Appendix C

Biological Resources Report

Biological Resources Report

Mariposa Road & Escalon-Bellota Specific Plan

San Joaquin County Department of Public Works

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This document has been prepared for:



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1. Introduction

This Biological Resources Report (BRR) assesses sensitive biological resources (including aquatic resources, sensitive natural communities, and special-status plant and wildlife species and their habitats) within and adjacent to the Mariposa Road & Escalon-Bellota Specific Plan area (hereafter "Project"). The report focuses on species listed as endangered or threatened under the federal and California Endangered Species Acts (FESA and CESA), their designated critical habitats, other California special-status species, and sensitive or jurisdictional habitats/sensitive natural communities (SNC). The BRR considers the Project footprint plus a 25-foot buffer around the full extent of the proposed impact footprint, which comprises the Biological Study Area (BSA). Findings will support California Environmental Quality Act (CEQA) analysis and inform permit applications.

1.1 Project Location and Site Description

The Project is in unincorporated San Joaquin County, California, along an approximately 13.5-mile corridor extending from the Stockton city limits at Austin Road to the Escalon city limits north of Miller Avenue, generally following Mariposa Road and Escalon-Bellota Road (**Appendix A, Figure 1**). Mariposa Road is an existing two-lane rural roadway (one lane in each direction) that connects Stockton and Escalon. The corridor includes a variety of adjacent land uses and roadway contexts, and the Specific Plan will evaluate key locations and intersections along the route (e.g., Jack Tone Road, Van Allen Road, Dodds Road, Escalon-Bellota Road, and Lone Tree Road) as part of the operational and safety assessment.

The BSA extends north to south from approximately latitude 37° 54 ’46.4” N longitude 121° 10 ’29.5” W to latitude 37° 48’ 25.2” N longitude 120° 59’ 49.4” W (**Appendix A, Figure 2**). The BSA is primarily within agricultural lands being utilized as almond orchards. There is one perennial stream crossing (Lone Tree Creek) and seven unnamed irrigation canals that occur within the BSA. The BSA and Project have a narrow and minor footprint within the 13.5-mile stretch of Mariposa Road and Escalon-Bellota Road. The entire footprint of proposed disturbance is estimated to total 34.6 acres.

2. Project Description

2.1 Project Purpose and Goals

The San Joaquin County Department of Public Works is preparing the Mariposa Road & Escalon-Bellota Road Specific Plan to guide near-term and long-range transportation improvements along the Mariposa Road/ Escalon-Bellota Road corridor. The purpose of the Specific Plan is to evaluate existing conditions and future traffic forecasts, identify interim and ultimate roadway and intersection improvements needed to enhance safety and traffic operations, and define ultimate right-of-way needs for the corridor. The Specific Plan will also establish implementation priorities, phasing, and a funding strategy to prepare for anticipated increases in traffic volumes, supported by program-level environmental analysis and documentation. In support of these goals, the County emphasizes improving the safe and efficient movement of people, goods, and services while strengthening the regional transportation network.

2.2 Proposed Project

A narrative describing detailed design plans and final improvement concepts is not yet available; therefore, the Project for purposes of this BRR is described at a programmatic level and focuses on the types of improvements the Specific

Plan is intended to identify and advance. In general, the Project would include adoption and subsequent implementation of a corridor improvement strategy that incorporates a combination of the following:

a. **Roadway and right-of-way improvements (conceptual):** The Specific Plan is intended to identify interim and ultimate corridor improvements and right-of-way needs. Related regional planning documents referenced in the existing conditions report include concepts for widening portions of Mariposa Road (e.g., from two lanes to three lanes in certain segments) and widening portions of Escalon-Bellota Road (e.g., from two lanes to four lanes and upgrade to a minor arterial classification in applicable areas).
b. **Intersection operational/safety improvements (conceptual):** The corridor contains multiple "study intersections" evaluated for operations and safety, with specific hotspots identified (e.g., intersections at Jack Tone Road, Van Allen Road, and Dodds Road along Mariposa Road, and intersections at Mariposa Road and Lone Tree Road along Escalon-Bellota Road). The existing conditions analysis indicates that the all-way stop-controlled intersection of Jack Tone Road and Mariposa Road is planned to be converted to a signalized intersection to improve operations and reduce delays. Additional intersection improvements considered through the Specific Plan process may include changes to intersection control, turning movements, or other operational modifications consistent with the Specific Plan's safety and traffic flow goals.

At this stage, because the Specific Plan is programmatic and improvement concepts are not finalized, the intensity and footprint of future ground disturbance cannot be precisely defined. If corridor improvements are implemented in the future, activities typically associated with roadway and intersection upgrades could include localized grading and excavation within and adjacent to the existing roadway prism, shoulder improvements, potential widening within future right-of-way, installation or modification of traffic control devices (e.g., signalization), and construction staging/ temporary access within previously disturbed roadside areas.

The Project footprint (hereafter "Project Site") is considered the area of estimated ground disturbance necessary to implement the Project. At this time, it's estimated that up to 34.6 acres may disturbed by the Project.

3. Methods

3.1 Project Site and Biological Study Area

An analysis of potential impacts to special-status plant and wildlife species was conducted within the Project Site and a 25-foot buffer surrounding it, collectively referred to as the BSA. This buffer was established to account for adjacent and nearby habitats that could be directly or indirectly affected by Project activities, and to include areas where special-status species may potentially occur.

3.2 Background Review

A GHD biologist conducted a review of multiple biological resource databases to identify special-status plant and wildlife species that may occur in the Project vicinity. Databases consulted included the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) RareFind 5 (CDFW 2025b), the California Native Plant Society (CNPS) Inventory of Rare and Endangered Vascular Plants (CNPS 2025), the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Conservation (IPaC) species list (USFWS 2025a), the USFWS National Wetland Inventory (NWI) (USFWS 2025b) (**Appendix A, Figure 4**), the National Marine Fisheries Service (NMFS) Critical Habitat Mapper (NMFS 2026), and the National Oceanic and Atmospheric Administration (NOAA) Essential Fish Habitat Mapper (NOAA 2026).

The CNDDB and CNPS queries included nine U.S. Geological Survey (USGS) quadrangles: *Farmington, Ripon, Peters, Stockton East, Riverbank, Salida, Manteca, Escalon, and Avena.*

In addition, citizen science platforms were reviewed for recent records of local wildlife and botanical observations within the BSA and surrounding areas, including Bumble Bee Watch (2025), eBird (Cornell Lab of Ornithology 2025), and iNaturalist (2025).

Physical resource data were also reviewed to characterize site conditions relevant to biological resources. The U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey (NRCS 2025) was consulted to identify mapped soil types within the BSA (**Appendix A, Figure 3**), and the Federal Emergency Management Agency (FEMA) National Flood Hazard Layer (NFHL) (FEMA 2025)(**Appendix A, Figure 5**) was reviewed to determine flood zone designations within and adjacent to the Project area.

3.3 Reconnaissance Survey

A reconnaissance-level biological survey of the Project Site and BSA was conducted over two days on March 5th and 6th, 2026 by GHD biologist Clint Emerson. The surveys covered the BSA and were performed by vehicle and on foot.

The primary objective was to evaluate the potential for biological resource impacts associated with proposed Project activities.

Specifically, the survey aimed to:

- Characterize existing biotic habitats and associated plant and wildlife communities.
- Assess the Project Site’s potential to support special-status species and their habitats.
- Identify potential jurisdictional and sensitive habitats, including waters of the U.S./state and riparian areas.

This was a general reconnaissance survey; no protocol-level surveys for special-status species were conducted. The reconnaissance biological survey, in addition to spatial analysis using satellite imagery and database searches of plant and wildlife species documented within or near the Project Site, serves as the basis for determining whether suitable habitat is present in the Project Site for a given species. The presence (or absence) of suitable habitat further informs and determines a species’ potential to occur in the BSA.

3.4 Aquatic Resources

A formal aquatic resources delineation (ARD) was not conducted as part of this Project. Aquatic resources within the BSA were identified through a combination of field reconnaissance and desktop review (**Appendix A, Figure 6**). Field observations focused on documenting physical indicators of aquatic features, including the presence of defined bed and bank, ordinary high-water mark (OHWM) indicators, channel morphology, hydrologic characteristics (e.g., evidence of flow), substrate composition, and associated riparian or hydrophytic vegetation. Observations of surrounding land use and infrastructure were also used to distinguish between natural watercourses and constructed conveyance features.

Desktop review included evaluation of available geospatial data and mapping resources (e.g., USGS topographic maps, aerial imagery, and hydrographic datasets) to support preliminary characterization of aquatic features and assess potential hydrologic connectivity. Regulatory applicability was evaluated qualitatively based on observed physical characteristics and current regulatory frameworks, including California Department of Fish and Wildlife (CDFW) jurisdiction under Fish and Game Code Section 1602, Regional Water Quality Control Board (RWQCB) authority under the Porter-Cologne Water Quality Control Act, and potential U.S. Army Corps of Engineers (USACE) jurisdiction under Clean Water Act Section 404, as informed by the continuous surface connection standard described in Sackett v. EPA (2023). A formal ARD and jurisdictional determination would be required to confirm the extent and regulatory status of any aquatic resources, if necessary for Project permitting.

3.5 Vegetation Mapping

Vegetation communities and land cover types within the BSA were mapped using a combination of aerial photo interpretation and field verification following guidance from the CNPS's *Guidelines for Mapping Sensitive Natural*

Communities (SNC) (CNPS 2023). Prior to field surveys, potential vegetation community boundaries were delineated using high-resolution aerial imagery and existing vegetation mapping data, including CNDDB records and Vegetation Classification and Mapping Program (VegCAMP) datasets (CDFW 2025d). Vegetation was classified in accordance with the *Manual of California Vegetation* (MCV, 2nd edition) and the National Vegetation Classification System (NVCS) at the alliance level, with association-level classification applied where floristic composition could be confidently determined. Sensitive natural communities were identified as those with a state rarity rank of S3 or below, following NatureServe and CDFW ranking conventions (Faber-Langendoen et. al. 2012); all wetland and tidal marsh communities were treated as sensitive regardless of rarity rank due to their limited distribution and regulatory status.

Field verification was conducted during the reconnaissance survey to confirm vegetation community boundaries, assess species composition and cover by stratum, and document the presence of any sensitive natural communities. Vegetation polygons were attributed with alliance and association names, dominant species, percent cover by vegetation layer, and confidence level. A minimum mapping unit of 0.25 acre was applied for upland communities, with smaller features such as stream and potential SNC habitats mapped at finer resolution where discernible. Final vegetation mapping results were incorporated into GIS and are presented in **Section 5.1 and Appendix A, Figure 6** of this report.

4. Regulatory Background

The following is an overview of agencies that have potential oversight of the proposed Project related to biological resources. The regulatory setting is divided into sections on federal, state, and local/regional jurisdiction.

4.1 Federal Jurisdiction

4.1.1 Federal Endangered Species Act

The FESA of 1973 (16 USC 1531 et seq.) requires federal agencies to conserve threatened and endangered species and their ecosystems. The USFWS and NOAA Fisheries are responsible for maintaining the list of protected species, carrying out conservation programs, and providing opinions on impacts of federal actions to listed species.

Federal agencies reviewing proposed projects must determine whether federally listed or proposed species may be present in the project area and whether the project would result in "take" of such species. Section 9 of the FESA prohibits take of endangered species; for threatened species, take prohibitions are established through species-specific regulations under Section 4(d) of the Act. "Take" is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct. USFWS regulations define "harm" to include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering (Supreme Court of the United States: ESA 1995).

Federal agencies must also determine whether the project is likely to jeopardize the continued existence of any species proposed for listing under the FESA or result in the destruction or adverse modification of designated critical habitat (16 USC 1536[3][4]). If a project may result in take of a federally listed species, consultation would be required under Section 7 of the FESA (for federal actions) or authorization under Section 10(a) (for non-federal actions). Critical habitat is defined as specific geographic areas containing features essential for the conservation of a threatened or endangered species. Under Section 7, designated critical habitat must be evaluated if present in the project's action area.

Project Relevance: No species currently listed as federally threatened or endangered under the FESA are expected to occur within the BSA. Northwestern pond turtle (*Actinemys marmorata*) is proposed for federal listing as Threatened (88 FR 68370, October 3, 2023), but a final listing rule had not been issued as of the preparation of this report. Because this Project has no federal nexus (i.e. no funding or federal agency involvement) Section 7 of the FESA does

not pertain to this Project and, therefore, conferencing for the Proposed Threatened northwestern pond turtle is not necessary.

4.1.2 Habitat Conservation Plans

Habitat Conservation Plans (HCP) were incorporated into the FESA in 1982 (sections 10(a)(1)(B) and 10(a)(2)(A) of the FESA, as amended) to create a pathway for take exemptions under the Act for non-federal entities (previously prohibited under Section 9 of the Act). HCPs are planning documents required to support applications for incidental take permits and provide measures to minimize and mitigate project impacts to listed or candidate species at an ecosystem-based versus single-species approach level. An HCP provides a degree of assurance for private entities that measures agreed upon in the HCP by federal regulators and the entity would be upheld and not altered for the lifespan of the permit, and no additional obligations (financial, land use, or other) would be required at a later date with respect to the species covered in the HCP (referred to as the "No Surprises Rule"; 63 FR 8859).

Requirements for issuance of an incidental take permit with an HCP require that all take is incidental, that take would be minimized and mitigated to the maximum extent practicable, that adequate funding is available to implement the HCP, that the applicant will undertake such other measures that the Secretary may require as being necessary or appropriate for purposes of the plan, and that the incidental take would not appreciably reduce the likelihood of the survival and recovery of the species. HCPs also must incorporate elements of the Five Point Policy that include biological goals and objectives for each species in the document, adaptive management, monitoring, a permit duration, and public participation through the National Environmental Policy Act (NEPA) process.

The San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP), adopted November 14, 2000, is a combined HCP and Natural Community Conservation Plan (NCCP) covering approximately 1,400 square miles and more than 900,000 acres within San Joaquin County, including 43 percent of the Sacramento-San Joaquin Delta's Primary Zone (SJCOG 2000). The SJMSCP was developed through coordination among USFWS, CDFW, San Joaquin County, and the cities of Stockton, Tracy, Lathrop, Lodi, Manteca, and Ripon. The plan is implemented by the SJMSCP Joint Powers Authority (JPA), administered through the San Joaquin Council of Governments (SJCOG). The plan provides Incidental Take Permit (ITP) coverage under FESA Section 10(a)(1)(B) and incidental take authorization under CESA Section 2081(b) for a suite of covered species for defined permitted activities within the plan area. Participation in the SJMSCP is voluntary for most project applicants but is strongly encouraged as the most efficient and legally certain pathway for achieving regulatory compliance for open space conversions in San Joaquin County.

The SJMSCP covers 58 plant, fish, wildlife, and natural community species and is specifically designed to address the cumulative effects of land conversion within the county on these resources, including Swainson's hawk (*Buteo swainsoni),* one of the plan's primary target species (SJMSCP 2000, Section 2.2.2). The plan divides the County into index zones reflecting ecological conditions and species distributions; the Mariposa Road and Escalon-Bellota Specific Plan area is located within the Central Zone, which encompasses the agricultural heartland of the San Joaquin Valley between Stockton and the Sierra Nevada foothills and supports the core of San Joaquin County's Swainson's hawk breeding population (SJMSCP 2000, Section 5.1.2.2). The Central Zone is characterized by irrigated row crops, grain fields, orchard agriculture, riparian corridors, and scattered oak woodlands, land cover types that are directly analogous to the habitat mosaic present adjacent to the BSA.

The SJMSCP establishes both incidental take minimization measures and compensation requirements for covered activities that result in open space conversion. For Swainson's hawk, the SJMSCP JPA requires: (1) preconstruction surveys conducted by SJCOG JPA-coordinated biologists prior to ground disturbance; (2) a no-disturbance buffer of one-half mile around any active nest site during the breeding season (March 15–September 15); and (3) compensation for loss of foraging habitat through payment of per-acre fees to the JPA, dedication of replacement lands as conservation easements, or purchase of mitigation bank credits from an SJMSCP-approved bank (SJMSCP 2000, Sections 5.2.4.11, 5.3.2). Central Zone foraging habitat compensation is achieved through acquisition of Row and Field Crop/Riparian Preserves consistent with the design criteria in SJMSCP Section 5.4.4.4. For northwestern pond turtles (also a covered species under the SJMSCP) the plan requires preconstruction surveys and relocation of any individuals found within a project footprint prior to ground disturbance (SJMSCP 2000, Section 5.2.4.10).

Project Relevance: The proposed Project is located within the SJMSCP plan area and within the Central Zone. The Project involves road widening improvements and intersection modifications along Mariposa Road, activities that constitute open space conversion subject to SJMSCP review. The primary covered species with potential to be affected by the Project are Swainson's hawk (foraging habitat conversion and potential nest disturbance) and northwestern pond turtle (pre-construction relocation at water feature crossings). Project participation in the SJMSCP through the SJCOG JPA is the recommended approach for achieving FESA and CESA compliance for impacts to these species. The San Joaquin County Department of Public Works should submit a Request for Project Coverage Form to SJCOG prior to ground disturbance. Payment of applicable SJMSCP fees, completion of required preconstruction surveys, and implementation of incidental take minimization measures as specified by the JPA will constitute the primary mitigation framework for biological resources under this plan. Because the Project is within the plan area and the covered activities are consistent with SJMSCP permitted activities, no separate Project-level Section 10 ITP or Section 7 consultation is anticipated to be required for northwestern pond turtle, provided the Project participates in the SJMSCP.

4.1.3 Executive Order 13112, Invasive Species

Executive Order (EO) 13112 (1999) directs federal agencies to prevent the introduction and spread of invasive species. Under the EO, federal agencies cannot authorize, fund, or carry out actions likely to cause or promote the introduction or spread of invasive species unless all reasonable measures to minimize risk of harm have been analyzed and considered.

Project Relevance: The Project will comply with the measures established in this EO to prevent the spread of invasive species.

4.1.4 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. §§ 703–712) prohibits the take, possession, sale, or destruction of migratory birds, their eggs, nests, or feathers without authorization. As of December 2021, the USFWS reaffirmed that the MBTA applies to both intentional and incidental take of migratory birds and active nests – defined as nests containing eggs or young (USFWS 2021).

In April 2025, the U.S. Department of the Interior issued a revised legal opinion (M-37085), returning to the 2017 interpretation that the MBTA applies only to intentional take (U.S. Department of the Interior 2025). Although USFWS subsequently withdrew its effort to create an incidental take permitting program, enforcement remains subject to agency discretion. In the absence of a formal permitting framework, the Project will continue implementing proper avoidance and minimization measures for nesting birds – such as preconstruction surveys and seasonal restrictions – to minimize potential impacts to protected native bird species and reduce legal risk.

The MBTA excludes non-native, exotic species such as rock pigeons (*Columba livia*), house sparrows (*Passer domesticus*), and European starlings (*Sturnus vulgaris*), as well as 20 native bird species within the order Galliformes (e.g., grouse, quail, and turkey), which may be considered game birds, and have their own set of regulations, state-by-state (Blomberg et al. 2022).

Project Relevance: The BSA supports habitats including riparian woodland, oak trees, and emergent wetland ditches that are used by a variety of migratory birds for breeding, migration stopover, and wintering. Swainson's hawk is a neotropical migrant protected under the MBTA in addition to CESA. Avoidance and minimization measures for nesting and migratory birds are addressed in **Section 7**.

4.1.5 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (BGEPA) (16 U.S.C. 668-668d) prohibits the take, possession, sale, purchase, transport, or disturbance of bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*), including their parts, nests, or eggs, without a permit (USFWS 2016). "Take" is defined to include pursue, shoot, poison, wound, kill, capture, trap, collect, molest, or disturb (16 U.S.C. § 668c). "Disturb" means to agitate or bother an

eagle to a degree that causes, or is likely to cause, injury, decreased productivity, or nest abandonment by substantially interfering with normal breeding, feeding, or sheltering behavior (50 CFR 22.3).

The BGEPA applies to all activities that may impact eagles, including projects without a federal nexus. If a project could result in incidental take of eagles, an incidental take permit under 50 CFR 22.26 may be required.

Project Relevance: Neither bald nor golden eagle is expected to nest within or in the immediate vicinity of the BSA, and BGEPA disturbance concerns associated with nesting are not anticipated. To the extent that wintering bald eagles may occasionally forage in the agricultural landscape adjacent to the BSA, standard nesting bird avoidance measures and construction best management practices (BMPs) outlined in **Section 7** would minimize any potential for disturbance. No BGEPA take permit from USFWS is anticipated to be required for this Project.

4.1.6 Clean Water Act

The Clean Water Act (CWA) regulates discharges of pollutants into Waters of the United States (WOTUS) and authorizes the U.S. Environmental Protection Agency (EPA) to establish effluent limitations and water quality standards. Discharge of pollutants from a point source to navigable waters requires authorization under the CWA.

Section 404 – Discharge of Dredged or Fill Material

Under CWA Section 404, the U.S. Army Corps of Engineers (USACE) regulates the discharge of dredged or fill material into WOTUS.

Following recent rule changes and the Sackett v. EPA (2023) decision, WOTUS generally includes:

- Relatively permanent, standing, or continuously flowing bodies of water (e.g., rivers, streams, lakes), and
- Wetlands with a continuous surface connection to such waters.

Features such as isolated wetlands, ephemeral streams, and most ditches are generally excluded from federal jurisdiction. Jurisdictional wetlands are identified based on hydrology, hydric soils, and hydrophytic vegetation. USACE issues either individual or general permits depending on the scope and magnitude of impacts.

Section 401 – Water Quality Certification

Under CWA Section 401, applicants for federal permits or licenses for activities that may result in a discharge to WOTUS must obtain Water Quality Certification demonstrating compliance with applicable state water quality standards. In California, certification is issued by the Regional Water Quality Control Boards (RWQCBs).

CWA regulates discharges of pollutants into Waters of the United States (WOTUS) and authorizes the U.S. Environmental Protection Agency (EPA) to establish effluent limits and water quality standards. Discharging a pollutant from a point source into navigable waters requires a permit under the CWA.

Project Relevance: Lone Tree Creek is a perennial named stream within the BSA and may constitute a Water of the United States subject to USACE jurisdiction under Section 404, pending verification of a continuous surface connection to downstream navigable waters. Based on observed irrigation influences and potential interruptions in natural flow continuity, federal jurisdiction may be limited.

Seven unnamed irrigation canals within the BSA likely fall outside federal CWA jurisdiction under the Sackett standard, depending on their connectivity to relatively permanent waters, but may remain subject to jurisdiction under the Porter-Cologne Water Quality Control Act.

4.1.7 Other Federal Authorities

Rivers and Harbors Act (Section 10)

Section 10 of the Rivers and Harbors Act of 1899 authorizes USACE to regulate work, structures, or dredging activities within navigable waters of the United States, including areas waterward of the ordinary high water mark (OHWM). This authority is distinct from, but often implemented concurrently with, CWA Section 404 permitting.

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act requires that federal agencies consult with the U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), and, where applicable, California Department of Fish and Wildlife (CDFW) for projects requiring federal authorization that may modify surface waters or affect fish and wildlife resources**.**

Executive Order 11990 – Protection of Wetlands

Executive Order 11990 (1977) directs federal agencies to avoid, to the extent practicable, adverse impacts associated with the destruction or modification of wetlands. For projects with a federal nexus (e.g., requiring a Section 404 permit), agencies must evaluate alternatives to avoid wetland impacts and implement measures to minimize harm where avoidance is not practicable.

Project Relevance: Section 10 of the Rivers and Harbors Act may apply to activities involving work within navigable waters, subject to USACE determination of jurisdiction. The Fish and Wildlife Coordination Act would require coordination with USFWS, NMFS, and CDFW if federal authorization is required and surface waters are modified. Executive Order 11990 would apply only if a federal nexus is established (e.g., a federal permit), requiring evaluation of alternatives to avoid wetland impacts and implementation of measures to minimize adverse effects where avoidance is not practicable.

4.2 State Jurisdiction

4.2.1 California Environmental Quality Act

The California Environmental Quality Act (CEQA) applies to discretionary actions undertaken or approved by state and local public agencies. Under CEQA, a “project” is defined as an activity that may result in a direct or reasonably foreseeable indirect physical change in the environment. Lead agencies are required to evaluate whether a project may have a significant adverse effect on the environment using the best available information, including technical studies and professional judgment.

CEQA requires consideration of impacts to biological resources, including special-status species and sensitive natural communities. Pursuant to CEQA Guidelines Section 15380, species that are not formally listed under state or federal endangered species acts may still be considered rare or endangered if they meet applicable criteria, including those designated by resource agencies such as the California Department of Fish and Wildlife (CDFW).

Special-Status Species

CDFW maintains a list of special-status species, including Species of Special Concern (SSC), which are broadly defined as species experiencing population declines, restricted distributions, or associations with declining habitats. In addition to state- and federally listed species, CEQA requires evaluation of non-listed fish, wildlife and plant species that may qualify as rare, threatened, or endangered pursuant to CEQA Guidelines Section 15380.

For Fish and Wildlife these may include species identified by CDFW as Species of Special Concern (SSC) and other taxa tracked in the California Natural Diversity Database (CNDDB) Special Animals List. SSC designation applies to native fish, amphibians, reptiles, birds, and mammals that exhibit population declines, range contractions, small or

vulnerable populations, or other conditions that could warrant listing under CESA but have not been formally listed. These species do not have regulatory protection under CESA; however, they are treated as special-status species for purposes of CEQA impact analysis.

Special-status plants include those listed in the California Native Plant Society (CNPS) California Rare Plant Ranking (CRPR) Lists 1 and 2, which are considered to meet the definition of threatened or endangered species under CEQA. CRPR Lists 3 and 4 may also be considered under CEQA where supported by site-specific conditions. Although the Native Plant Protection Act (NPPA) and CESA provide regulatory protections for formally listed plant species, consideration of CNPS-listed species in this analysis is conducted pursuant to CEQA.

Sensitive Natural Communities

Sensitive natural communities (SNCs) are vegetation alliances or associations identified by CDFW as having high conservation value due to rarity or ecological importance. SNCs are tracked through the California Natural Diversity Database (CNDDB) and California Natural Community List. Communities ranked S1 (critically imperiled), S2 (imperiled), or S3 (vulnerable) are typically considered sensitive. Wetland and riparian communities are generally treated as sensitive under CEQA regardless of rarity ranking due to their ecological functions and substantial historical decline.

Project Relevance: This Biological Resources Report supports preparation of an Initial Study/Mitigated Negative Declaration (IS/MND) for the Project. Biological resources evaluated under CEQA include potential impacts to special-status species (listed and non-listed) and sensitive natural communities.

Under CEQA, a project may result in a significant impact if it would substantially affect species that meet the definition of endangered, rare, or threatened pursuant to CEQA Guidelines Section 15380, substantially reduce habitat for such species, substantially affect sensitive natural communities, or interfere with the movement of native resident or migratory wildlife species. CEQA further requires evaluation of potential impacts to nesting birds protected under the Migratory Bird Treaty Act and Fish and Game Code, as well as riparian habitats and other areas of recognized biological importance.

This analysis identifies biological resources with potential to occur within the Biological Study Area (BSA) using database review, field reconnaissance, and habitat assessment. Avoidance, minimization, and mitigation measures are developed, as appropriate, to ensure that project-related impacts are reduced to a less-than-significant level consistent with CEQA requirements.

4.3 California Endangered Species Act

The CESA includes provisions for the protection and management of species listed by the State of California as endangered, threatened, or designated as candidates for such listing (California Fish and Game Code [FGC] Sections 2050 through 2085). CESA generally parallels the main provisions of the FESA and is administered by the CDFW, who maintains a list of state threatened and endangered species as well as candidate species. CESA prohibits the “take” of any species listed as threatened or endangered unless authorized by the CDFW in the form of an ITP. Under FGC, “take” is defined as to “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.”

Project Relevance: Two state-listed species have potential to occur within the BSA. Swainson's hawk (California Endangered Species Action Threatened (CT)) is a state threatened species with Moderate Potential for nesting and High Potential for foraging within the BSA. Tricolored blackbird (*Agelaius tricolor*)(CT) has Low Potential to nest in the emergent vegetation of irrigation ditches within the BSA. Both species are covered under the SJMSCP, and CESA compliance for impacts to these species will be achieved through Project participation in the SJMSCP as described above. No separate CESA ITP from CDFW is anticipated to be required provided the Project participates in the SJMSCP.

4.3.1 California Fish and Game Code

Birds of Prey and Native Nesting Birds

FGC Sections 3503 and 3513 prohibit the take, possession, or needless destruction of the nest or eggs of any bird. Subsection 3503.5 specifically prohibits the take, possession, or destruction of any birds in the orders *Falconiformes* (hawks and eagles) or *Strigiformes* (owls) and their eggs or nests. These provisions, along with the federal MBTA, essentially serve to protect nesting native birds.

Project Relevance: Native nesting birds have high potential to occur within the BSA. Valley oaks (*Quercus lobata*) (20- to 40-inch diameter at breast height [dbh]), Fremont cottonwood (*Populus fremontii*), willows, and dense emergent vegetation in the irrigation ditches all provide nesting habitat for a variety of native birds, including raptors. Swainson's hawk, as a raptor, is protected under FGC Section 3503.5 in addition to CESA. Avoidance of construction during the nesting season or pre-construction nesting bird surveys are required to prevent take of nesting birds, as described in **Section 7**.

Migratory Bird Protection Act

The California Migratory Bird Protection Act (MBPA) (FGC Section 3513, as amended) was introduced in the California State Assembly 2019 by Assembly Member Ash Kalra and co-sponsored by the National Audubon Society. The text of the MBPA specifies that it is unlawful to take or possess any migratory nongame bird as designated in the federal MBTA (16 USC 703-712) before January 1, 2017. This upholds the interpretation of the MBTA under Clinton's EO 13166, where "take" was defined as both "unintentional as well as intentional." This is particularly important in light of recent federal changes that narrowed MBTA protections. Please refer to the federal MBTA discussion above. Governor Gavin Newson signed the California MBPA into law on September 27, 2019. Non-native species, including the European starling, rock pigeon, and house sparrow, are not afforded protection under the MBTA.

Project Relevance: The BSA supports habitats including riparian woodland, oak trees, and emergent wetland ditches that are used by a variety of migratory birds for breeding, migration stopover, and wintering. Swainson's hawk is a neotropical migrant protected under the MBTA in addition to CESA. Avoidance and minimization measures for nesting and migratory birds are addressed in **Section 7**.

Fully Protected Species

CDFW enforces the FGC, which provides protection for "fully protected birds," (Section 3511), "fully protected mammals" (Section 4700), "fully protected reptiles and amphibians" (Section 5050), and "fully protected fish" (Section 5515). On July 10, 2023, California Senate Bill 147 was signed into law, which authorizes CDFW to issue an ITP for specific projects and/or actions that allows for "take" of a fully protected species by following specific conditions and limitations associated with the ITP permitting process as outlined in California FGC Section 2081.15.

Project Relevance: No fully protected species are expected to occur within the BSA. Swainson's hawk, while state threatened, is not designated as fully protected under the FGC.

Non-game Mammals

Non-game mammals, including bats, are protected by FGC Section 4150, which states that all non-game mammals or parts thereof may not be taken or possessed except as provided otherwise in the code or in accordance with regulations adopted by the commission. Activities resulting in mortality of non-game mammals (e.g., destruction of a den or an occupied bat roost, resulting in the death of mammals) or disturbance that causes the loss of a maternity colony of bats (resulting in the death of young) may be considered "take" by CDFW.

Project Relevance: Non-game mammals protected under FGC Section 4150, such as bats, may occur within the BSA. There is potential for bats to roost in bridge structures and large trees within the BSA. Bat species are also covered under the SJMSCP in Section 5.2.4.28. Utilizing the SJMSCP through the SJCOG JPA process is an efficient way to meet regulatory requirements such as any potential incidental take. Implementation of SJMSCP incidental take

minimization measures will satisfy the applicable requirements under FGC Section 4150 for this Project. Applicable measures to meet the criteria are outlined in **Section 7** of this report.

Natural Community Conservation Planning Act

The NCCP Act (Sections 2800-2835 of the FGC, as amended) is administered by the CDFW through their NCCP program. The program involves broad-based conservation planning for regions (multispecies and multihabitat coverage that serve as an alternative to project-by-project mitigation), while allowing for compatible economic activity and development. The NCCP Act's conservation requirements are more stringent than existing state and federal requirements for mitigation, as it requires that plan preparers actively participate in the recovery of sensitive species and habitats (while conserving ecosystem function, biological diversity, and ecological integrity of habitats). NCCPs are developed in coordination with landowners, regulatory agencies (including the USFWS and NMFS, as appropriate), and environmental organizations. The purpose of NCCPs is to provide a clear framework for project proponents to avoid, minimize, and mitigate impacts to sensitive resources within the coverage area of the NCCP and allow for an adaptive management approach to conservation. NCCPs and HCPs are often combined into one planning document for separate geographic regions of California.

Project Relevance: The Project is located within the SJMSCP, which serves as the applicable NCCP for San Joaquin County. SJMSCP participation, as described under the HCP section above, constitutes compliance with NCCP requirements for covered species and permitted activities.

Native Plant Protection Act

The CDFW administers the Native Plant Protection Act (NPPA) (Sections 1900–1913 of the FGC). These sections of the FGC allow the California Fish and Game Commission to designate endangered and rare plant species and to notify landowners of the presence of such species. Additionally, there are 64 plant species designated as "rare" which is a special designation created before plants were rolled into CESA in the 1980s. The CESA and the NPPA require a project to have a "Scientific, Educational, or Management Permit" from the CDFW for activities that would result in "take," possession, import, or export of state-listed plant species including research, seed banking, reintroduction efforts, habitat restoration, and other activities relating to any plant designated state endangered, state threatened, state rare, or state candidate for listing.

Project Relevance: Eight CRPR-listed plant species were identified in the CNDDB search as occurring within the 9-quadrangle database search area (**see Appendix B, PTO Table**). No suitable habitat for any of these species was identified within the BSA during the field reconnaissance survey. The BSA is dominated by irrigated orchard and grain agriculture, ruderal roadsides and ditch margins, and narrow riparian corridors lacking the alkaline soils, vernal pools, or alkali sink communities required by the CRPR-listed species identified in the database search. No CRPR-listed plants are expected to occur within the BSA, and no further botanical surveys are recommended.

CDFW Section 1602 Lake or Streambed Alteration Agreement

Streams, lakes, and riparian vegetation that serve as habitat for fish and other wildlife species are subject to jurisdiction by CDFW under FGC Sections 1600-1616. Any activity that would do one or more of the following: 1) substantially obstruct or divert the natural flow of a river, stream, or lake; 2) substantially change or use any material from the bed, channel, or bank of a river, stream, or lake; or 3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake; generally require a 1602 Lake and Streambed Alteration Agreement (LSAA). The term "stream," which includes creeks and rivers, is defined in the California Code of Regulations (CCR) as follows: "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation" (14 CCR 1.72). In addition, the term stream can include ephemeral streams, dry washes, watercourses with subsurface flows, canals, aqueducts, irrigation ditches, and other means of water conveyance if it supports aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife.

Riparian areas are ecosystems bordering rivers and streams where soil moisture is permanently available, forming transitional zones between aquatic and terrestrial environments (California Coastal Commission 2013). Riparian vegetation consists of plant communities occurring along stream channels, banks, and associated floodplains where shallow groundwater or surface water supports vegetation adapted to these hydrologic conditions (County of San Diego 1996–1998; CDFG 2007).

Project Relevance: Lone Tree Creek is a named perennial stream subject to CDFW Section 1602 jurisdiction. Road widening activities along Escalon-Bellota Road at the Lone Tree Creek crossing that involve grading, fill, or other disturbance within the bed, bank, or riparian zone of the creek would require a LSAA notification to CDFW prior to initiation of ground disturbance. The unnamed irrigation canals within the BSA may also be subject to Section 1602 jurisdiction depending on the nature and extent of bank disturbance at crossing locations. Early coordination with CDFW is recommended to determine whether a notification is required and to identify any conditions that CDFW may impose on Project activities at these crossings.

4.3.2 Porter-Cologne Water Quality Act

The Porter-Cologne Water Quality Control Act establishes the statewide framework for protecting water quality in California by creating the State Water Resources Control Board (SWRCB). The SWRCB provides statewide oversight and coordination, while nine (RWQCBs implement water quality regulations at the regional and local levels. RWQCBs issue CWA Section 401 Water Quality Certifications for projects requiring federal permits that may result in discharge to WOTUS. For projects affecting only Waters of the State, RWQCBs issue Waste Discharge Requirements (WDRs) or waivers thereof under Porter-Cologne authority. RWQCBs may also regulate riparian areas when they function as buffers that protect water quality. On April 2, 2019, the SWRCB adopted new statewide definitions and procedures governing the discharge of dredged or fill material to Waters of the State (SWRCB 2019).

Project Relevance: Seven water features were identified within the BSA (Table 5.3), several of which are part of the SSJID distribution system and convey surface water originating from Woodward Reservoir. Given this hydrologic connectivity, some or all of the features within the BSA may constitute Waters of the State subject to RWQCB jurisdiction under the Porter-Cologne Water Quality Control Act. Jurisdictional status was not determined as part of this assessment and should be established through a formal aquatic resources delineation (ARD) and jurisdictional determination. If Project activities at any water feature crossing result in discharge of waste (e.g., fill material, stormwater, or construction-related sediment) into Waters of the State, a WDR or waiver from the Central Valley RWQCB (Region 5) may be required. Early coordination with the RWQCB is recommended to determine permitting requirements prior to finalizing construction plans at water feature crossings.

4.4 Local and Regional Jurisdiction

In addition to federal and state regulatory requirements, the Project is subject to the jurisdictions of several regional and local agencies with authority over biological and aquatic resources.

4.4.1 San Joaquin County Multi-Species Habitat Conservation and Open Space Plan

The SJMSCP is the primary local and regional regulatory framework governing biological resource impacts within San Joaquin County and is discussed in detail under the HCP subsection of the FESA above. As a combined HCP and NCCP adopted by San Joaquin County and the participating cities, the SJMSCP functions simultaneously as a FESA Section 10 instrument, a state CESA Section 2081 (b) authorization, and the County's principal mechanism for implementing General Plan Policy NCR-2.3. The plan's requirement (including SJCOG JPA enrollment, preconstruction surveys, incidental take minimization measures, and compensation through fees, land dedication, or mitigation bank credits) constitute the primary mitigation framework for covered species impacts associated with this Project and are not repeated here to avoid redundancy with the HCP subsection above.

4.4.2 San Joaquin County General Plan 2035 — Natural and Cultural Resources Element

The San Joaquin County General Plan 2035, Natural and Cultural Resources Element (December 2016) establishes goals and policies for the protection of biological resources within the county. Goal NCR-2 directs the County to preserve and protect wildlife habitat areas for the maintenance and enhancement of biological diversity and ecological integrity. Relevant implementing policies include NCR-2.1 (protect wetlands, riparian areas, significant oak woodlands, and heritage trees), NCR-2.3 (continue implementation of the SJMSCP), NCR-2.4 (requires new development near significant oak groves to maximize long-term preservation), NCR-2.5 (no net loss of riparian or wetland habitat), and NCR-2.8 (requires a natural open space buffer along natural waterways). These policies apply to discretionary project approvals by San Joaquin County and inform the CEQA significance thresholds applicable to this Project.

Project Relevance: The proposed Project is subject to San Joaquin County discretionary review and must demonstrate consistency with the General Plan Natural and Cultural Resources Element. Large valley oaks observed along an unnamed irrigation ditch within the BSA implicate Policy NCR-2.4; the riparian corridor along Lone Tree Creek and the vegetated irrigation ditches may implicate Policies NCR-2.1, NCR-2.5, and NCR-2.8. Compliance with the SJMSCP (Policy NCR-2.3) and the County's Natural Resources Regulations (Chapter 9-400 and 700) constitutes the primary mechanism for demonstrating General Plan consistency for biological resource impacts.

4.4.3 San Joaquin County Development Title, Section 9-400.080 and 9-707.030 — Natural Resources Regulations

San Joaquin County's Development Title, Chapter 9 (Natural Resources Regulations; SJC Code §§ 9-707.030, 9-400.080) establishes local regulatory standards for the protection of trees and riparian habitat applicable to all discretionary development projects within the unincorporated county.

Chapter 9-400.080 (Trees) requires that removal of any Native Oak Tree, Heritage Oak Tree, or Historical Oak Tree be subject to an approved Improvement Plan application. Native oak removal is permitted subject to staff review but requires replacement at a 3:1 ratio (three replacement trees or acorns per tree removed), planted within 18 months, and maintained for a minimum of three years. Heritage and historical oak removal is permitted only under limited circumstances (including when removal is in the public interest or is required to facilitate repair and maintenance of existing roads) and requires 5:1 replacement. Development constraints applicable to all subject trees include: no grade changes within 6 feet of the trunk or exceeding 6 inches within the protected zone, installation of a 5-foot chain-link protective fence at the outermost dripline prior to grading, no trenching within the protected zone, and minimization of paving within the dripline with porous materials where paving is unavoidable.

Chapter 9-707.030 (Riparian Habitat) prohibits any action that would destroy, eliminate, or degrade riparian habitat unless the County's review authority finds the action is in the public interest and requires a Riparian Habitat Mitigation Plan as a condition of approval. Mitigation requirements include at-minimum 2:1 replacement with native vegetation, maintained for five years, with assurance of preservation secured through a conservation easement or equivalent instrument. Section 9-707.030 establishes a 100-foot natural open space buffer measured from the mean high-water level of any natural bank, or 50 feet from existing riparian habitat, whichever is greater; water-dependent uses may be permitted within this buffer.

Project Relevance: Several valley oaks (10–30-inch dbh) were observed along unnamed irrigation feature 2 within the BSA and are subject to Chapter 9-400.080. Road widening activities that encroach within the dripline of these trees, or that require removal of any oak, would require an approved Improvement Plan application from the County and compliance with the development constraints specified in Section 9-400.080. Riparian vegetation along Lone Tree Creek is subject to Chapter 9-707.030, and the 100-foot buffer standard is relevant to the design and siting of road improvements at the Lone Tree Creek crossing. Any work that degrades riparian habitat within or adjacent to the creek corridor could potentially require a Riparian Habitat Mitigation Plan as a condition of project approval.

5. Results

The BSA includes a set of narrow areas of land along 13.5 miles of Mariposa and Escalon-Bellota Roads situated in agricultural lands in unincorporated San Joaquin County. Consistent with the methods described in Section 3, available background information, field observations, and collected data were used to support the impact analysis for biological resources within the BSA.

Vegetation within the BSA is dominated by ruderal, agricultural (row crops and almond orchards) and landscaped cover types (residential yards) with no suitable habitat for any special-status plant species (**Appendix C, Photos 14-16**). Roadsides and drainage ditch margins throughout the corridor support a mix of non-native annual grasses, invasive forbs, and ruderal shrubs characteristic of heavily disturbed agricultural roadsides (**Appendix C, Photos 17-19)**. Native trees were documented at several locations along the corridor: several large valley oaks (10-30 inches dbh) were mapped along one of the unnamed irrigation ditches, and a small row of approximately 15 Fremont cottonwood trees (8–15 inches dbh) was documented within the footprint of a proposed intersection rerouting area (**Appendix C, Photos 3, 6, 11 and 19**).

The majority of water features within the road right-of-way function as engineered irrigation canals lacking a well-defined natural bed and bank; six water features were documented within the BSA, of which three are concrete-lined or otherwise engineered channels with no functional riparian or aquatic habitat value, and two (Lone Tree Creek and one unnamed perennial irrigation canal) support a narrow fringe of riparian and aquatic vegetation including willow scrub, valley oak, common reed (*Phragmites australis*), and cattail (*Typha* spp.). Lone Tree Creek, while a named perennial stream, also functions as an irrigation delivery feature and exhibits a modified channel morphology reflecting its dual agricultural and hydrological role. In addition to the five water features, underground irrigation infrastructure including water control valves was documented at a minimum of three locations within the road right-of-way (**Appendix C, Photos 1, 2, 4, 5-11 and 20**).

During the two-day field survey, no special-status species were directly observed within the BSA. A red tail hawk (*Buteo jamaicensis*) was observed actively foraging and perching in the vicinity of a large Fremont cottonwood in the backyard of a residential property adjacent to the road corridor on March 5; the individual was monitored closely given the potential for Swainson's hawk nesting in the area based on multiple CNDDB-documented nest sites in the Project vicinity. The bird was ultimately confirmed as a red-tailed hawk (*Buteo jamaicensis*) through diagnostic plumage features documented in field photographs (**Appendix C, Photo's 12 & 13**). No Swainson's hawks or other raptors were observed during either day of survey. The banks of Lone Tree Creek and the dense emergent vegetation of the unnamed perennial irrigation canal were examined for northwestern pond turtle during both days of reconnaissance; no turtles were observed, though dense vegetation and turbid water precluded thorough visual access to all potential basking and foraging areas along these features. Common bird species detected during the reconnaissance included red-winged blackbird (*Agelaius phoeniceus*), American crow (*Corvus brachyrhynchos*), mourning dove (*Zenaida macroura*), and western meadowlark (*Sturnella neglecta*), consistent with the agricultural and ruderal character of the BSA. No evidence of burrowing owl activity, ground squirrel colonies, bat roosting sign, or other special-status wildlife was detected.

5.1 Physical Environmental Setting

5.1.1 Climate

The BSA lies within the Mediterranean climate (Koppen classification) of the northern San Joaquin valley, which is characterized by hot, dry summers and mild, wet winters. Mean annual precipitation in the Escalon area is approximately 12-14 inches, with the majority falling between November and March as frontal rain associated with Pacific storm systems. Summers are essentially rainless; June through September typically receive less than one-quarter inch of precipitation combined. Average summer high temperatures range from the mid-70s to mid-90s Fahrenheit, with episodic heat events exceeding 100°F and lasting as long as 2-3 weeks. Winter temperatures are

mild, with average lows in the upper 30s to low 40s; freezing temperatures are uncommon on the valley floor but can occur between December and February. Dense tule fog is a characteristic winter condition throughout the northern San Joaquin Valley and can persist for days to weeks during stable atmospheric conditions from December through February. The seasonal precipitation regime drives the phenological patterns of the region's biota, including the mid-March return of Swainson's hawks to Central Valley breeding territories and the April through October active season of northwestern pond turtle.

5.1.2 Topography and Soils

The BSA is situated on the flat to gently undulating floor of the northern San Joaquin Valley at an elevation of approximately 40 feet above mean sea level (AMSL) at the northern extent of the BSA nearest to Stockton and 112 feet (AMSL) at the southern extent in Escalon. The valley floor in this portion of the San Joaquin County is characterized by nearly level alluvial plains with gradients typically less than 2 percent, formed by Quaternary alluvial deposition from the Sierra Nevada to the east. Relief within the BSA is minimal, with topographic variation restricted to the gentle swales and berms associated with the road prism, irrigation canal alignments, and associated agricultural infrastructure.

Soils within the BSA were mapped (**Appendix A, Figure 3**) using the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service Web Soil Survey (NRCS 2026), with survey area data current as of September 9, 2025 (**Table 5.1**). Five soil map units were identified within the BSA, all occurring on valley floors and low terraces at slopes of 0 to 2 percent, consistent with the flat alluvial setting of the project corridor. The dominant map unit by area is Madera sandy loam, 0 to 2 percent slopes (Map Unit 193; 49.8 percent of BSA), a moderately well drained sandy loam derived from granitic alluvium on low terraces, characterized by a sandy loam surface layer over a clay subsoil and an indurated silica-cemented duripan at 20- to 40-inch depth. Madera-Alamo complex, leveled, 0 to 1 percent slopes (Map Unit 195; 14.8 percent of BSA) is a closely related unit dominated by Madera soils with a significant component of Alamo soils (a poorly drained soil with a seasonally high water table) occurring on low terraces and drainageways. Jacktone clay, 0 to 2 percent slopes (Map Unit 180; 14.0 percent of BSA) occupies basin floor positions and is characterized by a heavy clay profile over an indurated duripan, with a somewhat poorly drained drainage class and a Hydrologic Soil Group D rating reflecting very low water transmission rates. Hollenbeck silty clay, 0 to 2 percent slopes (Map Unit 173; 19.9 percent of BSA) occurs on backswamps and swales on flood plains and is a moderately well drained silty clay with a cemented substratum. Exeter sandy loam, 0 to 2 percent slopes (Map Unit 157; 1.5 percent of BSA) is a minor component occurring on low terraces, well drained with a duripan at 20 to 40 inches.

Table 5.1 NRCS Mapped Soil Groups in the BSA

Soil Map Unit	BSA Area (percent)	Primary Landform	Drainage Class	HSG*	Hydric Rating
Madera sandy loam, 0 to 2% slopes (Map Unit 193)	49.8	Low terraces	Moderately well drained	C	No (minor components: Yes)
Hollenbeck silty clay, 0 to 2% slopes (Map Unit 173)	19.9	Backswamps and swales on flood plains	Moderately well drained	C	No (minor components: Yes)
Jacktone clay, 0 to 2% slopes (Map Unit 180)	14.0	Basin floors	Somewhat poorly drained	D	Yes
Madera-Alamo complex, leveled, 0 to 1% slopes (Map Unit 195)	14.8	Low terraces and drainageways	Moderately well drained (Madera) / Poorly drained (Alamo)	D	No (Madera) / Yes (Alamo component)
Exeter sandy loam, 0 to 2% slopes (Map Unit 157)	1.5	Low terraces	Well drained	C	No (minor components: Yes)

**HSG = Hydrologic Soil Group, which indicates runoff potential (Group A = low runoff potential; Group B = moderately low; Group C = moderately high; Group D = high runoff potential).*

A defining characteristic shared by all five map units is the presence of an indurated silica-cemented duripan within 20 to 40 inches of the surface, a feature characteristic of old alluvial terraces throughout the northern San Joaquin Valley. The duripan severely restricts water percolation (all units exhibit saturated hydraulic conductivity (Ksat) ratings of Very Low (0.00 in/hr) at the restrictive layer) and contributes to the perched seasonal water conditions that historically supported vernal pool ecosystems in undisturbed portions of this landscape. Within the BSA, however, long-term intensive agricultural use has eliminated any vestige of vernal pool topography, and no wetland indicators were observed at the surface during field reconnaissance consistent with agricultural manipulation of the landscape. No alkaline or saline soils were mapped within the BSA, consistent with the No Potential determinations for all alkali-dependent plant species evaluated in the potential to occur table presented in **Appendix B**.

5.1.3 Land Use

The BSA and surrounding landscape are characterized by intensive irrigated agriculture interspersed with rural residential development, consistent with the agricultural heartland setting of the northern San Joaquin Valley between Stockton and Escalon. The dominant agricultural land uses within the project vicinity are almond orchards and winter wheat fields, both of which are common throughout San Joaquin County's Central Zone. Rural residential properties (including single-family with ornamental landscaping and accessory structures) occur at several locations along the Mariposa Road corridor and directly abut the road right-of-way in places. The road right-of-way itself includes a mosaic of paved road surface, compacted gravel and dirt shoulders, ruderal ditch margins, and engineered irrigation infrastructure including concrete-lined canals, culverts, bridge crossings, and underground water control valves. The project area is designated within the Central Zone of the SJMSCP under San Joaquin County's General Plan 2035. Within this zone, conversion of agricultural lands to urban or infrastructure uses is subject to the plan's habitat conservation and open space protection requirements.

5.2 Biological Environmental Setting

5.2.1 Vegetation and Land Cover

Vegetation and land cover within the BSA were mapped during field reconnaissance conducted March 5–6, 2026, and delineated on aerial imagery using GPS field observations. Nine habitat types and land cover categories were identified within the BSA (**Table 5.2**). The BSA is dominated by agricultural and developed land cover, with native vegetation restricted to narrow riparian fringes along Lone Tree Creek and one unnamed perennial irrigation canal, scattered native trees along the road corridor and irrigation ditches, and a small stand of Fremont cottonwood within a potential rerouting footprint at Skiff Road. No suitable habitat for any special-status plant species was identified within the BSA; vegetation throughout the upland portions of the corridor is dominated by non-native annual grasses, invasive forbs, and ruderal shrubs with no native plant species of conservation significance observed.

Table 5.2 Habitat/Land Cover Types Observed in the BSA

Habitat Type / Land Cover	Acreage	Area of BSA (percent)	Description
Agricultural — Row Crop	15.35	20	Actively cultivated fields dominated by winter wheat and unidentified field crops; primary Swainson's hawk foraging habitat within the Project vicinity
Agricultural — Almond Orchard	13.53	17	Mature almond orchard constituting the dominant tree crop along the corridor; not suitable foraging habitat for Swainson's hawk
Agricultural — Valley Oak Component	0.27	0.3	Discrete polygon within the almond orchard matrix and adjacent to a rural residential property retaining several large valley oaks (10-30

Habitat Type / Land Cover	Acreage	Area of BSA (percent)	Description
			inches dbh); potential Swainson's hawk nest trees protected under SJC Development Title Section 9-400.080
Riparian — Valley Oak/Willow/Ruderal	0.05	-	Structurally simplified riparian fringe along Lone Tree Creek. A single large valley oak was observed at the top of bank. Understory and adjacent riparian are dominated by ruderal and non-native grass and shrub species
Fremont Cottonwood	0.18	0.2	Small stand of approximately 15 Fremont cottonwood (8–15 inches dbh) within the proposed Skiff Road intersection rerouting footprint
Irrigation Canal	1.96	2.5	Five water features within the road right-of-way mapped as small polygons encompassing water surface and adjacent bank; individually small in area but significant biologically and regulatorily — see Section 5.2.2
Landscaped/Developed	8.85	11	Rural residential properties with ornamental landscaping abutting the road right-of-way at several locations along the corridor
Developed	38.29	49	Paved road surface, compacted gravel and dirt shoulders and driveways, road fill, and associated infrastructure comprising the existing Mariposa Road prism
Total BSA	78.48	100	

5.2.2 Aquatic Resources

A total of seven water features were identified within the BSA during field reconnaissance and desktop review of USGS 7.5-minute topographic mapping, NWI mapping, the CDFW California Streams layer (BIOS), and aerial imagery (**Table 5.3**) (**Appendix A, Figures 6-1 through 6-6**). These features include one named perennial stream (Lone Tree Creek), one named irrigation lateral (Sweet Lateral), one unnamed perennial irrigation lateral, and four unnamed irrigation laterals. Several of these features are part of the South San Joaquin Irrigation District (SSJID) distribution system, which conveys surface water from Woodward Reservoir through an extensive network of laterals throughout the project vicinity.

A formal aquatic resources delineation (ARD) was not included within the scope of services for this Project. The descriptions below characterize physical and biological conditions observed during field reconnaissance and desktop review; regulatory jurisdiction was not determined as part of this assessment. A formal ARD and jurisdictional determination should be completed prior to Project permitting if construction activities at any crossing involve grading, filling, or disturbance within the bed, bank, or channel of any feature.

Irrigation Feature 1

Irrigation Feature 1 is an unnamed perennial irrigation lateral crossed by Mariposa Road at one location within the BSA. The CDFW California Streams layer (BIOS) classifies this feature as a fluvial riverine natural feature; however, field observations indicate that it currently functions as an irrigation conveyance lateral. The feature supports perennial flow and dense emergent vegetation dominated by cattail and common reed, with standing water observed during field reconnaissance in March 2026. This feature provides the highest-quality aquatic and riparian habitat of the seven water features within the BSA and represents the most likely location for northwestern pond turtle occurrence.

Irrigation Feature 2

Irrigation Feature 2 is an unnamed irrigation lateral crossed at Murphy Road within the BSA. The feature is managed and ephemeral, and was dry during field reconnaissance in March 2026. Vegetation at the crossing consists of developed/unvegetated land mixed with ruderal and disturbed species. No functional aquatic or riparian habitat was observed at this crossing.

Irrigation Feature 3

Irrigation Feature 3 is an unnamed irrigation lateral crossed at the Mariposa Road and Dodds Road intersection within the BSA. The feature is managed and ephemeral, and was dry during field reconnaissance in March 2026. Vegetation at the crossing consists of developed/unvegetated land mixed with ruderal and disturbed species. No functional aquatic or riparian habitat was observed at this crossing.

Irrigation Feature 4

Irrigation Feature 4 is an unnamed irrigation lateral crossed at the Mariposa Road and Escalon-Bellota Road intersection within the BSA. The feature is managed and ephemeral, and was dry during field reconnaissance in March 2026. Vegetation at the crossing consists of developed/unvegetated land mixed with ruderal and disturbed species. No functional aquatic or riparian habitat was observed at this crossing.

Irrigation Feature 5 – Sweet Lateral

Irrigation Feature 5 is Sweet Lateral, a named irrigation lateral identified on the USGS Escalon 7.5-minute topographic quadrangle and the CDFW California Streams layer (BIOS). The feature is crossed near Lone Tree Road within the BSA. Sweet Lateral is managed and ephemeral, and was dry during field reconnaissance in March 2026. Vegetation at the crossing consists of developed/unvegetated land mixed with ruderal and disturbed species. No functional aquatic or riparian habitat was observed at this crossing.

Lone Tree Creek

Lone Tree Creek is a named perennial stream mapped on USGS 7.5-minute topographic quadrangles that crosses the BSA at one location along Escalon-Bellota Road. The creek flows within a defined channel with a moderate riparian fringe supporting willows (Salix spp.) and dense emergent and ruderal vegetation along its banks. Lone Tree Creek also functions in part as an irrigation conveyance feature and exhibits modified channel morphology reflecting decades of agricultural water management. Despite these modifications, the feature retains a defined bed and bank and supports perennial flow.

Irrigation Feature 6

Irrigation Feature 6 is an unnamed irrigation lateral crossed at Escalon-Bellota Road within the BSA. The feature is managed and ephemeral, and was dry during field reconnaissance in March 2026. Vegetation at the crossing consists of developed/unvegetated land mixed with ruderal and disturbed species. No functional aquatic or riparian habitat was observed at this crossing.feature.

Table 5.3 Aquatic Resources in the BSA

Feature	Feature Type	Flow Regime	Riparian/Aquatic Vegetation	Crossing Location
Irrigation Feature 1	Unnamed irrigation lateral	Perennial	Dense cattail and common reed; slow flowing water observed March 2026	Mariposa Road
Irrigation Feature 2	Unnamed irrigation lateral	Managed / ephemeral	Developed/unvegetated mixed with ruderal and disturbed; large valley oaks present	Murphy Road
Irrigation Feature 3	Unnamed irrigation laterals	Managed / ephemeral	Developed/unvegetated mixed with ruderal and disturbed, cattails in some portions	Mariposa Road / Dodds Road
Irrigation Feature 4	Unnamed irrigation lateral	Managed / ephemeral	Developed/unvegetated mixed with ruderal and disturbed	Mariposa Road / Escalon-Bellota Road intersection

Irrigation Feature 5 – Sweet Lateral	Named irrigation lateral	Managed / ephemeral	Developed/unvegetated mixed with ruderal and disturbed	Near Lone Tree Road
Lone Tree Creek	Named perennial stream / irrigation conveyance	Perennial	Riparian – valley oak and willow	Escalon-Bellota Road
Irrigation Feature 6	Unnamed irrigation lateral	Managed / ephemeral	Developed/unvegetated mixed with ruderal and disturbed	Escalon-Bellota Road

5.2.3 Special-Status Species

Results of the CNDDB 9-quadrangle database search, USFWS IPaC review, and CNPS Rare Plant Inventory query identified 8 plant species, 12 invertebrate species, 3 fish species, 2 amphibian species, 3 reptile species, 6 bird species, 4 mammal species, and 5 sensitive natural communities. These species and communities are evaluated in the potential to occur table presented in **Appendix B**.

Of the 43 species and communities evaluated, 31 were assigned a no potential rating based on the absence of suitable habitat within the BSA — principally the lack of vernal pools, alkaline or saline soils, blue elderberry, sandy substrates, and fish passage connectivity that most database-identified species require. No special-status plant species were observed during field reconnaissance, consistent with the dominance of ruderal, agricultural, and landscaped vegetation throughout the BSA.

Ten wildlife and eight plant species were assigned a low potential rating, reflecting the marginal character of available habitat and the low likelihood of regular or breeding occurrence. These species are addressed in the potential to occur table presented in Appendix B and are not carried forward into Project impact analysis because the BSA does not provide sufficient habitat quality or quantity to support populations of these species that could be meaningfully affected by the proposed road widening and intersection improvements.

Two special-status wildlife species were assessed as having moderate or high potential to occur within the BSA and are discussed in detail in the species accounts below: Swainson's hawk (CT) and northwestern pond turtle (FT[P], SSC). These species are the primary focus of avoidance, minimization, and mitigation measures for the proposed Project and are addressed in the impact analysis in Section 6.

5.2.3.1 Swainson's Hawk

The Swainson's hawk is listed as threatened under the CESA; however, it has no formal federal status. It is among the most ecologically significant covered species under the SJMSCP, and that plan is the primary regulatory framework governing potential project impacts to this species within San Joaquin County (SJMSCP 2000). The species is a long-distance migrant, wintering on the pampas of South America and returning to California's Central Valley to breed from mid-March through September. In the Central Valley, Swainson's hawk populations are concentrated in Sacramento, Yolo, and San Joaquin counties, with San Joaquin County supporting one of the largest breeding populations in the state.

Swainson's hawks require two primary habitat components for successful nesting: suitable nest trees and proximity to high-quality foraging habitat. In the Central Valley, approximately 85 percent of nests are in riparian trees (including valley oaks, Fremont cottonwood, willows, and eucalyptus) or in isolated trees in agricultural fields (Estep 1989, SJMSCP 2000). The species forages almost exclusively in open, low-growing agricultural habitats, including fallow fields, alfalfa, irrigated pasture, grain crops, and recently harvested or tilled fields where small mammals and large insects are exposed. Orchards, vineyards, and dense row crops are not considered suitable foraging habitat (CDFW 1994, CDFW 2000, SJMSCP 2000). Radio telemetry studies have documented foraging ranges of up to 10 miles from active nest sites, though nests in proximity to abundant, high-quality foraging habitat typically have smaller home ranges (Estep 1989).

Nesting Habitat Assessment

The BSA contains a small patch of valley oaks (10-30 inches dbh) that represent potential Swainson's hawk nest trees; the trees occur along an unnamed irrigation ditch that crosses Murphy Road. Valley oaks of this size and structure are the most commonly used nest trees for Swainson's hawks in the San Joaquin Valley portion of the species' range (SJMSCP 2000, Estep 1989). CNDDB records document multiple active Swainson's hawk nest sites within the broader Project vicinity, confirming that a breeding population uses the agricultural landscape surrounding the BSA. The SJMSCP designates the Project area as within the Central Zone, which supports the core of San Joaquin County's Swainson's hawk breeding population and is subject to the plan's nesting and foraging habitat protection provisions (SJMSCP 2000, Section 6.4.2).

However, nesting suitability is constrained by the configuration of land uses immediately surrounding the large valley oaks within the BSA (**Appendix A, Figure 6**). Almond orchard immediately adjacent to these trees on multiple sides does not constitute suitable foraging habitat, and Swainson's hawks generally show preference for nest sites where open foraging habitat is more proximate and contiguous (Estep 1989). The nearest confirmed high-quality foraging habitat (a wheat field northeast of Mariposa Road) is approximately 600 feet from the large oaks, separated by the roadway corridor. Road widening activities within the BSA are confined to the existing road prism and shoulder margins and would not directly disturb identified potential nest trees; however, construction activities during the breeding season (March 15–September 15) within one-half mile of any active nest would be subject to the incidental take minimization measures established under the SJMSCP (SJMSCP 2000, Section 5.2.4.11). Nesting potential is assessed as moderate based on the presence of suitable nest trees, proximity to a confirmed breeding population, and adjacency to foraging habitat, tempered by the suboptimal foraging context immediately surrounding the nest oak candidates.

Foraging Habitat Assessment

Swainson's hawk foraging potential within and adjacent to the BSA is high. The wheat field northeast of Mariposa Road represents prime foraging habitat consistent with the highest-value cover types identified in the SJMSCP—grain crops and low-growing agricultural fields that expose prey to aerial predation (SJMSCP 2000, Section 5.4.4.4). Swainson's hawks from documented nesting territories in the Project vicinity regularly forage across the agricultural landscape of the San Joaquin Valley, and the wheat fields adjacent to the BSA fall well within the documented 10-mile foraging range of regional nest sites (Estep 1989).

Road widening improvements along Mariposa Road within the BSA would convert a narrow strip of roadside shoulder and ruderal ditch margin to paved road surface. Ruderal roadsides and ditch margins are generally of low foraging value for Swainson's hawk; however, to the extent that Project improvements result in permanent conversion of agricultural or open lands within the foraging range of active nest sites, those impacts are subject to compensation under the SJMSCP. The SJMSCP establishes that loss of Swainson's hawk foraging habitat within the Central Zone is a covered activity compensated through the plan's fee and land dedication program (SJMSCP 2000, Sections 5.2.4.11 and 6.4.2). Project coverage under the SJMSCP, including payment of applicable fees and completion of SJMSCP-required preconstruction surveys coordinated through the SJCOG JPA, is the recommended pathway for addressing foraging habitat impacts consistent with state and local requirements.

5.2.3.2 Northwestern Pond Turtle

The northwestern pond turtle is a CDFW SSC and is proposed for federal listing as threatened under the FESA (USFWS 2023; 88 FR 68370). The proposed listing was published on October 3, 2023 and a final rule had not been issued as of the preparation of this report; the species is, therefore, treated as a proposed threatened species (FT[P]) for the purposes of this analysis.

If a federal nexus is present, Project activities with the potential to affect this species should be analyzed consistent with FESA Section 7 conferencing requirements. Independent of federal listing status, the species' designation as a CDFW Species of Special Concern provides a basis for avoidance and minimization measures under CEQA.

The northwestern pond turtle is a semi-aquatic species that occupies a broad range of freshwater habitats throughout its range in California, Oregon, Washington, and Nevada. In the Central Valley, northwestern pond turtles are commonly found in slow-moving or still water bodies including streams, rivers, sloughs, ponds, stock ponds, and agricultural canals and drainage ditches. The species requires three primary habitat components: (1) aquatic habitat with slow to moderate flow for foraging, thermoregulation, and refuge; (2) basking sites such as logs, woody debris, overhanging branches, or exposed banks; and (3) friable, well-drained upland soils within approximately 300 meters of water for egg-laying. Northwestern pond turtles are highly adaptable to modified aquatic habitats and are well documented using irrigation canals and agricultural drainage features throughout the Central Valley.

Lone Tree Creek and the two unnamed irrigation ditches within the BSA provide perennial water with slow to moderate flow, emergent and riparian vegetation, and likely woody debris and exposed bank structure suitable for basking. The large valley oaks observed along one of the unnamed ditches overhang the channel margin, providing shaded cover and potential basking substrate. Upland nesting habitat is present on adjacent ditch banks, and ruderal berms. The dense emergent vegetation—including cattail and common reed—observed in the narrower irrigation ditch provides foraging cover and thermal refuge. Collectively, these features represent moderate-quality pond turtle habitat, and the species' documented use of similar agricultural canal systems in the broader San Joaquin Valley supports an assessment of Moderate Potential for occurrence within the BSA.

Proposed road widening at the three water feature crossings within the BSA involves approximately 10-15 feet of disturbance at the edge of the existing road prism. This work has the potential to disturb basking turtles on adjacent banks or road shoulders and may temporarily affect access between aquatic and upland nesting habitat at crossing locations. If the Project participates in the SJMSCP, pre-construction surveys and Incidental Take Minimization Measures (ITMMs) for northwestern pond turtle (western pond turtle under the SJMSCP) will be conducted and issued by SJCOG, Inc. in accordance with SJMSCP Section 5.2.4.10 (Pond Turtles) and the SJMSCP Species Calendar. The Species Calendar restricts dewatering or relocation of aquatic habitats occupied or potentially occupied by pond turtles from March 1 through May 31 (SJCOG 2000). Construction activities at water feature crossings should be scheduled to avoid the breeding season restriction period to the extent practicable. If pond turtles are detected during the pre-construction survey, SJCOG will prescribe species-specific ITMMs, which may include exclusion fencing at the bank edge of water features and relocation of individuals to suitable habitat by a qualified biologist, consistent with SJMSCP relocation protocols (Section 5.2.5). The Project applicant is required to sign and adhere to all ITMMs as issued by SJCOG prior to ground disturbance.

5.2.4 Nesting Birds and Migratory Species

Native bird species protected under the FGC Section 3503, 3503.5, and 3513 and the Migratory Bird Treaty Act (MCTA) have potential to nest within the BSA. Suitable nesting habitat is present in several locations along the project corridor, including the valley oak stand along unnamed irrigation canal #2, willow scrub and emergent vegetation along Lone Tree Creek and the unnamed perennial irrigation canal #1, and the small stand of Fremont cottonwood within the proposed intersection rerouting footprint. The cottonwood stand may provide suitable nesting for riparian passerines and other native cavity and platform nesters during the breeding season (generally February 1 through September 15 for most species).

No active nests of special-status species were observed within the BSA during field reconnaissance. However, one active red-tailed hawk nest was documented at the top of a Fremont cottonwood tree in the backyard of a residence along Mariposa Road (**Appendix A, Figure 6-3**). Red-tailed hawks were observed at the nest during the March 2026 field survey (**Photo 12** and 13). The nest is located approximately 250 feet north of the nearest proposed project activity. Although the nest is not within the proposed Project footprint, its proximity to the project corridor is noted for the following reasons:

- **Red-tailed hawks commonly reuse nests in successive breeding seasons**, and this nest should be assumed active in future years until confirmed otherwise through pre-construction surveys.

- **Swainson's hawks frequently appropriate existing red-tailed hawk nests** rather than constructing new ones. Given the documented presence of Swainson's hawk nesting habitat in the project vicinity, this nest represents a potential Swainson's hawk nest site in future breeding seasons.
- **CDFW recommends pre-construction Swainson's hawk nesting surveys within a 0.5-mile radius of project activities** (CDFW 2000). Given the nest is within 0.5 mile of proposed construction activities, avoidance buffers may be required during the nesting season, potentially affecting project scheduling.

The nest location is depicted on **Appendix A, Figure 6-3**. Pre-construction nesting surveys consistent with CDFW's *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (CDFW 2000) should be conducted prior to initiation of ground disturbance during the nesting season (March 1 through September 15). Given the 250-foot proximity, standard raptor nest buffers for red-tailed hawk (typically 500 feet) would encompass a portion of the project corridor if the nest is active during construction. Passerine nest buffers (typically 250 feet) should also be implemented if active nests of any native species are detected during pre-construction surveys.

5.2.5 Sensitive Natural Communities

Five SNCs were identified within the 9-quadrangle CNDDB search area and evaluated for potential occurrence within the BSA: Elderberry Savanna (G2S2.1), Great Valley Cottonwood Riparian Forest (G2S2.1), Great Valley Mixed Riparian Forest (G2S2.2), Great Valley Oak Riparian Forest (G1S1.1), and Northern Hardpan Vernal Pool (G3S3.1). All five communities were assigned a No Potential rating following field reconnaissance. No vernal pools, hardpan soils with surface expression, or blue elderberry (the obligate structural components of Elderberry Savanna and Northern Hardpan Vernal Pool) are present within the BSA. The riparian woodland communities (Great Valley Cottonwood Riparian Forest, Great Valley Mixed Riparian Forest, and Great Valley - Valley Oak Riparian Forest) were not documented within the BSA despite the presence of scattered native trees and limited riparian fringe vegetation along Lone Tree Creek and the unnamed perennial irrigation canal. The riparian fringe along these features is too narrow, fragmented, and structurally simplified to constitute any of these community types, which require minimum relative cover thresholds of diagnostic tree species (generally >30–50% relative cover), associated riparian species composition, and stand structure consistent with forest or woodland physiognomy as defined in the MCV (Sawyer et al. 2009; CNPS 2025).Scattered Fremont cottonwood individuals along road margins and valley oaks along the irrigation ditch represent isolated trees rather than community-level occurrences and do not qualify as sensitive natural communities under CDFW classification criteria.

Although no sensitive natural communities, as formally defined by CDFW, were documented within the BSA, the native riparian fringe vegetation along Lone Tree Creek and the emergent aquatic vegetation of the unnamed perennial irrigation canal represent locally significant biological resources warranting protection under San Joaquin County Development Title, Section 9-707.030 (Riparian Habitat) and General Plan Policy NCR-2.5 (No Net Loss of Wetlands and Riparian Habitat). These features and associated native vegetation are addressed in the avoidance and minimization measures presented in **Section 7**.

6. Impact Assessment

This section summarizes the potential impacts of the proposed Mariposa Road and Escalon-Bellota Road widening improvements and intersection rerouting on biological resources within and adjacent to the BSA. Impact determinations are based on the biological conditions documented during field reconnaissance conducted March 5-6, 2026, desktop review of available biological databases, and review of preliminary Project design information. Where final engineering details were not available at the time of this report, impacts are characterized qualitatively and quantitative acreage estimates are provided as placeholders pending receipt of final project design drawings. Impact significance is evaluated consistent with CEQA Guidelines and the thresholds established under the San Joaquin County General Plan 2035 Natural and Cultural Resources Element. The analysis addresses both direct impacts

(physical disturbance, removal, or alteration of biological resources within the Project footprint) and indirect impacts, including edge effects, noise disturbance, and hydrological alterations resulting from Project construction and long-term operation.

6.1 Overview of Potential Impacts

The proposed Project involves road widening improvements and intersection rerouting along Mariposa Road between Stockton and Escalon in San Joaquin County. Project activities would result in ground disturbance, vegetation removal, and conversion of existing land cover within the BSA, including portions of ruderal roadside margin, agricultural land cover, native riparian fringe vegetation, and native trees within and adjacent to the road right-of-way. The total Project disturbance footprint is estimated at approximately 34.60 acres pending final engineering design. Potential impacts to biological resources may be direct or indirect in nature. Direct impacts include permanent conversion of land cover within the Project footprint, removal of native trees and riparian vegetation, physical disturbance of water feature banks and channels at road crossings, and potential harm or mortality to wildlife species present within the disturbance area during construction. Indirect impacts include construction-related noise and human activity that could disturb wildlife in the vicinity of the Project footprint, edge effects on adjacent native vegetation and riparian habitat, and increased stormwater runoff and sedimentation at water feature crossings resulting from an increase in impervious surfaces.

The following impact analysis identifies potential effects of the proposed Project on biological resources within the BSA, based on the field reconnaissance, database review, and habitat assessment methods described in Section 3. Potential impacts are evaluated in the context of applicable federal, state, and local regulatory frameworks described in Section 4, including the federal and California Endangered Species Acts, the Migratory Bird Treaty Act, Fish and Game Code Sections 1600–1616 and 3503–3513, the Porter-Cologne Water Quality Control Act, the San Joaquin County General Plan, and the SJMSCP.

Biological resources addressed in this analysis include potential effects to Swainson's hawk (state-listed as threatened), northwestern pond turtle (proposed for federal listing as threatened; CDFW Species of Special Concern), nesting birds and raptors protected under the MBTA and Fish and Game Code, native trees subject to San Joaquin County Development Title Section 9-400.080, riparian habitat addressed under General Plan Policy NCR-2.5, and waters potentially subject to CDFW and RWQCB jurisdiction.

Where applicable, avoidance, minimization, and mitigation measures are recommended to address potential impacts consistent with the regulatory frameworks identified above. Project participation in the SJMSCP through the SJCOG JPA may provide a framework for addressing impacts to covered species, as described in Section 4.

6.2 Aquatic Resources and Jurisdictional Waters

Road widening at the five water feature crossings within the BSA has the potential to result in direct and indirect impacts to Waters of the State and potentially WOTUS, as summarized in **Table 5.3** of **Section 5.2.2**.

Direct Impacts: Work at Lone Tree Creek and Irrigation Feature 1 crossings that encroaches within the bed, bank, or riparian zone of these features would constitute a regulated activity under CDFW Fish and Game Code Section 1602, potentially requiring a Lake and Streambed Alteration Agreement (LSAA) prior to project initiation. If any fill material is placed within waters of the United States (which, at minimum, may include Lone Tree Creek pending formal jurisdictional determination), a USACE Section 404 permit and RWQCB Section 401 Water Quality Certification would be required. Based on preliminary engineering design, the total area of disturbance within waterways associated with proposed roadway widening, embankment fill, and drainage improvements is approximately 3,667 square feet (approximately 0.08 acre). The relatively limited disturbance footprint at these crossings may be addressable under a Nationwide Permit (e.g., NWP 14 - Linear Transportation Projects); however, permit applicability should be confirmed with USACE based on final engineering design and a formal jurisdictional determination.

Sweet Lateral and the four unnamed irrigation laterals function as managed, ephemeral conveyance features associated with the SSJID distribution system. As constructed irrigation infrastructure with managed and ephemeral

flow regimes, these features may not meet the definition of "relatively permanent, standing or continuously flowing bodies of water" under the current WOTUS framework, as amended by EPA and USACE to conform to the Supreme Court's decision in Sackett v. EPA, 598 U.S. 651 (2023) (88 FR 61964, effective September 8, 2023). However, as noted earlier in this section, several of these laterals convey surface water originating from Woodward Reservoir through the SSJID canal system, and hydrologic connectivity to waters of the United States or State may exist. Jurisdictional status should be confirmed through a formal aquatic resources delineation and jurisdictional determination.

***Indirect Impacts**:* Increased impervious surface associated with road widening could increase stormwater runoff volume and velocity at crossings, with potential for increased erosion, sedimentation, and turbidity in Lone Tree Creek and the unnamed perennial canal during storm events. Standard stormwater BMPs implemented as conditions of RWQCB coverage would minimize these indirect effects.

Riparian Habitat: The riparian fringe along Lone Tree Creek is subject to the 100-foot natural open space buffer requirement of San Joaquin County Development Title Section 9-707.030. Road widening activities that encroach within this buffer zone would require findings by the County's Review Authority that the activity is in the public interest and would trigger a requirement for a Riparian Habitat Mitigation Plan with minimum 2:1 replacement of any riparian habitat disturbed. The extent of encroachment within the 100-foot buffer at the Lone Tree Creek crossing has not been confirmed and requires evaluation against final Project design drawings.

6.3 Special-Status Species

Two special-status species (Swainson’s hawk and northwestern pond turtle) have moderate potential to occur and consequently may be impacted by the proposed Project. All 41 other special-status species that fell within the 9-quadrangle database search area have no to low potential to occur or be impacted and, therefore, are not analyzed any further for impacts. This special-status species impact analysis focuses on Swainson’s hawk and northwestern pond turtle and potential impacts relative to the road widening and intersection rerouting construction work that is proposed.

6.3.1 Swainson’s Hawk

Nesting Habitat

The BSA contains large valley oaks (10-30 inches dbh) along an unnamed irrigation ditch that constitute suitable Swainson's hawk nest trees, and CNDDB records document active nest sites within the Project vicinity. The proposed road widening improvements along Murphy Road (where the trees occur) are not anticipated to involve direct removal of any of the mapped valley oaks, as these trees occur along the ditch margin rather than within the primary road prism. However, this determination is contingent on confirmation of the final Project design footprint, which was not available at the time of this report. If road widening or shoulder improvements encroach within the dripline of mapped valley oaks, direct impacts to potential nest trees could occur through root zone compaction, grade changes, or inadvertent mechanical damage during construction (all of which are regulated under San Joaquin County Development Title, Section 9-400.080).

The more significant nesting-related impact concern is indirect disturbance. Construction activities within one-half mile of an active Swainson's hawk nest during the breeding season (March 15–September 15) could cause nest abandonment or reduced reproductive success, constituting take under CESA. The risk of this impact is currently unquantifiable because: (a) the construction schedule has not been confirmed, and (b) focused nesting surveys have not been conducted to determine whether an active nest is present within one-half mile of the project footprint. If construction is proposed during the breeding season, focused nesting surveys consistent with Swainson’s Hawk Technical Advisory Committee (SWHA TAC 2000) methodology are required prior to project initiation. If an active nest is confirmed within one-half mile of proposed construction activities, the project would be subject to the incidental take minimization measures established under SJMSCP Section 5.2.4.11, including maintenance of a no-disturbance buffer around the active nest until the nest is no longer active for the season.

The intersection rerouting component of the Project occurs through almond orchard and wheat fields and does not directly affect any other mapped valley oak trees. However, if the rerouting footprint extends within one-half mile of a subsequently confirmed active Swainson's hawk nest, the same indirect disturbance analysis applies.

Foraging Habitat

The wheat fields northeast of Mariposa Road within and adjacent to the BSA constitute high-quality Swainson's hawk foraging habitat. The proposed road widening involves conversion of a strip of road shoulder and ruderal ditch margin to paved road surface. Ruderal roadsides and ditch margins are of negligible foraging value for Swainson's hawk; accordingly, the direct conversion of these cover types does not constitute a significant loss of foraging habitat in isolation.

However, the intersection rerouting component of the Project involves conversion of almond orchard and wheat field to road infrastructure. Almond orchard is not suitable Swainson's hawk foraging habitat, but wheat field is among the highest-value foraging cover types identified in the SJMSCP for Central Zone Swainson's hawk populations (SJMSCP 2000, Section 5.4.4.4). Any permanent conversion of wheat field acreage within the intersection rerouting footprint constitutes a direct loss of Swainson's hawk foraging habitat subject to SJMSCP compensation requirements. The total acreage of wheat field converted by the intersection rerouting is estimated at approximately [0.33] acres pending receipt of final Project design drawings.

Additionally, the road widening improvements along the corridor, even where confined to the existing road prism and ruderal margins, occur within the foraging range of Swainson's hawks nesting at documented sites in the Project vicinity. The SJMSCP establishes that loss of foraging habitat within the Central Zone through permitted activities is a covered impact compensated through the plan's fee and land dedication program, regardless of cover type quality, provided the Project is enrolled in the SJMSCP. Project enrollment through the SJCOG JPA is the recommended compliance pathway for all foraging habitat impacts.

6.3.2 Northwestern Pond Turtle

Road widening activities at the two perennial water feature crossings (Lone Tree Creek and the unnamed perennial irrigation canal) have the potential to directly and indirectly affect northwestern pond turtle. The ephemeral drainage crossing is not considered to provide suitable pond turtle habitat and is not evaluated further in this analysis.

Direct Impacts*:* Road shoulder widening at perennial crossings involves approximately 3,667 square feet of disturbance at the edge of the existing road prism. If this disturbance extends within the OHWM of either feature, direct physical impacts to aquatic habitat, bank structure, and potential nesting areas on adjacent upland banks could occur. Construction equipment operating at bank edges during the active season (April–October) poses a direct risk of crushing or entrapment of individual turtles on adjacent banks, road shoulders, or within the construction zone, constituting take under the FESA (if listing is finalized) and implicating CDFW SSC protections under CEQA.

Indirect Impacts: Construction-related sedimentation and turbidity at water feature crossings could temporarily degrade aquatic habitat quality within Lone Tree Creek and the unnamed perennial irrigation canal. Increased impervious surface associated with road widening could alter stormwater runoff volume and timing at crossings, with potential downstream effects on water quality and channel morphology.

6.3.3 Low Potential Special-Status Species

Ten special-status wildlife species and eight plant species were assigned a Low Potential rating in the potential to occur table **(Appendix B),** reflecting the marginal character of available habitat and the low likelihood of regular or breeding occurrence within the BSA. The wildlife species include include giant garter snake (*Thamnophis gigas*), tricolored blackbird, pallid bat (*Antrozous pallidus*), western mastiff bat (*Eumops perotis californicus*), three bumble bee species (*Bombus crotchii*, *Bombus occidentalis*, and *Bombus caliginosus*), Aleutian Canada goose (*Branta canadensis leucopareia*), merlin (*Falco columbarius*), and western yellow-billed cuckoo (*Coccyzus americanus occidentalis*).

The BSA does not provide sufficient habitat quality or quantity to support populations of these species that could be meaningfully affected by the proposed Project activities. No Project-specific impact analysis or species-specific mitigation measures are recommended for Low Potential species; standard construction BMPs and nesting bird avoidance measures outlined below provide adequate protection for any transient individuals that may occur within the BSA.

6.4 Nesting Birds and Migratory Species

Valley oaks, Fremont cottonwood, willows, and dense emergent vegetation within the BSA provide nesting habitat for a variety of native birds protected under FGC Sections 3503, 3503.5, and 3513 and the MBTA. Construction activities during the breeding season (generally February 1–September 15 for most passerines and riparian species; March 15–September 15 for Swainson's hawk, as discussed above) within or immediately adjacent to occupied nesting habitat could result in nest abandonment, failure, or direct destruction of nests with eggs or young, constituting take under the FGC and a violation of the MBTA.

The Fremont cottonwood stand within the intersection rerouting footprint is of particular concern. If these trees support active nests at the time of clearing, direct nest destruction would occur. The small stand of approximately 15 cottonwood trees (8–15 inches dbh), while not large enough to support Swainson's hawk nesting, provides suitable nesting substrate for several riparian passerine species and could support nesting yellow warbler (*Setophaga petechia),* western kingbird (*Tyrannus verticalis*), or other species during the breeding season.

6.5 Sensitive Natural Communities - Native Trees

6.5.1 Sensitive Natural Communities

No SNCs as formally defined by CDFW were documented within the BSA. The riparian fringe vegetation along Lone Tree Creek and the emergent aquatic vegetation of the unnamed perennial irrigation canal, while not qualifying as SNCs, constitute locally significant biological resources addressed under aquatic resources and riparian habitat impacts in **Section 6.2**.

6.5.2 Native Trees

6.5.2.1 Valley Oak

Several large valley oaks (10-30 inches dbh) mapped along the unnamed irrigation ditch #2 within the BSA may be protected under San Joaquin County Development Title, Section 9-400.080. As native oak trees under the ordinance, removal requires an approved Improvement Plan application and 3:1 replacement. If any mapped oaks qualify as heritage oak trees based on size or designation, removal is subject to a higher threshold of necessity and 5:1 replacement.

Based on field observations and preliminary Project information, direct removal of mapped valley oaks is not expected or anticipated to be required by road widening improvements, because the trees occur along the ditch margin and are likely outside the primary widening footprint. However, road widening that extends within the dripline of these trees could constitute a regulated activity under Section 9-400.080, requiring installation of protective fencing at the dripline prior to grading, no grade changes within 6 feet of the trunk, and prohibition on trenching within the protected zone. Confirmation of the final Project footprint relative to the driplines of mapped oaks is required before a definitive impact determination can be made.

6.5.2.2 Fremont Cottonwood

The small stand of approximately 15 Fremont cottonwood trees (8–15 inches dbh) documented within the proposed intersection rerouting footprint is anticipated to be directly removed by Project construction. Fremont cottonwood is a

native riparian tree that, while not protected under SJC Section 9-400.080 such as the native valley oak are, contributes to local riparian function and provides nesting habitat as discussed in **Section 6.4**. This particular cottonwood stand does not fall within the category of native riparian vegetation that would be subject to CDFW Section 1602 jurisdiction because there is not hydrological connectivity to adjacent water features. Therefore, the removal of the trees would not be subject to the riparian habitat provisions of SJC Development Title, Section 9-707.030.

7. Avoidance and Minimization Measures

The following avoidance and minimization measures are recommended to reduce potential impacts to biological resources identified in **Section 6**. Measures are organized by resource category consistent with the impact analysis presented in **Section 6**. Implementation of these measures shall be the responsibility of the Project applicant unless otherwise noted. Prior to project initiation, the Project applicant shall enroll the project in the SJMSCP by submitting a Request for Project Coverage Form to the SJCOG JPA. SJMSCP enrollment is a prerequisite for implementation of several of the measures described below and shall be completed before ground disturbance commences.

7.1 General Avoidance and Minimization Measures

Measure BIO-1: Construction Footprint Minimization

San Joaquin County Department of Public Works (Project applicant) shall minimize the construction disturbance footprint to the maximum extent practicable. Construction staging areas, equipment storage, and access routes shall be sited within previously disturbed areas of the road prism and right-of-way to the extent feasible and shall minimize impacts within the dripline of valley oak trees, minimize impacts to the riparian buffer of Lone Tree Creek, and minimize impacts to the bank edge of all perennial water features.

Measure BIO-2: Vegetation Clearing Limitations

Vegetation clearing shall be limited to the minimum area necessary to accomplish Project objectives. Clearing of native vegetation, including riparian fringe vegetation along Lone Tree Creek and the unnamed perennial irrigation canal #1 and native trees within the Project footprint, shall not commence until all applicable permits and agreements have been obtained and all applicable pre-construction surveys required by these measures have been completed.

Measure BIO-3: Worker Environmental Awareness Training

Prior to commencement of ground disturbance, all construction personnel shall participate in a Worker Environmental Awareness Program (WEAP) conducted by a qualified biologist. The WEAP shall include at minimum: an overview of the sensitive biological resources present within and adjacent to the BSA, including Swainson's hawk, northwestern pond turtle, nesting birds, native trees, and jurisdictional water features; identification of established avoidance buffers, exclusion zones, and environmentally sensitive area boundaries; protocols for reporting wildlife observations or potential violations to the biological monitor; and requirements for trash management, food storage, and prevention of wildlife attractants within the construction zone. Documentation of WEAP completion shall be maintained by the San Joaquin County Department of Public Works (Project applicant) and made available to the lead agency upon request.

Measure BIO-4: Biological Monitor

A qualified biological monitor shall be retained by San Joaquin County Department of Public Works (Project applicant) to oversee implementation of the biological resource protection measures specified in this section. The biological monitor shall be present during all initial ground disturbance and vegetation clearing activities, during all work within 50 feet of perennial water features, and at any other times specified in the LSAA or SJMSCP incidental take minimization measures. The biological monitor shall have authority to halt construction if sensitive biological resources are

encountered and shall submit a monitoring report to San Joaquin County Public Works and SJCOG JPA upon completion of project construction.

Measure BIO-5: Lighting Restrictions

If nighttime construction or permanent lighting is proposed as part of the Project, a lighting plan shall be prepared and submitted to San Joaquin County for review prior to Project approval. The lighting plan shall demonstrate that light spillover onto native vegetation, riparian areas, and agricultural lands used for Swainson's hawk foraging is minimized through the use of directional fixtures, full cutoff housings, and the minimum illumination levels necessary for safety. Warm-spectrum (amber or sodium vapor) lighting shall be used in preference to cool-spectrum (blue-white LED) lighting to minimize attraction of insects and nocturnal wildlife to the construction zone and permanent road corridor.

7.2 Aquatic Resources and Riparian Habitat

Measure BIO-6: CDFW Section 1602 Notification

Prior to initiation of any Project activity that may substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake within the BSA, the San Joaquin County Department of Public Works (Project applicant) shall notify CDFW pursuant to Fish and Game Code Section 1602 (FGC Section 1602). The Section 1602 notification requirement applies to any river, stream, or lake, including those that are ephemeral or episodic, as well as watercourses with subsurface flow (CDFW 2025). citeturn64search537

Seven water features were identified within the BSA (Table 5.3), including Lone Tree Creek, Irrigation Feature 5 (Sweet Lateral), and five unnamed irrigation laterals. All seven features may be subject to CDFW jurisdiction under Section 1602 depending on the nature and extent of project activities at each crossing. The need for Section 1602 notification at each water feature crossing shall be determined in consultation with CDFW based on final engineering design and the scope of proposed disturbance.

San Joaquin County Department of Public Works shall initiate early coordination with CDFW to determine notification requirements prior to finalizing construction plans at water feature crossings. No in-channel work or bank disturbance shall commence at any water feature crossing until a Lake and Streambed Alteration Agreement (LSAA) has been obtained or CDFW has confirmed in writing that notification is not required.

Measure BIO-7: Riparian Protection

Project activities at the Lone Tree Creek crossing shall be designed to minimize encroachment on riparian vegetation and the natural bank to the maximum extent practicable, consistent with the intent of San Joaquin County General Plan Policy NCR-2.8 (Natural Open Space Buffer) and the riparian habitat protection provision of Development Title, Section 9-707.030. The applicability of the Section 9 riparian buffer standard to this public road improvement project shall be confirmed with the San Joaquin County Community Development prior to finalizing the Project design at the Lone Tree Creek crossing. If the buffer standard is determined to apply, a Riparian Habitat Mitigation Plan shall be prepared consistent with Section 9-707.030.

Measure BIO-8: Stormwater Best Management Practices

San Joaquin County Department of Public Works (Project applicant) shall prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) consistent with RWQCB requirements prior to ground disturbance. The SWPPP shall include BMPs to minimize construction-related erosion, sedimentation, and turbidity at all five water feature crossings during and following construction. BMPs shall include at minimum: installation of silt fencing, straw wattles, or equivalent sediment barriers at the perimeter of disturbance areas adjacent to water features; designation of a concrete washout area and equipment fueling station at a minimum of 100 feet from any water feature; prohibition on stockpiling of soil or construction materials within the riparian buffer of Lone Tree Creek; and daily inspection of erosion control measures by the biological monitor or contractor's erosion control specialist.

Measure BIO-9: In-Channel Work Timing Restriction

If in-channel work is required at Lone Tree Creek or Irrigation Feature 1, the timing of such work shall be consistent with the Incidental Take Minimization Measures (ITMMs) issued by SJCOG, Inc. pursuant to the SJMSCP (SJCOG 2000) and any conditions established in the Lake and Streambed Alteration Agreement (LSAA) obtained pursuant to Measure BIO-6.

If the Project does not participate in the SJMSCP, or if SJCOG does not prescribe species-specific timing restrictions for a particular crossing, in-channel work at water feature crossings supporting aquatic habitat (Lone Tree Creek and Irrigation Feature 1) should be scheduled to avoid the northwestern pond turtle restricted activity period identified in the SJMSCP Species Calendar (March 1 through May 31) to the extent practicable (SJCOG 2000). In-channel work during the pond turtle active season (April 1 through October 31) should also be avoided to the extent practicable to minimize potential disturbance to active individuals.

If in-channel work during restricted or sensitive periods cannot be avoided, pre-construction pond turtle surveys and exclusion measures consistent with Measures BIO-5 through BIO-7 shall be implemented immediately prior to and during in-channel activities, in coordination with CDFW and SJCOG.

7.3 Special-Status Species

7.3.1 Swainson’s Hawk

Measure BIO-10: Coverage Under the SJMSCP and Preconstruction Survey Coordination

Prior to ground disturbance, the San Joaquin County Department of Public Works (Project applicant) shall enroll the Project in the SJMSCP by submitting a Request for Project Coverage Form to the SJCOG JPA. As part of the enrollment process, the SJCOG JPA shall coordinate preconstruction biological surveys of the Project site consistent with SJMSCP Section 5.2.2. Survey results shall be used to determine the presence of Swainson's hawk nests within one-half mile of the Project disturbance footprint and to establish applicable incidental take minimization measures consistent with SJMSCP Section 5.2.4.11. The San Joaquin County Department of Public Works (Project applicant) shall provide the SJCOG JPA with sufficient advance notice to allow surveys to be completed prior to the anticipated start of ground disturbance.

Measure BIO-11: Focused Swainson's Hawk Nesting Surveys

If construction is proposed during the Swainson's hawk breeding season (March 15-September 15), a qualified biologist shall conduct focused nesting surveys within one-half mile of the Project disturbance footprint prior to initiation of ground disturbance, consistent with the survey methodology and timing requirements established by the SWHA TAC (2000). Surveys shall include all suitable nest trees within one-half mile of the project boundary, with particular attention to the large valley oaks (20-40 inches dbh) mapped along the unnamed irrigation ditch within the BSA. Survey results shall be submitted to SJCOG JPA and shall be incorporated into the SJMSCP preconstruction survey record. If construction is proposed outside the breeding season (September 16- March 14), focused nesting surveys are not required, though SJMSCP preconstruction survey coordination per Measure BIO-10 would still be required.

Measure BIO-3: Nest Avoidance Buffer

If an active Swainson's hawk nest is confirmed within one-half mile of the Project disturbance footprint during surveys conducted pursuant to Measure BIO-11, a no-disturbance buffer of one-half mile shall be established around the active nest and maintained throughout the breeding season (March 15-September 15) or until the nest is no longer active for the season, as determined by a qualified biologist in coordination with SJCOG JPA. No ground disturbance, vegetation clearing, equipment staging, or other construction activities shall occur within the no-disturbance buffer while the nest is active. The no-disturbance buffer may be modified in size and shape based on site-specific conditions, topography, and intervening vegetation, subject to approval by SJCOG JPA and CDFW.

Measure BIO-12: Foraging Habitat Compensation

The San Joaquin County Department of Public Works (Project applicant) shall compensate for permanent conversion of Swainson's hawk foraging habitat (row crop and field crop cover types) within the Project disturbance footprint through payment of applicable SJMSCP mitigation fees to the SJCOG JPA, consistent with SJMSCP Sections 5.2.4.11 and 5.3.2. The total acreage of foraging habitat converted shall be determined from final Project design drawings and confirmed with SJCOG JPA prior to fee payment. Fee payment shall occur prior to or concurrent with ground disturbance consistent with SJMSCP Section 5.3.2.3. In lieu of fee payment, the San Joaquin County Department of Public Works (Project applicant) may elect to dedicate replacement lands as conservation easements or purchase credits from an SJMSCP-approved mitigation bank, subject to SJCOG JPA approval.

7.3.2 Northwestern Pond Turtle

Measure BIO-13: SJMSCP Preconstruction Pond Turtle Survey

Consistent with SJMSCP Section 5.2.4.10, the SJCOG JPA shall coordinate preconstruction surveys for northwestern pond turtle at the two perennial water feature crossings within the BSA (Lone Tree Creek and the unnamed perennial irrigation canal) prior to ground disturbance at each crossing. Surveys shall be conducted by a qualified biologist during the active season (April 1-October 31) within 24 hours prior to the initiation of ground disturbance at each crossing location. If construction at water feature crossings is proposed outside the active season (November 1-March 31), surveys shall still be conducted immediately prior to ground disturbance; however, the probability of turtle detection is reduced during cooler months when turtles may be dormant. The ephemeral drainage crossing does not provide suitable pond turtle habitat and pre-construction surveys are not required at that location.

Measure BIO-14: Pond Turtle Exclusion Fencing

Coverage through participation in the SJMSCP. Avoidance and minimization measures for northwestern pond turtle (western pond turtle under the SJMSCP) at water feature crossings shall be implemented in accordance with the Incidental Take Minimization Measures (ITMMs) issued by SJCOG, Inc. pursuant to SJMSCP Section 5.2.4.10 (Pond Turtles) and the SJMSCP Species Calendar (SJCOG 2000). The ITMMs may include, but are not limited to, pre-construction surveys, biological monitoring, species-specific timing restrictions, and capture and relocation protocols. The Project applicant shall sign and adhere to all ITMMs as issued by SJCOG prior to ground disturbance at water feature crossings.

Measure BIO-15: Pond Turtle Relocation

If a northwestern pond turtle is detected within the Project disturbance footprint during surveys conducted pursuant to Measure BIO-13 or during biological monitoring, the individual shall be relocated to suitable habitat away from the construction zone by a qualified biologist prior to ground disturbance. Relocation shall occur to the nearest suitable aquatic habitat outside the disturbance footprint, at a location determined by the qualified biologist in coordination with SJCOG JPA. Relocated individuals shall not be moved more than 300 meters from the point of capture. Relocation activities shall be documented and reported to SJCOG JPA consistent with SJMSCP reporting requirements.

Measure BIO-16: Biological Monitoring at Water Feature Crossings

A qualified biological monitor shall be present during all ground disturbance activities within 50 feet of the bank of Lone Tree Creek and the unnamed perennial irrigation canal #1. The biological monitor shall have authority to halt construction if a pond turtle or other sensitive aquatic species is observed within the disturbance zone. The biological monitor shall document all wildlife observations during monitoring and submit a monitoring report to San Joaquin County Department of Public Works (Project applicant) and SJCOG JPA upon completion of construction activities at each crossing.

7.4 Nesting Birds and Migratory Species

Measure BIO-17: Pre-Construction Nesting Bird Survey

If vegetation clearing, tree removal, or ground disturbance is proposed during the bird breeding season (February 1 through September 15), a qualified biologist shall conduct a pre-construction nesting bird survey within the Project disturbance footprint and a 250-foot buffer for raptors and a 50-foot buffer for all other nesting bird species no more than seven days prior to initiation of clearing or disturbance activities. The survey shall document all active nests within the survey area, including nests of raptors protected under FGC Section 3503.5 and nests of migratory birds protected under the MBTA. If active nests are detected, the qualified biologist shall establish species-appropriate no-disturbance buffers based on species sensitivity, nest location, line of sight to construction activities, and existing ambient disturbance levels. Buffer distances may be adjusted at the discretion of the qualified biologist based on site-specific conditions and observed bird behavior. Survey results and buffer recommendations shall be submitted to the San Joaquin County Department of Public Works (Project applicant) prior to commencement of clearing.

Measure BIO-18: Nesting Season Avoidance

If practicable, vegetation clearing and tree removal — particularly removal of the Fremont cottonwood stand within the intersection rerouting footprint — shall be scheduled outside the bird breeding season (September 16-January 31) to avoid the potential for nest disturbance or destruction. If clearing outside the breeding season is not practicable, pre-construction nesting bird surveys shall be conducted pursuant to Measure BIO-17.

Measure BIO-19: Active Nest Avoidance Buffer

If an active nest is identified during surveys conducted pursuant to Measure BIO-17, a no-disturbance buffer shall be established around the nest and maintained until the nest is no longer active, as determined by the qualified biologist. Buffer distances shall be established by the qualified biologist based on the nesting species, nest location, line of sight to construction activities, existing ambient disturbance levels, and surrounding site conditions. The following minimum buffer distances are provided as general guidelines:

- Raptors nesting in trees — 500 feet
- Passerines nesting in riparian or emergent vegetation — 100 feet
- Ground-nesting birds — 50 feet

These distances may be increased or reduced by the qualified biologist based on species sensitivity, observed bird behavior, and site-specific conditions, provided that any reduction is supported by documented observations confirming that construction activities are not causing visible signs of disturbance to the nesting pair (e.g., flushing, agitation, nest abandonment). No construction activities shall occur within the established buffer while the nest is active.

7.5 Sensitive Natural Communities – Native Trees

Measure BIO-20: Valley Oak Dripline Protection

Prior to ground disturbance, all valley oaks mapped within or adjacent to the Project disturbance footprint shall be surveyed by a qualified arborist or biologist to confirm their location, size, and condition, and to delineate the protected zone (dripline) of each tree. A minimum 5-foot-high chain link fence or equivalent protective barrier shall be installed at the outermost edge of the dripline of each mapped valley oak prior to commencement of grading operations, consistent with San Joaquin County Development Title, Section 9-400.080. Protective fencing shall remain in place throughout the construction period. No grading, trenching, filling, equipment staging, or storage of materials shall occur within the protected zone. No grade changes shall occur within 6 feet of the trunk of any subject tree, and no grade changes exceeding 6 inches shall occur within the protected zone. If underground utility installation is required

within the protected zone of any oak, a conduit shall be installed by boring or directional drilling rather than open trenching.

Measure BIO-21: Valley Oak Removal Authorization and Replacement

If final Project design confirms that removal of one or more native oak trees is required, the San Joaquin County Department of Public Works (Project applicant) shall obtain an approved Improvement Plan application from San Joaquin County Community Development Department prior to tree removal, consistent with San Joaquin County Development Title Section 9-400.080. Each native oak tree removed shall be replaced with three replacement trees or acorns of the same or approved species, planted between October 1 and December 31 within 18 months of removal, and maintained for a minimum of three years consistent with Section 9-400.080. If any mapped oaks meet the criteria for heritage oak tree designation based on size or other characteristics, the higher threshold for removal authorization and 5:1 replacement ratio shall apply.

Measure BIO-22: Fremont Cottonwood Replacement

Removal of approximately 15 (8-15 inches dbh) Fremont cottonwood trees within the intersection rerouting footprint shall be mitigated through 2:1 replacement planting at the same site. The trees are currently providing potential nesting and roosting habitat for native birds and Swainson' hawk directly adjacent to a wheat field, considered good foraging habitat for Swainson's hawk. Removal of cottonwood trees shall be timed to avoid the bird breeding season consistent with Measure BIO-18, or pre-construction nesting bird surveys shall be conducted pursuant to Measure BIO-17 if removal cannot be avoided during the breeding season. Replacement planting shall be installed concurrent with Project completion, maintained for a minimum of three years, and documented in a mitigation monitoring report submitted to San Joaquin County each year.

8. Conclusion

GHD conducted a biological resources assessment for the proposed Mariposa Road and Escalon-Bellota Specific Plan that includes road widening improvements and intersection rerouting in San Joaquin County, California. Field reconnaissance was conducted on March 5-6, 2026, by a GHD Biologist, preceded by a desktop review of biological resources databases and literature. The assessment was conducted to support preparation of an IS/MND under CEQA, with San Joaquin County serving as the lead agency.

The BSA is dominated by irrigated almond orchard, row crop agriculture, road surfaces and ruderal roadside and ditch margin vegetation, with native vegetation restricted to narrow riparian fringes along two perennial water features, scattered large valley oaks along an unnamed irrigation ditch, and a small stand of Fremont cottonwood within the proposed intersection rerouting footprint. No special-status plant species or sensitive natural communities were documented within the BSA. The primary biological resource findings and regulatory drivers for the Project are summarized below.

Special-Status Species

- Swainson's hawk (State Threatened) is the primary regulatory driver for this Project. Large valley oaks within the BSA constitute suitable nest trees and multiple active CNDDB-documented nest sites occur in the Project vicinity. Wheat fields northeast of Mariposa Road represent high-quality foraging habitat subject to SJMSCP compensation requirements. Focused nesting surveys consistent with SWHA TAC (2000) are required prior to ground disturbance if construction occurs during the breeding season (March 15-September 15).
- Northwestern pond turtle (proposed Federal Threatened; CDFW Species of Special Concern) has Moderate Potential to occur in Lone Tree Creek and the unnamed perennial irrigation canal. Pre-construction surveys and relocation by a qualified biologist prior to ground disturbance at both perennial crossings are recommended consistent with SJMSCP Section 5.2.4.10.

- No other special-status species were observed or are anticipated to occur within the BSA at levels that would require Project-specific mitigation beyond the standard measures outlined in **Section 7**.

Aquatic Resources and Riparian Habitat

- Seven water features were documented within the BSA (**Table 5.3**) (**Appendix A, Figure 6-1 through 6-6**), including Lone Tree Creek, Sweet Lateral, and five unnamed irrigation laterals. Several features are part of the SSJID distribution system, which conveys surface water from Woodward Reservoir, and hydrologic connectivity to waters of the United States or State may exist.
- Lone Tree Creek and Irrigation Feature 1 support the highest-quality aquatic and riparian habitat within the BSA. The remaining five features are managed, ephemeral irrigation laterals with no functional aquatic or riparian habitat observed during field reconnaissance.
- A formal ARD was not included within the scope of services for this Project. Regulatory jurisdiction under CDFW Section 1602, USACE Section 404, and the Porter-Cologne Water Quality Control Act was not determined and should be established through a formal ARD and jurisdictional determination prior to Project permitting. Early coordination with CDFW is recommended to determine Section 1602 notification requirements at water feature crossings.
- A SWPPP consistent with Central Valley RWQCB requirements shall be prepared and implemented prior to ground disturbance.

Sensitive Natural Communities - Native Trees

- Large valley oaks (10-30 inches dbh) along the unnamed irrigation ditch #2 may be covered under SJC Development Title, Section 9-400.080. If they are covered under this provision, then Project activities within the dripline of these trees could subject to a minimum 3:1 and maximum 5:1 replacement obligation.
- The Fremont cottonwood stand within the intersection rerouting footprint is anticipated to be directly removed by project construction and shall be mitigated through replacement planting of native Fremont cottonwood trees at a minimum 2:1 ratio.
- Clearing of the cottonwood stand and any other native tree removal shall be timed outside the bird breeding season (February 1-September 15) or pre-construction nesting bird surveys shall be conducted if off-season clearing is not practicable.

SJMSCP and Regulatory Compliance Pathway

- Project enrollment in the SJMSCP through the SJCOG JPA is the recommended pathway for achieving regulatory compliance under both the FESA and CESA for impacts to Swainson's hawk, northwestern pond turtle, and all other SJMSCP covered species. The San Joaquin County Department of Public Works (Project applicant) shall submit a Request for Project Coverage Form to SJCOG JPA prior to ground disturbance.
- Compensation for permanent conversion of Swainson's hawk foraging habitat (wheat field) within the intersection rerouting footprint shall be addressed through payment of applicable SJMSCP mitigation fees to the SJCOG JPA, consistent with SJMSCP Sections 5.2.4.11 and 5.3.2. The total fee obligation shall be determined from final Project design drawings in consultation with SJCOG JPA.
- The San Joaquin County Department of Public Works (Project applicant) shall initiate early coordination with SJCOG JPA, CDFW, and San Joaquin County Community Development to confirm regulatory requirements and establish the permitting pathway prior to submission of the IS/MND for public review.

With implementation of the avoidance and minimization measures presented in **Section 7** of this report (Measures BIO-1 through BIO-22), potential impacts to biological resources associated with the proposed Project improvements are anticipated to be reduced to a less-than-significant level under CEQA.

9. Report Preparers

9.1 Client

San Joaquin County Department of Public Works

9.2 GHD

Clint Emerson, Senior Biologist & Wetland Scientist, Author

10. References

Blomberg, E.J., B.E. Ross, C.J. Cardinal, S.N. Ellis-Felege, D. Gibson, A.P. Monroe, and P.K. Schwalenberg. 2022. Galliform exclusion from the Migratory Bird Treaty Act has produced an alternate conservation path, but no evidence for differences in population status. Ornithological Applications 124(1): duab051.

Bumble Bee Watch. 2026. Bumble Bee Watch. Accessed March 2026.

California Coastal Commission. 2013. Wetlands and Riparian Areas: Water Quality Management Measures.

California Department of Fish and Wildlife (CDFW). 1994. Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (*Buteo swainsoni*) in the Central Valley of California. Sacramento, California.

California Department of Fish and Wildlife (CDFW). 2000. Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley. May 31, 2000.

California Department of Fish and Wildlife (CDFW). 2007. California Salmonid Stream Habitat Restoration Manual. Part XI: Riparian Habitat Restoration. Sacramento, California.

California Department of Fish and Wildlife (CDFW). 2025a. Biogeographic Information and Observation System (BIOS) California Natural Diversity Database (CNDDB) QuickView Tool. State of California, Natural Resources Agency, Department of Fish and Wildlife, Biogeographic Data Branch, Sacramento, California, USA. **https://wildlife.ca.gov/Data/CNDDB/Maps-and-Data**

California Department of Fish and Wildlife (CDFW). 2025b. RareFind 5. State of California, Natural Resources Agency, Department of Fish and Wildlife, Biogeographic Data Branch, Sacramento, California, USA.

California Department of Fish and Wildlife (CDFW). 2025c. Vegetation Classification and Mapping Program (VegCAMP) Natural Communities Lists. State of California, Natural Resources Agency, Department of Fish and Wildlife, Sacramento, California, USA. **https://wildlife.ca.gov/Data/VegCAMP/Natural-Communities**

California Native Plant Society (CNPS). 2023. Guidelines for Mapping Sensitive Natural Communities. CNPS Vegetation Program. Available at: Guidelines for Mapping Sensitive Natural Communities**.**

California Native Plant Society (CNPS). 2025. Manual of California Vegetation, Online Edition. California Native Plant Society, Sacramento, California, USA. www.cnps.org/vegetation

California State Water Resources Control Board (SWRCB). 2019. *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State.* Adopted April 2, 2019.

Cornell Lab of Ornithology. 2026. *eBird: An online database of bird distribution and abundance* https://www.ebird.org. Accessed March 2026.

County of San Diego. 1998. *Multiple Species Conservation Program (MSCP) Subarea Plan.*

Endangered Species Act of 1973 (ESA), 16 U.S.C. § 1532(19). 1995. *Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*, 515 U.S. 687. U.S. Fish and Wildlife Service regulations at 50 CFR § 17.3 define "harm" to include significant habitat modification or degradation that actually kills or injures wildlife by impairing essential behavioral patterns

Estep, J. A. 1989. Biology, movements, and habitat relationships of the Swainson's hawk in the Central Valley of California. California Department of Fish and Game, Nongame Bird and Mammal Section Report 89-4. Sacramento, California, USA.

Faber-Langendoen, D., J. Nichols, L. Master, K. Snow, A. Tomaino, R. Bittman, G. Hammerson, B. Heidel, L. Ramsay, A. Teucher, and B. Young. 2012. NatureServe Conservation Status Assessments: Methodology for Assigning Ranks. NatureServe, Arlington, VA.

Natural Resources Conservation Service (NRCS). 2026. Custom Soil Resource Report for San Joaquin County, California. U.S. Department of Agriculture, Natural Resources Conservation Service, Web Soil Survey. Survey Area Data Version 19, September 9, 2025. **https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm**

National Marine Fisheries Service (NMFS). 2026. *National ESA Critical Habitat Mapper*. National Oceanic and Atmospheric Administration (NOAA) Fisheries. Available at: **National ESA Critical Habitat Mapper**. Accessed March 2026

National Oceanic and Atmospheric Administration (NOAA). 2026. *Essential Fish Habitat Mapper*. NOAA Fisheries, Office of Habitat Conservation. Available at: **Essential Fish Habitat Mapper**. Accessed March 2026

San Joaquin Council of Governments (SJCOG). 2000. San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP). Adopted November 14, 2000. San Joaquin Council of Governments, Stockton, California, USA. **https://www.sjcog.org/DocumentCenter/View/5/Habitat-Planpdf**

San Joaquin County. 2016. San Joaquin County General Plan 2035, Natural and Cultural Resources Element. San Joaquin County Community Development Department, Stockton, California, USA.

San Joaquin County. 2025. San Joaquin County Development Title, Section 9-707.030 (Riparian Habitat). San Joaquin County Community Development Department, Stockton, California, USA.

San Joaquin County. 2025. San Joaquin County Development Title, Section 9-400.080 (Trees on Private Property). San Joaquin County Community Development Department, Stockton, California, USA.

Sawyer, J.O., T. Keeler-Wolf, and J.M. Evans. 2009. A Manual of California Vegetation, Second Edition. California Native Plant Society, Sacramento, California, USA.

Swainson's Hawk Technical Advisory Committee (SWHA TAC). 2000. Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley. May 31, 2000.

Supreme Court of the United States. 2023. Sackett v. Environmental Protection Agency, 598 U.S. 651. Retrieved from: **https://www.supremecourt.gov/opinions/22pdf/21-454_4g15.pdf**

U.S. Department of the Interior. 2025. *Solicitor's Opinion M-37085: Withdrawal of Solicitor Opinion M-37065 and Reinstatement of M-37050*. Office of the Solicitor, April 11, 2025. The opinion reinstates the 2017 interpretation that the Migratory Bird Treaty Act applies only to intentional take

U.S. Fish and Wildlife Service (USFWS). 2021. *Migratory Bird Treaty Act; Final Rule Revocation of Incidental Take Regulation and Director's Order No. 225*. Federal Register, October 4, 2021 (effective December 3, 2021). The Service reinstated its interpretation that the MBTA applies to both intentional and incidental take of migratory birds

U.S. Fish and Wildlife Service (USFWS). 2023. Endangered and Threatened Wildlife and Plants; Threatened Species Status with Section 4(d) Rule for the Northwestern Pond Turtle and Southwestern Pond Turtle. Federal Register 88(191):68370. October 3, 2023.

U.S. Fish and Wildlife Service (USFWS). 2024. *Bald and Golden Eagle Protection Act (16 U.S.C. 668–668d).* The Act prohibits the take, possession, sale, purchase, transport, or disturbance of bald and golden eagles, including their parts, nests, or eggs, without a permit.

U.S. Fish and Wildlife Service (USFWS). 2025a. Information for Planning and Consultation (IPaC). U.S. Department of the Interior, Fish and Wildlife Service, Ventura Fish and Wildlife Office, Ventura, California, USA. **https://ecos.fws.gov/ipac/**

U.S. Fish and Wildlife Service (USFWS). 2025b. National Wetlands Inventory Mapper. U.S. Department of the Interior, Fish and Wildlife Service, Washington, District of Columbia, USA. **https://www.fws.gov/wetlands/data/mapper.html**

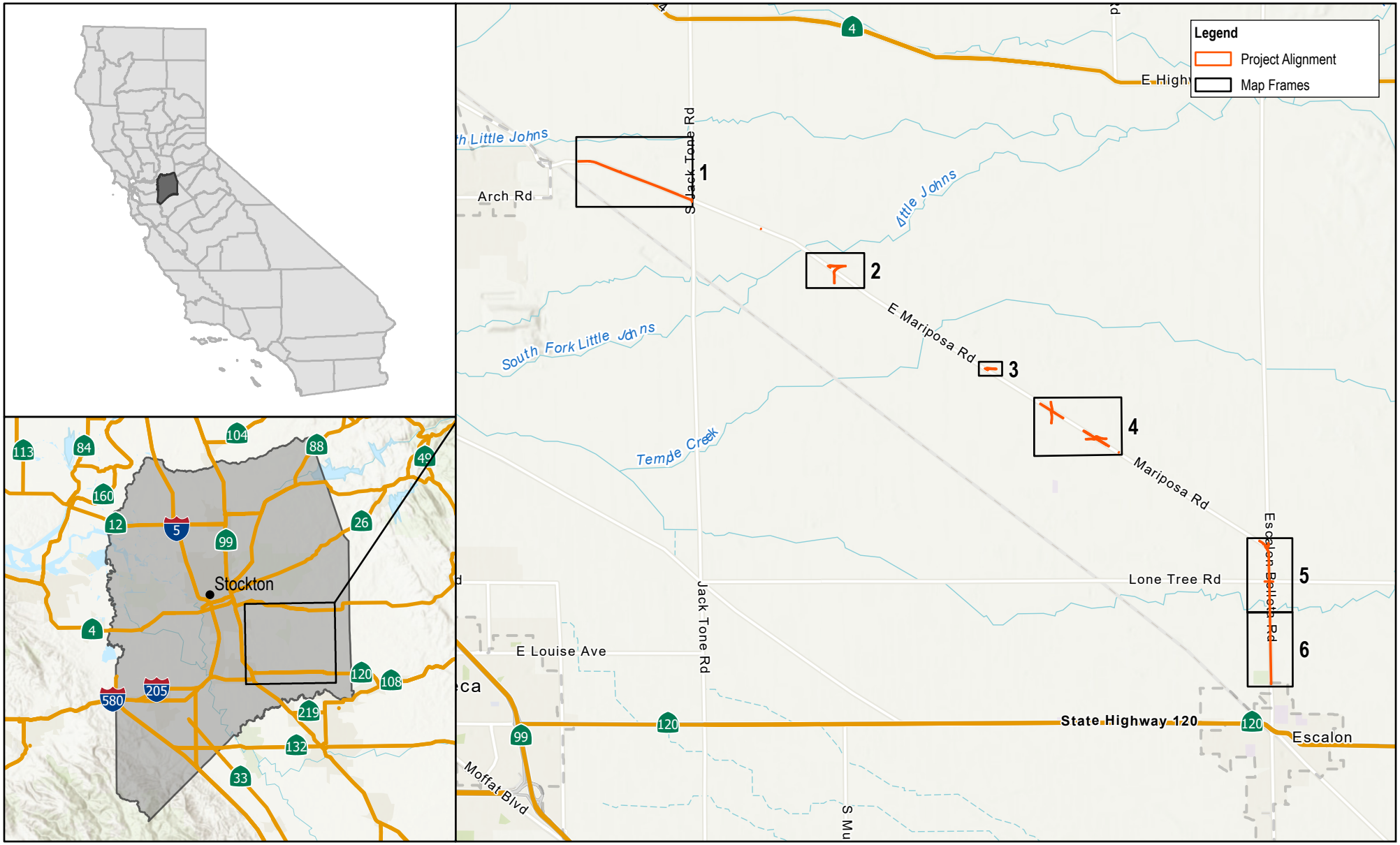
U.S. Fish and Wildlife Service (USFWS). 2025c. Conservation Plans Region Summary HCP. U.S. Department of the Interior, Fish and Wildlife Service, Sacramento Fish and Wildlife Office, Sacramento, California, USA. **https://ecos.fws.gov/ecp/report/conservation-plans-region-summary?region=8&type=HCP**

U.S. Geological Survey (USGS). 2025. National Hydrography Dataset. U.S. Department of the Interior, Geological Survey, Reston, Virginia, USA. **https://www.usgs.gov/national-hydrography/national-hydrography-dataset**

U.S. Army Corps of Engineers (USACE). 1987. Corps of Engineers Wetlands Delineation Manual. Waterways Experiment Station Technical Report Y-87-1. U.S. Army Engineer Research and Development Center, Vicksburg, Mississippi, USA.

U.S. Army Corps of Engineers (USACE). 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). ERDC/EL TR-08-28. U.S. Army Engineer Research and Development Center, Vicksburg, Mississippi, USA.

Appendix A
Figures



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County of San Joaquin
Mariposa Road and Escalon-Bellota Road
Specific Plan

Project No. **12635063**
Revision No. **-**
Date **Apr 2026**

Vicinity Map

FIGURE 1

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County of San Joaquin
Mariposa Road and Escalon-Bellota Road
Specific Plan

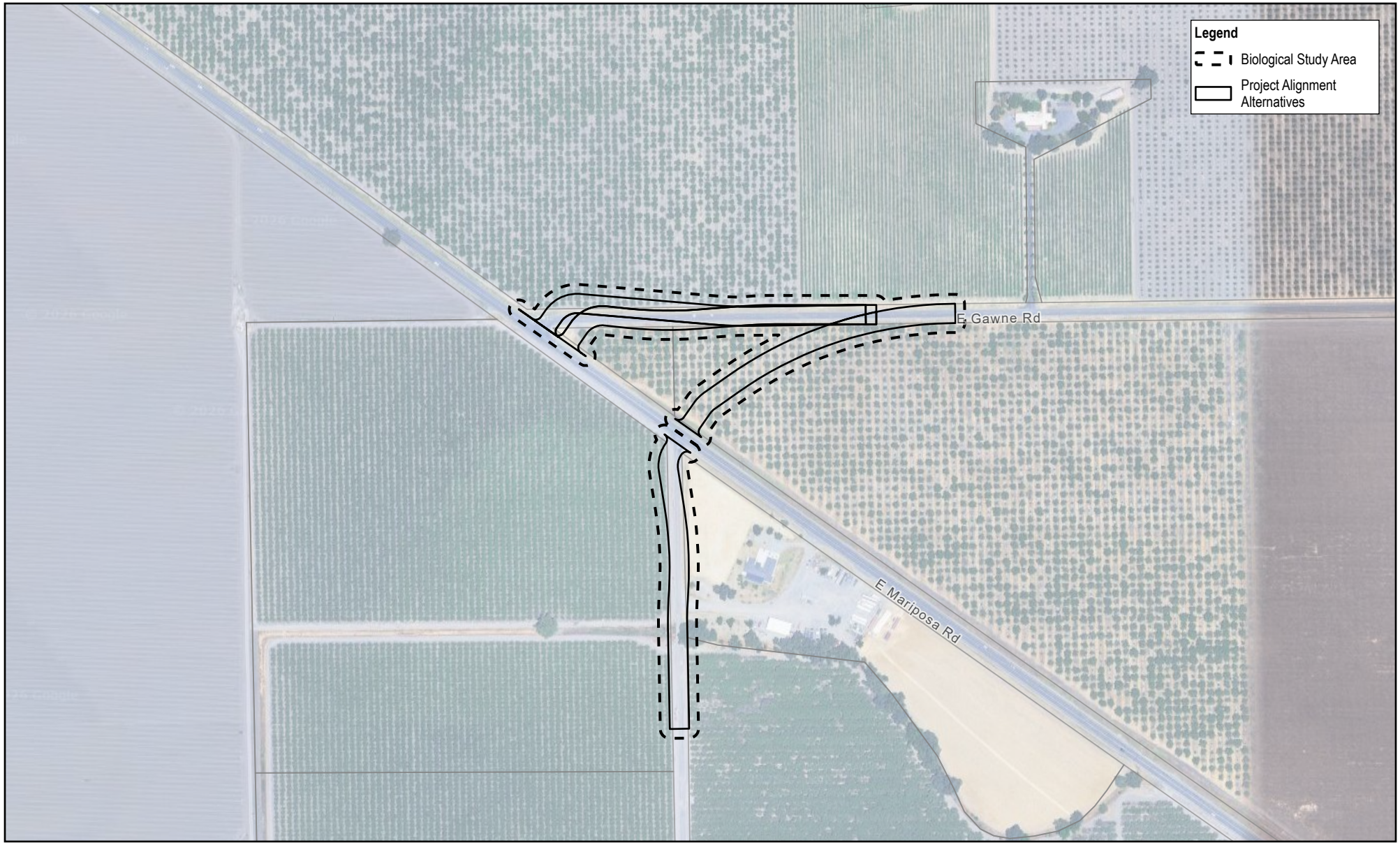
Project No. **12635063**
Revision No. **-**
Date **May 2026**

Project Area

FIGURE 2-1

\\ghdnet\ghd\US\Azure\EastUS\12635063\GIS\Maps\Working\12635063_Mariposa_Enviro.aprx - 12635063_02_ProjArea
Print date: 19 May 2026 - 10:45

Data source: Reference - Full (Road Labels Above):
Tiled service layer: © OpenStreetMap (and) contributors, CC-BY-SA. Created by: ethompson3



Paper Size ANSI A

0 200 400

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California III FIPS 0403 Feet

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County of San Joaquin
Mariposa Road and Escalon-Bellota Road
Specific Plan

Project No. **12635063**
Revision No. **-**
Date **May 2026**

Project Area

FIGURE 2-2

\\ghdnet\ghd\US\Azure\EastUS\12635063\GIS\Maps\Working\12635063_Mariposa_Enviro.aprx - 12635063_02_ProjArea
Print date: 19 May 2026 - 10:45

Data source: Reference - Full (Road Labels Above):
Tiled service layer: © OpenStreetMap (and) contributors, CC-BY-SA. Created by: ethompson3



Paper Size ANSI A

0 200

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California III FIPS 0403 Feet

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County of San Joaquin
Mariposa Road and Escalon-Bellota Road
Specific Plan

Project No. **12635063**
Revision No. **-**
Date **May 2026**

Project Area

FIGURE 2-3

\\ghdnet\ghd\US\Azure\EastUS\12635063\GIS\Maps\Working\12635063_Mariposa_Enviro.aprx - 12635063_02_ProjArea
Print date: 19 May 2026 - 10:45

Data source: Reference - Full (Road Labels Above):
Tiled service layer: © OpenStreetMap (and) contributors, CC-BY-SA. Created by: ethompson3



Paper Size ANSI A

0 200 400 600

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California III FIPS 0403 Feet

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County of San Joaquin
Mariposa Road and Escalon-Bellota Road
Specific Plan

Project No. **12635063**
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Date **May 2026**

Project Area

FIGURE 2-4

\\ghdnet\ghd\US\Azure\EastUS\12635063\GIS\Maps\Working\12635063_Mariposa_Enviro.aprx - 12635063_02_ProjArea
Print date: 19 May 2026 - 10:45

Data source: Reference - Full (Road Labels Above):
Tiled service layer: © OpenStreetMap (and) contributors, CC-BY-SA. Created by: ethompson3



Paper Size ANSI A

0 200 400 600

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California III FIPS 0403 Feet

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County of San Joaquin
Mariposa Road and Escalon-Bellota Road
Specific Plan

Project No. **12635063**
Revision No. **-**
Date **May 2026**

Project Area

FIGURE 2-5

\\ghdnet\ghd\US\Azure\EastUS\12635063\GIS\Maps\Working\12635063_Mariposa_Enviro.aprx - 12635063_02_ProjArea
Print date: 19 May 2026 - 10:45

Data source: Reference - Full (Road Labels Above):
Tiled service layer: © OpenStreetMap (and) contributors, CC-BY-SA. Created by: ethompson3



Paper Size ANSI A

0 200 400 600

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California III FIPS 0403 Feet

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County of San Joaquin
Mariposa Road and Escalon-Bellota Road
Specific Plan

Project No. **12635063**
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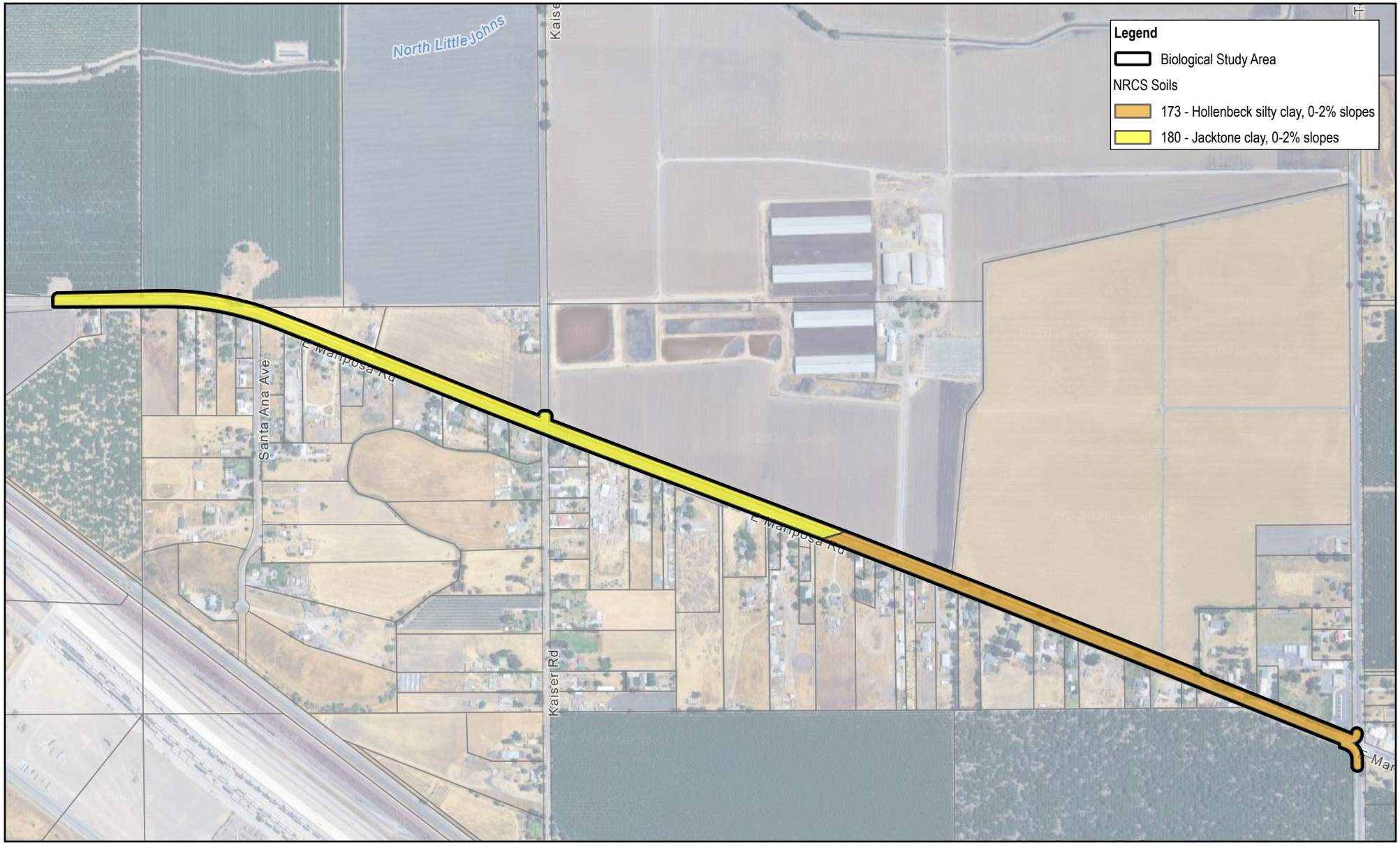
Date **May 2026**

Project Area

FIGURE 2-6

\\ghdnet\ghd\US\Azure\EastUS\12635063\GIS\Maps\Working\12635063_Mariposa_Enviro.aprx - 12635063_02_ProjArea
Print date: 19 May 2026 - 10:45

Data source: Reference - Full (Road Labels Above):
Tiled service layer: © OpenStreetMap (and) contributors, CC-BY-SA. Created by: ethompson3



Paper Size ANSI A

0 200 400 600 800 1,000

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California III FIPS 0403 Feet

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County of San Joaquin
Mariposa Road and Escalon-Bellota Road
Specific Plan

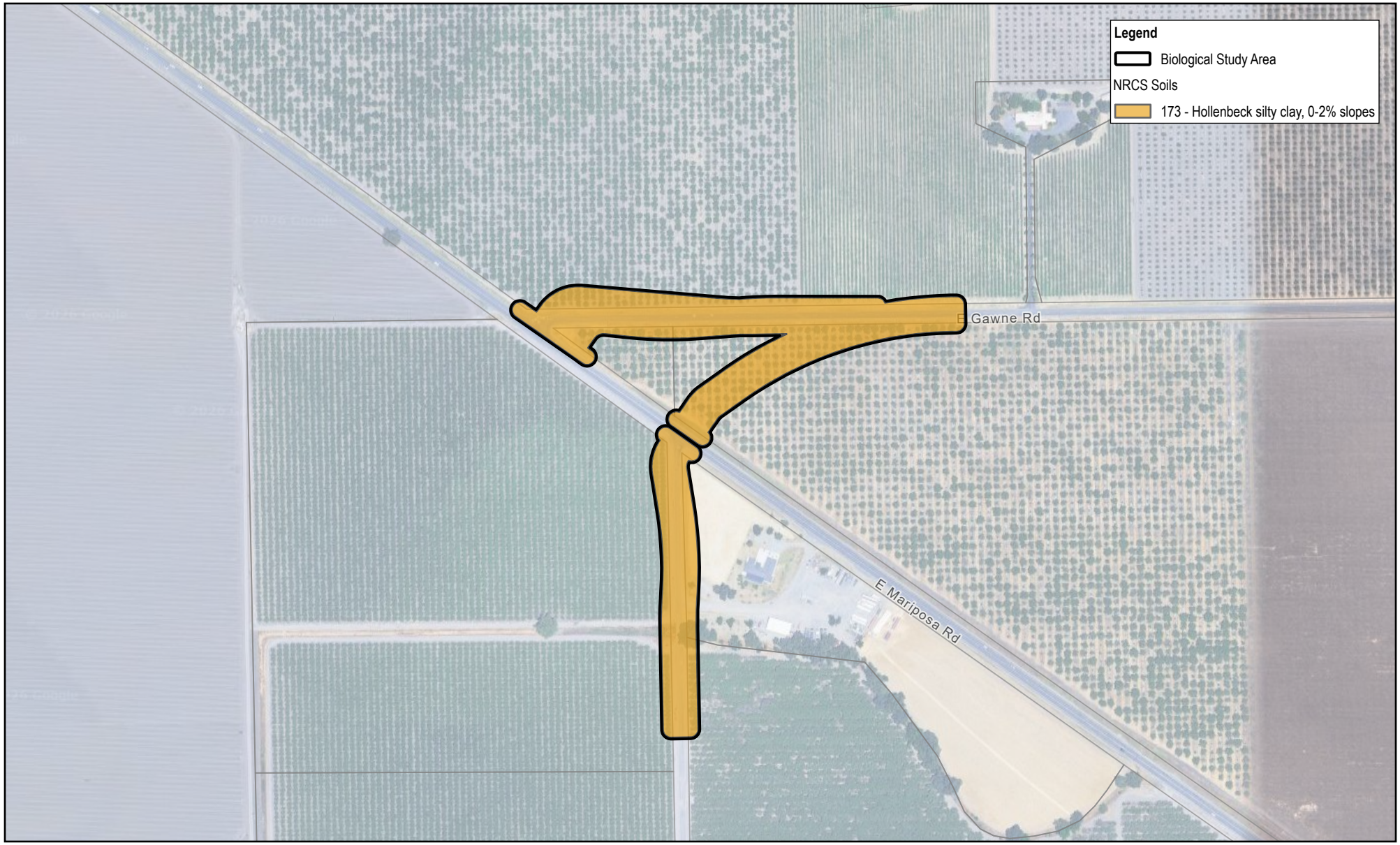
Project No. **12635063**
Revision No. **-**
Date **May 2026**

NRCS Soils

FIGURE 3-1

\\ghdnet\ghd\US\Azure\EastUS\12635063\GIS\Maps\Working\12635063_Mariposa_Enviro.aprx - 12635063_03_NRCS
Print date: 14 May 2026 - 13:57

Data source: Reference - Full (Road Labels Above):
Tiled service layer: © OpenStreetMap (and) contributors, CC-BY-SA. Created by: ethompson3



Paper Size ANSI A

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Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California III FIPS 0403 Feet

N

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County of San Joaquin
Mariposa Road and Escalon-Bellota Road
Specific Plan

Project No. **12635063**
Revision No. **-**
Date **May 2026**

NRCS Soils

FIGURE 3-2

\\ghdnet\ghd\US\Azure\EastUS\12635063\GIS\Maps\Working\12635063_Mariposa_Enviro.aprx - 12635063_03_NRCS
Print date: 14 May 2026 - 13:57

Data source: Reference - Full (Road Labels Above):
Tiled service layer: © OpenStreetMap (and) contributors, CC-BY-SA. Created by: ethompson3



Paper Size ANSI A

0 200

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California III FIPS 0403 Feet

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County of San Joaquin
Mariposa Road and Escalon-Bellota Road
Specific Plan

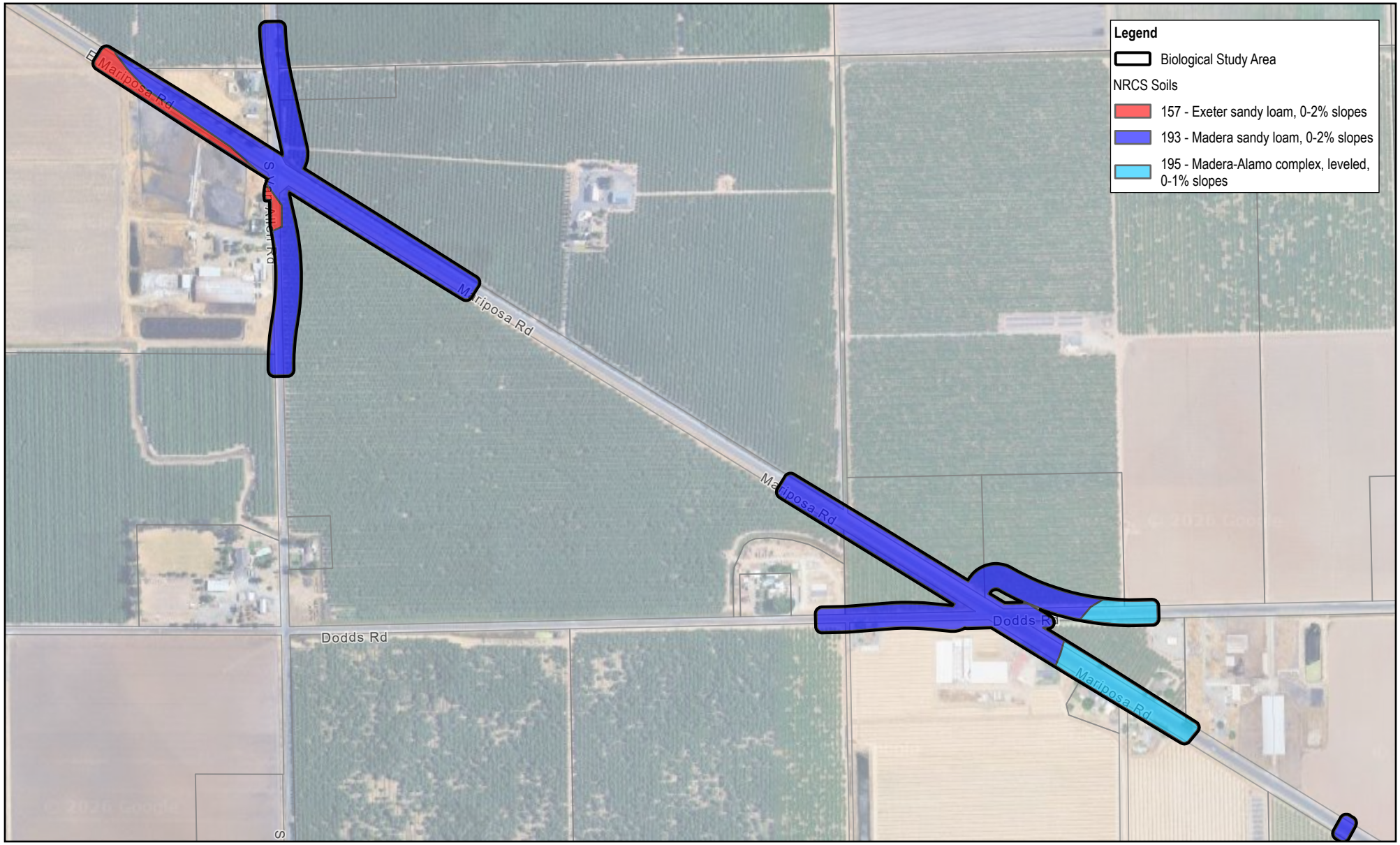
Project No. **12635063**
Revision No. **-**
Date **May 2026**

NRCS Soils

FIGURE 3-3

\\ghdnet\ghd\US\Azure\EastUS\12635063\GIS\Maps\Working\12635063_Mariposa_Enviro.aprx - 12635063_03_NRCS
Print date: 14 May 2026 - 13:57

Data source: Reference - Full (Road Labels Above):
Tiled service layer: © OpenStreetMap (and) contributors, CC-BY-SA. Created by: ethompson3



Paper Size ANSI A

0 200 400 600

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California III FIPS 0403 Feet

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County of San Joaquin
Mariposa Road and Escalon-Bellota Road Specific Plan

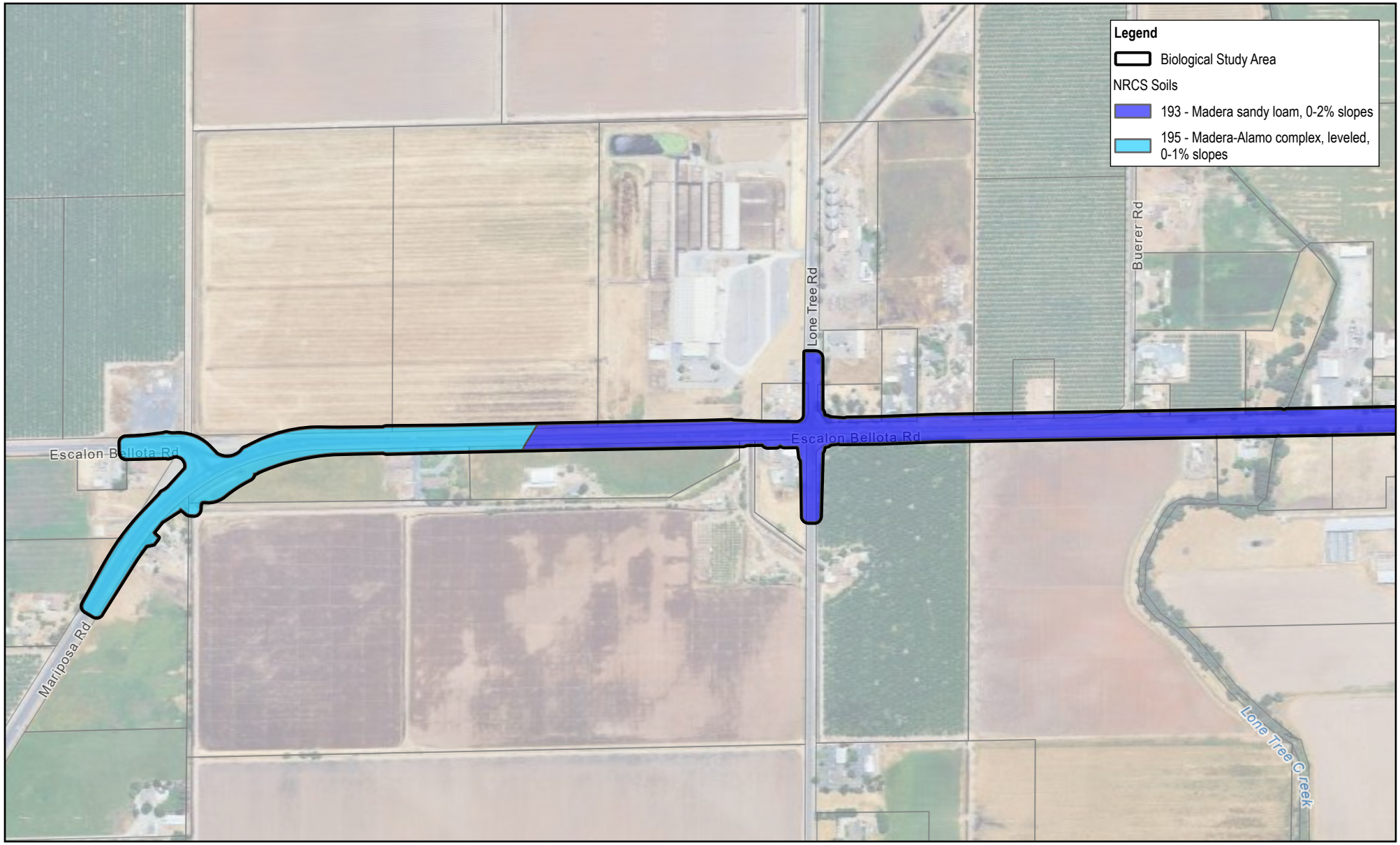
Project No. **12635063**
Revision No. **-**
Date **May 2026**

NRCS Soils

FIGURE 3-4

\\ghdnet\ghd\US\Azure\EastUS\12635063\GIS\Maps\Working\12635063_Mariposa_Enviro.aprx - 12635063_03_NRCS
Print date: 14 May 2026 - 13:57

Data source: Reference - Full (Road Labels Above):
Tiled service layer: © OpenStreetMap (and) contributors, CC-BY-SA. Created by: ethompson3



Paper Size ANSI A

0 200 400 600

Feet

N

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California III FIPS 0403 Feet

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County of San Joaquin
Mariposa Road and Escalon-Bellota Road Specific Plan

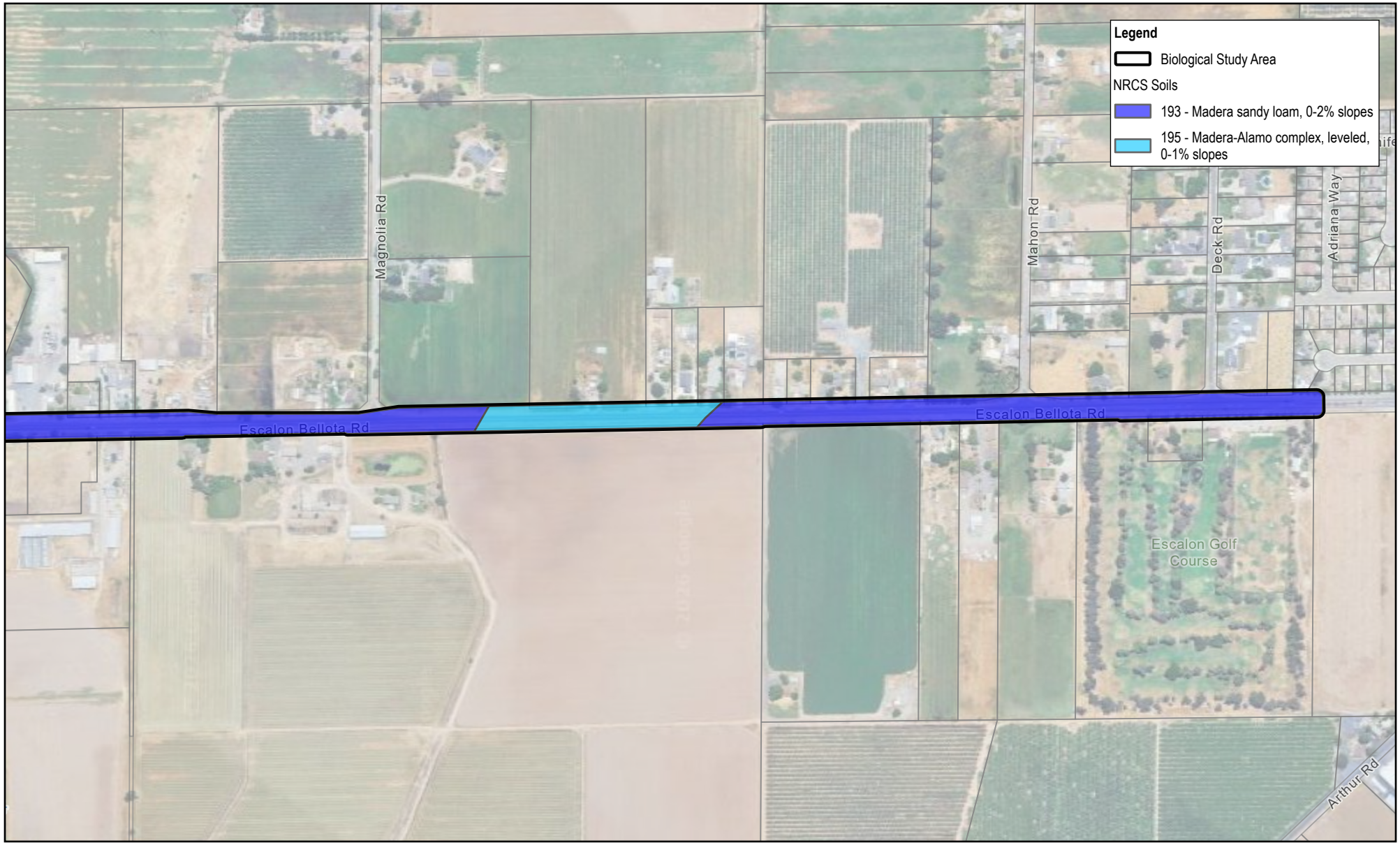
Project No. **12635063**
Revision No. **-**
Date **May 2026**

NRCS Soils

FIGURE 3-5

\\ghdnet\ghd\US\Azure\EastUS\12635063\GIS\Maps\Working\12635063_Mariposa_Enviro.aprx - 12635063_03_NRCS
Print date: 14 May 2026 - 13:57

Data source: Reference - Full (Road Labels Above):
Tiled service layer: © OpenStreetMap (and) contributors, CC-BY-SA. Created by: ethompson3



Paper Size ANSI A

0 200 400 600

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California III FIPS 0403 Feet

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County of San Joaquin
Mariposa Road and Escalon-Bellota Road Specific Plan

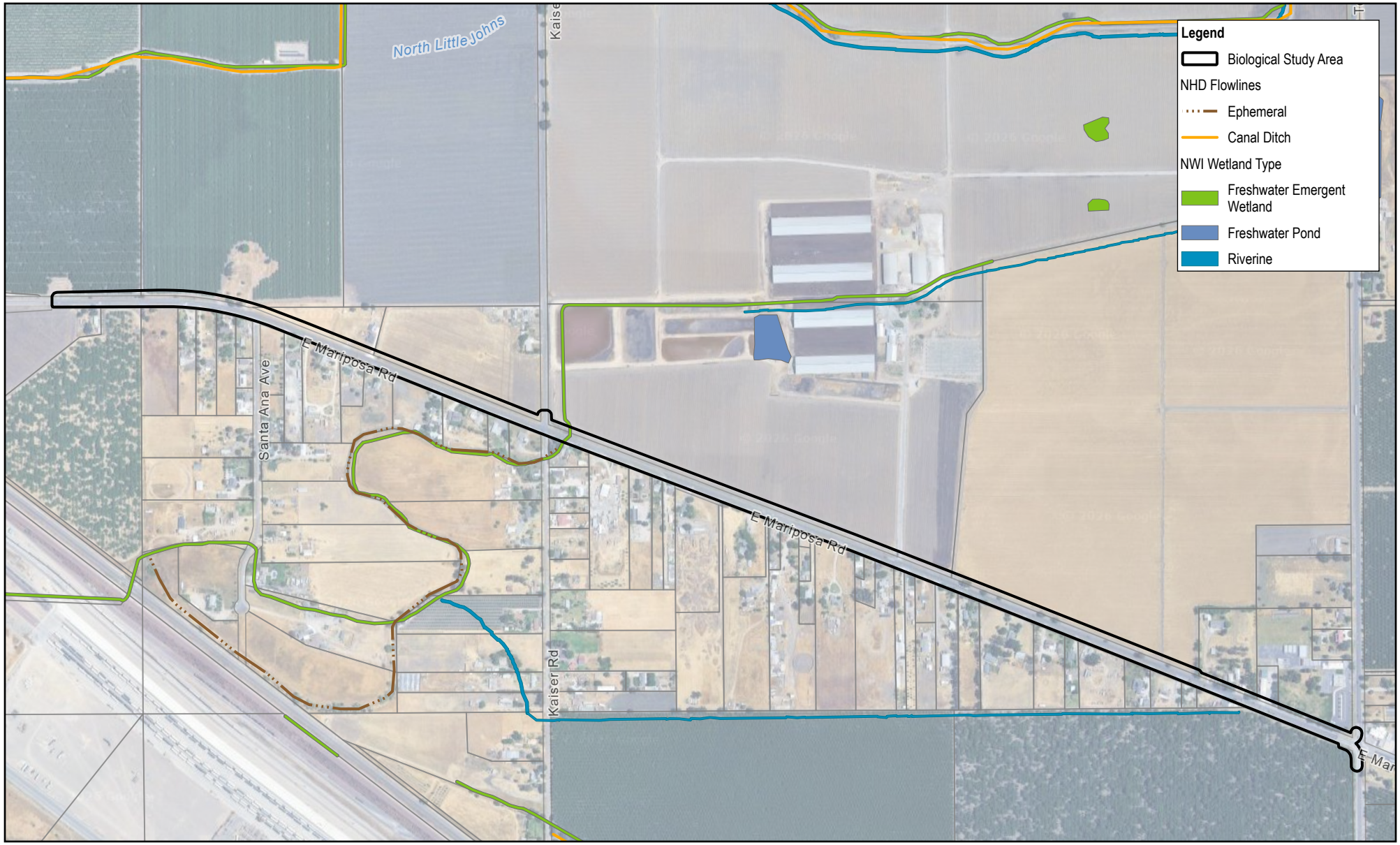
Project No. **12635063**
Revision No. **-**
Date **May 2026**

NRCS Soils

FIGURE 3-6

\\ghdnet\ghd\US\Azure\EastUS\12635063\GIS\Maps\Working\12635063_Mariposa_Enviro.aprx - 12635063_03_NRCS
Print date: 14 May 2026 - 13:57

Data source: Reference - Full (Road Labels Above):
Tiled service layer: © OpenStreetMap (and) contributors, CC-BY-SA. Created by: ethompson3



Paper Size ANSI A

0 200 400 600 800 1,000

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California III FIPS 0403 Feet

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County of San Joaquin
Mariposa Road and Escalon-Bellota Road Specific Plan

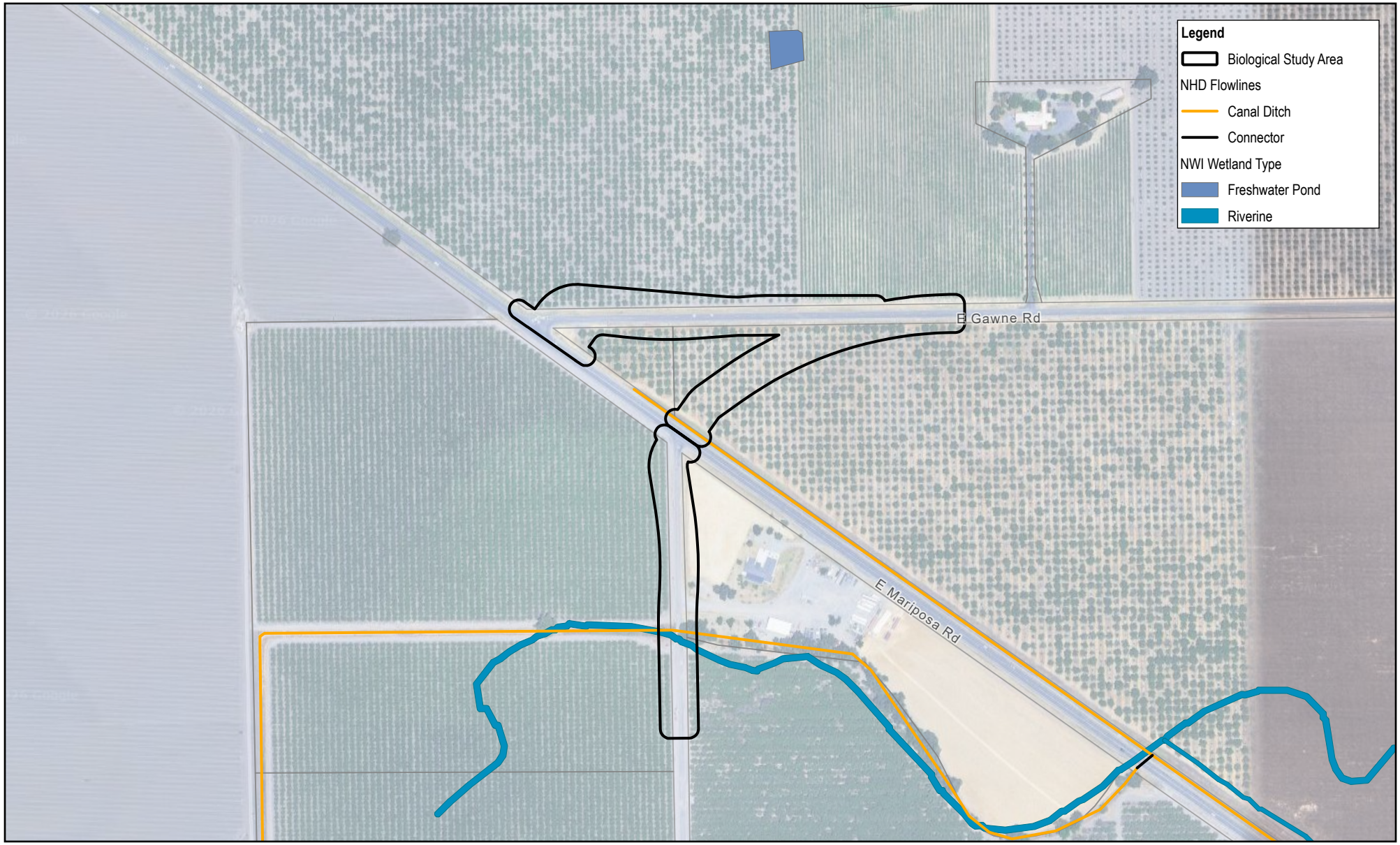
National Wetlands Inventory and National Hydrography Dataset

Project No. **12635063**
Revision No. **-**
Date **May 2026**

FIGURE 4-1

\\ghdnet\ghd\US\Azure\EastUS\12635063\GIS\Maps\Working\12635063_Mariposa_Enviro.aprx - 12635063_04_NWI_NHD
Print date: 14 May 2026 - 14:47

Data source: Reference - Full (Road Labels Above): Flowline - Large Scale: U.S. Geological Survey National Wetlands Inventory _ California _ USFWS _ ds2630:



Paper Size ANSI A

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Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California III FIPS 0403 Feet

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County of San Joaquin
Mariposa Road and Escalon-Bellota Road Specific Plan

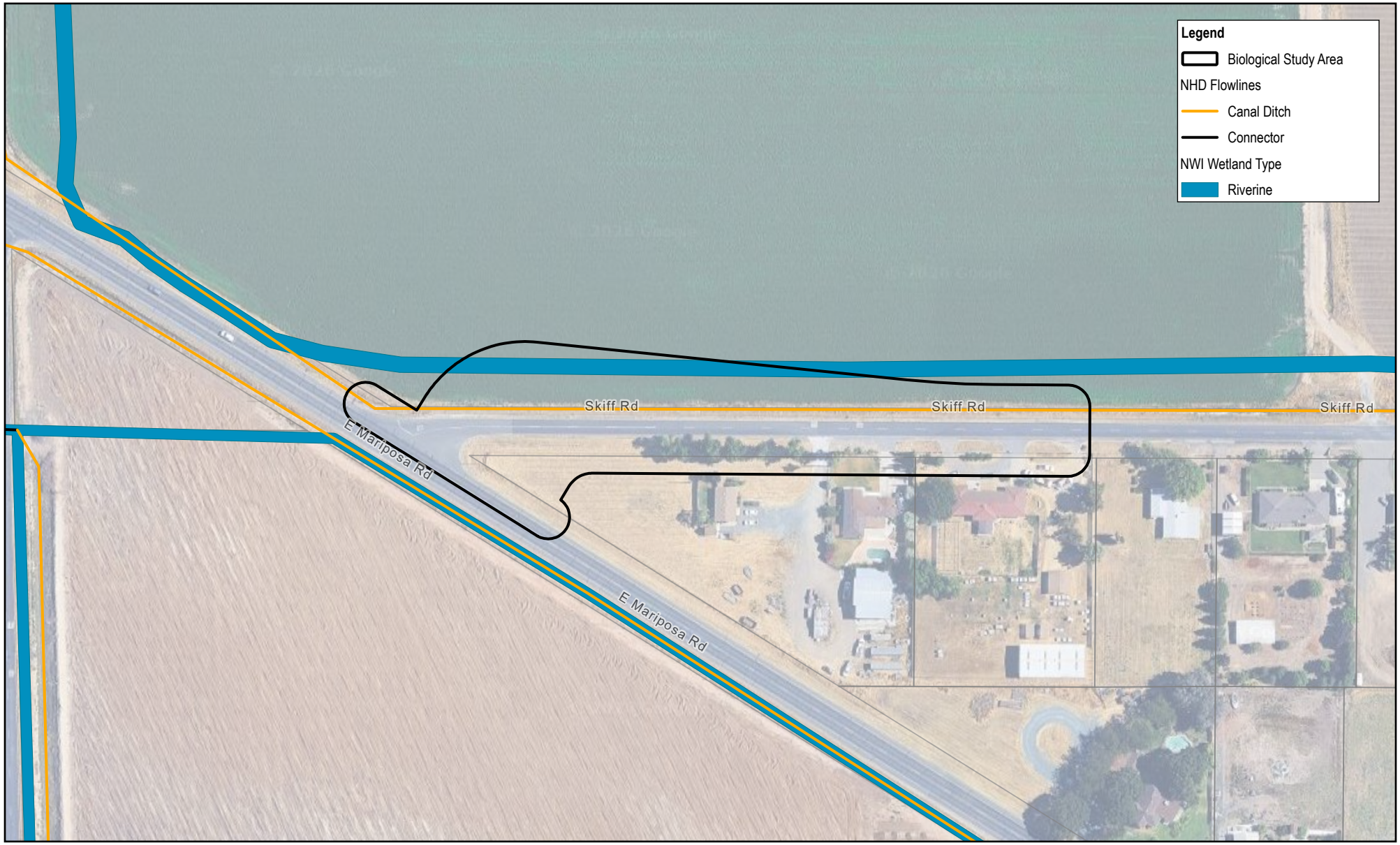
National Wetlands Inventory and National Hydrography Dataset

Project No. **12635063**
Revision No. **-**
Date **May 2026**

FIGURE 4-2

\\ghdnet\ghd\US\Azure\EastUS\12635063\GIS\Maps\Working\12635063_Mariposa_Enviro.aprx - 12635063_04_NWI_NHD
Print date: 14 May 2026 - 14:47

Data source: Reference - Full (Road Labels Above): Flowline - Large Scale: U.S. Geological Survey National Wetlands Inventory _ California _ USFWS _ ds2630:



Paper Size ANSI A

0 200

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California III FIPS 0403 Feet

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County of San Joaquin
Mariposa Road and Escalon-Bellota Road Specific Plan

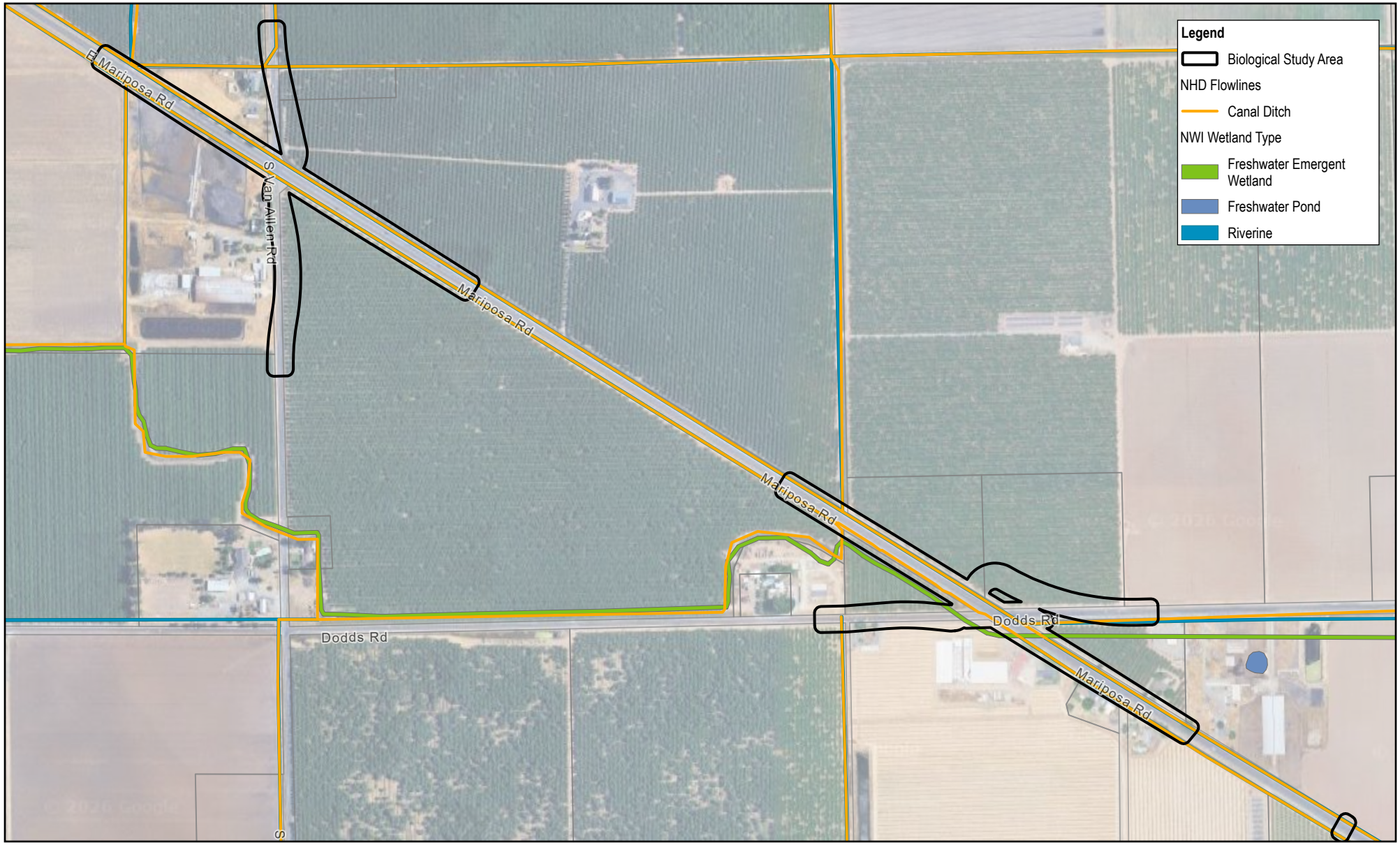
National Wetlands Inventory and National Hydrography Dataset

Project No. **12635063**
Revision No. **-**
Date **May 2026**

FIGURE 4-3

\\ghdnet\ghd\US\Azure\EastUS\12635063\GIS\Maps\Working\12635063_Mariposa_Enviro.aprx - 12635063_04_NWI_NHD
Print date: 14 May 2026 - 14:47

Data source: Reference - Full (Road Labels Above): Flowline - Large Scale: U.S. Geological Survey National Wetlands Inventory _ California _ USFWS _ ds2630:



Paper Size ANSI A

0 200 400 600

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California III FIPS 0403 Feet

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County of San Joaquin
Mariposa Road and Escalon-Bellota Road Specific Plan

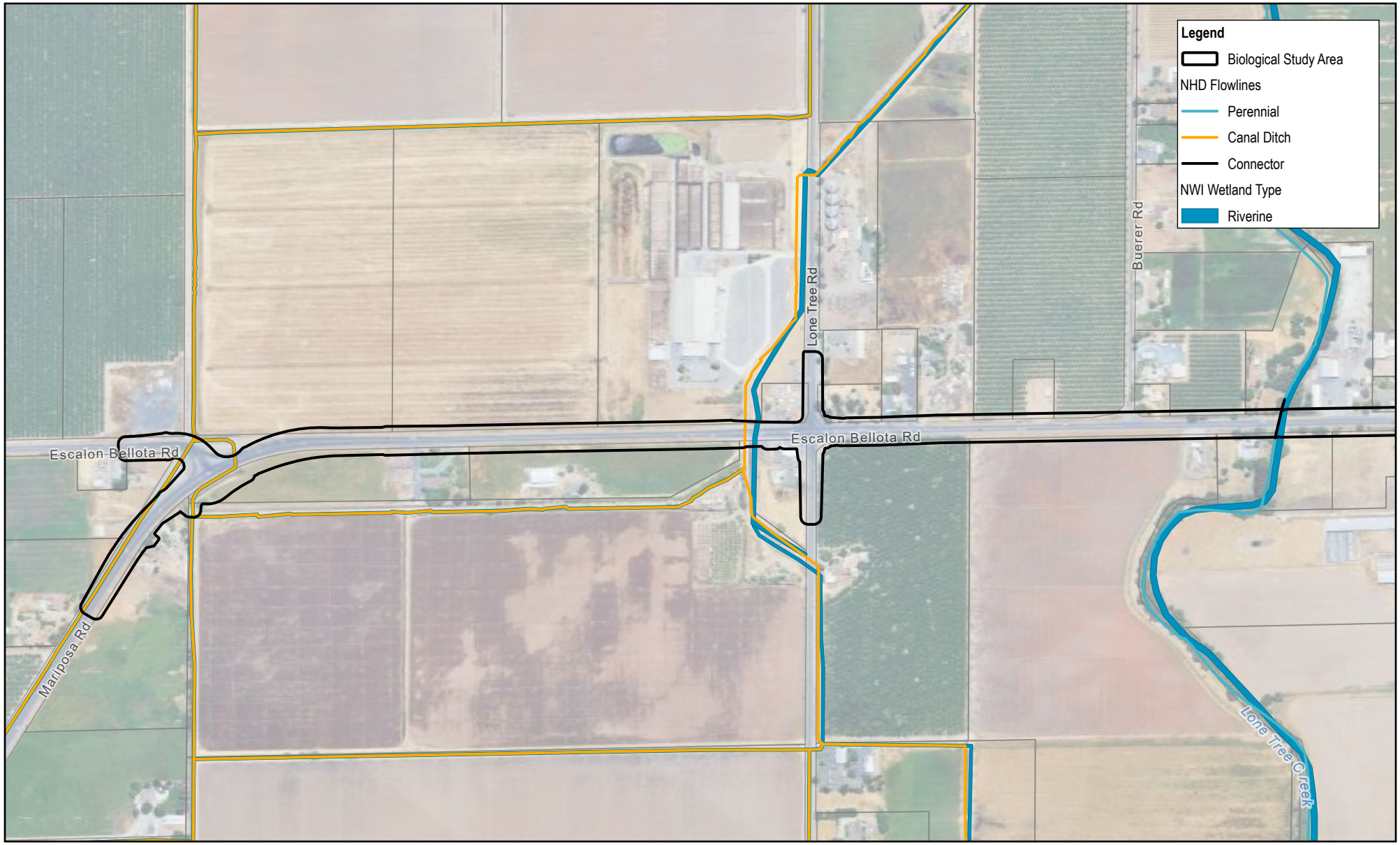
National Wetlands Inventory and National Hydrography Dataset

Project No. **12635063**
Revision No. **-**
Date **May 2026**

FIGURE 4-4

\\ghdnet\ghd\US\Azure\EastUS\12635063\GIS\Maps\Working\12635063_Mariposa_Enviro.aprx - 12635063_04_NWI_NHD
Print date: 14 May 2026 - 14:47

Data source: Reference - Full (Road Labels Above): Flowline - Large Scale: U.S. Geological Survey National Wetlands Inventory _ California _ USFWS _ ds2630:



Paper Size ANSI A

0 200 400 600

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California III FIPS 0403 Feet

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County of San Joaquin
Mariposa Road and Escalon-Bellota Road Specific Plan

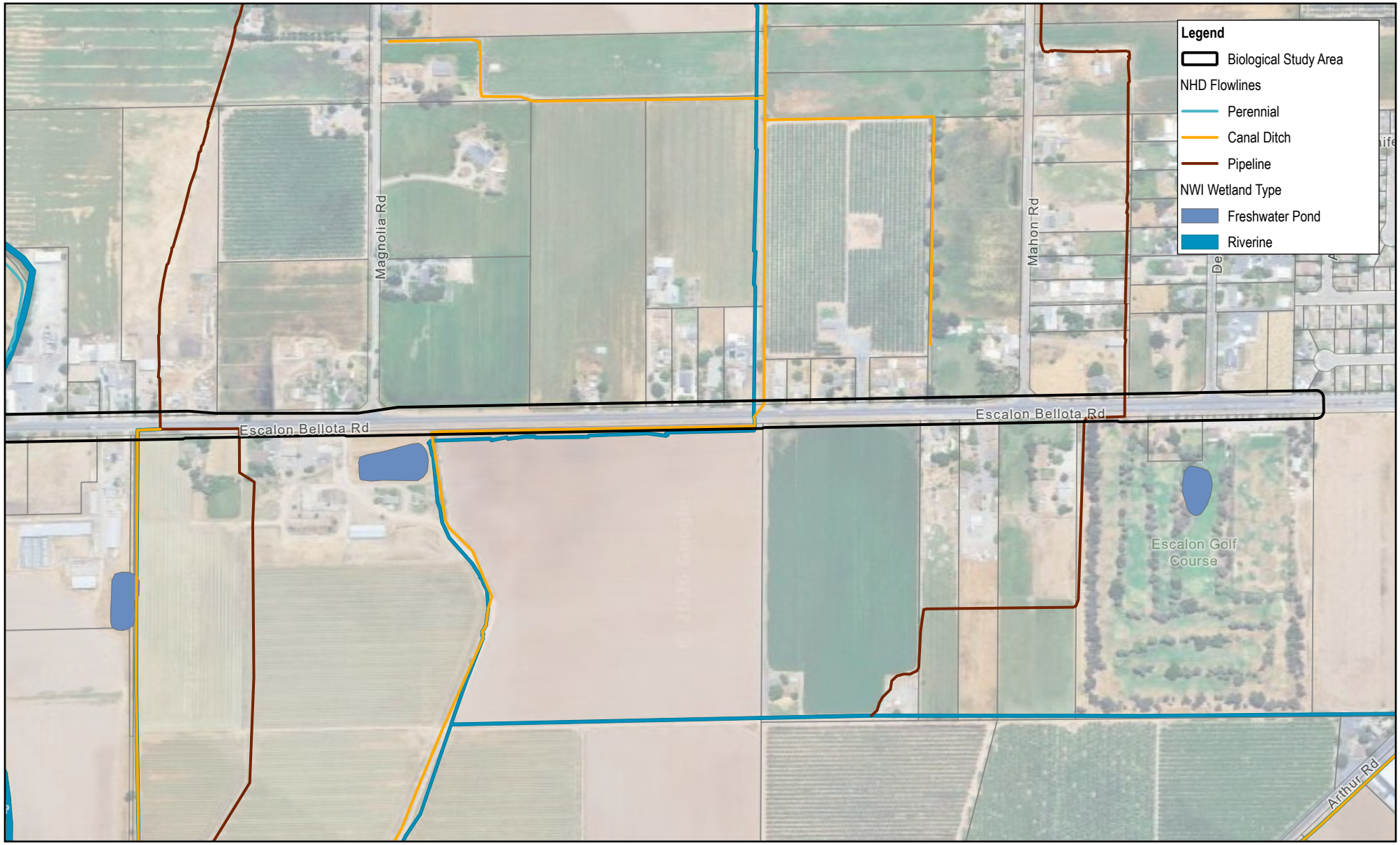
National Wetlands Inventory and National Hydrography Dataset

Project No. **12635063**
Revision No. **-**
Date **May 2026**

FIGURE 4-5

\\ghdnet\ghd\US\Azure\EastUS\12635063\GIS\Maps\Working\12635063_Mariposa_Enviro.aprx - 12635063_04_NWI_NHD
Print date: 14 May 2026 - 14:47

Data source: Reference - Full (Road Labels Above): Flowline - Large Scale: U.S. Geological Survey National Wetlands Inventory _ California _ USFWS _ ds2630:



Paper Size ANSI A

0 200 400 600

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California III FIPS 0403 Feet

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County of San Joaquin
Mariposa Road and Escalon-Bellota Road Specific Plan

National Wetlands Inventory and National Hydrography Dataset

Project No. **12635063**
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FIGURE 4-6

\\ghdnet\ghd\US\Azure\EastUS\12635063\GIS\Maps\Working\12635063_Mariposa_Enviro.aprx - 12635063_04_NWI_NHD
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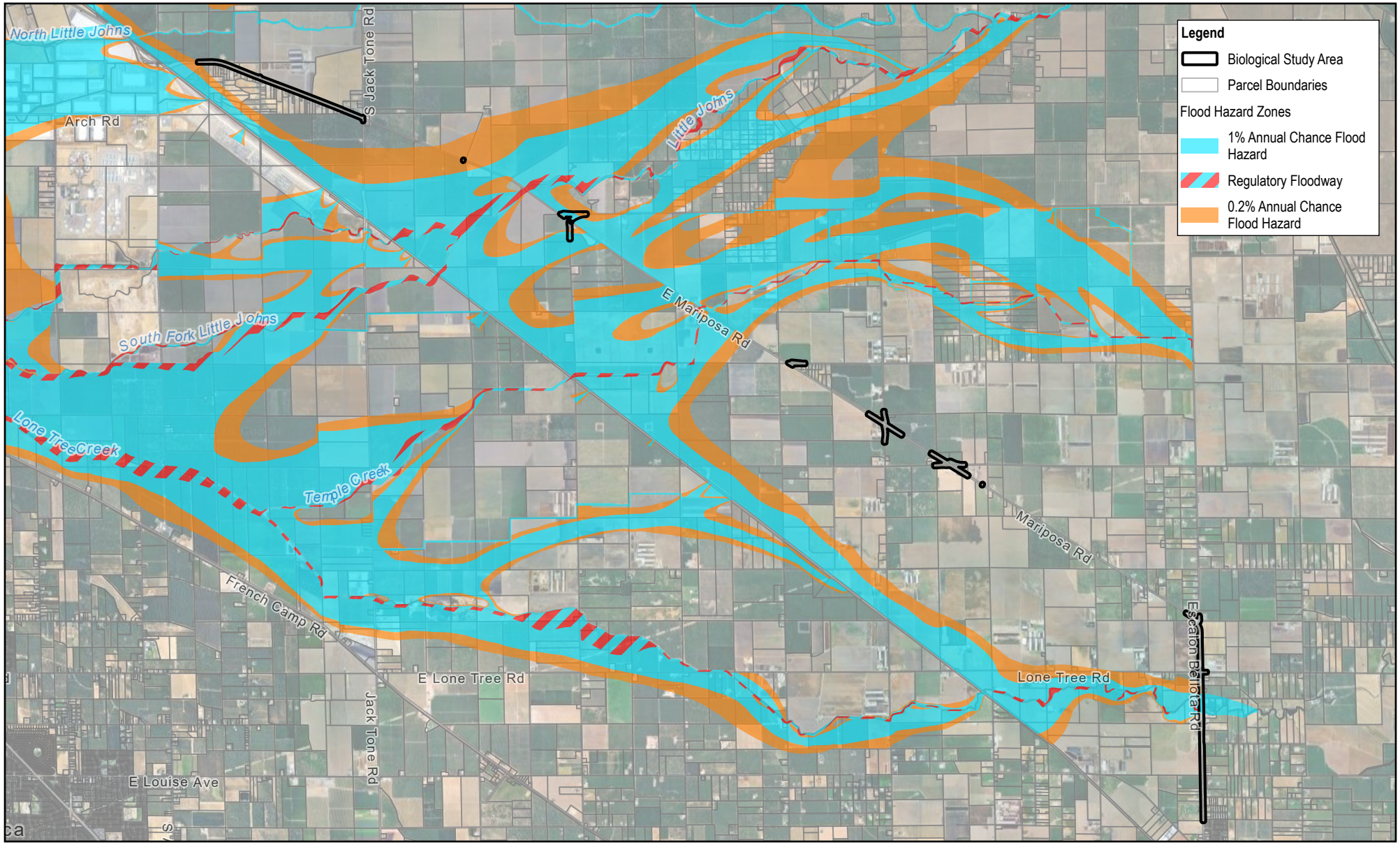

Paper Size ANSI A

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Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California III FIPS 0403 Feet

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County of San Joaquin
Mariposa Road and Escalon-Bellota Road Specific Plan

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FEMA Floodplain

FIGURE 5

\\ghdnet\ghd\US\Azure\EastUS\12635063\GIS\Maps\Working\12635063_Mariposa_Enviro.aprx - 12635063_05_FEMA
Print date: 14 May 2026 - 13:59

Data source: Reference - Full (Road Labels Above):
Tiled service layer: © OpenStreetMap (and) contributors, CC-BY-SA. Created by: ethompson3



Paper Size ANSI A

0 200 400 600 800 1,000

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California III FIPS 0403 Feet

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County of San Joaquin
Mariposa Road and Escalon-Bellota Road Specific Plan

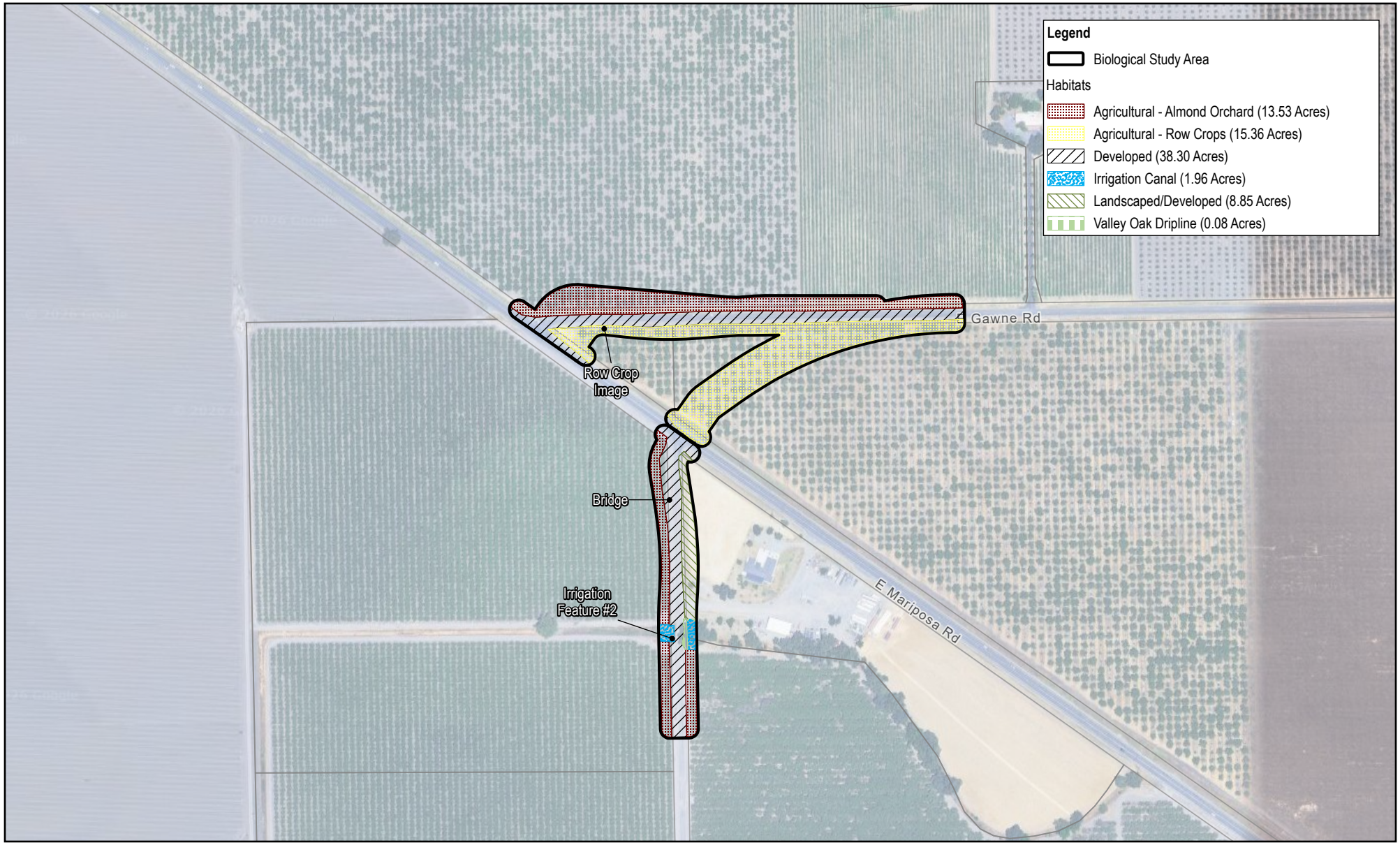
Habitats

Project No. **12635063**
Revision No. **-**
Date **May 2026**

FIGURE 6-1

\\ghdnet\ghd\US\Azure\EastUS\12635063\GIS\Maps\Working\12635063_Mariposa_Enviro.aprx - 12635063_06_HabSeries
Print date: 22 May 2026 - 11:13

Data source: Field_Notes_Point:
Flowline - Large Scale: U.S. Geological Survey
Habitat_Type_Polygon:
Reference - Full (Road Labels Above):
Tiled service layer: © OpenStreetMap (and) contributors, CC-BY-SA. Created by: ethompson3



Paper Size ANSI A

0 200 400

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California III FIPS 0403 Feet

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County of San Joaquin
Mariposa Road and Escalon-Bellota Road
Specific Plan

Project No. **12635063**
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Date **May 2026**

Habitats

FIGURE 6-2

\\ghdnet\ghd\US\Azure\EastUS\12635063\GIS\Maps\Working\12635063_Mariposa_Enviro.aprx - 12635063_06_HabSeries
Print date: 22 May 2026 - 11:14

Data source: Field_Notes_Point:
Flowline - Large Scale: U.S. Geological Survey
Habitat_Type_Polygon:
Reference - Full (Road Labels Above):
Tiled service layer: © OpenStreetMap (and) contributors, CC-BY-SA. Created by: ethompson3



Paper Size ANSI A

0 200

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California III FIPS 0403 Feet

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County of San Joaquin
Mariposa Road and Escalon-Bellota Road Specific Plan

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Date **May 2026**

Habitats

FIGURE 6-3

\\ghdnet\ghd\US\Azure\EastUS\12635063\GIS\Maps\Working\12635063_Mariposa_Enviro.aprx - 12635063_06_HabSeries
Print date: 22 May 2026 - 11:14

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Flowline - Large Scale: U.S. Geological Survey
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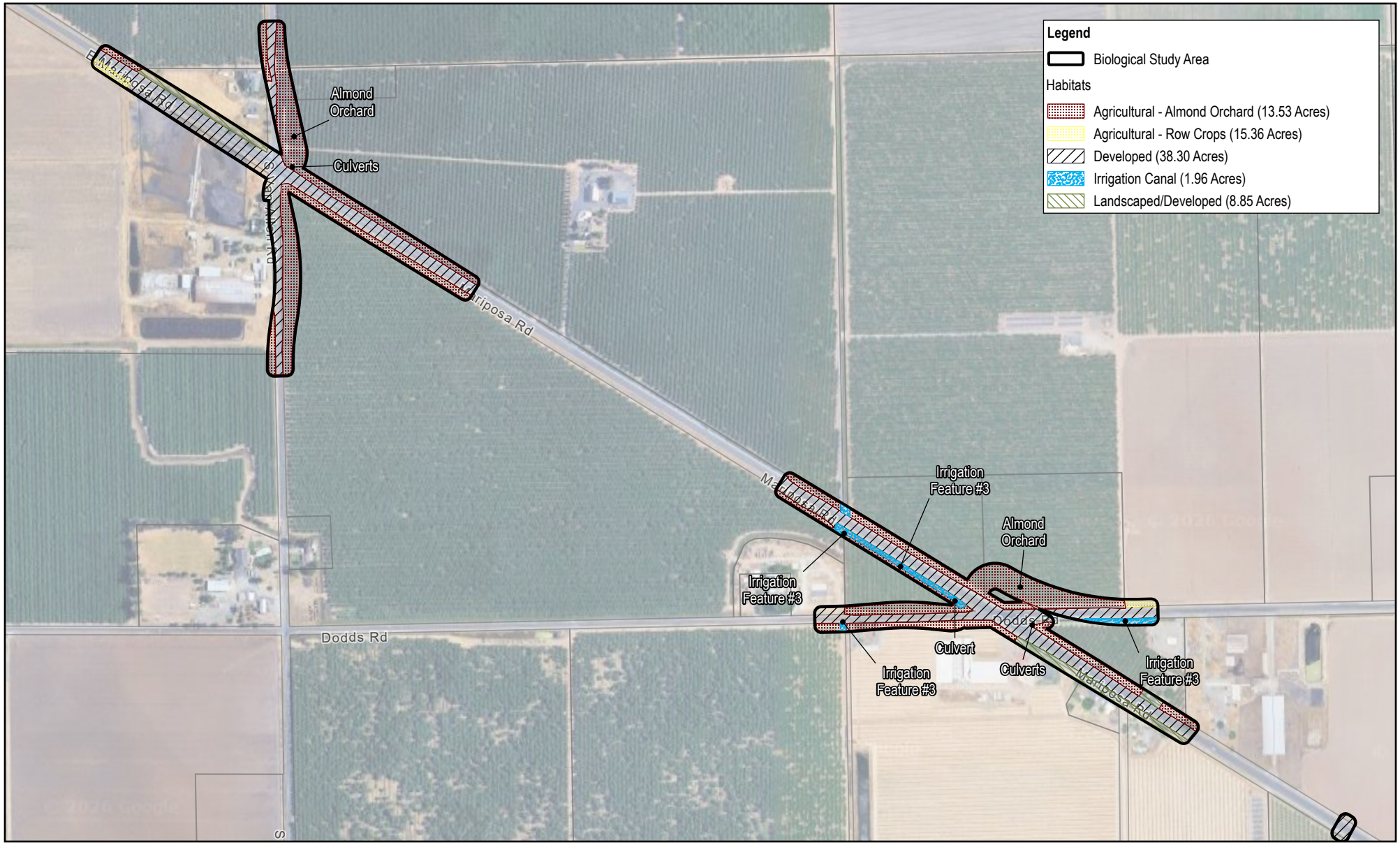
Tiled service layer: © OpenStreetMap (and) contributors, CC-BY-SA. Created by: ethompson3



Paper Size ANSI A

0 200 400 600

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California III FIPS 0403 Feet

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County of San Joaquin
Mariposa Road and Escalon-Bellota Road
Specific Plan

Project No. **12635063**
Revision No. **-**
Date **May 2026**

Habitats

FIGURE 6-4

\\ghdnet\ghd\US\Azure\EastUS\12635063\GIS\Maps\Working\12635063_Mariposa_Enviro.aprx - 12635063_06_HabSeries
Print date: 22 May 2026 - 11:15

Data source: Field_Notes_Point:
Flowline - Large Scale: U.S. Geological Survey
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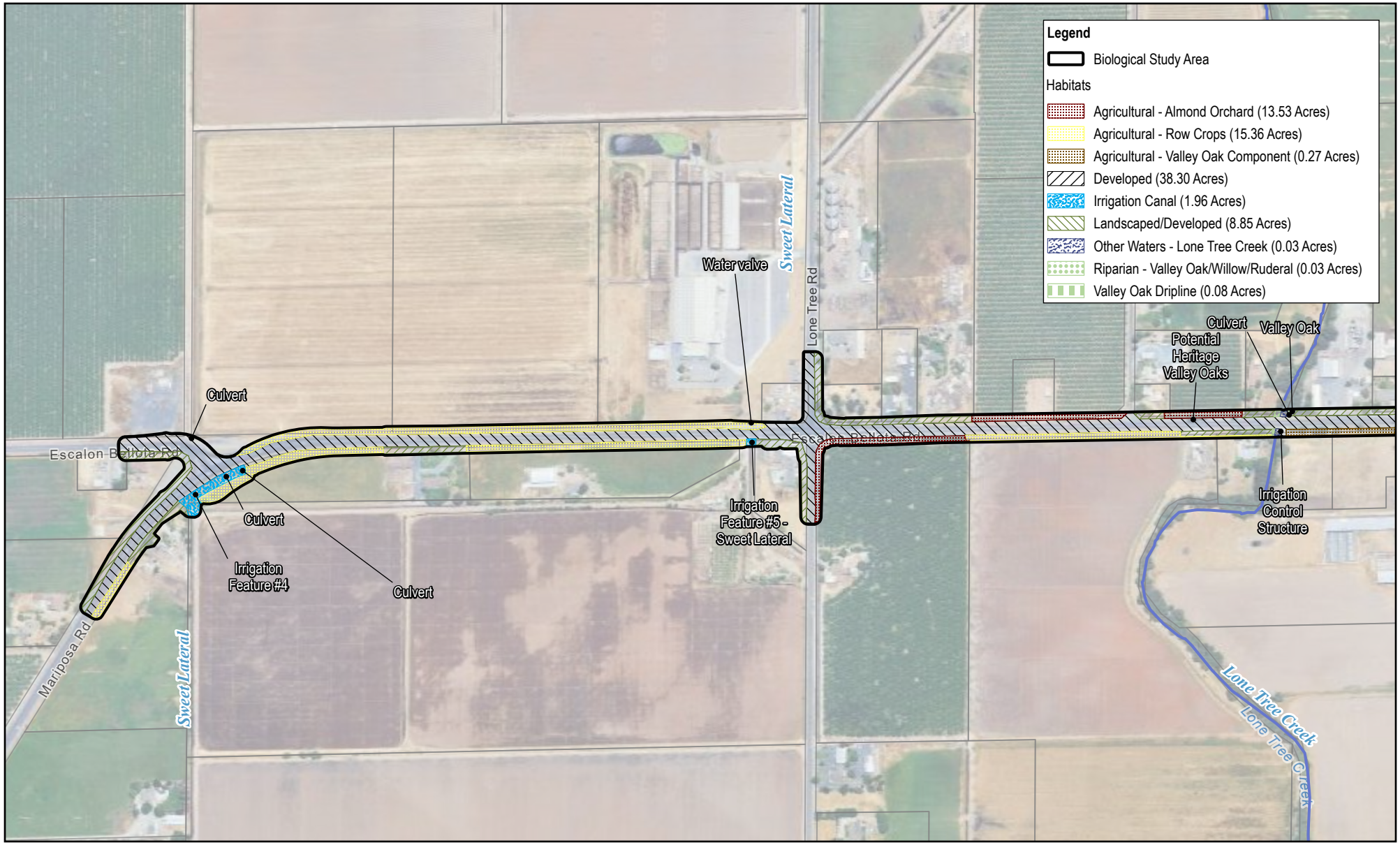
Reference - Full (Road Labels Above):
Tiled service layer: © OpenStreetMap (and) contributors, CC-BY-SA. Created by: ethompson3



Paper Size ANSI A

0 200 400 600

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California III FIPS 0403 Feet

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County of San Joaquin
Mariposa Road and Escalon-Bellota Road Specific Plan

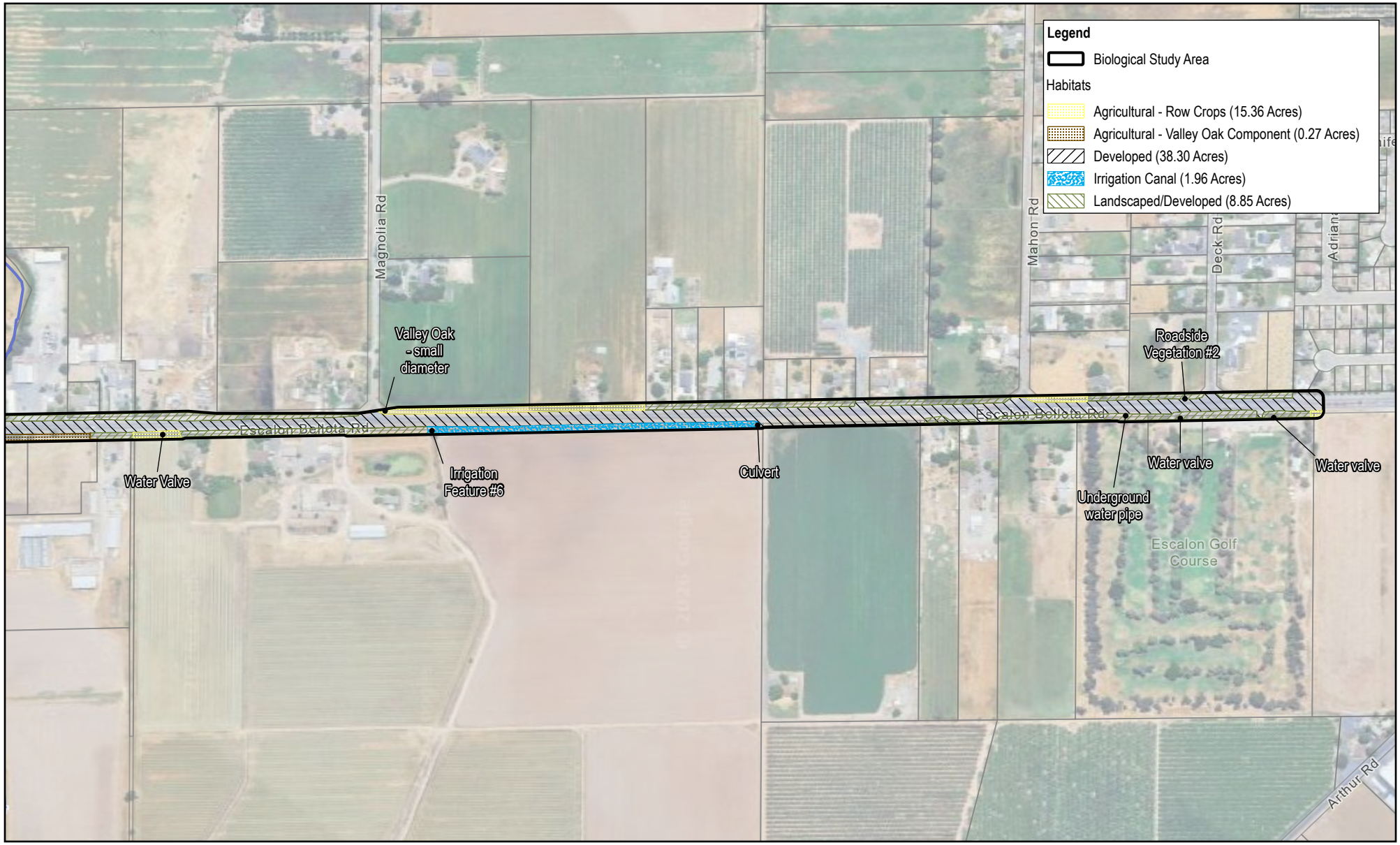
Project No. **12635063**
Revision No. **-**
Date **May 2026**

Habitats

FIGURE 6-5

\\ghdnet\ghd\US\Azure\EastUS\12635063\GIS\Maps\Working\12635063_Mariposa_Enviro.aprx - 12635063_06_HabSeries
Print date: 22 May 2026 - 11:15

Data source: Field_Notes_Point:
Flowline - Large Scale: U.S. Geological Survey
Habitat_Type_Polygon:
Reference - Full (Road Labels Above):
Tiled service layer: © OpenStreetMap (and) contributors, CC-BY-SA. Created by: ethompson3



Paper Size ANSI A

0 200 400 600

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California III FIPS 0403 Feet

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County of San Joaquin
Mariposa Road and Escalon-Bellota Road
Specific Plan

Project No. **12635063**
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Date **May 2026**

Habitats

FIGURE 6-6

\\ghdnet\ghd\US\Azure\EastUS\12635063\GIS\Maps\Working\12635063_Mariposa_Enviro.aprx - 12635063_06_HabSeries
Print date: 22 May 2026 - 11:15

Data source: Field_Notes_Point:
Flowline - Large Scale: U.S. Geological Survey
Habitat_Type_Polygon:
Reference - Full (Road Labels Above):
Tiled service layer: © OpenStreetMap (and) contributors, CC-BY-SA. Created by: ethompson3

Appendix B

Potential to Occur Table and Conservation Ranking Definitions

Scientific Name	Common Name	Special-Status[1]	Habitat Requirements[2]	Potential to Occur
Plants				
Atriplex minuscula	lesser saltscale	G2S2; 1B.1	Restricted to low alkaline areas and salt scalds in the San Joaquin Valley and adjacent foothills. Occurs on saline or alkaline soils, often in alkali sink scrub communities with other halophytic plants.	**No Potential**: The BSA lacks the alkaline or saline soils required by this species. Soils within the BSA are associated with irrigated agricultural and riparian settings with no evidence of alkali scalds or salt crust formation.
Calycadenia spicata	spicate calycadenia	G3?S3; 1B.3	Occurs in open, grassy, or disturbed habitats including roadsides, ditches, and the margins of vernal pools and grasslands in the San Joaquin Valley foothills. Associated with low-growing annual vegetation.	**No Potential:** Although roadsides and ditch margins within the BSA could superficially resemble suitable habitat, this species is strongly associated with foothill grasslands and the margins of vernal pool complexes. The heavily ruderal and disturbed character of roadside vegetation in the BSA, combined with the absence of vernal pools and foothill grassland context, precludes occurrence.
Delphinium recurvatum	recurved larkspur	G2?S2; 1B.2	Occurs in alkali sink and valley grassland communities on heavy clay soils, often in swales and low-lying areas subject to seasonal inundation. Restricted to the San Joaquin Valley and adjacent western foothills.	**No Potential:** The BSA lacks the alkali sink grassland and heavy clay soils required by this species. Vegetation within and adjacent to the BSA is dominated by ruderal, agricultural, and riparian cover types with no alkali sink community present.
Eryngium racemosum	Delta button-celery	CE; G1S1; 1B.1	Historically found in freshwater marshes and seasonally flooded swales in the Sacramento-San Joaquin Delta region. Requires wet to seasonally inundated alkaline or brackish soils with sparse to moderate emergent vegetation.	**No Potential:** This species is restricted to the Sacramento-San Joaquin Delta and is nearly extirpated from its historical range. The BSA is outside the known range of this species and does not contain the alkaline freshwater marsh habitat it requires.
Lasthenia chrysantha	alkali-sink goldfields	G2S2; 1B.1	Endemic to alkaline soils of the San Joaquin Valley and adjacent areas. Occurs in moist or seasonally flooded alkali sink grasslands and the margins of vernal pools on saline clay soils.	**No Potential:** The BSA lacks the alkali sink grassland and saline clay soils required by this species. No vernal pools or alkali flats are present within or adjacent to the BSA.
Legenere limosa	legenere	G2S2; 1B.1	Obligate vernal pool specialist, restricted to shallow, seasonally inundated pools with clay-rich soils at low elevations in the Central Valley. Typically occurs with other vernal pool species in intact grassland-pool complexes.	**No Potential:** This species is an obligate vernal pool plant. No vernal pools or seasonal freshwater depressions on clay-rich soils are present within the BSA. The irrigation ditches and canals in the BSA do not constitute suitable habitat.

Scientific Name	Common Name	Special-Status[1]	Habitat Requirements[2]	Potential to Occur
Puccinellia simplex	California alkali grass	G2S2; 1B.2	Restricted to highly alkaline or saline substrates in the San Joaquin Valley, including sandy alkaline flats, riverine terraces, and the margins of alkali sinks. Typically found in open, sparsely vegetated areas subject to seasonal saturation.	**No Potential:** The BSA lacks the alkaline or saline substrates required by this species. Soils in the BSA are associated with irrigated agriculture and do not exhibit the alkali chemistry necessary to support this species.
Tuctoria greenei	Greene's tuctoria	FE; CR; G1S1; 1B.1	Obligate vernal pool annual grass, historically restricted to large vernal pool complexes on hardpan or heavy clay soils in the Central Valley. Requires seasonal inundation followed by complete drying; now extirpated from most historic sites due to agricultural conversion.	**No Potential:** This species is an obligate vernal pool annual grass that is now extirpated from the majority of its historical range. No vernal pools or hardpan soils are present within the BSA. The BSA is dominated by irrigated orchard agriculture, wheat fields, and ruderal ditches, none of which constitute suitable habitat.
Invertebrates				
Bombus caliginosus	obscure bumble bee	G2G3S1S2	Coastal range of California, extending from southern California to Southern British Columbia. Associated with developed landscapes and is most commonly sighted on raspberries, blackberries, self-heal, and clovers.	**No Potential:** This species is largely restricted to the coastal range of California and is not known from the interior San Joaquin Valley. The BSA is outside the documented range of this species.
Bombus crotchii	Crotch's bumble bee	SC(E); G2S2	Occurs in dry open environments such as grasslands, scrublands, chaparral, and desert margins, from coastal California east to the Sierra-Cascade crest and south into Mexico. Found particularly in California's Central Valley, foothills, and western deserts. A short-tongued generalist forager that primarily uses flowers with short corollas, including milkweed, lupines, sages, phacelias, clarkias, poppies, and buckwheats. Nests are usually underground in abandoned rodent burrows but may also occur aboveground in grass clumps, rock piles, or cavities.	**Low Potential:** This species occurs in California's Central Valley and could potentially occur within the BSA as a transient forager. However, the BSA is dominated by almond orchards, wheat fields, and ruderal ditches with limited native floral resources. The lack of native foraging plants and ground squirrel burrows for nesting substantially reduces the likelihood of occurrence.
Bombus occidentalis	western bumble bee	SC(E); G3S1	Historically widespread across the western United States and Canada in a variety of habitats including grasslands, meadows, and shrublands with abundant native flowering	**Low Potential:** This species has declined dramatically throughout California and is now very rarely detected in the Central Valley. While the BSA is within its historical range, the absence of native

Scientific Name	Common Name	Special-Status[1]	Habitat Requirements[2]	Potential to Occur
			plants. Requires nesting sites (often abandoned rodent burrows) and diverse floral resources. Has declined dramatically in California and much of its range; currently rare.	flowering plant communities and ground squirrel burrows makes occurrence unlikely. Transient foraging individuals cannot be fully excluded.
Bombus pensylvanicus	American bumble bee	G3G4S2	Occurs in open habitats including grasslands, agricultural areas, old fields, and roadsides with diverse flowering plants. Forages on a variety of native and non-native flowers; nests underground, often in abandoned small mammal burrows. Historically widespread across North America but declining in the western United States.	**Low Potential:** This species uses agricultural areas and roadsides within its range and could potentially forage within the BSA along roadside margins and ditch banks where flowering plants occur. However, no ground squirrel burrows were observed during the site visit, limiting nesting potential. Occurrence as a transient forager is possible but unlikely to be regular.
Branchinecta conservatio	Conservancy fairy shrimp	FE; G2S2	Obligate resident of large, deep vernal pools on clay-rich or alkaline hardpan soils, primarily in valley grassland and alkali sink communities of the Central Valley. Requires pools that hold water for extended periods; often co-occurs with other sensitive branchiopods. Found only in California.	**No Potential:** No vernal pools or seasonal freshwater depressions on clay-rich or hardpan soils are present within the BSA. The irrigation ditches and canals within the BSA do not support the hydroperiod, substrate, or pool characteristics required by this species.
Branchinecta lynchi	vernal pool fairy shrimp	FT; G3S3	Occurs in seasonally inundated freshwater habitats, primarily vernal pools and temporary wetlands that fill during winter and spring and dry by summer. Tolerates a range of water clarity and pH. Found at low to moderate elevations (0–1,150 m). Associated with grassland-pool complexes on hardpan and alkali soils in the Central Valley.	**No Potential:** No vernal pools or seasonal freshwater pools on hardpan or alkali soils are present within the BSA. The water features within the BSA are perennial irrigation canals and Lone Tree Creek, which do not provide the seasonal drying cycle required by this species.
Branchinecta mesovallensis	midvalley fairy shrimp	G2S2S3	Restricted to vernal pools and seasonal freshwater pools in the Central Valley, often on gently undulating grazed grassland. Typically occurs in pools with other sensitive branchiopods and vernal pool-dependent amphibians. Requires seasonal inundation on clay or hardpan soils.	**No Potential:** No vernal pools or seasonal freshwater pools on clay or hardpan soils are present within the BSA. The water features present are perennial canals and a perennial stream that do not support the seasonal inundation-desiccation cycle required by this species.
Danaus plexippus	monarch – California	FT(P); G4S2	Winter roost sites extend along the coast from northern Mendocino to Baja California,	**Low Potential.** The BSA lacks the suitable overwintering habitat that is clustered along the

Scientific Name	Common Name	Special-Status[1]	Habitat Requirements[2]	Potential to Occur
	overwintering population (pop. 1)		Mexico. Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, cypress), with nectar and water sources nearby.	immediate coast to the west. Monarchs may occur as transient migrants passing through the BSA but are not expected to overwinter.
Desmocerus californicus dimorphus	valley elderberry longhorn beetle	FT; G3T3S3	Strictly dependent on blue elderberry (Sambucus nigra ssp. caerulea) shrubs with stems ≥1 inch in diameter for all life stages. Found in riparian woodlands, valley foothill woodlands, and elderberry savanna along the edges of streams, sloughs, and low terraces in the Central Valley. Larvae develop within elderberry stems; adults emerge and feed on elderberry flowers and foliage.	**No Potential:** No blue elderberry was observed within the BSA during the field reconnaissance. This species is an obligate elderberry associate; in the absence of the host shrub, the species cannot occur.
Lepidurus packardi	vernal pool tadpole shrimp	FE; G3S3	Obligate resident of vernal pools, vernal swales, and other seasonal freshwater depressions that fill during winter rains and dry completely by late spring or summer. Requires shallow, clay-rich or hardpan soils that hold water for sufficient duration (30–90+ days) to allow completion of its life cycle. Occurs only in California's Central Valley vernal pool landscapes within grassland, prairie, and alkali-flat ecosystems.	**No Potential:** No vernal pools, vernal swales, or seasonal freshwater depressions on clay-rich or hardpan soils are present within the BSA. The water features in the BSA are perennial and do not provide the seasonal drying cycle required by this obligate vernal pool species.
Linderiella occidentalis	California linderiella	G2G3S2S3	Occurs in seasonally inundated freshwater habitats, primarily vernal pools and temporary wetlands that fill during winter/spring and dry by summer. Tolerates a range of water clarity and pH. Found at low to moderate elevations (0–1,150 m). Commonly found in alkali sink vernal pool complexes on clay soils, often in association with other sensitive branchiopods.	**No Potential:** No vernal pools or seasonal freshwater wetlands that dry completely by summer are present within the BSA. The irrigation ditches and canals are perennially managed features that do not provide the seasonal inundation-desiccation cycle required by this species.
Lytta moesta	moestan blister beetle	G2S2	Associated with dry grasslands, alkali scrub, and valley foothill habitats in the San Joaquin Valley. Adults are active foragers on host plants; larvae are ectoparasites of solitary ground-nesting bees. Requires native grassland or scrub with appropriate bee host populations. Known only from historical	**No Potential:** This species is known only from historical collections and its current status in the San Joaquin Valley is unknown. The BSA lacks native grassland and alkali scrub habitats, and no ground-nesting solitary bee populations were observed. The heavily ruderal and agricultural character of the BSA does not support this species.

Scientific Name	Common Name	Special-Status[1]	Habitat Requirements[2]	Potential to Occur
			collections; current habitat requirements are poorly documented.	
Rhaphiomidas trochilus	San Joaquin Valley giant flower-loving fly	G1S1	Historically associated with sandy river bars and adjacent sandy upland habitats, including alkali scrub and native grassland along San Joaquin Valley rivers. Adults were observed on flowers of various plant species. Now extirpated from the San Joaquin Valley; the species was rediscovered in Kern County in 1997 and is currently known from only one extant population.	**No Potential:** This species is extirpated from the San Joaquin Valley and is currently known from only one extant population in Kern County. The BSA does not support the sandy river bar or native alkali scrub habitats historically associated with this species, and it is not expected to occur.
Fish				
Acipenser medirostris pop. 1	green sturgeon – southern DPS	FT; G2T1S1	Spawning occurs primarily in cool (11–15°C) sections of mainstem rivers in deep pools (8–9 m) with substrates of small to medium-sized sand, gravel, cobble, or boulder. Adults and sub-adults use estuarine bays and the open coast for non-spawning portions of the year. Juveniles rear in riverine and estuarine habitats.	**No Potential:** Lone Tree Creek is a small, shallow perennial stream that does not provide the large-river deep pool habitat required by this species for spawning or rearing. Additionally, canal infrastructure within the BSA and downstream creates barriers to passage from the San Joaquin River system.
Mylopharodon conocephalus	hardhead	G3S3	Occurs in warm- to cool-water rivers and streams with clear to slightly turbid water, moderate gradients, and pools. Inhabits riffles, runs, and deep pools with gravel, cobble, or boulder substrates. Found in the Sacramento-San Joaquin drainage and tributary rivers including the Stanislaus and Tuolumne.	**No Potential:** Lone Tree Creek is a small, low-gradient perennial stream with turbid water that does not provide the clear, deeper pool and riffle habitat required by hardhead. Canal infrastructure creates barriers to upstream dispersal from larger river systems where this species occurs.
Oncorhynchus mykiss irideus pop. 11	steelhead – Central Valley DPS	FT; G5T2QS2	Anadromous species requiring cool, clear, well-oxygenated freshwater streams with clean gravel and cobble substrates for spawning and rearing. Juveniles rear in pools with diverse depths, abundant instream cover, and riparian canopy that maintains cool water temperatures. Adults migrate upstream during winter and spring; smolts emigrate to the ocean during spring.	**No Potential:** Although Lone Tree Creek is perennial and flows to the Calaveras River and ultimately to the San Joaquin River, canal management infrastructure within and downstream of the BSA creates barriers to anadromous fish passage. The creek also lacks the cool, clear water, clean gravel substrates, and channel size necessary for steelhead spawning and rearing.

Scientific Name	Common Name	Special-Status[1]	Habitat Requirements[2]	Potential to Occur
Amphibians				
Ambystoma californiense pop. 1	California tiger salamander – central California DPS	FT; CT; G3T3S3	Requires access to both aquatic breeding habitat and upland refugia throughout the life cycle. Breeds in seasonal ponds, vernal pools, and stock ponds that retain water long enough (typically 10–12 weeks) for larval development. Upland habitat with small mammal burrows for shelter is essential; adults may range up to 1 km from water. Associated with valley grassland and annual grassland-agricultural mosaics.	**No Potential:** No seasonal ponds, vernal pools, or stock ponds suitable for breeding are present within the BSA. The irrigation canals and Lone Tree Creek are perennial water features that do not provide the seasonal inundation-desiccation cycle required for successful larval development. No ground squirrel burrows were observed to provide upland refugia.
Spea hammondii	western spadefoot	FT(P); G2G3S3S4	Breeds in shallow, often temporary or ephemeral pools, vernal pools, flooded fields, and slow-moving streams at low to moderate elevations. Adults spend most of the year underground in self-excavated burrows in sandy or loamy soils. Upland habitat adjacent to breeding pools is essential for non-breeding periods. Associated with grassland, shrubland, and agricultural areas in the Central Valley and surrounding foothills.	**No Potential:** No ephemeral pools, seasonal ponds, or flooded fields suitable for breeding are present within the BSA. The water features present are perennially flowing canals and stream channels. While spadefoots can use agricultural areas, the absence of suitable seasonal breeding pools and the heavily managed hydrological regime of the BSA precludes occurrence.
Reptiles				
Actinemys marmorata	Northwestern pond turtle	FT(P); SSC; G3S3	Found in a variety of slow-moving or still freshwater habitats including streams, rivers, ponds, lakes, irrigation canals, and sloughs with slow to moderate flow, adequate basking sites (logs, branches, exposed banks), and adjacent upland nesting habitat. Requires friable, well-drained soils within approximately 300 meters of water for egg-laying. Highly adaptable to modified aquatic habitats and commonly found in agricultural canals and drainage ditches throughout the Central Valley.	**Moderate Potential:** Lone Tree Creek and the unnamed irrigation ditch within the BSA provide perennial water with slow to moderate flow, emergent vegetation, and some level of woody debris or exposed bank structure suitable for basking. Pond turtles are well documented in modified agricultural waterways throughout the San Joaquin Valley and commonly use irrigation canals and drainage ditches as well as named streams. Upland nesting habitat is present on adjacent ditch banks and road shoulder. Pre-construction surveys are recommended at all two water feature crossings where road widening activities could disturb basking or nesting individuals.

Scientific Name	Common Name	Special-Status[1]	Habitat Requirements[2]	Potential to Occur
Anniella pulchra	Northern California legless lizard	G3S2S3	A fossorial species that occupies loose, moist, sandy or loamy soils with adequate organic matter. Found in coastal dune habitats, sandy riverbanks, and loose-soiled areas within woodland, chaparral, and grassland. Requires soil conditions that allow burrowing; individuals are most often found beneath surface cover such as duff, leaf litter, or debris. Requires moisture to aid in shedding of skin.	**No Potential:** The BSA lacks the loose, sandy or loamy soils with adequate organic matter required by this fossorial species. Substrates within the BSA consist primarily of compacted agricultural soils, road fill, and ditch bank clay. No suitable microhabitat was observed during field reconnaissance.
Thamnophis gigas	giant gartersnake	FT; CT; G2S2	Inhabits marshes, sloughs, ponds, small lakes, and small streams with slow or stagnant water and emergent vegetation (cattails, tules) for cover and thermoregulation. Also found in irrigation and drainage canals and rice fields, which serve as surrogate marsh habitat. Requires adjacent upland habitat (including small mammal burrows) for overwintering. Rarely found more than a few meters from water during the active season.	**Low Potential:** Lone Tree Creek and the unnamed irrigation ditches within the BSA provide marginal aquatic habitat with emergent vegetation including cattail and common reed. However, the San Joaquin Valley population of giant gartersnake is nearly extirpated from most of its historical range south of the Sacramento Valley, and the nearest documented populations are associated with rice agriculture and managed wetland systems not present in the BSA. Occurrence is possible but highly unlikely.
Birds				
Agelaius tricolor	tricolored blackbird	CT; G3S2	Highly colonial species endemic to California. Nests in large, dense colonies in emergent wetlands with cattails or tules, as well as blackberry thickets, nettles, and agricultural silage fields. Requires open water within 500 m of colonies and access to high-quality foraging habitat within a few km, including irrigated pastures, alfalfa fields, rice, seasonal wetlands, and dairies.	**Low Potential**: The irrigation ditches within the BSA support emergent vegetation including cattails that could provide marginal nesting substrate for small colonies. Wheat fields adjacent to the BSA provide suitable foraging habitat. However, the narrow, linear character of the ditch vegetation is suboptimal for colonial nesting, which typically occurs in more expansive emergent wetland patches. No tricolored blackbirds were observed during field reconnaissance; only red-winged blackbirds were detected.
Athene cunicularia	burrowing owl	SC(E); G4S2	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation and bare soil. Subterranean nester, dependent upon burrowing mammals—most notably California	**No Potential**: No ground squirrel burrows were observed within the BSA during field reconnaissance. The BSA is dominated by almond orchards and actively cultivated wheat fields with no open grassland supporting ground squirrel colonies. In the

Scientific Name	Common Name	Special-Status[1]	Habitat Requirements[2]	Potential to Occur
			ground squirrel—for nest burrows. Also uses agricultural lands, ruderal areas, and roadsides where burrows and open foraging habitat are present.	absence of suitable burrow sites, nesting cannot occur. Wintering individuals foraging over open fields cannot be entirely excluded but are not expected given the lack of supporting evidence.
Branta hutchinsii leucopareia	cackling (=Aleutian Canada) goose	G5T3S3	Winters in open agricultural and wetland habitats of California's Central Valley, including pastures, grain fields, flooded rice fields, and managed wetland refuges. Roosts on open water and forages in nearby agricultural fields. Breeds on islands and coastal tundra of Alaska.	**Low Potential:** This species winters throughout the Central Valley and could occur as a transient over the wheat fields adjacent to the BSA. However, no managed wetland roost sites are present, and the BSA does not provide the large-scale flooded fields and open water associated with concentrations of this species. Occasional overflights or brief foraging visits during winter cannot be excluded.
Buteo swainsoni	Swainson's hawk	CT; G5S4	In California's Central Valley, suitable breeding habitat consists of two primary elements: suitable nest trees and proximity to high-quality foraging habitat. Nests within riparian forest or remnant riparian trees (valley oaks, cottonwoods, willows, eucalyptus); forages in open agricultural lands, including fallow fields, alfalfa, irrigated pasture, and low-growing row crops. Orchards and vineyards are not considered suitable foraging habitat.	**Moderate Potential for nesting; High Potential for foraging:** Large valley oaks (20–40 inch dbh) along an unnamed irrigation ditch within the BSA are potentially suitable nest trees, and multiple CNDDB-documented nest sites exist in the project vicinity. A wheat field northeast of Mariposa Road, approximately 300 feet from the large oaks, constitutes high-quality foraging habitat. However, the almond orchards immediately adjacent to the nest oaks are not suitable foraging habitat, and Swainson's hawks typically prefer nest sites where foraging habitat is more contiguous and proximate. Focused nesting surveys are recommended during the breeding season (March 15–September 15) consistent with CDFW survey guidelines.
Coccyzus americanus occidentalis	western yellow-billed cuckoo	FT; CE; G5T2T3S1	In California, prefers riparian woodlands of willow and Fremont cottonwood. Requires relatively large (>20 ha), contiguous patches of multilayered riparian habitat with dense low-level foliage for nesting, and cottonwoods for foraging. Nests are almost always placed in willows; wooded corridors must be at least 300 ft wide and 25 acres in area. Highly sensitive to habitat loss and fragmentation.	**No Potential for nesting; Low Potential as a migrant:** The riparian corridor along Lone Tree Creek and the scattered Fremont cottonwood (6–20 inch dbh) within the BSA are too narrow and fragmented to support nesting by this species, which requires contiguous patches greater than 20 ha of multilayered cottonwood-willow forest. The BSA is also outside the current known breeding range in California. However, this species is a long-distance migrant and individuals could potentially pass through the riparian corridor during spring or fall migration.

Scientific Name	Common Name	Special-Status[1]	Habitat Requirements[2]	Potential to Occur
Falco columbarius	merlin	G5S3S4	A migratory falcon that winters in open habitats such as grasslands, agricultural lands, marshes, and coastal areas where small bird prey is abundant. Does not breed in California. Typically encountered as an uncommon winter visitor or migrant; uses open country and woodland edges for hunting. Perches on elevated structures to scan for prey.	**Low Potential:** This species is an uncommon winter visitor to California's Central Valley. The open wheat fields and agricultural matrix adjacent to the BSA could provide foraging habitat for wintering or migrating individuals. However, occurrence would be seasonal and transient. No surveys specifically targeting this species are warranted.
Mammals				
Antrozous pallidus	pallid bat	G4S3	Occupies deserts, grasslands, shrublands, woodlands, and forests, most often in open, dry habitats with rocky features. Roosts in a variety of protected sites—including rock crevices, caves, buildings, and trees—that provide shelter from heat. Forages over open ground, gleaning large arthropods and small vertebrates from the surface; requires open terrain for low hunting flights.	**Low Potential:** This species could potentially forage over the open agricultural fields and ditch margins within the BSA, and older structures or large hollow trees in the vicinity could provide roost sites. However, suitable rocky roost features are absent from the BSA and the heavily agricultural landscape reduces habitat quality. Foraging by transient individuals is possible but regular use is unlikely.
Eumops perotis californicus	western mastiff bat	G4G5T4S3S4	The largest bat in North America; requires tall, exposed roost sites—cliffs, high buildings, or large trees—from which it can drop to gain flight speed. Forages over open habitats, including grasslands, agricultural lands, and scrub, at high elevations. Roosts in crevices or under loose bark in groups; highly sensitive to roost disturbance.	**Low Potential:** This species forages over open agricultural landscapes and could potentially occur over the BSA. The large valley oaks and any older structures in the vicinity could theoretically provide roost sites in crevices or under bark. However, no suitable cliff or high-rise building roost features were observed, and confirmed roost sites in the San Joaquin Valley are uncommon. Foraging by transient individuals cannot be excluded.
Neotoma fuscipes riparia	riparian (=San Joaquin Valley) woodrat	FE; G5T1S1	Restricted to mature valley riparian forest with valley oak overstory and a dense shrub understory of willows, wild rose, blackberry, wild grape, coyote brush, and currant. Builds stick houses (middens) at the base of trees or in dense shrubs. Dependent on intact, mature riparian corridor along Central Valley rivers; nearly extirpated from the San Joaquin Valley.	**No Potential:** Although the BSA contains valley oaks and some riparian vegetation along Lone Tree Creek, the riparian corridor is too narrow, fragmented, and disturbed to support this species. The dense shrub understory of native species required by this woodrat is absent; ditch banks are dominated by ruderal and invasive vegetation. This subspecies is nearly extirpated from the San Joaquin Valley, and the BSA

Scientific Name	Common Name	Special-Status[1]	Habitat Requirements[2]	Potential to Occur
				does not provide habitat of sufficient quality or extent to support a population.
Sylvilagus bachmani riparius	riparian brush rabbit	FE; CE; GNRT2S2	Restricted to dense riparian shrub thickets within mature valley riparian forest along Central Valley rivers. Requires thick, low shrub cover (willows, rose, blackberry, California grape) for concealment and protection from predators. Does not venture far from dense riparian cover; highly vulnerable to flood events and loss of riparian vegetation.	**No Potential:** The riparian corridor along Lone Tree Creek and the irrigation ditch banks within the BSA are too narrow, disturbed, and lacking in the dense native shrub understory required by this species. Vegetation along the water features is dominated by ruderal grasses, common reed, cattail, and non-native shrubs rather than the native willow-rose-blackberry thicket structure this species requires. This subspecies is functionally restricted to isolated populations along the Stanislaus River, well outside the BSA.
Sensitive Natural Communities (SNC)				
Elderberry Savanna	Elderberry Savanna	G2S2.1	Open savanna characterized by blue elderberry (Sambucus nigra ssp. caerulea) shrubs 15–25 ft tall spaced 30–50 ft apart over a grassland understory dominated by native grasses (Elymus triticoides, Carex spp.) on channeled loam soils. Occurs on low terraces adjacent to Central Valley rivers. Provides essential habitat for valley elderberry longhorn beetle.	**No Potential:** No blue elderberry was observed within the BSA. In the absence of the dominant structure species, this natural community cannot be present.
Great Valley Cottonwood Riparian Forest	Great Valley Cottonwood Riparian Forest	G2S2.1	Riparian forest dominated by Fremont cottonwood (Populus fremontii) with an understory of willow scrub and young box elder. Occurs along low terraces and floodplains of Central Valley rivers with seasonal flooding and high water tables. Among the rarest and most imperiled plant communities in California.	**No Potential:** Scattered Fremont cottonwood are present along road margins within the BSA (6–20 inch dbh), but they do not form a cohesive forest canopy and lack the associated willow-box elder understory structure required to constitute this natural community. The trees are isolated individuals and patches, not a community-level occurrence.
Great Valley Mixed Riparian Forest	Great Valley Mixed Riparian Forest	G2S2.2	Heterogeneous riparian forest along Central Valley rivers with multiple successional stages ranging from open willow scrub on point bars to closed-canopy stands of cottonwood, box elder, ash, and senescent elderberry. Provides nesting and foraging	**No Potential:** The riparian corridor along Lone Tree Creek contains willow and cottonwood trees but is too narrow, fragmented, and disturbed to constitute this natural community. The corridor lacks the structural complexity, multi-species canopy, and understory

Scientific Name	Common Name	Special-Status[1]	Habitat Requirements[2]	Potential to Occur
			habitat for numerous special-status species including riparian brush rabbit, riparian woodrat, and valley elderberry longhorn beetle.	development characteristic of Great Valley Mixed Riparian Forest.
Great Valley Valley Oak Riparian Forest	Great Valley Valley Oak Riparian Forest	G1S1.1	Closed to open valley oak forest with a sparse subcanopy of box elder and wild grape and an extensive native grass-sedge understory (Carex barbarae, Elymus triticoides). Occurs on low terraces of Central Valley rivers; one of the rarest plant communities in California. Provides essential habitat for riparian woodrat and riparian brush rabbit.	**No Potential:** Although large valley oaks (20–40 inch dbh) are present along the unnamed irrigation ditch within the BSA, they occur as scattered individual trees rather than a closed or open forest stand. The native grass-sedge understory and associated subcanopy structure required to constitute this natural community are absent; groundcover beneath the oaks is dominated by ruderal and non-native annual grasses.
Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	G3S3.1	Seasonal freshwater pools that form in shallow depressions on hardpan, claypan, or heavy clay soils in valley grasslands. Characterized by concentric zones of wetland and upland vegetation including Eryngium, Plagiobothrys, and Boisduvalia. Pools are typically 8–12 inches deep and dry completely by late spring or summer. Provides essential habitat for federally listed vernal pool crustaceans and amphibians.	**No Potential:** No vernal pools or seasonal freshwater depressions on hardpan or clay soils are present within the BSA. The project area is dominated by irrigated almond orchards, wheat fields, and perennial irrigation canals and does not contain the grassland-pool complex landscape context in which this community occurs.

Special-Status Designations

Listing status under the federal and state Endangered Species Acts, and other applicable regulatory designations, as shown in the Special-Status column of Table [X].

Category	Abbreviation	Definition
Federal Endangered Species Act (FESA)		
FESA	FE	Federally Endangered
	FT	Federally Threatened
	FT(P)	Federally Threatened (Proposed)
	FC	Federal Candidate
California Endangered Species Act (CESA)		
CESA	SE	State Endangered
	ST	State Threatened
	SC(E)	State Candidate Endangered
	SC(T)	State Candidate Threatened
	SD	State Delisted
Other Designations		
Other	SSC	California Species of Special Concern (CDFW)
	FP	California Fully Protected Species (FGC §§ 3511, 4700, 5050, 5515)
	CR	California Rare (legacy CESA designation)

Global (G) and State (S) Conservation Status Ranks — NatureServe Heritage Methodology

Ranks reflect degree of imperilment globally (G) or within California (S) based on number of occurrences, population size, range extent, trends, threats, and environmental specificity (NatureServe 2025). The prefix G indicates a global (range-wide) rank; S indicates a subnational (California) rank. Range ranks (e.g., G2G3, S2S3) indicate uncertainty spanning two rank categories. The suffix T indicates a taxon rank for an infraspecific entity (subspecies or variety) appended to the species' G rank (e.g., G5T2). State ranks may be subdivided by decimal extensions (.1–.3) to further prioritize elements within a rank category (e.g., S2.1 = highest priority S2 element in California). The following thresholds apply to both G and S ranks:

Rank	Typical # of Occurrences	Description
1	≤5 populations or ≤1,000 individuals	Critically Imperiled — At very high risk of extirpation due to extreme rarity, very steep declines, or other factors
2	6–20 populations or 1,001–3,000 individuals	Imperiled — At high risk due to very restricted range, very few populations, steep declines, or other factors
3	21–80 populations or 3,001–10,000 individuals	Vulnerable — At moderate risk due to a restricted range, relatively few populations, recent and widespread declines, or other factors
4	>80 populations or >10,000 individuals	Apparently Secure — Uncommon but not rare; some cause for long-term concern due to declines or other factors
5	Abundant	Secure — Common, widespread, and abundant
SNR	—	State Not Ranked

California Rare Plant Rank (CRPR) — California Native Plant Society

CRPR list designations and threat code extensions applicable to special-status plant species in Table [X] (CNPS 2026).

CRPR List	Threat Code	Definition
List Designations		
1A	—	Plants presumed extinct in California

CRPR List	Threat Code	Definition
1B	—	Plants rare, threatened, or endangered in California and elsewhere
2B	—	Plants rare, threatened, or endangered in California, more common elsewhere
3	—	Plants about which more information is needed (review list)
4	—	Plants of limited distribution (watch list)
Threat Code Extensions (appended to List number, e.g., 1B.2)		
	.1	Seriously threatened in California (>80% of occurrences threatened; high degree and immediacy of threat)
	.2	Moderately threatened in California (20–80% of occurrences threatened; moderate degree and immediacy of threat)
	.3	Not very threatened in California (<20% of occurrences threatened; low degree and immediacy of threat or no current threats known)

Sensitive Natural Community Rank — NatureServe Score-Based Classification

Global (G) and state (S) ranks for sensitive natural communities are derived from a calculated numeric score incorporating the same eight NatureServe rank factors applied to species. Score thresholds correspond to rank categories as follows. Decimal extensions (.1–.3) permit further prioritization within a rank category at the state level (NatureServe 2025; CDFW 2025b).

Calculated Score	Rank	Status Description
Score ≤ 1.5	G1, S1	Critically Imperiled
1.5 < Score ≤ 2.5	G2, S2	Imperiled
2.5 < Score ≤ 3.5	G3, S3	Vulnerable
3.5 < Score ≤ 4.5	G4, S4	Apparently Secure
Score > 4.5	G5, S5	Secure

Potential to Occur Ratings

Ratings reflect the likelihood of a species or natural community occurring within the Biological Study Area (BSA) based on habitat suitability, existing occurrence records, and field observations.

Rating	Definition
No Potential	Habitat in and adjacent to the BSA is clearly unsuitable for the species' requirements (cover, substrate, elevation, hydrology, plant community, site history, or disturbance regime).
Low Potential	Few habitat components meeting the species' requirements are present and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is unlikely to be found in the BSA.
Moderate Potential	Some habitat components meeting the species' requirements are present and/or only some habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found in the BSA.
High Potential	All habitat components meeting the species' requirements are present and/or most habitat on or adjacent to the site is highly suitable. The species has a high probability of being found in the BSA.
Present	Species detected or documented within the BSA during field reconnaissance or through existing occurrence records.

Data Sources — Habitat Requirements Column

Habitat requirements information compiled from: California Natural Diversity Database (CNDDB) BIOS 6 (CDFW 2025b); CDFW Wildlife Habitat Relationships System (CDFW 2021); USFWS Species Library (USFWS 2025); and other peer-reviewed literature cited in Section 10.

Appendix C
Site Visit Photographs

LONE TREE CREEK



Photo 1. Lone Tree Creek looking east from Escalon-Bellota road crossing within the BSA. The creek supports a narrow riparian corridor of willow (Salix spp.), Fremont cottonwood and valley oak (large oak in Photo 3 can be seen in the right background).



Photo 2. Lone Tree Creek irrigation control structure on west side of Escalon-Bellota Road.



Photo 3. Close up of mature valley oak (estimated 24-28” dbh) on the bank of Lone Tree Creek within the BSA (also seen from Photo 1). Escalon-Bellota Road and the Lone Tree Creek box culvert/bridge crossing are visible in the background.



Photo 4. Lone Tree Creek flowing under Escalon-Bellota Road. Yellow lines represent approximate OHWM.

IRRIGATION CANALS



Photo 5. *Irrigation Canal #1:* Unnamed perennial irrigation canal within the BSA, looking east (37°54'38"N, 121°9'55"W). The canal supports dense stands of cattail (Typha spp.) and common reed (*Phragmites australis*) along its banks with standing water visible at the base of the vegetation.



Photo 6. *Irrigation Canal #2:* Earthen drainage ditch crossing under Murphy Road. Several large valley oak trees can be seen in the background on the other side of the bridge.



Photo 7. *Irrigation Canal #3:* Unnamed irrigation ditch running parallel to Mariposa Road between the road margin and an adjacent almond orchard. The feature supports dense stands of cattail and common reed visible along its margins.



Photo 8. *Irrigation Canal #3:* Irrigation delivery ditch visible in the background running along an almond orchard access road within the BSA, adjacent to Dodds Road. This feature is an engineered irrigation delivery channel with no functional riparian habitat value.



Photo 9. *Irrigation Canal #4:* Concrete lined irrigation canal at the intersection of Mariposa Road and Escalon-Bellota Road.



Photo 10. *Irrigation Canal #5 - Sweet Lateral:* Unnamed concrete-lined irrigation canal along Escalon-Bellota and Lone Tree Road. The engineered concrete character of this feature precludes development of natural riparian vegetation.



Photo 11. *Irrigation Canal #6:* Irrigation canal with slow-moving water and a large valley oak overhanging the channel margin.

Wildlife



Photo 12. Large red tail hawk nest observed in the upper canopy of a Fremont cottonwood in the backyard of a residential property adjacent to the Mariposa and Skiff Road intersection.



Photo 13. Red-tailed hawk in flight showing the diagnostic rufous tail fan that confirms identification as *Buteo jamaicensis* rather than Swainson's hawk (*Buteo swainsoni*). Swainson's hawk lacks the rufous tail and in the light morph shows a contrasting dark bib with pale underparts.

AGRICULTURAL LAND COVER



Photo 14. Winter wheat field within the BSA northeast of Mariposa Road. This open, low-growing row crop field represents high-quality Swainson's hawk foraging habitat consistent with the highest-value cover types identified in the SJMSCP Central Zone conservation strategy.



Photo 15. Recently tilled row crop field adjacent to Mariposa Road within the BSA. Freshly tilled and fallow fields provide exposed prey items and constitute suitable foraging habitat for Swainson's hawk.



Photo 16. Interior view of a mature almond orchard within the BSA. Almond orchards constitute the dominant tree crop along the Mariposa Road corridor and represent the agricultural matrix immediately adjacent to the road right-of-way along much of its length.

ROADSIDE HABITATS



Photo 17. *Roadside #1*: Representative view of the Mariposa Road roadside corridor within the BSA showing a narrow strip of ruderal non-native grasses and forbs typical of heavily disturbed agricultural roadsides. Ornamental and native trees associated with a rural residential property are visible at right. This roadside character is typical of much of the corridor and does not support special-status plant species.



Photo 18. Looking north along Mariposa Road within the BSA. The road shoulder is bordered by a narrow strip of ruderal non-native annual grasses and forbs. The flat valley floor agricultural landscape characteristic of the San Joaquin Valley Central Zone is visible in both directions. Rural residential development with associated ornamental landscaping adjoins the road right-of-way at several locations along the corridor.



Photo 19. Small stand of Fremont cottonwood trees along Mariposa Road within the proposed intersection rerouting footprint. The trees ranged from approximately 8-15 inches dbh and were leafing out at the time of survey.



Photo 20. Representative corrugated metal pipe culvert crossing beneath the Mariposa Road shoulder within an almond orchard corridor. Multiple subsurface irrigation crossings of this type were documented within the road right-of-way. These features serve agricultural irrigation infrastructure, do not constitute jurisdictional waters, and are not expected to support special-status aquatic species.

Appendix D

List of Plant and Wildlife Species Observed During Field Reconnaissance in the BSA

Plant and Wildlife Species Observed within the Biological Study Area (BSA)

Trees

Common Name	Scientific Name
Valley oak	Quercus lobata
Fremont cottonwood	Populus fremontii
River red gum	Eucalyptus camaldulensis
Siberian elm	Ulmus pumila
Almond	Prunus amygdalus
Mexican fan palm	Washingtonia robusta

Grasses

Common Name	Scientific Name
Wild oat	Avena fatua
Ripgut brome	Bromus diandrus
Red brome	Bromus rubens
Barley grass	Hordeum murinum
Italian ryegrass	Festuca perennis
Wheat	Triticum aestivum

Forbs

Common Name	Scientific Name
Filaree	Erodium moschatum
Cutleaf geranium	Geranium dissectum
Milk thistle	Silybum marianum
Fiddleneck	Amsinckia menziesii

Curly dock	Rumex crispus
Mustard spp.	Brassica spp.
Cheeseweed	Malva parviflora
Field bindweed	Convolvulus arvensis

Riparian / Aquatic Vegetation

Common Name	Scientific Name
Willow species	Salix spp.
Common reed	Phragmites australis
Cattail	Typha spp.

Other Plants

Common Name	Scientific Name
Prickly pear cactus	Opuntia spp.

Birds

Common Name	Scientific Name
Red-tailed hawk	Buteo jamaicensis
Red-winged blackbird	Agelaius phoeniceus
American crow	Corvus brachyrhynchos
Mourning dove	Zenaida macroura
Western meadowlark	Sturnella neglecta
Western kingbird	Tyrannus verticalis
Killdeer	Charadrius vociferus
European starling	Sturnus vulgaris
House sparrow	Passer domesticus

Mammals

Common Name	Scientific Name

California ground squirrel	Otospermophilus beecheyi
Botta's pocket gopher	Thomomys bottae
Coyote	Canis latrans

Reptiles / Amphibians

Common Name	Scientific Name
Western fence lizard	Sceloporus occidentalis
Pacific chorus frog	Pseudacris regilla