosa calif., juncus spp., scirpus, etc. Usually on marsh and slough edges.	No. No suitable habitat present.

Legenere *Legenere limosa*	1B.1	Vernal pools. Many historical occurrences are extirpated. In beds of vernal pools. 1-880 m.	No. No suitable habitat present.
Jepson's leptosiphon *Leptosiphon jepsonii*	1B.2	Chaparral, cismontane woodland. Open to partially shaded grassy slopes. On volcanics or the periphery of serpentine substrates. 100-500 m.	Yes. Potential habitat present in project site where grassland and oak woodland habitats occur.
Mason's lilaeopsis *Lilaeopsis masonii*	1B.1	Freshwater and brackish marshes, riparian scrub. Tidal zones, in muddy or silty soil formed through river deposition or riverbank erosion. 0-10 m.	No. No suitable habitat present.
Delta mudwort *Limosella australis*	2B.1	Delta bays and backwaters.	No. No suitable habitat present.
Baker's navarretia *Navarretia leucocephala ssp. bakeri*	1B.1	Cismontane woodland, meadows and seeps, vernal pools, valley and foothill grassland, lower montane coniferous forest. Vernal pools and swales; adobe or alkaline soils. 5-950 m.	No. No suitable habitat present.
California alkali grass *Puccinellia simplex*	1B.2	Alkaline soils.	No. No suitable habitat present.
California beaked-rush *Rhinophoral californica*	1B.1	Bogs and fens, marshes and swamps, lower montane coniferous forest, meadows and seeps. Freshwater seeps and open marshy areas. 45-1,010 m.	Yes. Potential habitat present in project site where mash habitats occur.
Chaparral ragwort *Senecio aphanitic*	2B.2	Chaparral, cismontane woodland, coastal scrub. Drying alkaline flats. 15-800 m.	Yes. Potential habitat present in project site where oak woodland habitats occur.
Napa checkerbloom *Sidalcea hickmanii ssp. napensis*	1B.1	Chaparral. Rhyolitic substrates. 415-610 m.	No. No suitable habitat present.
Long-styled sand-spurrey *Spergularia macrotheca var. longistyla*	1B.2	Moist coastal and inland habitat, often in alkaline and saline substrates.	No. No suitable habitat present.
Northern slender pondweed *Stuckenia filiformis ssp. alpina*	2B.2	Ponds.	No. No suitable habitat present.
Suisun Marsh aster *Symphyotrichum lentum*	1B.2	Marshes and swamps (brackish and freshwater). Most often seen along sloughs with phragmites, scirpus, blackberry, typha, etc. 0-3 m.	No. No suitable habitat present.
Napa bluecurls *Trichostema ruygtii*	1B.2	Cismontane woodland, chaparral, valley and foothill grassland, vernal pools, lower montane coniferous forest. Often in open, sunny areas. Also has been found in vernal pools. 30-590 m.	Yes. Potential habitat present in project site where grassland and oak woodland habitats occur.
Saline clover *Trifolium hydrophilum*	1B.2	Marshes and swamps, valley and foothill grassland, vernal pools. Mesic, alkaline sites. 0-300 m.	No. No suitable habitat present.

Oval-leaved viburnum *Viburnum ellipticum*	2B.3	Chaparral, cismontane woodland, lower montane coniferous forest. 215-1,400 m.	Yes. Potential habitat present in project site where oak woodland habitats occur.
* Habitat requirements are derived from the CNDDB general and microhabitats unless otherwise noted. **Does not duplicate species already represented in the Biological Assessment.			

Appendix H-5
USFWS Biological Opinion

United States Department of the Interior
FISH AND WILDLIFE SERVICE
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Sacramento, California 95825-1846
SFWO_mail@fws.gov

In Reply Refer to:
2022-0080102

November 20, 2024
Sent Electronically

To: Amy Dutschke, Regional Director, Pacific Regional Office, Bureau of Indian Affairs, U.S. Department of the Interior, Sacramento, California

MICHAEL FRIS Digitally signed by MICHAEL FRIS Date: 2024.11.20 13:04:04 -08'00'

From: Field Supervisor, Sacramento Fish and Wildlife Office, Sacramento, California

Subject: Formal Consultation on the Scotts Valley Band of Pomo Indians 160-acre Fee-to-Trust and Casino Project in the City of Vallejo, Solano County, California (file number TR-4313_P5 J51 543T FTT and Casino Project BA)

This letter is in response to the Bureau of Indian Affairs' (BIA) October 17, 2024, request for initiation of formal consultation with the U.S. Fish and Wildlife Service (Service) on the proposed Scotts Valley Band of Pomo Indians 160-acre Fee-to-Trust and Casino Project (proposed project) in the City of Vallejo, Solano County, California. Your request was received by the Service on October 17, 2024. At issue are the proposed project's effects on the federally endangered callippe silverspot butterfly (*Speyeria callippe callippe*), threatened California red-legged frog (*Rana draytonii*) and its designated critical habitat, and proposed threatened northwestern pond turtle (*Actinemys marmorata*). This response is provided under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq*.) (Act), and in accordance with the implementing regulations pertaining to interagency cooperation (50 CFR 402).

The federal action on which we are consulting is BIA conveying an approximately 160-acre property within the City of Vallejo, Solano County, California into federal trust status for the Scotts Valley Band of Pomo Indians (Tribe). Following the acquisition of the land into trust, the Tribe proposes to develop a casino, Tribal housing, a Tribal administration building, and associated parking and infrastructure. Pursuant to 50 CFR 402.12(j), you submitted a biological assessment for our review and requested concurrence with the findings presented therein. These findings conclude that the proposed project may affect, and is likely to adversely affect the callippe silverspot butterfly and California red-legged frog and is not likely to adversely affect California red-legged frog critical habitat and the northwestern pond turtle.

In considering your request, we based our evaluation on the following:

1) The October 2024 *Biological Assessment Scotts Valley 160-acre Fee-to-Trust Project* (Acorn Environmental 2024);

2) A site visit conducted on April 3, 2024;

3) Communications among Acorn Environmental, BIA, and the Service; and

4) Other information available to the Service.

The Service concurs that critical habitat for the California red-legged frog is not likely to be adversely affected. Only a very small sliver of critical habitat overlaps the northern boundary of the action area where habitat will be preserved and managed for the benefit of the California red-legged frog and callippe silverspot butterfly. Therefore, no primary constituent elements of critical habitat will be adversely affected.

The Service concurs that the northwestern pond turtle is not likely to be adversely affected because no suitable aquatic habitat for the northwestern pond turtle occurs within 1,640 feet of the action area, which is the maximum known distance from aquatic habitat that northwestern pond turtles will use upland habitat for overwintering, aestivating, and nesting. The nearest records of the northwestern pond turtle to the action area are in Sulphur Springs Creek approximately 2 miles east, and in the sloughs of American Canyon 3 miles northwest, which are within the 3.11-mile maximum known overland dispersal distance of the northwestern pond turtle. However, the proposed project is not likely to create a major new barrier to northwestern pond turtle dispersal due to the lack of suitable habitat beyond the proposed project area to the west and the south due to its location immediately east of the high-traffic Interstate 80 and immediately east and north of highly urbanized areas of the City of Vallejo. Additionally, the installation of wildlife exclusion fencing around the proposed project area will prevent the northwestern pond turtle from entering the proposed project area during construction.

The remainder of this document provides our biological opinion on the effects of the proposed project on the callippe silverspot butterfly and California red-legged frog.

Consultation History

March 12, 2024:	The Service received from BIA a request for technical assistance on the proposed project.
March 13, 2024:	The Service attended a meeting with BIA.
April 3, 2024:	The Service attended a site visit with BIA and Acorn Environmental where host plants for the callippe silverspot butterfly (California golden violet (*Viola pedunculata*)) were observed within the northern portion of the action area.
April 29, 2024:	The Service received the draft biological assessment.
May 1, 2024:	The Service provided comments via electronic mail to BIA on the draft biological assessment.
August 15, 2024:	The Service received the revised biological assessment (Acorn Environmental 2024).
August 27, 2024:	The Service provided comments via electronic mail to BIA on the conservation measures and the proposed mitigation ratios for the callippe silverspot butterfly and California red-legged frog in the revised biological assessment.

September 3, 2024: The Service met with BIA and Acorn Environmental to discuss the Service's comments on the revised biological assessment and the proposed combination of mitigation options. The Service and BIA agreed that a combination of mitigation onsite within the proposed biological preserve and offsite through purchase of credits from Service-approved conservation banks would be appropriate.

September 4, 2024: The Service requested information on the design of the stormwater detention basins and their potential to support California red-legged frog breeding or result in stranding and desiccation of California red-legged frog egg masses or tadpoles.

September 17, 2024: The Service received from BIA the revised biological assessment and provided comments on the proposed mitigation. BIA explained that the size of the onsite biological preserve could not be expanded further due to the existence of Pacific Gas and Electric Company (PG&E) easements.

October 17, 2024: The Service received from BIA the request for formal consultation and the final biological assessment.

October 24, 2024: BIA clarified the acres of callippe silverspot butterfly and California red-legged frog habitat that would be mitigated onsite at the biological preserve and the acres of callippe silverspot butterfly and California red-legged frog credits that would be purchased from Service-approved conservation bank(s).

BIOLOGICAL OPINION

Description of the Proposed Action

The proposed project consists of the acquisition by BIA of an approximately 160-acre property within the City of Vallejo, Solano County, California into federal trust status for the Tribe (Assessor's Parcel Numbers 0182-010-010, 0182-020-020, 0182-020-080, and 0182-020-010). The proposed fee-to-trust property is located northeast of the intersection of Columbus Parkway and Interstate 80 (Figure 1). Following the acquisition of the land into trust, the Tribe will develop a casino, Tribal housing, a Tribal administration building, and associated parking and infrastructure (Figure 1). The casino will consist of eight stories and will include a gaming floor, restaurants, bars, and a ballroom/event space. Casino infrastructure will support guest and employee parking, a bus depot, a loading dock, and back-of house functions. In addition to the casino complex, Tribal housing and community development is proposed in the northern portion of the action area, including 24 single-family residences and a Tribal administration building (Figure 1). The Tribal administration building will provide offices for up to 30 Tribal employees.

Access to the property will be via the intersection of an existing gravel road with Columbus Parkway. This existing access driveway will be upgraded, and new paved roads will be constructed providing access to the proposed fee-to-trust property and development components. Additionally, a potential emergency access route would require an easement to be granted through City of Vallejo property east from the southeastern boundary of the proposed fee-to-trust property to Ascot Court (Figure 1). This emergency access road may be paved, though a gravel

Figure 1. Proposed project features (copied from Acorn Environmental (2024), Figure 4).

base may be sufficient. A barrier such as a gate will be placed to prevent regular use of the emergency access road.

As a component of the proposed project, the Tribe will establish an approximately 49.1-acre biological preserve within the proposed fee-to-trust property that is designed to protect habitat of the greatest quality and value for the callippe silverspot butterfly and California red-legged frog. The Tribe will memorialize this commitment via a Tribal ordinance and a Memorandum of Understanding between the Tribe, BIA, and the Service. The biological preserve will be subject to a Service-approved management plan for the long-term protection of the habitat within the preserve. The management plan will address invasive species control, wildfire management, and other maintenance activities. The site plan provided in Figure 1 outlines the footprint of ground disturbance as well as the biological preserve.

The approximate size of the proposed project footprint consists of approximately 60.0 acres, inclusive of the totality of grading areas and lands isolated within grading areas. Stockpiling of materials and staging of equipment will be within the proposed project footprint and will not result in additional areas of impacts.

Drainage and Stormwater

A grading and drainage plan has been prepared for the proposed project. Existing drainage conditions are comprised of a mixture of swales and channels that occur within naturally low-lying areas of the action area. These features collect runoff following storm events and do not receive sufficient water to be wetted for significant periods of time. Two primary drainages cross the action area and flow from the northeast to the southwest. Both of these features combine into a single channel that flows into a wetland complex, then into a double-pipe culvert south of the action area. This culvert directs stormwater under Auto Mall Parkway and into Rindler Creek, which is tributary to Lake Chabot. The northern of the two drainages will remain in its existing location. Where roadways cross this drainage, they will be designed with appropriately-sized culverts to maintain flows of this feature. Grading will occur in these areas to ensure the stability of the road, though changes to the route of the drainage will not occur. The southern drainage overlaps with the location of the proposed gaming facility. This feature will be re-routed via an earthen swale that will discharge into the same receiving water south of the riparian area that currently receives discharge from this feature and eventually discharges into the wetland complex. The earthen swale will be designed such that discharge rates will not exceed pre-development conditions. Additionally, sheet runoff from the east of the action area currently flows southwest across the action area, eventually collecting in the same wetland complex. Sheet flow from the adjacent property to the east will be collected in a proposed concrete-lined swale that will transition into an earthen swale prior to discharge into the wetland complex. Discharge into the wetland from two drainages and the concrete swale will be dissipated prior to discharge such that predevelopment discharge rates will not be exceeded.

Stormwater will be collected within one of seven drainage management areas. Each drainage management area has been designed with a bioretention area that will collect pre-treated stormwater and further treat stormwater runoff from impervious surfaces. Bioretention sizing was based upon the 4 percent rule, which implements a low impact development treatment strategy where 4 percent of the area of impervious surfaces within a drainage management area are dedicated to landscaped bioretention. The stormwater infrastructure in the action area will be designed to infiltrate most stormwater events within 48 hours and would infiltrate a 100-year

storm event within 72 hours. This rate of infiltration would avoid attracting breeding California red-legged frogs and potentially stranding egg masses and tadpoles.

Construction Duration

Construction activities will consist of vegetation removal, grading activities, placement of foundations and erection of buildings, paving of access drives, and installation of utilities with the project footprint. Construction is anticipated to occur over a single phase commencing in 2026 and lasting for approximately 18 months.

Conservation Measures

Protective measures and best management practices (BMPs), including regulatory requirements and voluntary measures that will be implemented by the Tribe, have been incorporated into the design of the proposed project and include the following:

1. Pets shall not be allowed on site during construction.

2. Waste receptacles shall be made available within the project site and shall be properly maintained, with regular trash removal. All trash and food items will be promptly contained within closed, wildlife-proof containers. These will be regularly removed from the project site to reduce the attractiveness of the area to ravens and other predators.

3. Construction equipment shall be cleaned prior to use in the project site in order to prevent the spread of invasive or noxious species to the project site. When applicable, weed-free dirt, mulch, gravel, and other materials will be used.

4. Open trenches shall be covered at the end of each workday or shall have ramps installed at regular intervals to prevent the entrapment of wildlife. In addition, the project proponent, its agents, or contractors shall cover or fill all potential pitfalls to wildlife or cavities in which wildlife may become trapped when not attended. These include pits, trenches, vats, buckets, pipes, etc.

5. Equipment and materials that could provide refuge for wildlife shall be checked prior to use or movement to ensure wildlife are not present. If present, wildlife shall be allowed to vacate the area unharmed on their own.

6. Exterior lighting shall be downcast and shielded such that lighting and glare do not overspill the built environment.

7. Uplighting, disruptive flashing lights, or materials that cause excessive glare shall not be used.

8. Coverage under the National Pollutant Discharge Elimination System General Construction Permit shall be obtained from the U.S. Environmental Protection Agency for construction site runoff during the construction phase in compliance with the Clean Water Act.

9. A Stormwater Pollution Prevention Plan (SWPPP) shall be prepared, implemented, and maintained throughout the construction phase of the development, consistent with General Construction Permit requirements. The SWPPP will include, but would not be

limited to, the following BMPs to minimize storm water effects to water quality during construction:

a. Grading activities shall be limited to the immediate area required for construction.

b. Temporary erosion control measures (such as silt fences, fiber rolls, staked straw bales, temporary re-vegetation, rock bag dams, erosion control blankets, and sediment traps) shall be employed as needed for disturbed areas. Plastic monofilament or similar materials that could entangle wildlife shall not be used.

c. Construction activities shall be scheduled to minimize land disturbance during peak runoff periods to the extent feasible.

d. Disturbed areas shall be paved, re-vegetated, and/or stabilized following construction activities.

e. A spill prevention and countermeasure plan shall be developed that identifies proper storage, collection, and disposal measures for potential pollutants used on-site.

f. Petroleum products shall be stored, handled, used, and disposed of properly in accordance with provisions of the Clean Water Act (33 USC §§ 1251 to 1387).

g. Construction materials shall be stored, covered, and isolated to prevent runoff loss and contamination of surface and groundwater.

h. Fuel and vehicle maintenance areas shall be limited to the impact area.

i. Sanitary facilities shall be provided for construction workers.

j. To minimize dust generation during construction, soil will be wetted down with water prior to ground disturbance as needed.

k. Generated waste shall be properly disposed of.

10. Preconstruction Surveys and Exclusionary Fencing: To ensure that the California red-legged frog and northwestern pond turtle are not present in construction areas, pre-construction clearance surveys shall be conducted by a qualified biologist. A qualified biologist is defined as a person who has the educational background, training, and work experience (handling experience and/or permits) required to perform a specific biological task and have been approved by the Service. If any of these species are discovered during the survey, project construction activities shall not begin until the species has voluntarily vacated the construction area or the Service has been consulted and avoidance and minimization measures established and then implemented. As the California red-legged frog is not detectable during aestivation, the pre-construction survey shall occur during the wet season, after fall rains have commenced and before the conclusion of spring rains. Once the preconstruction surveys confirm that the California red-legged frog and northwestern pond turtle are not present, the construction crew shall immediately install animal exclusion fencing to separate construction areas from the marshes and channels outside of the impact area. The fencing shall be constructed out of plastic weed cloth or construction fabric, shall be keyed into the ground, and shall be supported by stakes and

wire mesh, as needed. Fencing shall also be opaque, a minimum three feet in height, and installed with a smooth material such that it cannot be climbed. A qualified biologist shall oversee the installation of the exclusionary fencing to ensure its suitability. A qualified biologist shall also make regular inspections during the preconstruction period and during the construction periods when grading and other ground disturbance activities are occurring to ensure the integrity of the fence.

11. Worker Environmental Awareness Training: All construction personnel shall receive worker environmental awareness training before they enter the construction site. The training program shall include, at a minimum, descriptions of the focal species (callippe silverspot and monarch butterflies, California red-legged frog, and northwestern pond turtle), and how to identify and avoid these focal species. Personnel shall be trained to halt work in the event that one of these focal species is observed within the work area and allow the individual to leave the work site on its own. Personnel shall be instructed to limit work activities to the designated construction areas and to properly store equipment and materials in the designated laydown area. A qualified biologist shall make regular inspections during the construction periods when grading and other ground disturbance activities are occurring to ensure BMPs are being adequately followed.

12. Dispersal Access for Northwestern Pond Turtle and California Red-Legged Frog: The proposed project shall be designed such that culverts, free-span bridges, or similar shall be installed where roadways cross drainages. Road crossings shall be designed such that the California red-legged frog and northwestern pond turtle can freely pass underneath the road crossings. Additionally, a permanent barrier such as a curb shall be installed around the perimeter of paved areas, with the exception of points of access, to discourage the California red-legged frog and northwestern pond turtle from entering the built environment. Designs of the barrier shall be submitted to the Service for coordination and approval.

13. Compensatory Mitigation for California Red-legged Frog:

    a. Onsite Biological Preserve. Preservation of California red-legged frog non-breeding aquatic habitat within the biological preserve area shall mitigate for impacts to California red-legged frog non-breeding aquatic habitat at a 3:1 ratio. Preservation of California red-legged frog upland dispersal habitat shall be offset through the preservation of upland dispersal habitat within the biological preserve area at a 3:1 ratio. This area shall be protected via Tribal ordinance and a Memorandum of Understanding with the Service and the BIA. Funds shall be set aside for management of the preserve, and a long-term management plan shall be adopted by the Tribe in consultation with, and approved by, the Service and BIA. The Memorandum of Understanding shall be agreed upon by the Tribe, the Service, and BIA prior to construction. A total of 0.3 acre of non-breeding aquatic habitat and 48.8 acres of upland dispersal habitat for the California red-legged frog will be preserved onsite within the biological preserve (Table 1).

    b. Conservation Bank. Mitigation for the balance of the impacted non-breeding California red-legged frog aquatic habitat shall be achieved through the purchase of California red-legged frog credits from a Service-approved conservation bank at a 6:1 ratio. Mitigation for the balance of the impacted California red-legged frog upland dispersal habitat shall be achieved through the purchase of California

red-legged frog credits from a Service-approved conservation bank at a 3:1 ratio. A total of 132.4 acres of California red-legged frog credits (Table 1) will be purchased from a bank that contains suitable habitat for the California red-legged frog, such as: North Bay Highlands Conservation Bank in Marin County, Ohlone West Conservation Bank in Alameda County, Oursan Ridge Conservation Bank in Contra Costa County, or Ridge Top Ranch Wildlife Conservation Bank in Solano County. The selected bank must be approved by the Service to sell California red-legged frog credits and must include the action area within the service area. Credits shall be purchased prior to construction. Joint species credits may be purchased to satisfy this mitigation.

Table 1. California red-legged frog habitat loss and mitigation.

Habitat Type Impacted	**Permanent Loss (acres)**	**Mitigation Ratio**	**Mitigation at Biological Preserve (acres)**	**Mitigation at a Conservation Bank (acres)**
Non-breeding aquatic	1.1	3:1 in-kind onsite; 6:1 at a conservation bank	0.3 acre non-breeding aquatic	6.0
Upland dispersal	58.3	3:1 in-kind onsite or conservation bank	48.8 acres upland dispersal	126.4
TOTAL	59.4	Not applicable	49.1	132.4

14. Compensatory Mitigation for Callippe Silverspot Butterfly:

a. Onsite Biological Preserve.

i. Impacts to callippe silverspot butterfly host plant habitat shall be offset by preservation of host plant habitat within the biological preserve area at a 3:1 ratio. Impacts to nectar resource habitat shall be mitigated through a combination of the biological preserve area and purchase of callippe silverspot butterfly credits from a Service-approved conservation bank. Impacts to nectar resource habitat offset through the biological preserve shall occur at a 3:1 ratio for in-kind preservation of nectar resource habitat, or at a 2:1 ratio for preservation of host plant habitat. These ratios are summarized in Table 2 below. The 49.1-acre biological preserve area shall be protected via Tribal ordinance and a Memorandum of Understanding with the Service and BIA.

ii. The 49.1-acre biological preserve area will preserve and manage 34.8 acres of callippe silverspot butterfly host plant habitat and 14.3 acres of nectar only habitat (Table 2). Therefore, 9.0 acres of host plant habitat within the biological preserve area will meet the recommended 3:1 ratio for the proposed project's effects to host plant habitat. The remaining 25.8 acres of host plant habitat within the biological preserve area will be counted towards lost nectar resource habitat. There would be a mitigation deficit for impacts to nectar resource habitat which will be mitigated through a conservation bank as described below.

b. Conservation Bank. Mitigation for the balance of the impacted callippe silverspot butterfly nectar resource habitat not offset through the biological preserve area

(38.8 acres) shall be achieved through purchase of 116.4 acres of callippe silverspot butterfly mitigation credits at a Service-approved conservation bank such as Ridge Top Ranch Wildlife Conservation Bank in Solano County (Table 2). Mitigation achieved through this method will be at a 3:1 ratio (Table 2). The selected bank must be approved by the Service to sell callippe silverspot butterfly credits and must include the action area within the service area. Credits shall be purchased prior to construction. Joint species credits may be purchased to satisfy this mitigation.

Table 2. Callippe silverspot butterfly habitat loss and mitigation.

Habitat Type Impacted	**Permanent Loss (acres)**	**Mitigation Ratio**	**Mitigation at Biological Preserve (acres)**	**Mitigation at a Conservation Bank (acres)**
High quality host plant/nectar	3.0	3:1 in-kind onsite	9.0 acres high quality host plant/nectar	0.0
Lower quality nectar only	12.9	2:1 through high-quality host plant habitat onsite	25.8 acres high quality host plant/nectar	0.0
Lower quality nectar only	4.8	3:1 through in-kind nectar habitat onsite	14.3 acres in-kind nectar only	0.0
Lower quality nectar only	38.8	3:1 through in-kind nectar habitat at conservation bank	0.0 acre	116.4
TOTAL	59.5	Not applicable	49.1	116.4

15. Butterfly Protection Actions: To protect the callippe silverspot butterfly and monarch butterfly, the following land management actions will be implemented:

    a. Use of insecticides shall be prohibited; use of herbicides will follow Service-approved BMPs.

    b. Utilize only native species in landscaping, erosion control, and habitat restoration.

    c. Time vegetation management activities (such as trimming, mowing, and brush-clearing) to between August 15 – April 30 when the callippe silverspot butterfly is not in flight.

    d. In the appropriate botanical identification window prior to impacts (generally the February-April host plant blooming period but to be verified by a qualified biologist at a reference site where the host plant is known to occur), a qualified biologist shall survey the action area for California golden violet. A qualified biologist is defined as a person who has the educational background, training, and work experience (handling experience and/or permits) required to perform a specific biological task and have been approved by the Service. The qualified biologist shall demarcate a 25-foot buffer around host plants. To the maximum extent feasible, the 25-foot buffer shall be maintained around all host plants outside of the project footprint.

16. Monarch Butterfly and Other Pollinators: The action area does not contain monarch overwintering habitat, but it is within 5 miles of overwintering areas along the coast and San Francisco Bay. The applicant will implement the following conservation measures for Coastal California Overwintering Habitat for the western monarch butterfly in Service (2023) (available at: https://xerces.org/publications/planning-management/western-monarch-butterfly-conservation-recommendations):

    a. Use only native, locally sourced, insecticide-free plants for habitat restoration and enhancement actions. If plants are grown via contract, use grow specifications that limit pesticide residues.

    b. Protect monarchs, callippe silverspot butterflies, and other pollinators, and their habitats from pesticides, including insecticides, fungicides, and herbicides. Avoid applying herbicides to blooming flowers between October 1 – August 15; this avoids the time period when monarch butterflies are likely around (October 1 – April 30) and when callippe silverspot butterflies are in flight (May 1 - August 15).

    c. To assist in maintaining normal monarch butterfly migration behavior, do not plant any type of milkweed (*Asclepias* species).

    d. Maximize use of non-chemical weed and pest prevention.

    e. Select a mosaic plant palate of native species that bloom throughout the year.

Action Area

The action area is defined in 50 CFR § 402.02, as "all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action." For the proposed project, the action area onsite encompasses 164.0 acres which includes the 160.0-acre fee-to-trust property that will be acquired by BIA to be put in federal trust for the Tribe plus approximately 4.0 acres contiguous to the southeastern border of the property where an emergency access road may be constructed (Figure 1). Within the action area, 60.0 acres will be developed for the casino, Tribal housing, and associated roads, parking lot and infrastructure and/or graded; and 49.1 acres will be preserved and managed for the benefit of the callippe silverspot butterfly and California red-legged frog (Figure 1). The remainder of the 160.0-acre fee-to-trust property would not be developed including areas within PG&E easements (Figure 1). The action area also includes locations offsite where 116.4 acres of callippe silverspot butterfly habitat and 132.4 acres of California red-legged frog habitat will be preserved and managed in perpetuity at Service-approved conservation bank(s) with credits purchased by the Tribe.

Analytical Framework for the Jeopardy Determination

Section 7(a)(2) of the Act requires that federal agencies ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of listed species. "Jeopardize the continued existence of" means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species (50 CFR § 402.02).

The jeopardy analysis in this biological opinion considers the effects of the proposed federal action, and any cumulative effects, on the rangewide survival and recovery of the listed species. It relies on four components: (1) the *Status of the Species*, which describes the rangewide condition of the species, the factors responsible for that condition, and its survival and recovery needs; (2) the *Environmental Baseline*, which analyzes the condition of the species in the action area without the consequences to the listed species caused by the proposed action, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the species; (3) the *Effects of the Action*, which determines all consequences to listed species that are caused by the proposed federal action; and (4) the *Cumulative Effects*, which evaluates the effects of future non-federal activities in the action area on the species. The *Effects of the Action* and *Cumulative Effects* are added to the *Environmental Baseline* and considering the status of the species, the Service formulates its opinion as to whether the proposed action is likely to jeopardize the continued existence of the listed species.

Status of the Species

Callippe Silverspot Butterfly

For the most recent comprehensive assessment of the species' rangewide status, please refer to the *Callippe silverspot butterfly (Speyeria callippe callippe) 5-year Review* (Service 2020a, https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/2998.pdf) and the July 2020 *Species Status Assessment for the Callippe Silverspot Butterfly (Speyeria callippe callippe) Version 1.0* (Service 2020b, https://ecos.fws.gov/ServCat/DownloadFile/173309). No change in the species' listing status was recommended in the 5-year review. Threats evaluated during the review and discussed in the final document have continued to act on the species since the July 22, 2020, 5-year review was finalized, with degradation of habitat by invasive plant species, encroachment of native shrubs, and catastrophic wildfires being the most significant effects. The Service is in the process of finalizing its most current 5-year review for the species.

There are four extant populations of the callippe silverspot butterfly: Cordellia Hills and Ferrari Ranch populations in Solano County, San Bruno Mountain in San Mateo County, and Sears Point in Sonoma County, California (Service 2020b). Updates to the status of each population since the July 2020 Species Status Assessment (Service 2020b) are summarized below.

Cordellia Hills Population

The overall condition of the Cordellia Hills population of the callippe silverspot butterfly in Solano County, California was rated as low in 2020 (Service 2020b). The overall condition is rated based on four habitat factors: contiguous grassland habitat, residual dry matter levels, abundance of host plants (California golden violet (*Viola pedunculata*)), abundance of nectar plants, and population abundance. Population abundance is rated based on the maximum sightings of adult butterflies observed per hour for each transect averaged across all transects: high > 20, moderate = 10-20, and low <10 adult butterflies sighted per hour (Service 2020b). Population abundance is weighted twice as much as each of the habitat factors in assessing the condition (Service 2020b). The condition of the Cordellia Hills population was rated as high in 2020 for contiguous grassland habitat (>1,200 acres), moderate for residual dry matter levels and larval host plant abundance, and low for nectar abundance and adult butterfly abundance (Service 2020b).

Habitat in the Cordellia Hills population is protected under a conservation easement and managed for the callippe silverspot butterfly at the 905-acre Vallejo Swett Ranch, 1,408-acre Eastern Swett Ranch, and 1,618-acre King Ranch in Solano County. These preserves are located approximately 0.7-3.8 miles east of the action area and provide mitigation for the callippe silverspot butterfly under the PG&E Bay Area Operations & Maintenance Habitat Conservation Plan (ICF 2017) and are proposed mitigation under the draft Solano Multispecies Habitat Conservation Plan (Solano County Water Agency 2012). Only one adult callippe silverspot butterfly was observed at King Ranch in June 2022, and three were observed in June 2023 during four rounds of butterfly surveys along six monitoring transects; the butterflies were all observed exhibiting hill topping behavior (Marty Ecological Consulting, Inc., p. 13 and Table 5). An unspecified number of callippe silverspot butterflies were observed in the eastern side of King Ranch within areas with high-densities of California golden violets during surveys on May 14, 2024, and June 14, 2024; all sightings were on eastern-facing slopes near the tops of hills (LSA 2024). A total of 230 acres of California golden violet occurred at King Ranch in 2023 (LSA 2022 cited in Marty Ecological Consulting, Inc. 2024, p. 13). The cover of California golden violet at sampling plots at the King Ranch mitigation site declined from 31.1 percent in 2022 to 19.5 percent in 2023 likely due to the removal of cattle grazing (Solano Land Trust 2024). In May 2024, the western-facing slopes of King Ranch had sparser stands of California golden violets, but the host plant was present in most previously mapped areas (LSA 2024). No California golden violets were detected in May 2024 on a hill near Hoffman Pond where they previously had been mapped (LSA 2024). A previous study conducted by Phytosphere Research at King Ranch showed that increasing grass cover and height tended to suppress the California golden violet (Bernhardt and Swiecki 2010 cited in Solano Land Trust 2024). The average cover of the California golden violet at sampling plots at King Ranch in 2023 was significantly higher ($p=0.04$) in grazed plots (28 percent) compared to ungrazed plots (11 percent) (Solano Land Trust 2024, p. 13). While the cover of bare ground remained similar in both treatments, thatch accumulation was higher in ungrazed plots (24.3 percent) versus grazed plots (11.9 percent) though this difference was not statistically significant ($p=0.177$) (Solano Land Trust 2024). The relative cover of native species differed significantly between treatments with grazed plots averaging 44 percent while ungrazed plots averaged 14 percent ($p =0.04$). The absolute cover of exotic grasses was significantly higher in ungrazed plots averaging 75.5 percent compared to 40.4 percent in the grazed plots ($p=0.017$) (Solano Land Trust 2024). No weed management was undertaken at King Ranch in 2023 primarily due to the recent discovery of a population of the State-listed Crotch's bumble bee (Solano Land Trust 2024).

Additional habitat within the Cordellia Hills population is preserved and managed for the callippe silverspot butterfly at the 663-acre Ridge Top Ranch Conservation Bank in Solano County, California, approximately 3.4 miles southeast of the action area. Monitoring in 2023 reported 12.1 acres of California golden violets and the observation of four adult callippe silverspot butterflies (WRA, Inc. 2024). The performance criteria for callippe silverspot butterfly were not met at 55.5 acres (8 percent) of the conservation bank in 2023 due to the presence of large populations of invasive artichoke thistle: (1) a total of 8.9 acres of artichoke thistle populations having greater than 5 percent density within 100-foot California golden violet buffers were identified during late-season monitoring (up from 2.54 acres in 2022); and (2) a total of 46.6 acres of artichoke thistle populations with greater than 25 percent cover were identified at the conservation bank (up from 20.7 acres in 2022) (WRA, Inc. 2024). Artichoke thistle populations exceeding 25 percent cover or populations of artichoke thistle exceeding 5 percent within 100 feet of California golden violet populations, that are greater than 0.1 acre will be treated with approved herbicides or mechanically removed in spring 2024 (WRA, Inc. 2024).

Artichoke thistle was identified as a preferred nectar source for the callippe silverspot butterfly at King Ranch but may displace California golden violets and native nectar sources (Solano Land Trust 2024).

Ferrari Ranch Population

The 282.84-acre Ferrari Ranch Preserve has been protected and managed for the Ferrari Ranch population of the callippe silverspot butterfly since 2014 (Service 2020b). The Ferrari Ranch Preserve is located in Solano County southwest of the junction of Interstate 80 and Highway 12 approximately 3.1 miles northeast of the action area. Two California golden violet preservation areas (totaling 0.23 acre) and three California golden violet enhancement areas (totaling 0.29 acre) occur within the Ferrari Ranch Preserve (Westervelt Ecological Services 2024). Additionally, one callippe silverspot butterfly enhancement habitat zone has been identified for preferred nectar plants for a total of six callippe silverspot butterfly habitat areas. The overall condition of the Ferrari Ranch population of the callippe silverspot butterfly was rated as low in 2020 (Service 2020b). The condition of the Ferrari Ranch population was rated in 2020 as in high condition for acres of contiguous grassland (>1,200 acres), moderate for residual dry matter levels, low for abundance of adult butterflies, and unknown for abundance of nectar plants (Service 2020b). However, only 282.84 acres of grassland are preserved and managed in perpetuity for the benefit of the callippe silverspot butterfly at the Ferrari Ranch Preserve. The adjacent properties are not protected, and do not have management plans for the callippe silverspot butterfly.

In 2023, four of the six callippe silverspot butterfly habitat areas at the Ferrari Ranch Preserve were supporting California golden violets (Westervelt Ecological Services 2024). These four locations had between five to 75 flowering California golden violet plants that consisted of naturally recruited plants as well as planted specimens (Westervelt Ecological Services 2024). Management has reduced the amount of invasive artichoke thistle and purple star thistle at the Ferrari Ranch Preserve (Westervelt Ecological Services 2024). Preferred nectar plants including milk thistle, Italian thistle, and mule's ear were found flowering in the callippe silverspot butterfly habitat areas (Westervelt Ecological Services 2024). Three of the surveyed locations appeared to be appropriately grazed and were generally dominated by forbs and grasses with little bare ground (Westervelt Ecological Services 2024). The remaining three callippe silverspot butterfly habitat areas are in upper elevation areas, which do not currently get grazed at a high intensity (Westervelt Ecological Services 2024). Westervelt Ecological Services (2024) believes that those areas would likely benefit from increased grazing and will continue to work on strategies to encourage cattle usage in those areas. While no incidental callippe silverspot butterfly larvae or adults were observed at the Ferrari Ranch Preserve 2021-2023, the continued presence of suitable larval and nectar plants provides habitat for callippe silverspot butterflies (Westervelt Ecological Services 2024). Adult callippe silverspot butterfly surveys occur at the Ferrari Ranch Preserve every five years: the most recent surveys occurred in 2019 and 2024. No callippe silverspot butterflies were observed at the Ferrari Ranch Preserve during surveys in 2019, but three adult male callippe silverspot butterflies were observed on a nearby property (Westervelt Ecological Services 2020). In mid-June 2024, the maximum number of adult callippe silverspot butterflies observed per hour on a single survey date was 3.1 (Hill 2024); this puts the population in the low condition for population abundance. The maximum number of adult callippe silverspot butterflies observed during a single survey date at Ferrari Ranch Preserve in 2024 was 14 (Hill 2024). Good quality habitat with abundant California golden violets and multiple nectar sources was also observed on the adjacent property, and callippe silverspot butterflies were observed crossing back and forth easily (Hill 2024). Nectar sources were abundant including nonnative Italian thistle; although Italian thistle is a preferred nectar

plant for the callippe silverspot butterfly, the invasive thistle is likely suppressing the abundance of California golden violets at the Ferrari Ranch Preserve (Hill 2024). Hill (2024) recommended enhancing habitat for the callippe silverspot butterfly at Ferrari Ranch Preserve by (1) increasing the cover of California golden violets by cattle grazing or removing grass thatch near populations of the host plant, (2) reducing the cover of nonnative thistles, and (3) increasing the cover of native nectar sources by planting California buckeye and coyote wild mint in suitable habitats.

San Bruno Mountain Population

The overall condition of the San Bruno Mountain population of the callippe silverspot butterfly in San Mateo County, California was rated as moderate in 2020; this population was rated as in moderate condition for acres of contiguous grassland (<1,200 acres), residual dry matter levels, and population abundance and in high condition for larval host plants and nectar plants abundance (Service 2020b). The San Bruno Mountain Habitat Conservation Plan requires the preservation and management of between 1,200 – 1,800 acres of grassland habitat at San Bruno Mountain for the benefit of the callippe silverspot butterfly and other federally listed butterflies (TRA 2008). However, in 2015 it was discovered that the total acres of grassland habitat at San Bruno Mountain had fallen below 1,180 acres primarily due to the encroachment of native shrubs resulting in an average loss of 9.5 acres of grassland per year since 1983 (Weiss et al. 2015). The San Mateo County Parks Department has since been focusing on removal of shrubs that are encroaching upon priority grassland habitat for the callippe silverspot butterfly and other federally listed butterflies at San Bruno Mountain. A pilot grazing study is proposed at 115.4 acres of the Southeast Slope and 76.1 acres of the Northeast Ridge on San Bruno Mountain to analyze the effects of cattle grazing on the callippe silverspot butterfly and the California golden violet (Ratcliff and Ford 2023); the pilot grazing study is estimated to begin in 2026. During biennial monitoring of adult callippe silverspot butterflies in 2014 to 2024 at San Bruno Mountain, transect estimates indicated that the population abundance of callippe silverspot butterfly at San Bruno Mountain was in moderate condition for four of six monitoring years (as indicated by average maximum sightings per hour of <20 and ≥10), and in high condition the other two years (average maximum sightings per hour ≥ 20; Table 3) (San Mateo County Parks Department 2022 and 2024). In 2024, the average maximum sightings per hour across transects was 12.9 putting it in the moderate condition, while the average sightings per hour was 5.1 (San Mateo County Parks Department 2024).

Sears Point Population

Sears Point has been owned and managed by the Sonoma Land Trust since 2004. The Sears Point property consists of 2,327 acres of which 1,142 acres are grasslands characterized by rolling hills and steep slopes, eroding gullies and ravines, and low elevation plains bisected by ephemeral streams in southern Sonoma County, California. The overall condition of the Sears Point population of the callippe silverspot butterfly was rated as low in 2020; this population was rated as in high condition for acres of contiguous grassland (>1,200 acres), moderate for residual dry matter levels and abundance of larval host plants, low for population abundance, and low/unknown for nectar plants abundance (Service 2020b). Restoration efforts have focused on planting California buckeye trees within the ravines as a nectar source for the callippe silverspot butterfly. Current range management practices at Sears Point consist of year-round grazing on hillsides and ravines, with wetland areas fenced off and excluded from grazing (Bush 2006).

Table 3. Maximum abundance of callippe silverspot butterfly adults at San Bruno Mountain, averaged across transects by year. Data are only shown for the last six monitoring years (San Mateo County Parks Department 2022 and 2024).

Year	Mean Maximum Sightings per Hour	Condition Based on Population Abundance[1]
2014	68.48	High
2016	11.29	Moderate
2018	18.89	Moderate
2020	30.67	High
2022	13.84	Moderate
2024	12.90	Moderate

A total of 61 acres of California golden violet patches were mapped at Sears Point in 2021 (Coast Ridge Ecology 2021). California golden violet was abundant throughout the hillsides at Sears Point, and large contiguous patches of California golden violet were found to occur on all slope aspects (Coast Ridge Ecology 2021). California golden violet did not occur as densely on flat, heavily grazed areas or within fenced-off (ungrazed) riparian zones (Coast Ridge Ecology 2021).

A total of 16 adult callippe silverspot butterflies were observed at Sears Point during four surveys along six transects in May 30 - June 23, 2021 (Coast Ridge Ecology 2021). Callippe silverspot butterflies were observed on only two of the six transects (Coast Ridge Ecology 2021). The highest maximum sightings per hour on a single transect was 6.1 (Coast Ridge Ecology 2021; P. Kobernus, Coast Ridge Ecology, in litt. 2024). The average maximum sightings per hour across transects was 1.3 which puts the Sears Point population in low condition for population abundance (Coast Ridge Ecology 2021; P. Kobernus, Coast Ridge Ecology, in litt. 2024; Service 2020b). The maximum number of callippe silverspot butterflies on a single survey date was nine on May 30, 2021 (Coast Ridge Ecology 2021). The majority of callippe silverspot butterfly observations (15 out of 16) occurred in the ravines (Coast Ridge Ecology 2021). One individual was observed traveling over a hilltop (Coast Ridge Ecology 2021). Nectar plants were observed to be more abundant in ravines in contrast to the hillsides and hilltops due to greater moisture in the ravines (Coast Ridge Ecology 2021). Callippe silverspot butterfly observations (total of 16) were very low during the 2021 flight season at Sears Point. In contrast, citizen scientist, D. Rawlinson, recorded 50-60 callippe silverspot butterflies during a five-hour survey on June 5, 2013, which was noted to be a very low number at the time (Rawlinson in litt. 2019 cited in Coast Ridge Ecology 2021).

There are potentially several factors contributing to the low numbers of callippe silverspot butterflies observed at Sears Point in 2021. Both 2020 and 2021 water years (October 1-September 30) were dry years with rainfall totals of 19.35 inches in 2020 and only 13.01 inches in 2021, compared to 48.17 inches in 2019 (Coast Ridge Ecology 2021); these totals are likely

[1] Population abundance condition is calculated by averaging the maximum adult callippe silverspot butterfly sightings per hour for each transect: High > 20; Moderate = 10-20; Low < 10. The overall condition of the population is rated based on acres of contiguous grassland habitat, residual dry matter levels, larval host plant abundance, nectar plant abundance, and population abundance. Population abundance is weighted twice as high as each of the habitat factors in calculating the overall condition (Service 2020b).

lower for Sears Point, as this data is from the City of Santa Rosa which typically has higher rainfall totals than Sears Point. The 2021 flight season lasted for only three weeks which appears to have been a shortened flight season (Coast Ridge Ecology 2021). In comparison, the typical flight season for the callippe silverspot butterfly on San Bruno Mountain is closer to six weeks (San Mateo County Parks Department 2020). Drought conditions may have affected the timing of California golden violet growth and senescence which could have impacted post-diapausal larval development (Coast Ridge Ecology 2021). If the host plants emerge early and senesce early, post-diapausal larvae may emerge too late and not be able to feed long enough to complete development to the pupal stage (Coast Ridge Ecology 2021). This higher level of larval mortality due to drought conditions can have lasting impacts on butterfly populations (Coast Ridge Ecology 2021). The drought conditions at Sears Point in 2020 and 2021 also likely negatively affected nectar plants and their availability for callippe silverspot butterflies, especially later in the flight season (Coast Ridge Ecology 2021). Small isolated patches of flowering plants that were present on the slopes in the spring such as black mustard, artichoke thistle, mule's ears, Ithuriel's spear, blue dicks and others, had mostly senesced by June 8, 2021 (Coast Ridge Ecology 2021). The lack of nectar sources has been previously observed to be a potential limiting factor for callippe silverspot butterflies at Sears Point (Service 2020b).

Fire is another factor that may have affected the callippe silverspot butterfly population at Sears Point. A wildfire that occurred at Sears Point in October 2017 burned approximately two-thirds of the grasslands, including most of the known habitat areas for callippe silverspot butterflies (Coast Ridge Ecology 2021). The burn area has since recovered, and California golden violets were found to be abundant and widespread throughout Sears Point in spring 2021 (Coast Ridge Ecology 2021). The fire, however, appeared to have destroyed all of the nectar plants that were planted within the ravines as part of habitat restoration efforts (Coast Ridge Ecology 2021). While wildfire can help native plants outcompete non-native grasses through the reduction of thatch and stimulating native seed germination, they can also negatively impact different life stages of a callippe silverspot butterfly population depending upon the timing of the fire (Coast Ridge Ecology 2021). At Sears Point, for example, the fire occurred in October when the larval stages of the callippe silverspot butterfly were in diapause and sheltering in ground litter (Coast Ridge Ecology 2021). This fire, though it occurred at a time of year when fires naturally occur, may have killed off callippe silverspot larvae lying dormant in the grasslands (Coast Ridge Ecology 2021). Callippe silverspot butterfly population numbers were considered to be low at Sears Point before the fire (Service 2020b), and it is likely that the fire reduced the population even further. The population may have yet to recover from this wildfire (Coast Ridge Ecology 2021).

California Red-legged Frog

For the most recent comprehensive assessment of the species' rangewide status, please refer to the *California Red-legged Frog (Rana draytonii) 5-Year Review: Summary and Evaluation* (Service 2022, https://ecos.fws.gov/docs/tess/species_nonpublish/4025.pdf). No change in the species' listing status was recommended in this 5-year review. Threats evaluated during that review and discussed in the final document have continued to act on the species since the December 2022 5-year review was finalized, with habitat loss and fragmentation, isolation of populations south of Santa Barbara County and in the Sierra Nevada, invasive predators, and climate change being the most significant effects.

Environmental Baseline

Environmental baseline refers to the condition of the listed species or its designated critical habitat in the action area, without the consequences to the listed species or designated critical habitat caused by the proposed action. The environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State or private actions that are contemporaneous with the consultation in process. The impacts to listed species or designated critical habitat from federal agency activities or existing federal agency facilities that are not within the agency's discretion to modify are part of the environmental baseline.

Habitats within the Action Area

The topography of the action area is a series of undulating hill slopes and valleys on the flank of Sulphur Springs Mountain. Elevations range between 130 feet above mean sea level in the southern portion of the action area to approximately 800 feet above mean sea level in the northern portion. The action area is largely undeveloped open space used primarily for cattle and horse grazing, except for a corridor of PG&E electrical transmission lines. There is also an elevated and graded pad in the southern portion of the action area that may have been contemplated as a development site in the past, but no built features are located on it. The existing access driveway also leads to numerous wooden shacks that are currently used as horse shelters. A mixture of wire and t-post fencing and chain link fencing bounds the grazing areas within the action area. Surrounding development includes commercial development to the south, rangeland to the north and east, and highways, a large vista rest stop, and residential developments to the west.

Habitat types that occur within the action area consist of riparian scrub, freshwater marsh, oak woodland, pasture, ruderal/developed, and annual grassland/rock outcrop. The total acres of each habitat type in the action area, the biological preserve, and the proposed project footprint are shown in Table 4 below. The location of each habitat type is shown in Figure 2 below.

Table 4. Acres of each habitat type within the action area.

Habitat Type	**Total Acres in Action Area**	**Acres in Biological Preserve[2]**	**Acres in Project Footprint**
Riparian scrub	0.4	0.0	0.1
Freshwater marsh	3.4	0.3	1.1
Pasture	118.3	17.6	58.3
Oak woodland	3.7	3.3	0.0
Ruderal/developed	7.5	0.0	0.5
Annual grassland/rock outcrop	30.8	27.8	0.04
Channels	755 linear feet	285 linear feet	227 linear feet
Total	**164.0**	**49.1**	**60.0**

[2] The acres within the biological preserve do not include habitat within the PG&E easements.

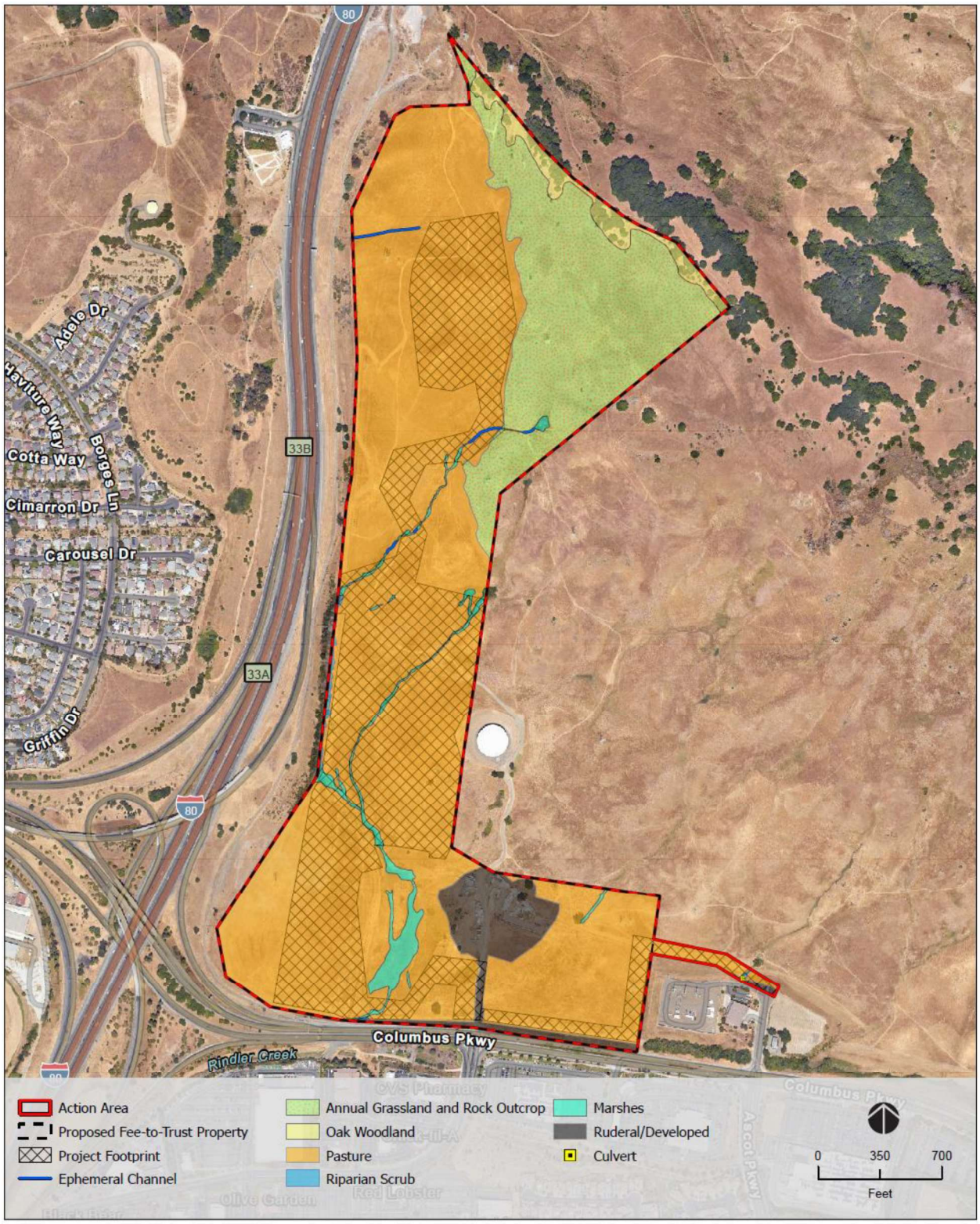

Figure 2. Habitat types within the action area (copied from Acorn Environmental 2024, Figure 8).

Ruderal/Developed

Ruderal/developed habitats are those areas that are highly modified from their natural state and are subject to intensive land management, paving, or similar. Within the action area, ruderal developed areas include an unpaved access drive and informal parking areas, fencing, and horse shelters. Vegetation is sparse to absent in this area. Where vegetation does occur, it is dominated primarily by non-native grasses and weedy forbs. Of the 7.5 acres of ruderal/developed habitat within the action area, 0.5 acre falls within the project footprint, and none occurs within the proposed biological preserve.

Riparian Scrub

Riparian scrub is found on the western edge of the action area; it is associated with an off-site, intermittent drainage that is fed by both the flank of Sulphur Springs Mountain as well as road runoff from Interstate 80. The vegetation is dominated by arroyo willow with an understory of Himalayan blackberry and poison oak, and limited areas of broadleaved cattail. Vegetation along the edge of the riparian habitat includes sweet fennel and coyote brush. The riparian habitat transitions to either marsh or pasture, depending upon the local topography. Of the 0.4 acre of riparian scrub habitat within the action area, 0.1 acre falls within the project footprint and none within the biological preserve.

Freshwater Marsh

Freshwater marsh habitat occurs in the valleys of hills. The dominant plants in these areas are rushes and spikerushes. Facultative grasses and forbs are also present, such as perennial ryegrass, Bermuda grass, curly dock, common monkeyflower, and pennyroyal. Ponded areas contain floating plants such as watercress. The water quality of these marshes has been impacted by cattle, which are allowed to wallow and graze in the wetlands. Approximately 1.1 acres of freshwater marsh occurs within the project footprint where re-alignment of existing drainages and grading associated with implementing road crossings will occur. A total of 0.3 acre of freshwater marsh occurs within the biological preserve area, and 2.0 acres occurs elsewhere within the action area. An existing drainage totaling approximately 1,520 linear feet of channels and marshes occur within drainages to be re-routed. Following construction, the re-routed length of this feature will be 920 linear feet of earthen swales. It is anticipated that a series of marshes will line the re-routed drainage similar to the existing drainage.

Pasture

The majority of the action area (118.3 acres) is a simplified non-native grassland containing perennial ryegrass, wild oats, soft chess, and other pasture grasses. These areas are subject to significant grazing pressure and may have been plowed or conditioned previously. Nonnative forbs are abundant, such as thistles, filarees, star thistle, bristly ox-tongue, poison hemlock, fennel, black mustard, and spiny cocklebur. Large patches of artichoke thistle also occur within this habitat. Approximately 58.3 acres of pasture occurs within the project footprint, with an additional 17.6 acres within the biological preserve area. The remaining 42.4 acres of pasture habitat occurs elsewhere within the action area.

Annual Grassland/Rock Outcrop

This non-native annual grassland community is similar to the pasture community described above but contains a greater diversity of species and greater number of native species. This is due in part to the rocky terrain, which is more difficult for cattle to graze, and because the metamorphic soils and rock outcrops provide additional habitat niches. Native wildflowers are abundant, such as California poppy, California golden violet, owl's clover, and blue dicks. Seeps are common at the base of rock outcrops, and these wet areas create microhabitats for specialized

plants, such as ferns and succulents (e.g., *Dudleya* species). The project footprint contains 0.04 acre of this habitat. The remaining 30.76 acres occur within the biological preserve area or within a PG&E easement.

Oak Woodland

A narrow strip of oak woodland occurs along the northern boundary of the action area along a hilltop crest. This habitat contains a significant canopy cover of coast live oak. Ground cover vegetation is similar to species observed within the annual grassland/rock outcrop habitat. The totality of this habitat type (3.7 acres) is outside of the project footprint and within the biological preserve area (3.3 acres) and PG&E easement area (0.4 acre).

Channels

Where gradients are steeper, channels form and have exposed bedrock. There are 767 linear feet of channels, and these channels link with marshes to form extensive drainage systems through the grassland and pasture habitats. Gullies have formed in a graded area in the southern portion of the action area. These are isolated erosional features that terminate in upland fields and are not connected directly to the channel-marsh drainages. In lower gradient areas, there are various grass-lined swales that transmit water briefly after storms. These features do not form channels but help to drain the grasslands and pastures.

Callippe Silverspot Butterfly

According to botanical surveys performed in 2023 and 2024, the northern third of the action area contains the callippe silverspot butterfly's larval host plant (California golden violet (*Viola pedunculata*)), and this area corresponds generally to the soils derived from metamorphic rock (NRCS 2024). Figure 3 below shows the locations of this larval host plant observed during the April and June 2024 surveys as well as the differentiation of the action area into "host plant habitat" and "nectar resource habitat." Non-suitable habitat includes those areas that are ruderal/developed and contain sparse to no vegetation. The nectar resource habitat is the portion of the action area that does not contain host plants, but does contain other flowers that can be used by callippe silverspot adults as nectar resources. A wildlife survey conducted on June 27, 2023, detected 10 callippe silverspot butterflies at the hilltop at the northern edge of the action area and proposed biological preserve (Figure 3) (Montrose Environmental Solutions 2023). Table 5 below summarizes the amount of suitable habitat for the callippe silverspot butterfly within the action area and the proportion that falls within the biological preserve and the proposed project footprint.

Table 5. Callippe silverspot butterfly habitat types in the action area.

Habitat Type	Total Acres in Action Area	Acres in Biological Preserve	Acres in Project Footprint
High-quality host plant and nectar habitat	42.4	34.8	3.0
Lower quality nectar only habitat	114.1	14.3	56.5
Non-suitable habitat	7.5	0.0	0.5

According to the California Natural Diversity Database (CNDDB), there are three occurrences of the callippe silverspot butterfly at the Vallejo Swett Ranch and King Ranch mitigation sites where 64 adult callippe silverspot butterflies were observed in June 2005 and an unspecified number in spring 2009 between approximately 1.2 and 3.5 miles east of the action area (CNDDB

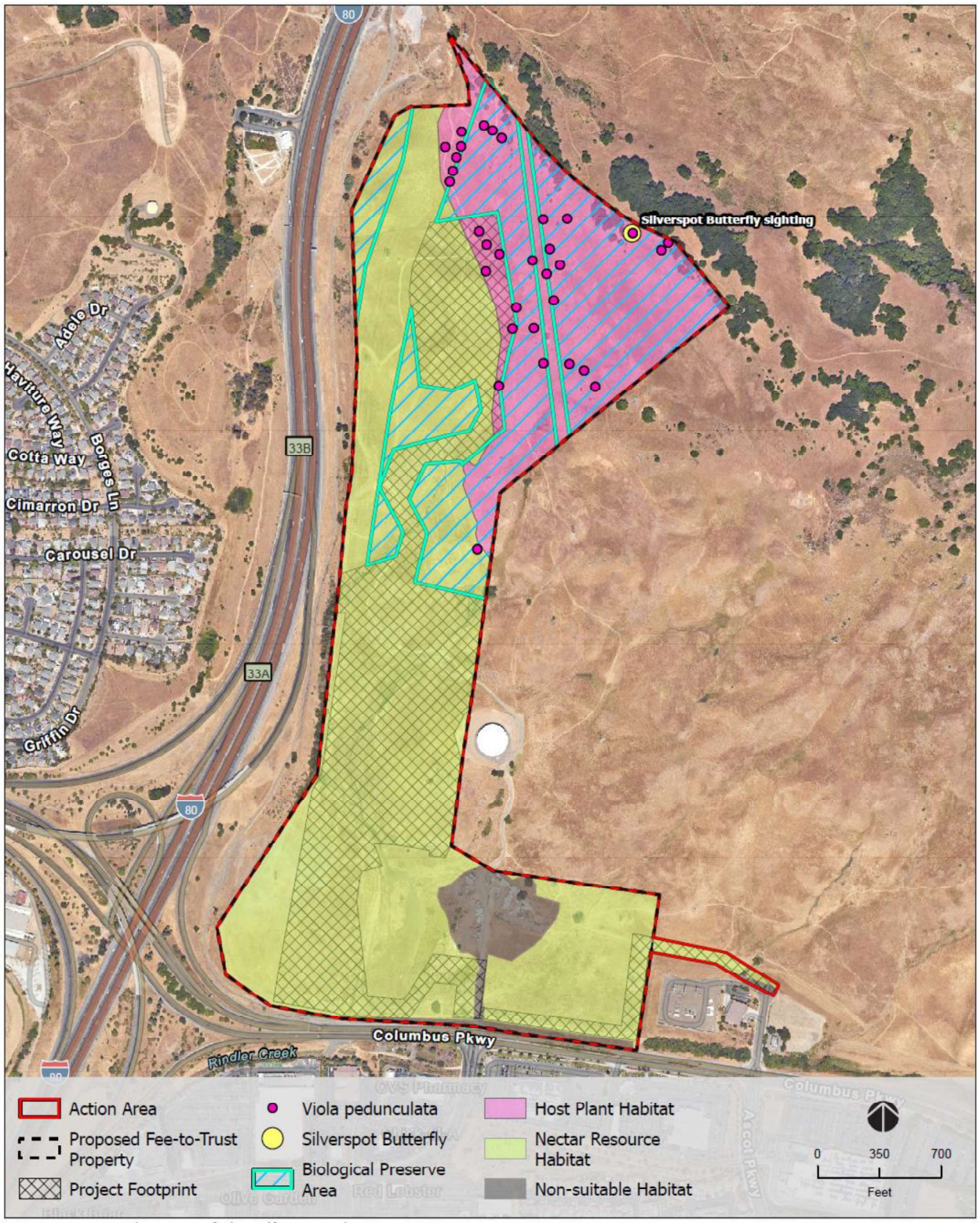

Figure 3. Callippe silverspot butterfly adults, habitat, and host plants (California golden violet (*Viola pedunculata*)) within the action area (copied from Figure 9 in Acorn Environmental (2024)).

occurrence numbers 14 and 16, California Department of Fish and Wildlife [CDFW] 2024). Only one adult callippe silverspot butterfly was observed at King Ranch in June 2022, and three were observed in June 2023 during four rounds of butterfly monitoring along six transects (Marty Ecological Consulting, Inc., p. 13 and Table 5). Three adult callippe silverspot butterflies were observed at King Ranch during 4.8 hours of surveys on June 14, 2024 (B. Hill, Solano Land Trust, in litt. 2024). Four adult callippe silverspot butterflies were observed at the Hiddenbrooke residential subdivision between the Vallejo Swett Ranch and King Ranch during 1.8 hours of surveys on June 14, 2024 (B. Hill, Solano Land Trust, in litt. 2024). Callippe silverspot butterflies also occur at the 663-acre Ridge Top Ranch Conservation Bank which sells mitigation credits for the callippe silverspot butterfly approximately 3.5 miles southeast of the action area; 8 acres of California golden violets and four adult callippe silverspot butterflies were observed at the Ridge Top Ranch Conservation Bank in 2023 (WRA, Inc. 2024).

The action area is located within the Cordellia Hills population of the callippe silverspot butterfly which was rated as in low condition in 2020 (Service 2020b). The overall rating of low condition was based on the following ranking factors: more than 1,200 acres of contiguous grassland habitat (high), residual dry matter levels (moderate), abundance of larval host plants (moderate), availability of nectar plants (low), and abundance of adult butterflies (low). A report on nectar sources at King/Swett Ranches from 2007 observed that callippe silverspot butterflies moved approximately 1 mile to visit buckeye trees for nectar, indicating that the quality and abundance of nectar sources on the site may be inadequate (Arnold 2007, p. 10).

Based on the observed occurrence of callippe silverspot butterflies within the action area in 2023 and the availability of suitable habitat, the Service believes the callippe silverspot butterfly is likely to breed, forage, and diapause within the action area with the highest concentration in the proposed biological preserve where larval host plants, nectar sources, and important hill topping habitat for mating occur.

Draft Solano Multispecies Habitat Conservation Plan

The action area is located within the proposed permit area of the draft Solano Multispecies Habitat Conservation Plan. The City of Vallejo is a plan participant, and the full geographical extent of the City of Vallejo falls within the plan area, which indicates that the action area is part of the plan area (Solano County Water Agency 2012). The Solano Multispecies Habitat Conservation Plan is currently in administrative draft form, and a final plan has not yet been adopted. The callippe silverspot butterfly is a covered species under the proposed habitat conservation plan. The Draft Solano Multispecies Habitat Conservation Plan is estimated to be submitted to the Federal Register for public review in 2025.

PG&E Bay Area Operation and Maintenance Habitat Conservation Plan

The action area is located within the permit area of the PG&E Bay Area Operations & Maintenance Habitat Conservation Plan (ICF 2017). PG&E right-of-way easements occur within the action area where PG&E's maintenance of their infrastructure could disturb habitat for the callippe silverspot butterfly. Any effects to the callippe silverspot butterfly by PG&E within their right-of-way easements will be covered by and minimized and mitigated through the PG&E Bay Area Operation and Maintenance Habitat Conservation Plan. PG&E and their contractors working within callippe silverspot butterfly habitat are required to limit vehicle speed to no more than 15 miles per hour; minimize activity footprints and time spent at each location; have a biologist survey for host and nectar plants prior to the start of work and flag off-road access for vehicles, or identify the need for foot access or all-terrain vehicles; avoid and minimize the introduction or spread of noxious weeds from vehicular traffic through employee education,

minimizing off-road travel, and inspecting vehicles to be sure they are not transporting observable noxious weeds; and limiting ground disturbing activities to the butterfly's flight season to reduce the risk of injuring and killing larvae (ICF 2017, Table 5-1). As of 2023, a total of 22.82 acres of callippe silverspot butterfly habitat has been temporarily disturbed and 0.1 acre has been permanently removed throughout the range of the listed butterfly through the PG&E Company Bay Area Operations & Maintenance Habitat Conservation Plan, which is 27 percent of the total allowed amount of take of callippe silverspot butterfly habitat during the 30-year permit (85 acres) (PG&E 2024, Table 3-4a). PG&E is ahead of the amount mitigation that must be acquired for the callippe silverspot butterfly with the preservation/restoration of 334.63 acres of habitat through 2023 (PG&E 2024, Table 3-4a).

California Red-legged Frog

Table 6 below summarizes the amount of suitable non-breeding aquatic and upland dispersal habitat for the California red-legged frog that occurs within the action area and the proportion that falls within the biological preserve and the proposed project footprint.

Table 6. California red-legged frog habitat within the action area.

Habitat Type	**Total Acres in Action Area**	**Acres in Biological Preserve**	**Acres in Project Footprint**
Non-breeding aquatic	3.8	0.3	1.1
Upland dispersal	152.7	48.8	58.3
Total	**156.5**	**49.1**	**59.4**

According to the CNDDB, a California red-legged frog population was documented in Rindler Creek in 1997 and 1998, approximately 500 feet to the east of the action area (CNDDB occurrence number 289, CDFW 2024). Rindler Creek does not cross into the action area but is instead routed underground into a municipal storm sewer system. Several California red-legged frog adults and up to 38 juveniles were sighted at the occurrence in Rindler Creek in 1998 (CDFW 2024). In 1998, one adult and one juvenile California red-legged frog were relocated from this occurrence to a stock pond PG&E's Swett Ranch mitigation preserve approximately 1.6 miles northeast of the action area (CNDDB occurrence number 290, CDFW 2024). There does not appear to be any recent data on the status of the population in Rindler Creek.

Other CNDDB occurrences of the California red-legged frog within the frog's 2-mile dispersal distance of the action area include:

1. A single California red-legged frog observed in Sulphur Springs Creek in 2006 at what is currently the Vallejo Swett Ranch mitigation site for PG&E's Bay Area Operations and Maintenance Habitat Conservation Plan approximately 1.5 miles east of the action area (CNDDB occurrence number 917, CDFW 2024);

2. Three adults and 41 juvenile California red-legged frogs observed in pools within Sulphur Springs Creek and its tributaries in 2005 at what is currently the Vallejo Swett Ranch mitigation site for PG&E's Bay Area Operations and Maintenance Habitat Conservation Plan approximately 1.8 miles east of the action area (CNDDB occurrence number 950, CDFW 2024); and

3. Three adults and 20 juvenile California red-legged frogs observed in golf course ponds and stormwater detention basins at the Hiddenbrooke Golf Club in 1993 approximately 1.9 miles northeast of the action area (CNDDB occurrence number 77, CDFW 2024).

Mark Jennings (2008) performed protocol surveys for the California red-legged frog in the action area on January 31, February 10, March 28, April 4 and 11, and July 1 and 10, 2007. No California red-legged frogs were detected, but Pacific chorus frogs and rough-skinned newt were detected. Jennings (2008) concluded that the action area did not contain suitable breeding habitat for the California red-legged frog because there was a lack of deep pools of water in the action area, because of the presence of predators such as raccoons and wading birds, and because of the significant distance between the action area and known California red-legged frog populations. Pacific chorus frog tadpoles were observed by the Service in a wetland within the action area during the April 3, 2024, site visit; the wetland was likely to shallow to support California red-legged frog breeding.

The aquatic resources delineation performed by Acorn Environmental biologists confirmed that the action area contains no ponds, perennial channels, or other permanent water resources. Therefore, the action area does not contain suitable breeding habitat for the California red-legged frog. However, the action area does contain marshes and terrestrial habitat that could be used by the California red-legged frog as dispersal habitat, and the marshes remain sufficiently moist to provide suitable non-breeding aquatic sheltering habitat.

The action area occurs within the North San Francisco Bay/North Coast recovery unit and the Jameson Canyon-Lower Napa River core area for the California red-legged frog (Service 2002). A very small sliver along the northern border of the action area within the proposed biological preserve is located within designated critical habitat unit SOL-1 for the California red-legged frog (Service 2010). Unit SOL-1 extends to the north and east of the action area.

Based on the known multiple occurrences of the California red-legged frog within the frog's 2-mile dispersal distance of the project permit area and the availability of suitable upland dispersal habitat, the Service believes that the California red-legged frog is likely to disperse throughout the project permit area. California red-legged frogs may also shelter or aestivate in mammal burrows in the project permit area.

Draft Solano Multispecies Habitat Conservation Plan

The action area is located within the proposed permit area of the draft Solano Multispecies Habitat Conservation Plan (Solano County Water Agency 2012). The City of Vallejo is a plan participant, and the full geographical extent of the City of Vallejo falls within the plan area, which indicates that the action area is part of the plan area (Solano County Water Agency 2012). The Solano Multispecies Habitat Conservation Plan is currently in administrative draft form, and a final plan has not yet been adopted. The California red-legged frog is a covered species under the proposed habitat conservation plan. The Draft Solano Multispecies Habitat Conservation Plan is estimated to be submitted to the Federal Register for public review in 2025.

PG&E Bay Area Operation and Maintenance Habitat Conservation Plan

The action area is located within the permit area of the PG&E Company Bay Area Operations & Maintenance Habitat Conservation Plan (ICF 2017). PG&E right-of-way easements occur within the action area where PG&E's maintenance of their infrastructure could disturb habitat for the California red-legged frog. Any effects to the California red-legged frog by PG&E within their

right-of-way easements will be covered by and minimized and mitigated through the PG&E Bay Area Operation and Maintenance Habitat Conservation Plan.

Effects of the Action

Effects of the action are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action but are not part of the action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action.

Callippe Silverspot Butterfly

The proposed project will result in the permanent loss of 3.0 acres of high quality host plant/nectar habitat for the callippe silverspot butterfly that is utilized by the larvae and pupae for foraging and diapause and by the adults for breeding, oviposition, and foraging (Table 7). The proposed project will result in the permanent loss of 56.5 acres of lower quality nectar only habitat for the callippe silverspot butterfly that is utilized by the adults for foraging and dispersal (Table 7).

Table 7. Callippe silverspot butterfly habitat loss and mitigation.

Habitat Type	Permanent Loss (acres)	Mitigation at Biological Preserve (acres)	Mitigation at a Conservation Bank (acres)
High-quality host plant/nectar	3.0	34.8	0.0
Lower quality nectar only	56.5	14.3	116.4
TOTAL	59.5	49.1	116.4

Callippe silverspot eggs, larvae, and pupae may be injured or killed by heavy equipment during ground disturbance activities in host plant habitat. Callippe silverspot adults are likely to avoid work areas during construction but could be killed by being struck by construction vehicles during the butterfly's flight season (May 1 – August 15). Callippe silverspot butterfly adults may also be struck after construction by vehicular traffic at the casino and Tribal housing during the butterfly's flight season. The fecundity of adult female callippe silverspot butterflies may be reduced by the permanent loss of nectar habitat. Callippe silverspot butterflies may have to disperse further to find nectar sources and could starve or be at increased risk of predation. Callippe silverspot eggs, larvae, and pupae within the biological preserve may be injured or killed by being trampled during habitat monitoring and restoration activities. The potential for injuring and killing callippe silverspot eggs, larvae, and pupae within host plant habitat will be reduced by surveying and flagging their host plants during the time period when the host plants are detectable and blooming (generally February - April).

The proposed project will minimize the potential for degradation of callippe silverspot butterfly habitat by invasive plant species by prohibiting the planting of invasive plant species outdoors. The prohibition on the use of insecticides outdoors will avoid the potential for injuring or killing callippe silverspot butterflies. The downcast and shielding of outdoor lighting will reduce but not completely avoid the effects of light pollution on the callippe silverspot butterfly including increased risk of predation and disruption of their circadian rhythms causing the butterflies and larvae to be active when they should be resting. Herbicide use at the biological preserve will

follow Service-approved BMPs including avoiding application to host plants and native nectar plants, and avoiding application to blooming flowers during the callippe silverspot butterfly's flight season to avoid injury to callippe silverspot butterflies and their host plants and nectar plants.

As noted previously in the Description of the Proposed Action section, the project proponent has proposed a set of conservation measures, including the commitment to provide compensatory habitat as a condition of the action. This compensatory habitat is intended to minimize the effect on the species, resulting from the permanent loss of habitat described above. The compensatory habitat proposed will be in the form of the preservation and management in perpetuity of 49.1 acres of suitable habitat onsite (including 34.8 acres of high quality host plant/nectar habitat and 14.3 acres of nectar only habitat) under a Service-approved long-term management plan with an endowment. Additionally, 116.4 acres of credits for the callippe silverspot butterfly will be purchased from a Service-approved conservation bank such as the Ridge Top Ranch Conservation Bank within the Cordellia Hills population of the callippe silverspot butterfly in Solano County, California.

This component of the action will have the effect of protecting and managing lands for the species' conservation in perpetuity. The compensatory land will provide suitable habitat for breeding, feeding, or sheltering commensurate with or better than habitat lost because of the proposed project. Providing this compensatory habitat as part of a relatively large, contiguous block of conserved land may contribute to other recovery efforts for the species.

California Red-legged Frog

The proposed project will result in the permanent loss of 1.1 acres of non-breeding aquatic habitat for the California red-legged frog that could be used by the amphibian for sheltering and foraging (Table 6). The proposed project will also permanently remove 58.3 acres of upland dispersal habitat for the California red-legged frog that could be used by the amphibian for dispersal, foraging, and aestivating (Table 6).

Any California red-legged frogs occurring within the work area during construction could be injured or killed by heavy equipment and the movement and grading of soil. The removal of non-breeding aquatic habitat and suitable upland vegetation will increase the risk of desiccation of and predation on the California red-legged frog as it is forced to disperse further to look for suitable aquatic habitat. After construction, the California red-legged frog is likely to avoid the developed areas but could be killed by being runover by traffic at the casino and Tribal housing.

The Tribe will minimize the potential for injury or mortality of the California red-legged frog during construction by limiting construction to the dry season when the California red-legged frog is less likely to disperse through the work area; conducting pre-construction surveys; worker awareness training; installing wildlife exclusion fencing around the work area; periodic monitoring by a qualified biologist; and covering any open trenches or installing escape ramps. The downcast and shielding of outdoor lighting will reduce but not completely avoid the effects of light pollution on the California red-legged frog; therefore, frogs near the casino and housing will be at increased risk of predation and disruption of their circadian rhythms. California red-legged frogs will also be at an increased risk of predation after construction as trash left outside the casino and Tribal housing is likely to attract predators of the California red-legged frog.

The potential for degradation of aquatic habitat will be minimized by implementing water quality BMPs, a SWPPP, and construction earthen swales and stormwater detention areas. The effects to non-breeding aquatic habitat for the California red-legged frog will occur due to the re-routing of one of the on-site drainage features and culverting or bridging over aquatic habitat at roadway crossings. An earthen, vegetated swale will be placed to reroute the existing drainage into a naturally occurring low lying area that will drain into the same feature as the existing drainage. The drainage that will be re-routed is currently approximately 1,520 linear feet. The re-routed drainage will total approximately 920 linear feet and is expected to largely replace the lost non-breeding aquatic habitat. The re-routed drainage will be designed to mimic the existing drainage and will be expected to hold the same volume of water across a similar area as the existing drainage. Additionally, the stormwater infrastructure in the action area will be designed to infiltrate most stormwater events within 48 hours and would infiltrate a 100-year storm event within 72 hours. This rate of infiltration would avoid attracting breeding California red-legged frogs and potentially stranding egg masses and tadpoles. Herbicide use at the biological preserve will follow Service-approved BMPs to avoid degrading aquatic habitat and exposing the California red-legged frog to toxic chemicals.

As noted previously in the Description of the Proposed Action section, the project proponent has proposed a set of conservation measures, including the commitment to provide compensatory habitat as a condition of the action. This compensatory habitat is intended to minimize the effect on the species, resulting from the permanent loss of habitat described above. The compensatory habitat proposed will be in the form of the preservation and management in perpetuity of 49.1 acres of suitable habitat at the biological preserve onsite under a Service-approved long-term management plan with an endowment. Additionally, 132.4 acres of credits for the California red-legged frog will be purchased from a Service-approved conservation bank that contains the action area within the bank's service area.

This component of the action will have the effect of protecting and managing lands for the species' conservation in perpetuity. The compensatory land will provide suitable habitat for breeding, feeding, or sheltering commensurate with or better than habitat lost because of the proposed project. Providing this compensatory habitat as part of a relatively large, contiguous block of conserved land may contribute to other recovery efforts for the species.

Cumulative Effects

Cumulative effects include the effects of future non-Federal actions that are reasonably certain to occur in the action area considered in this biological opinion. Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. During this consultation, the Service did not identify any future non-federal actions that are reasonably certain to occur in the action area of the proposed project. The effects to the callippe silverspot butterfly and California red-legged frog from PG&E's maintenance of their right-of-way within the action area will be covered, minimized, and mitigated through the PG&E Company Bay Area Operations & Maintenance Habitat Conservation Plan (ICF 2017).

Conclusion

After reviewing the current status of the callippe silverspot butterfly, the environmental baseline for the action area, the effects of the proposed Scotts Valley Band of Pomo Indians 160-acre Fee-to-Trust and Casino Project, and the cumulative effects, it is the Service's biological opinion that

the Scotts Valley Band of Pomo Indians 160-acre Fee-to-Trust and Casino Project, as proposed, is not likely to jeopardize the continued existence of callippe silverspot butterfly. The Service reached this conclusion because the project-related effects to the species, when added to the environmental baseline and analyzed in consideration of all potential cumulative effects, will not rise to the level of precluding recovery or reducing the likelihood of survival of the species based on the following:

1) Successful implementation of the conservation measures described in this biological opinion will minimize the adverse effects on individual callippe silverspot butterflies;

2) Landscaping with invasive plants and use of insecticides will be prohibited outdoors at the proposed development;

3) 49.1 acres of suitable habitat will be preserved and managed in perpetuity for the callippe silverspot butterfly onsite within the Cordellia Hills population; and

4) The purchase of 116.4 acres of credits for the callippe silverspot butterfly from a Service-approved conservation bank such as the Ridge Top Conservation Bank.

After reviewing the current status of the California red-legged frog, the environmental baseline for the action area, the effects of the proposed Scotts Valley Band of Pomo Indians 160-acre Fee-to-Trust and Casino Project, and the cumulative effects, it is the Service's biological opinion that the Scotts Valley Band of Pomo Indians 160-acre Fee-to-Trust and Casino Project, as proposed, is not likely to jeopardize the continued existence of the California red-legged frog. The Service reached this conclusion because the project-related effects to the species, when added to the environmental baseline and analyzed in consideration of all potential cumulative effects, will not rise to the level of precluding recovery or reducing the likelihood of survival of the species based on the following:

1) Successful implementation of the conservation measures described in this biological opinion will minimize the adverse effects on individual California red-legged frogs;

2) No suitable breeding habitat will be disturbed;

3) 49.1 acres of suitable habitat will be preserved and managed in perpetuity for the California red-legged frog onsite within the North San Francisco Bay/North Coast recovery unit and Jameson Canyon-Lower Napa River core area adjacent to the designated critical habitat unit SOL-1; and

4) The purchase of 132.4 acres of credits for the California red-legged frog at a Service-approved conservation bank that includes the action area within the bank's service area.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is defined by Service regulations at 50 CFR 17.3 as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined by the same regulations as an act which

actually kills or injures wildlife. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act if such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary and must be undertaken by BIA so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, for the exemption in section 7(o)(2) to apply. BIA has a continuing duty to regulate the activity covered by this incidental take statement. If BIA (1) fails to assume and implement the terms and conditions or (2) fails to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, BIA or the Tribe must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement (50 CFR §402.14(i)(3)).

Amount or Extent of Take

Callippe Silverspot Butterfly

The Service anticipates incidental take of individual callippe silverspot butterfly will be difficult to detect or quantify because of the variable, unknown size of any resident population over time, their elusive and cryptic behavior, the difficulty of finding killed or injured animals, and during the vast majority of their life span they are in their larval form on the ground and undetectable. Due to the difficulty in quantifying the number of callippe silverspot butterflies that will be taken as a result of the proposed project, the Service is quantifying take incidental to the proposed project as the following:

1. The harassment, harm, injury, and mortality of all callippe silverspot larvae, eggs, and pupae within the 3.0 acres of suitable host plant that will be permanently lost within the proposed project footprint.

2. The harassment and harm of all adult callippe silverspot butterflies within the 3.0 acres of suitable host plant/nectar habitat and 56.5 acres of suitable nectar only habitat that will be permanently removed within the proposed project footprint.

3. The harassment, harm, capture, injury, and mortality of all callippe silverspot larvae, eggs, and pupae within the 49.1 acres of suitable habitat within the biological preserve during annual habitat maintenance and restoration activities.

4. The harassment, harm, and capture of all adult callippe silverspot butterflies within the 49.1 acres of suitable habitat within the biological preserve during annual habitat maintenance and restoration activities.

5. The injury or mortality of four (4) adult callippe silverspot butterflies.

Upon implementation of the following Reasonable and Prudent Measures, incidental take of the callippe silverspot butterfly associated with the Scotts Valley Band of Pomo Indians 160-acre

Fee-to-Trust and Casino Project will become exempt from the prohibitions described in section 9 of the Act. No other forms of take are exempted under this opinion.

California Red-legged Frog

The Service anticipates incidental take of individual California red-legged frogs will be difficult to detect or quantify because of the variable, unknown size of any resident population over time, their elusive and cryptic behavior, and the difficulty of finding killed or injured animals. Due to the difficulty in quantifying the number of California red-legged frogs that will be taken as a result of the proposed project, the Service is quantifying take incidental to the proposed project as the following:

1. The harassment, harm, and capture of all adult, sub-adult, and juvenile California red-legged frogs within the 59.4 acres of suitable habitat that will be permanently lost within the proposed project footprint.

2. The injury or mortality of three (3) adult, sub-adult, or juvenile California red-legged frogs.

3. The harassment and capture of all adult, sub-adult, and juvenile California red-legged frogs within the 49.1 acres of suitable habitat within the biological preserve during annual habitat maintenance and restoration activities.

Upon implementation of the following Reasonable and Prudent Measures, incidental take of the California red-legged frog associated with the Scotts Valley Band of Pomo Indians 160-acre Fee-to-Trust and Casino Project will become exempt from the prohibitions described in section 9 of the Act. No other forms of take are exempted under this opinion.

Effect of the Take

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the callippe silverspot butterfly and California red-legged frog.

Reasonable and Prudent Measures

All necessary and appropriate measures to avoid or minimize effects on the callippe silverspot butterfly and California red-legged frog resulting from implementation of this proposed project have been incorporated into the project's proposed conservation measures. Therefore, the following reasonable and prudent measure is necessary and appropriate to minimize incidental take of the callippe silverspot butterfly and California red-legged frog:

1) All conservation measures, as described in the biological assessment and restated here in the *Description of the Proposed Action* section of this biological opinion, shall be fully implemented, and adhered to. Further, this reasonable and prudent measure shall be supplemented by the terms and conditions below.

Terms and Conditions

To be exempt from the prohibitions of section 9 of the Act, BIA must ensure compliance with the following terms and conditions, which implement the reasonable and prudent measure described above. These terms and conditions are nondiscretionary.

1. BIA shall include full implementation and adherence to the conservation measures as a condition of any permit or contract issued for the proposed project.

2. BIA shall ensure that prior to the initiation of construction of the proposed project that the biological preserve is protected via a Tribal ordinance and a signed Memorandum of Understanding with the Service and BIA; a Service-approved endowment has been funded for management of the biological preserve; a long-term management plan for the biological preserve has been adopted by the Tribe in consultation with, and approved by, the Service and BIA; and the required callippe silverspot butterfly and California red-legged frog credits are purchased from conservation bank(s) approved by the Service.

Monitoring:

a. For those components of the action that will result in habitat degradation or modification whereby incidental take in the form of harm is anticipated, BIA or the Tribe shall provide a precise accounting of the total acreage of habitat impacted to the Service after completion of construction.

b. BIA or the Tribe shall immediately contact the Service's Sacramento Fish and Wildlife Office (SFWO) at (916) 414-6623 to report direct encounters between listed species and project workers and their equipment whereby incidental take in the form of, harm, injury, or death occurs. If the encounter occurs after normal working hours, BIA or the Tribe shall contact the SFWO at the earliest possible opportunity the next working day. When injured or killed individuals of the listed species are found, the BIA or the Tribe shall follow the steps outlined in the Salvage and Disposition of Individuals section below.

c. For those components of the action that will require the capture and relocation of any listed species, BIA or the Tribe shall immediately contact the SFWO at (916) 414-6623 to report the action. If capture and relocation need to occur after normal working hours, BIA or the Tribe shall contact the SFWO at the earliest possible opportunity the next working day.

d. BIA or the Tribe shall submit to SFWO a post-project completion report.

e. BIA or the Tribe shall submit to SFWO every year annual reports on habitat management activities and callippe silverspot butterfly and California red-legged frog monitoring at the biological preserve.

f. All sightings of listed species shall be submitted to CDFW's CNDDB.

Salvage and Disposition of Individuals:

Injured listed species must be cared for by a licensed veterinarian or other qualified person(s), such as the Service-approved biologist. Dead individuals must be sealed in a resealable plastic

bag containing a paper with the date and time when the animal was found, the location where it was found, and the name of the person who found it, and the bag containing the specimen frozen in a freezer located in a secure site, until instructions are received from the Service regarding the disposition of the dead specimen. The Service contact person is the Coast Bay Division Supervisor of the SFWO at (916) 414-6623.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The Service recommends the following actions:

1) BIA should fund Service-approved surveys of known populations of the callippe silverspot butterfly in Solano and Sonoma counties, California and search for unknown populations in nearby locations in Solano, Sonoma, and Napa counties.

2) BIA or the Tribe should work with PG&E in maintaining suitable habitat for the callippe silverspot butterfly within PG&E's right-of-way within the action area. BIA or the Tribe should inform the Service if PG&E's contractors are not implementing all of the required avoidance and minimization measures in the PG&E Bay Area Operations & Maintenance Habitat Conservation Plan when working within callippe silverspot butterfly habitat in PG&E's right-of-way easements within the action area (e.g., limit vehicle speed to no more than 15 miles per hour; minimize activity footprints and time spent at each location; have a biologist survey for host and nectar plants prior to the start of work and flag off-road access for vehicles, or identify the need for foot access or all-terrain vehicles; avoid and minimize the introduction or spread of noxious weeds from vehicular traffic through employee education, minimizing off-road travel, and inspecting vehicles to be sure they are not transporting observable noxious weeds) (ICF 2017, Table 5-1, https://ecos.fws.gov/docs/plan_documents/thcp/thcp_2897.pdf).

3) BIA or the Tribe should evaluate methods of restoring, maintaining, propagating, and expanding the callippe silverspot butterfly's host plant California golden violet and inform the Service of the results.

4) BIA or the Tribe should plant diverse native, insecticide-free nectar plants for the callippe silverspot butterfly within its range that are available throughout the butterfly's flight period (May 1 – August 15) including preferred nectar plants such as California buckeye, coyote wildmint, and Alameda thistle. Some nonnative plants (e.g., nonnative thistles) are also nectar plants for the callippe silverspot butterfly and should be replaced with native nectar plants if removed.

5) BIA should work with the tribes to implement recovery actions for the California red-legged frog including creation and management of suitable breeding habitat and control of invasive predators (e.g., bullfrogs, crayfish, and nonnative fish).

6) BIA should work with the tribes to restore and manage habitat for the northwestern pond turtle including removal of invasive predators and competitors (e.g., bullfrogs and red-

eared sliders), installation of basking structures in suitable aquatic habitat, maintaining suitable grassland nesting habitat and overwintering shrubland/forest habitat within 1,640 feet of suitable aquatic habitat, and implementing avoidance and minimization measures for the northwestern pond turtle (Oregon Department of Fish and Wildlife 2015, https://www.dfw.state.or.us/wildlife/living_with/docs/ODFW_Turtle_BMPs_March_2015.pdf).

7) BIA should work with the tribes to implement the Service's "Western Monarch Butterfly Conservation Recommendations" and restore habitat for the monarch butterfly and other pollinators (https://xerces.org/publications/planning-management/western-monarch-butterfly-conservation-recommendations).

8) BIA should work with the tribes to monitor and recover federally listed species on their lands and report the results to the Service and CDFW's CNDDB.

For the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

REINITIATION—CLOSING STATEMENT

This concludes formal consultation on the Scotts Valley Band of Pomo Indians 160-acre Fee-to-Trust and Casino Project. As provided in 50 CFR §402.16(a), reinitiation of consultation is required and shall be requested by the federal agency where discretionary federal involvement or control over the action has been retained or is authorized by law, and:

1) If the amount or extent of taking specified in the incidental take statement is exceeded;

2) If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered;

3) If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion or written concurrence; or

4) If a new species is listed or critical habitat designated that may be affected by the identified action.

If you have any questions regarding this biological opinion, please contact Joseph Terry, Senior Biologist (joseph_terry@fws.gov) or at (916) 943-6721 or Ryan Olah, Coast Bay Division Supervisor (ryan_olah@fws.gov), at (916) 414-6623.

cc:
Peter DeJongh, Bureau of Indian Affairs, Sacramento, California
Felix Kitto, Bureau of Indian Affairs, Sacramento, California
Ryan Lee Sawyer, Acorn Environmental, El Dorado Hills, California

LITERATURE CITED

Acorn Environmental. 2024. Biological Assessment Scotts Valley 160-acre Fee-to-Trust Project. October 2024. El Dorado Hills, California. 42 pages plus attachments.

Arnold, R.A. 2007. Initial baseline survey-Appendix B. Sensitive invertebrate species survey report for the Vallejo Swett, Eastern Swett, and King Ranches plus the Orchards property. Report prepared for Mary Boland, Pacific Gas & Electric Company, and Sue Wickham, Solano Land Trust.

Bernhardt, E. and T. Swiecki. 2010. Effect of different grazing regimes on *Viola pedunculata* populations at King Ranch – 2010. Phytosphere Research, Vacaville, California. 16 pp. Available at: http://phytosphere.com/publications/Phytosphere%202010%20violareportfinal.pdf. Accessed on September 5, 2024.

Bush, L. 2006. Grazing management plan for the Sonoma Land Trust Sears Point Restoration Project Properties.

Coast Ridge Ecology. 2021. *Speyeria* Butterfly and Host Plant Surveys at Sears Point, Sonoma County, CA (2021). U.S. Fish and Wildlife Service Grant No. F20AC11579. November 2021. San Francisco, California. 21 pp.

Hill, R. 2024. Report on 2024 survey for *Speyeria callippe callipe* at Ferrari Ranch. September 1, 2024. Prepared for Westervelt Ecological Services, Sacramento, California. 10 pp. plus appendix.

ICF. 2017. Pacific Gas and Electric Company Bay Area Operations & Maintenance Habitat Conservation Plan. Final. September 2017. (ICF 03442.03.). Sacramento, California. Prepared for Pacific Gas and Electric Company, San Francisco, California. Available at: https://ecos.fws.gov/docs/plan_documents/thcp/thcp_2897.pdf. Accessed on September 4, 2024.

Jennings, M.R. 2008. Survey for the California red-legged frog (*Rana draytonii*) on the Carlson Project Site, Vallejo, Solano County, California. 33 pp.

LSA. 2022. Draft King Ranch Biological Baseline-Update. January. Point Richmond, California. 44 pp.

LSA. 2024. Results of Listed Species and Floristic Surveys for the King Ranch Conservation Property in Solano County, California. July 1, 2024. Point Richmond, California. Prepared for Solano Land Trust, Vacaville, California. 10 pp.

Marty Ecological Consulting, Inc. 2024. Weed Management Plan for the King Ranch, Solano County, California. Revised January 2024. Sacramento, California. Prepared for Solano Land Trust, Suisun City, California. 46 pp. plus appendix.

Montrose Environmental Solutions. 2023. Bio/Botanical Survey Results (technical email)[of the Action Area].

Oregon Department of Fish and Wildlife. 2015. Guidance for Conserving Oregon's Native Turtles including Best Management Practices. 99 pp. Available at: https://www.dfw.state.or.us/wildlife/living_with/docs/ODFW_Turtle_BMPs_March_2015.pdf. Accessed on September 4, 2024.

Pacific Gas & Electric (PG&E). 2024. Pacific Gas and Electric Company, Bay Area Operation and Maintenance Habitat Conservation Plan 2023 Annual Report. March 2024. 30 pp.

Ratcliff, F. and L. Ford. 2023. Grazing Strategy San Bruno Mountain Pilot Grazing Program. July 7, 2023. Prepared for San Mateo County Parks Department, Redwood City, California. 76 pp.

San Mateo County Parks Department. 2022. San Bruno Mountain Habitat Conservation Plan: Year 2022 Activities Report for Federally Listed Species Endangered Species 10(A)(1)(B) Permit TE215574-6. December 2022. Redwood City, California. 39 pp. Available at: https://www.smcgov.org/parks/san-bruno-mountain-habitat-conservation-plan-hcp-annual-reports. Accessed on August 20, 2024.

San Mateo County Parks. 2024. Butterfly Monitoring 2024 San Bruno Mountain. Presentation at the San Bruno Mountain Habitat Conservation Plan Natural Resource Coordination Team online meeting. August 7, 2028. Redwood City, California.

Solano County Water Agency. 2012. Solano Habitat Conservation Plan. Public Draft. October 2012. Vacaville, California. Available at: https://scwa2.com/solano-multispecies-habitat-conservation-plan/. Accessed on August 19, 2024.

Solano Land Trust. 2024. Year Three Annual Land Management Report King Ranch Conservation Property Solano County, California. January 31, 2024. Vacaville, California. 46 pp. plus appendices.

TRA. 2008. San Bruno Mountain Habitat Management Plan 2007. Prepared for the County of San Mateo Parks Department, Redwood City, California. Available at: https://www.smcgov.org/parks/san-bruno-mountain-habitat-management-approach-projects-documents.

U.S. Fish and Wildlife Service (Service). 2002. Recovery Plan for the California red-legged frog (*Rana aurora draytonii*). Portland, Oregon. 173 pp. Available: https://ecos.fws.gov/docs/recovery_plan/020528.pdf. Accessed: August 19, 2024.

U.S. Fish and Wildlife Service (Service). 2010. Endangered and Threatened Wildlife and Plants: Revised Designation of Critical Habitat for California Red-Legged Frog; Final Rule. Federal Register 75(51):12816-12959. March 17.

U.S. Fish and Wildlife Service (Service). 2020a. 5-year Review: Callippe silverspot butterfly (*Speyeria callippe callippe*). July 22, 2020. Sacramento Fish and Wildlife Office, Sacramento, California. 4 pp. Available at: https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/2998.pdf. Accessed: August 19, 2024.

U.S. Fish and Wildlife Service (Service). 2020b. Species Status Assessment for the Callippe Silverspot Butterfly *(Speyeria callippe callippe)* Version 1.0. July 2020. Sacramento Fish

and Wildlife Office, Sacramento, California. 79 pp. Available at: https://ecos.fws.gov/ServCat/DownloadFile/173309. Accessed: August 19, 2024.

U.S. Fish and Wildlife Service (Service). 2022. California red-legged frog (*Rana draytonii*) 5-Year Review: Summary and Evaluation. December 2022. Sacramento Fish and Wildlife Office, Sacramento, California. 44 pp. Available at: https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/4025.pdf. Accessed: August 19, 2024.

Weiss, S.B., L. Naumovich, and C. Niederer. 2015. Assessment of the past 30 years of habitat management and covered species monitoring associated with the San Bruno Mountain habitat conservation plan. Prepared for the San Mateo County Parks Department, Redwood City, California. 120 pp. Available at: https://www.smcgov.org/parks/san-bruno-mountain-habitat-management-approach-projects-documents.

Westervelt Ecological Services. 2020. Ferrari Ranch Preserve 2019 annual monitoring report (USFWS File No. 2009-F-0857-R003-3). Report submitted to U.S. Fish and Wildlife Service, Sacramento, CA.

Westervelt Ecological Services. 2024. 2023 Annual Monitoring Report Interim Management Year 5 Long-Term Management Year 9 Ferrari Ranch Preserve Solano County, California. Permit No.: USFWS File No. 2009-0857. February 2024. Sacramento, California. 18 pp. plus appendices.

WRA, Inc. 2024. 2023 Annual Monitoring Report Ridge Top Ranch Wildlife Conservation Bank Solano County, California. February 2024. San Rafael, California. 13 pp. plus appendices.

PERSONAL COMMUNICATIONS

Gordon, R. and J. Bennett. Electronic mail communication from Rebecca Gordon and Jesse Bennett, Service, Carlsbad FWO, to Valerie Hentges, Service, Sacramento FWO, dated October 12, 2017.

IN LITT. REFERENCES

Hill, B. 2024. Email from Senior Project Manager, Solano Land Trust, Vacaville, California to Colleen Smith, Biologist, Recovery Planning Team, U.S. Fish and Wildlife Service, Pacific Southwest Regional Office, Sacramento, California, dated October 21, 2024. Subject: 2024 Benicia Butterfly Count results.

Kobernus, P. 2024. Email to Joseph Terry, Senior Fish and Wildlife Biologist, U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, Sacramento, California, dated August 22, 2024.

Rawlinson, D. 2021. Email to Patrick Kobernus dated May 25, 2021.