
APPENDIX B

Biological Resources Reconnaissance Survey and CEQA Analysis

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Report of Findings

Biological Resources Reconnaissance Survey and CEQA Analysis

Merced Biogas Upgrade Facility and Pipeline Project

Location:

East Option: Near Highway 99, on Ranch Road;

West Option: North of Rahilly Road and east of the Vander Woude Dairy.

Permit Sought: Conditional Use Permit Application No. CUP19-003

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1 SUMMARY

Merced Pipeline, LLC proposes to construct and operate a dairy biogas collection and biomethane injection project in unincorporated Merced County, California. The proposed project would consider two alternate locations for the biogas upgrading and metering equipment. The proposed locations include the East Option near Highway 99, on Ranch Road, and an alternate location, the West Option, north of Rahilly Road and east of the Vander Woude Dairy. Considering both locations, the project would also include up to a total of up to 34 miles of buried biogas gathering lines. These low-pressure SDR-21 High Density Poly Ethylene (HDPE) pipelines would be located predominantly on privately owned property via easements and within or across Merced County right-of-way (ROW). The gathering pipelines would connect to separately proposed individual dairy digesters on existing dairy operations in the project area and would move biogas from each dairy to the proposed central upgrading facility. The upgraded biomethane would be piped to an injection point with a PG&E gas transmission pipeline or a private pipeline utility. The individual dairy digester projects have been permitted separately with the County and are not included in this Project. The project site is located in southern Merced County, and several segments of the pipeline alignment cross into Madera County (Figure 1).

2 INTRODUCTION

2.1 PURPOSE OF THE STUDY

The purpose of this report is to describe the findings of a biological resources reconnaissance survey and California Environmental Quality Act (CEQA) Analysis conducted for the Merced Biogas Upgrade Facility and Pipeline Project in Merced County, California. The Biological Reconnaissance Survey was conducted on April 23 and April 24, 2019 to describe and map biological resources along the project alignment and in surrounding areas, and to determine whether suitable habitat is present for special status or sensitive species. The CEQA Analysis included a review of current biological resources databases, previous studies and current conditions to evaluate the project's potential impact to biological resources pursuant to CEQA standards.

2.2 APPLICABLE LAWS AND REGULATIONS

Relevant federal, state and local regulations that govern the biological resources of the project area are briefly explained in this section.

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES

For the purposes of this Report, a special-status species is a plant or animal species that is:

- Listed endangered, threatened, or a candidate species under the federal Endangered Species Act (FESA);
- Listed endangered, threatened, or a candidate species under the California Endangered Species Act (CESA);
- Listed as a species of special concern by the California Department of Fish and Game (CDFW) or the Department of Forestry (CDF);
- A plant species that is on the California Native Plant Society's (CNPS) Rare Plant Ranking System as List 1 or 2; and/or
- Considered rare, threatened, or endangered under CEQA Guidelines 15380(d) as the species survival is in jeopardy due to loss or change in habitat.

In addition, species protected by specific federal or state regulation or local ordinances are considered special-status species.

FEDERAL

Endangered Species Act. The FESA was passed to protect species threatened with extinction and provides measures to prevent and alleviate the loss of species and their habitats. The FESA prohibits take of a listed species, as well as trade in endangered or threatened species. If potential exists for a proposed project to adversely affect federally listed, proposed, or candidate species, then consultation with the U.S. Fish and Wildlife Service (USFWS) and/or National Marine Fisheries Service (NMFS) is required.

Projects that will result in the "take" of a federally listed or proposed species (as defined by FESA Section 9) are required to consult with the USFWS and/or NMFS. The objective of consultation is to determine whether the project will jeopardize the continued existence of a listed or proposed species, and to determine what mitigation measures will be required to avoid jeopardy. Consultations are conducted under Sections 7 or 10 of FESA depending on the involvement by the federal government.

Under Section 7, the Services are authorized to issue Incidental Take Permits (ITP) for the take of a listed species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by the federal agency. A Biological Assessment is usually required as part of the Section 7 consultation to provide sufficient information for the USFWS and/or NMFS to fully determine the project's potential affect on listed

species. The USFWS and/or NMFS must make one of three possible findings for each species potentially affected:

No effect: The proposed action will not affect the listed species or critical habitat;

Not likely to adversely affect: Effects of construction on the listed species are expected to be discountable (extremely unlikely to occur), insignificant (minimal impact without take), or beneficial; and

Likely to adversely affect: An adverse effect may occur as a direct or indirect result of the proposed action, and the effect is not discountable, insignificant, or beneficial.

If there is no federal involvement in a proposed project, the applicant must consult with USFWS and/or NMFS under Section 10 of the FESA. Section 10 of the FESA allows USFWS and/or NMFS to issue a permit for take of a listed species incidental to, and not for the purpose of, carrying out an otherwise lawful activity. The action may not jeopardize the continued existence of a listed species or its critical habitat. A Habitat Conservation Plan (HCP) must be prepared and approved by USFWS prior to issuing a permit under Section 10.

Migratory Bird Treaty Act of 1918. The Migratory Bird Treaty Act (MBTA) protects migratory birds and their nests. Under the MBTA, it is unlawful to take, import, export, possess, buy, sell, purchase, or barter any migratory bird. Feathers or other parts, nests, eggs, and products made from migratory birds are also covered by the MBTA. Take is defined as pursuing, hunting, shooting, poisoning, wounding, killing, capturing, trapping, or collecting.

Section 404 of the Clean Water Act. The U.S. Army Corps of Engineers (Corps) and the U.S. Environmental Protection Agency (EPA) regulate the discharge of dredge and fill material into jurisdictional “waters of the United States” (WoUS) and wetlands under Section 404 of the Clean Water Act.

The Corps is responsible for the issuance of permits for the placement of dredged or fill material into WoUS pursuant to Section 404 of the Clean Water Act (33 USC 1344). As defined by the Corps at 33 CFR 328.3(a)(3), WoUS are those waters that are used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including waters which are subject to the ebb and flow of the tide; tributaries and impoundments to such waters; interstate waters including interstate wetlands; and, territorial seas.

The Corps asserts jurisdiction over traditional navigable waters (TNW) and adjacent wetlands. Under Corps and EPA regulations, wetlands are defined as: “those areas that

are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.”

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

On June 29, 2015, the Corps and EPA issued new definitions for waters/wetlands (U.S. Army Corps of Engineers and U.S. Environmental Protection Agency, 2015), intended to become effective on August 28, 2015. These regulatory definitions are known as the 2015 Clean Water Rule and are outlined below.

2015 Clean Water Rule Regulatory Definitions of Waters of the U.S., Including Wetlands

Under 33 CFR Part 328(a), the following are “Waters of the United States:

- (1) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- (2) All interstate waters, including interstate wetlands;
- (3) The territorial seas;
- (4) All impoundments of waters otherwise identified as waters of the United States under this section;
- (5) All tributaries, as defined in paragraph (c) (3) of this section, of waters identified in paragraphs (1) through (3) of this section;
- (6) All water adjacent to a water identified in paragraphs (a)(1) through (5) of this section, including wetlands, ponds, lakes, oxbows, impoundments, and similar waters;
- (7) All waters in paragraphs (i) through (v) of this paragraph where they are determined, on a case-specific basis, to have a significant nexus to a water identified in paragraphs (a)(1) through (3) of this section. The waters identified in each of paragraphs (i) through (v) are similarly situated and shall be combined, for purposes of a significant nexus analysis, in the watershed that drains to the nearest water identified in paragraph (a)(1) through (3) of this section. Waters identified in this paragraph shall not be combined with waters identified in paragraph (a) (6) of this section when performing a significant nexus analysis. If water identified in this paragraph are also an adjacent water under paragraph (a)(6), they are an adjacent water and no case-specific significant nexus analysis is required.
 - i. Prairie Potholes...
 - ii. Carolina bays and Delmarva bays...
 - iii. Pocosins...
 - iv. Western vernal pools...
 - v. Texas coastal prairie wetlands...
- (8) All waters located within the 100-year floodplain of a water identified in (a)(1) through (3) of this section and all waters located with 4,000 feet of the high tide line or OHWM of a water identified in paragraphs (a)(1) through (5) of this section where they are determined on a case-specific basis to have a significant nexus to a water identified in paragraphs (a)(1) through (3) of this section. For waters determined to have a significant nexus, the entire water is a water of the United States if a portion is located within the 100-year floodplain of a water identified in (a)(1) through (3) of this section or within 4,000 feet of the high tide line or OHWM. Waters identified in this paragraph shall not be combined with waters identified in paragraph (a)(6) of this section when performing a significant nexus analysis. If waters identified in this paragraph are also an adjacent water under paragraph (a)(6), they are an adjacent water and no case-specific significant nexus analysis is required.

2015 Clean Water Rule Regulatory Definitions of Waters of the U.S., Including Wetlands

Under 33 CFR Part 328(a), the following are **not** “Waters of the United States” even where they otherwise meet the terms of paragraphs (a)(4) through (8) above:

- (1) Water treatment systems, including treatment ponds or lagoons designed to meet the requirements of the Clean Water Act.
- (2) Prior converted cropland. Notwithstanding the determination of an area’s status as prior converted cropland by any other Federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.
- (3) The following ditches:
 - (i) Ditches with ephemeral flow that are not a relocated tributary or excavated in a tributary.
 - (ii) Ditches with intermittent flow that are not a relocated tributary, excavated in a tributary, or drain wetlands.
 - (iii) Ditches that do not flow, either directly or through another water, into a water identified in paragraphs (a)(1) through (3) of this section.
- (4) The following features:
 - (i) Artificially irrigated areas that would revert to dry land should application of water to that area cease;
 - (ii) Artificial, constructed lakes and ponds created on dry land such as farm and stock watering ponds, irrigation ponds, settling basins, fields flooded for rice growing, log cleaning ponds, or cooling ponds;
 - (iii) Artificial reflecting pools or swimming pools created in dry land;
 - (iv) Small ornamental waters created in dry land;
 - (v) Water-filled depressions created in dry land incidental to mining or construction activity, including pits excavated for obtaining fill, sand, or gravel that fill with water;
 - (vi) Erosional features, including gullies, rills, and other ephemeral features that do not meet the definition of tributary, non-wetland swales, and lawfully constructed grassed waterways; and
 - (vii) Puddles.
- (5) Groundwater, including groundwater drained through subsurface drainage systems.
- (6) Stormwater control features constructed to convey, treat, or store stormwater that are created in dry land.
- (7) Wastewater recycling structures constructed in dry land; detention and retention basins for wastewater recycling; groundwater recharge basins; percolation ponds built for wastewater recycling; and water distributary structures built for wastewater recycling.

Immediately subsequent to issuance, the 2015 Clean Water Rule (Rule) was challenged in federal courts, and in October 2015, the Sixth Circuit Court of Appeals put a nationwide hold on the new Rule, reverting to the 1987 regulations and subsequent guidance for Approved Jurisdictional Determinations. In 2017, the Corps and EPA published their intent to “review and rescind or revise” the 2015 Clean Water Rule, and the EPA asked the courts to suspend the case while the Rule was under review. In 2018 the EPA delayed the effective date of the 2015 Clean Water Rule for two years, and the Sixth Circuit Court lifted its stay of the Rule. A federal judge then issued a nationwide injunction on the administrative delay of the Clean Water Rule for failure to comply with the Administrative Procedure Act. Pursuant to the Court order, the 2015 Clean Water Rule is now in effect in 22 states, including California (U.S. Army Corps of Engineers, 2018). On December 11, 2018 the Corps and EPA proposed a revised definition of waters of the U.S. This proposal was published in the Federal Register and entered a public review period that ended on April 15, 2019. The 2015 Clean Water Rule remains in effect in California until the revised definition takes effect.

STATE OF CALIFORNIA

California Endangered Species Act. CESA was enacted to protect fish, wildlife, and plant species in danger of, or threatened with, extinction in the State of California (Fish and Game Code §2051). CESA prohibits “take” of a state-listed species. Take is defined as “hunt, pursue, catch, capture, or kill or attempt to hunt, pursue, catch, capture, or kill” (Fish and Game Code §86).

Unlawful Destruction of Nest or Eggs, Fish and Game Code Section 3503. This section of the California Fish and Game Code prohibits the take, possession or needless destruction of nests or eggs of birds.

Fully Protected Species, Fish and Game Code Sections 3511, 4700, 5050, and 5515. This section of the California Fish and Game Code provides particular and special state protection to a list of 37 wildlife species and prohibits take or possession “at any time” with few exceptions and the CDFW cannot authorize incidental take of fully protected species.

Migratory Bird Treaty Act, Fish and Game Code Section 3513. This section of the California Fish and Game Code complies with and strengthens state support for the MBTA. The section makes it unlawful to take or possess any nongame migratory bird or part of any such migratory nongame bird except under the special provisions in the federal MBTA.

Section 1600 Lake/Streambed Alteration Agreement (LSAA). The CDFW also regulates activities that may impact streambeds or other wetland areas. A LSAA with the CDFW is required to authorize work in a streambed or lake that would substantially change or use any material from the bed, bank or channel within jurisdictional areas.

MERCED COUNTY

Merced County General Plan

The unincorporated lands of Merced County fall under the jurisdiction of the County. The Land Use Element and the Natural Resource Element of the 2030 Merced County General Plan contain goals, objectives, and policies pertaining to biological resources of Merced County (Merced County, 2013). Goals, objectives, and policies that are relevant to biological resources are included in Appendix A.

2.3 PROJECT LOCATION

The biogas upgrade facility would be constructed at one of two alternate locations on an approximate 0.7-acre area within agricultural fields in unincorporated Merced County. The project site alternate locations include:

- East Option: Near Highway 99, on Ranch Road; portion of Merced Assessor Parcel Numbers (APN) 066-180-008; 37°13'27.5"N 120°22'53.3"W; Section 24, Township 8 South, Range 14 East, Mount Diablo Base and Meridian
- West Option: north of Rahilly Road and east of the Vander Woude Dairy; portion of Merced APN 065-110-007; 37°13'15.78"N 120°30'52.96"W; Section 23, Township 8 South, Range 13 East, Mount Diablo Base and Meridian (see Figure 1 and Table 1).

Biogas gathering pipelines would extend outward into the surrounding area (see Figure 2). The pipelines would be located predominantly on privately owned agricultural property via easements and within or across Merced County public right-of-way (ROW) along developed roadways. There are several pipeline alignments that may extend into Madera County (see Figure 1). The project site is located in the Sandy Mush, El Nido, Plainsburg, and Bliss Ranch USGS 7.5-minute topographic quadrangles.

2.4 PROJECT DESCRIPTION

The proposed project involves the construction and operation of a dairy biogas collection and biomethane injection project in unincorporated Merced County, California. The proposed project would consider two alternate locations for the biogas upgrading and metering equipment. The proposed locations include the East Option near Highway 99, on Ranch Road, and an alternate location, the West Option, north of Rahilly Road and east of the Vander Woude Dairy. Considering both locations, the project would also include up to a total of up to 34 miles of buried biogas gathering lines (Figure 2). These low-pressure SDR-21 High Density Poly Ethylene (HDPE) pipelines would be located predominantly on privately owned property via easements and within or across Merced County ROW. The gathering pipelines would connect to separately proposed individual anaerobic dairy digesters on existing dairy operations in the project area and would move biogas from each dairy to the proposed central upgrading facility. The individual dairy digester projects have been permitted separately with the County.

For the biogas facility location selected, the property owner (Merced Property LLC or Simon Vander Woude) and facility owner (Merced Pipeline LLC) would enter a lease agreement prior to construction. Following determination of final pipeline route, easement agreements with property owners would be finalized and encroachment permits for work within public ROW would be obtained.

DAIRY DIGESTER LOCATIONS

Individual dairy digesters will be installed/have been installed under separate permits from the County. These existing dairy locations shown on the attached maps include, but may not be limited to, the following locations:

- Five H Farms
- Hoogendam Dairy
- Meirinho Holsteins Dairy
- Red Rock Dairy
- Vander Woude Dairy
- Rockshar Dairy
- De Jager Farms South Dairy
- Double Diamond Dairy

Potential future expansion dairy locations include:

- J Troost Dairy
- Vlot Bros. Dairy

BIOGAS UPGRADING FACILITY

The proposed facility would be constructed at one of two alternate locations considered in this application. Existing uses at both sites include agricultural crops. The facility site would be located on an approximate 0.7-acre area. Agricultural cropping activities would be discontinued over the approximate 0.7-acre project area with project implementation.

The upgrading facility removes impurities, moisture, and gas constituents that are not suitable for injection into a PG&E or other utility pipeline. The biogas would first enter a moisture condensation trap, and then would be compressed and sent through a CO₂ stripper. The CO₂ would be vented to the atmosphere during project operations. This process would transform biogas to biomethane, which is indistinguishable from conventional natural gas. The final step would include a compressor to reach the injection pressure needed to enter either a PG&E or private utility regional pipeline. The upgrading facility would include various auxiliary equipment to support the main equipment mentioned above. This includes oil separators, chillers, biogas condensers, and electrical control equipment. The East Option facility is adjacent to an existing PG&E utility pipeline. For the West Option, a private pipeline would run the upgraded biogas to an existing midmarket company pipeline.

The proposed biogas upgrading facility would consist of several components used to upgrade the biogas received from the individual dairy digester, including but not limited to a pump house, condenser unit, and biogas compressors. The facility footprint would be 150 feet x 200 feet. The facility would require upgraded or new electrical service to power the equipment.

GATHERING LINES

The project proposes to install up to 34 miles of low-pressure HDPE biogas gathering lines. The gathering lines would move biogas from each participating dairy to the central upgrading facility. The gathering pipelines would range in size from 4 inches to 20 inches, and would be buried at least 48 inches below grade and marked with tracer wire. The pipeline would be located within easements within privately owned agricultural properties or within public ROW. Pipeline routes would be restored to their original condition and uses after installation of the pipelines. As set forth by Merced Pipeline, LLC, the gathering pipeline system would be considered a Class 1 pipeline and would be classified as non-jurisdictional gathering in accordance with the federal Department of Transportation, Pipeline and Hazardous Materials Safety Administration (PHMSA) regulations. All portions of the project would comply with PHMSA guidelines, 49 CFR Part 192, and with the California Public Utilities Commission's Safety (CPUC) Enforcement Division (SED) purview, as required by CPUC General Order 112-F.

Each dairy would have a blower to push gas from that dairy into the gathering lines at a pressure of less than 20 psi. Each blower would be controlled by a central Supervisory Control And Data Acquisition (SCADA) monitoring system that would be overseen by Merced Pipeline LLC operators on an around-the-clock basis. When a blower increases in speed, more biogas would be pushed to the upgrading facility, and when it decreases, less biogas would be sent. The blowers would be rated to a maximum 20 psi and would not exceed that pressure. The pressure of the gathering lines would be monitored via SCADA equipment in real time to detect leaks or major failures. Each dairy site and the upgrading facility would have flow meters to monitor biogas flows and ensure pipeline safety. If at any point the biomethane is not within the PG&E Rule 21 standards, the injection valve would automatically close and no biomethane would be injected into the pipeline.

INTERCONNECTION AND INJECTION POINT

The project proposes to install an interconnection and injection point with a PG&E gas transmission pipeline or a private pipeline utility. The project would use Meter Set Assembly (MSA) equipment, which includes gas quality monitoring, odorization, measurement, and control equipment.

Project Construction and Phasing

Construction of the proposed project is scheduled to begin following project approval. Construction is anticipated to take approximately 12 months to complete. Construction of the proposed pipeline would occur over a period of approximately seven months.

Project construction would include a 50-foot x 50-foot area for equipment staging directly adjacent to the project site alternative.

The proposed pipeline construction method would be open trenching with excavators or wheel trenchers. HDPE pipe would be welded together ahead of time, trench opened, pipe inserted, and backfilled to 90 percent or engineer's compaction requirements. Jack and bore may be required under stream, canal, or road crossings. The remainder of crossings would be open cut method. Sensitive resources would be avoided, if possible.

3 METHODS AND SURVEY LIMITATIONS

3.1 METHODS

Padre Associates, Inc. (Padre) evaluated the potential biological resources impacts of the proposed Merced Biogas Upgrade and Pipeline Project through a review of available data and field surveys. Prior to the field surveys, Padre conducted a query of California Natural Diversity Database (CNDDDB) for the four USGS topographic quadrangles that the project occurs in (Sandy Mush, El Nido, Plainsburg, and Bliss Ranch 7.5-minute quadrangles) and for the seven surrounding USGS 7.5-minute topographic quadrangles (Atwater, Merced, Planada, Santa Rita Bridge, Chowchilla, Turner Ranch, and Delta Ranch) (CDFW, 2019). The CNDDDB record search reports listed special-status species and habitat locations and provides specific information (e.g. state and federal protection status; global and state rank; CDFW listing status; rare plant status; specific location data; existence status; dates last observed; habitat preferences and other notes) for each recorded occurrence.

Padre also conducted a query of the California Native Plant Society's Electronic Inventory (CNPS, 2019) for the same quadrangles to provide additional information on plant species of concern that may occur within the project site and surrounding vicinity. A list of federally listed Threatened and Endangered Species was obtained from the USFWS (Consultation Code: 08ESMF00-2019-SLI-1087) (USFWS, 2019). An unofficial species list was obtained from the NMFS for the four quadrangles that the project occurs within (NMFS, 2019). The federal species lists and CNDDDB query are included in Appendix B and Appendix C. A query of the National Wetland Inventory (NWI) was reviewed for information regarding mapped waters and wetlands in the project area.

The results of the literature review were used to identify known occurrences of special-status plant and animal species in the project vicinity and to identify potentially sensitive and regulated habitat. Only those species with the potential to occur on the project site were given consideration in this report.

Padre conducted a biological reconnaissance survey of the biogas upgrade facility locations and the pipeline alignment on April 23 and 24, 2019. The purpose of the survey was to characterize general biological resources supported by the project site and evaluate the potential for sensitive biological resources to occur on the site and that

may be affected by implementation of the proposed project. The surveys included evaluating primary vegetative cover types, a general assessment of habitat suitability for known local wildlife, and recording observed plant and animal species. The field surveys were conducted during the day between 7:00 am and 5:30 pm and under normal summer conditions (warm and sunny). The reconnaissance survey consisted of investigation of the site, including windshield surveys of portions of the pipeline alignment in developed or disturbed lands and pedestrian surveys of overland segments of pipeline, waterway crossings, and other potentially sensitive habitat areas (e.g. portions of the project site adjacent to federally designated Critical Habitat for vernal pool species). Wildlife detection methods include direct observation with binoculars; examination and identification of tracks, scat, burrows/diggings; carcasses/skeletal remains; and identification of vocalizations (calls and songs). Dominant flora and fauna were noted and identified to the lowest possible taxon. Lists of plants and wildlife observed during field surveys were compiled and are included in Tables 1 and 2.

3.2 LIMITATIONS

The survey was conducted at a reconnaissance level, not a focused or protocol survey level. Jurisdictional wetland delineations were not performed. A total of 18 hours were spent in the field and included some morning and evening hours; however, surveys did not include extended observations at dawn and dusk or any nighttime observations.

A survey corridor of 50 feet on either side of the proposed alignment was used to allow for flexibility in location of the pipeline placement during construction; however, in many cases some portion of the 100-foot survey corridor was inaccessible for direct survey because it was located on private property, outside the roadway easements, and behind fence lines. In these cases, the survey corridor was surveyed to the best of our ability with visual observations made from the fence line. Additionally, because of the total width of the survey corridor (100 feet) some sensitive biological resources and habitats not immediately present on the roadway and road shoulders were identified and are addressed in this document. Potential for impact to these resources and recommended mitigation measures are included to allow for flexibility in placement of the pipeline and flexibility in construction methodology.

4 SURVEY RESULTS

4.1 PHYSICAL CHARACTERISTICS

The proposed project occurs primarily in agricultural lands, with proposed pipeline alignments occurring in privately owned farm roads, on the shoulder of paved public roads, and several short overland segments through agricultural fields. The proposed pipeline alignment crosses 39 drainages, some of which are natural streams and others

that are agricultural ditches with potential for connectivity to offsite waterways. Smaller agricultural ditch crossings (e.g. field perimeter v-ditches) that do not have any connectivity to offsite drainages were not mapped or considered drainage crossings for the purposes of impact analysis. Although the entire pipeline alignment and the two proposed biogas upgrade facility locations occur primarily within lands currently in agricultural production, within existing roadways, or in disturbed lands adjacent to existing roadways, there are several locations where undeveloped lands occur immediately adjacent to the proposed pipeline alignments and within the survey corridor. In some cases, these undeveloped lands support vernal pool and swale habitat that could potentially support sensitive and listed vernal pool species. There are also several locations where groves of trees or mature riparian corridors occur in close proximity to the pipeline alignment that would be considered suitable raptor or passerine nesting habitat. Construction of the pipeline within the proposed alignment would consist of temporary impacts that would be restored to pre-construction condition and contours upon completion of the project. The construction of the biogas upgrade facility would result in the conversion of approximately 0.7-acre of crop lands to developed lands.

The project site is situated in Climate Zone 8, which includes cold-air basins of California's Central Valley. This zone has hot summers and mild winters, although cold air rolls off the Sierra Nevada and pools on the valley floor, condensing into thick tule fog in the winter (Brenzel, 2007).

The nearest meteorological station (045532) is located at the Merced Airport in Merced, just north of the project site. Based on the 117-year period of record (1899 through 2016) at the station, the average maximum monthly temperature ranges from 54.9°F in January to 97.1°F in July (Western Regional Climate Center, 2019). The average minimum monthly temperature ranges from 35.6°F in December to 60.9°F in July. The average annual temperature ranges from 47.3°F to 73.6°F. The average monthly precipitation ranges from 0.01 inches in July to 2.46 inches in January. The total annual precipitation is 12.27 inches (Western Regional Climate Center, 2019).

The project is situated in the Manteca-Merced Alluvium subsection of the Great Valley Ecological Region of California (Miles and Goudey, 1997).

The Manteca-Merced subsection is on alluvial fans and flood plains of streams that cross the fans from the Sierra Nevada to reach the San Joaquin River. The climate is hot and subhumid. Elevations range from 20 to 180 feet. Fluvial erosion and deposition are the main geomorphic processes (Miles and Goudey, 1997).

4.2 VEGETATION AND WILDLIFE

Vegetation

The majority of the project area consists of lands involved in agricultural production, dairy farms, and disturbed habitat with ruderal vegetation along roadway shoulders. The agricultural fields primarily consist of alfalfa, wheat, oats, and orchard. Disturbed areas and road shoulders support annual grassland and ruderal cover types. Dominant species observed in annual grasslands and ruderal habitat include ripgut grass (*Bromus diandrus*), wild oat (*Avena barbata*), Hare barley (*Hordeum murinum* ssp. *leporinum*), Bermuda grass (*Cynodon dactylon*), redstem filaree (*Erodium cicutarium*), radish (*Raphanus sativa*), yellow star-thistle (*Centaurea solstitialis*), cheeseweed (*Malva parviflora*), and puncturevine (*Tribulus terrestris*). A complete list of plant species observed during field surveys is compiled in Table 1.

**Table 1. Plant Species Observed at the Merced Biogas Upgrade Facility
and Pipeline Project Site**

Common Name/Family	Scientific Name	Growth Habit	Wetland Indicator Status	Native Status	Sensitivity / Listing Status
ADOXACEAE (Muskroot Family)					
Blue elderberry	<i>Sambucus nigra</i> ssp. <i>caerulea</i>	S	FACU	N	
APIACEAE (Carrot Family)					
Poison hemlock	<i>Conium maculatum</i>	H	FACW	I	
Coyote thistle	<i>Eryngium</i> sp.	H		N	
ASTERACEAE (Sunflower Family)					
Italian thistle	<i>Carduus pycnocephalus</i> ssp. <i>pycnocephalus</i>	H	NL	I	
Yellow star-thistle	<i>Centaurea solstitialis</i>	H	NL	I	
Common spikeweed	<i>Centromadia pungens</i>	H	FAC	N	
Bull thistle	<i>Cirsium vulgare</i>	H	FACU	I	
Prickly lettuce	<i>Lactuca serriola</i>	H	FACU	I	
Pineapple weed	<i>Matricaria discoidea</i>	H	FACU	N	
Cudweed	<i>Pseudognaphalium</i> sp.	H			
Common groundsel	<i>Senecio vulgaris</i>	H	FACU	I	
Milk thistle	<i>Silybum marianum</i>	H	NL	I	
Common sow thistle	<i>Sonchus oleraceus</i>	H	UPL	I	
Spiny cocklebur	<i>Xanthium spinosum</i>	H	FACU	N	
BORAGINACEAE (Borage Family)					
Fiddleneck	<i>Amsinckia</i> sp.	H		N	
Popcornflower	<i>Plagiobothrys</i> sp.	H		N	
BRASSICACEAE (Mustard Family)					
Black mustard	<i>Brassica nigra</i>	H	NL	I	
Shepard's purse	<i>Capsella bursa-pastoris</i>	H	FACU	I	
Mediterranean mustard	<i>Hirschfeldia incana</i>	H	NL	I	
Peppergrass	<i>Lepidium</i> sp.	H			
Radish	<i>Raphanus sativus</i>	H	NL	I	
CAMPANULACEAE (Bellflower Family)					
Downingia	<i>Downingia</i> sp.	H	OBL	N	
CHENOPODIACEAE (Goosefoot Family)					
Saltbush	<i>Atriplex</i> sp.	H			
Goosefoot	<i>Chenopodium</i> sp.	H			
CONVOLVULACEAE (Morning-Glory Family)					
Bindweed	<i>Convolvulus arvensis</i>	H	NL	I	
CRASSULACEAE (Stonecrop Family)					
Pygmy-weed	<i>Crassula connata</i>	H	FAC	N	
EUPHORBIACEAE (Spurge Family)					
Spotted spurge	<i>Euphorbia maculata</i>	H	UPL	I	
FABACEAE (Legume Family)					
Lupine	<i>Lupinus</i> sp.	H		N	
Alfalfa	<i>Medicago sativa</i>	H	UPL	I	
Sourclover	<i>Melilotus indicus</i>	H	FACU	I	
GERANIACEAE (Geranium Family)					
Long-beaked storksbill	<i>Erodium botrys</i>	H	FACU	I	
Redstem filaree	<i>Erodium cicutarium</i>	H	NL	I	

**Table 1. Plant Species Observed at the Merced Biogas Upgrade Facility
and Pipeline Project Site**

Common Name/Family	Scientific Name	Growth Habit	Wetland Indicator Status	Native Status	Sensitivity / Listing Status
JUGLANDACEAE (Walnut Family)					
Northern California black walnut	<i>Juglans hindsii</i>	T	FAC	N	1B.1
LAMIACEAE (Mint Family)					
Horehound	<i>Marrubium vulgare</i>	H	FACU	I	
MALVACEAE (Mallow Family)					
Mallow	<i>Malva</i> sp.	H		I	
Bull mallow	<i>Malva nicaeensis</i>	H	NL	I	
Cheeseweed	<i>Malva parviflora</i>	H	NL	I	
MYRSINACEAE (Myrsine Family)					
Scarlet pimpernel	<i>Lysimachia arvensis</i>	H	FAC	I	
MYRTACEAE (Myrtle Family)					
Eucalyptus	<i>Eucalyptus</i> sp.	T		I	
ONAGRACEAE (Evening Primrose Family)					
Willow herb	<i>Epilobium</i> sp.				
PHRYMACEAE (Lopseed Family)					
Creek monkeyflower	<i>Erythranthe guttata</i>	H	OBL	N	
POLYGONACEAE (Buckwheat Family)					
Curly dock	<i>Rumex crispus</i>	H	FAC	I	
ROSACEAE (Rose Family)					
Himalayan blackberry	<i>Rubus armeniacus</i>	V	FAC	I	
RUBIACEAE (Madder Family)					
Goose grass	<i>Galium aparine</i>	H	FACU	N	
SALICACEAE (Willow Family)					
Fremont cottonwood	<i>Populus fremontii</i> ssp. <i>fremontii</i>	T	NL	N	
Willow	<i>Salix</i> sp.	T	OBL		
Weeping willow	<i>Salix babylonica</i>	T	FAC	I	
Red willow	<i>Salix laevigata</i>	S	FACW	N	
URTICACEAE (Nettle Family)					
Dwarf nettle	<i>Urtica urens</i>	H	NL	I	
ZYGOPHYLLACEAE (Caltrop Family)					
Puncture vine	<i>Tribulus terrestris</i>	H	NL	I	
ARACEAE (Arum Family)					
Duckweed	<i>Lemna</i> sp.	H		N	
CYPERACEAE (Sedge Family)					
Tall cyperus	<i>Cyperus eragrostis</i>	H	FACW	N	
Spikerush	<i>Eleocharis</i> sp.	H			
Creeping spikerush	<i>Eleocharis macrostachya</i>	H	FACW	N	
Tule	<i>Schoenoplectus acutus</i> var. <i>occidentalis</i>	H	OBL	N	
JUNCACEAE (Rush Family)					
Rush	<i>Juncus</i> sp.	H			
POACEAE (Grass Family)					
Slender wild oat	<i>Avena barbata</i>	G	NL	I	
Ripgut grass	<i>Bromus diandrus</i>	G	NL	I	

**Table 1. Plant Species Observed at the Merced Biogas Upgrade Facility
and Pipeline Project Site**

Common Name/Family	Scientific Name	Growth Habit	Wetland Indicator Status	Native Status	Sensitivity / Listing Status
Soft chess	<i>Bromus hordeaceus</i>	G	FACU	I	
Bermuda grass	<i>Cynodon dactylon</i>	G	FACU	I	
Salt grass	<i>Distichlis spicata</i>	G	FAC	N	
Rattail sixweeks grass	<i>Festuca myuros</i>	G	FACU	I	
Rye grass	<i>Festuca perennis</i>	G	FAC	I	
Mediterranean barley	<i>Hordeum marinum</i> ssp. <i>gussoneanum</i>	G	FAC	I	
Hare barley	<i>Hordeum murinum</i> ssp. <i>leporinum</i>	G	FACU	I	
Harding grass	<i>Phalaris aquatica</i>	G	FACU	I	
Annual blue grass	<i>Poa annua</i>	G	FAC	I	
Rabbitfoot grass	<i>Polypogon monspeliensis</i>	G	FACW	I	
TYPHACEAE (Cattail Family)					
Cattail	<i>Typha</i> sp.	H	OBL	N	
Wetland Indicator Status					
OBL = Obligate wetland species, occurs almost always in wetlands (>99% probability) FACW = Facultative wetland species, usually found in wetlands (67-99% probability) FAC = Facultative species, equally likely to occur in wetland and non-wetlands (34-66% probability) FACU = Facultative upland species, not usually found in wetlands (1-33% probability) UPL = Upland species, almost never found in wetlands (<1% probability) NI = No indicator has been assigned due to a lack of information to determine indicator status NL = Not listed, assumed upland species					
Sensitivity / Listing Status					
FE = Federal Endangered FT = Federal Threatened FC = Federal Candidate SE = California State Endangered ST = California State Threatened		1B.1 = Threatened in California and elsewhere, seriously threatened in California 1B.2 = Threatened in California and elsewhere, moderately threatened in California 2B = Plants rare, threatened, or endangered in California but more common elsewhere 3 = Plants about which more information is needed 4 = Plants of limited distribution			
Growth Habit		Native Status			
G = Grass H = Herb S = Shrub T = Tree		N = Native I = Introduced			

WATERS AND WETLANDS

The site was examined for evidence of regulated habitats, such as waters and wetlands, potentially under regulatory authority of the U.S. Army Corps of Engineers (Corps) under Section 404 of the Clean Water Act. The National Wetland Inventory (NWI) map for the project area was reviewed to assist in the identification of waters and wetlands on the Site (USFWS, 2019b).

A total of 39 drainage crossings were mapped during field surveys. These consist of both natural drainages such as the Chowchilla River and Dutchman Creek as well as agricultural ditches. The agricultural ditches varied from large canals with swiftly flowing

water such as the El Nido Canal to more localized water conveyances. All drainage crossings mapped appeared to extend beyond the cropped fields and are potentially connected to jurisdictional waterways outside of the project alignment.

Additional details about the drainage crossings and potentially jurisdictional waters and wetlands are discussed in Section 4.4.

WILDLIFE

Wildlife observed at the project site were characteristic of the region. Species observed during field surveys are listed in Table 2. Special-status wildlife species occurring, or potentially occurring, within the project area are discussed in Section 4.3. Species observed onsite are typical of species that would be expected in agricultural lands or annual grassland habitat. Some of these species include house finch (*Haemorrhous mexicanus*), northern mockingbird (*Mimus polyglottos*), brewer's blackbird (*Euphagus cyanocephalus*), red-winged blackbird (*Agelaius phoeniceus*), great-tailed grackle (*Quiscalus mexicanus*), western kingbird (*Tyrannus verticalus*), and California horned lark (*Eremophila alpestris actia*). At the drainage crossings and in riparian habitat species observed included bullfrog (*Lithobates catesbeianus*), Wilson's warbler (*Cardellina pusilla*), tree swallows (*Tachycineta bicolor*), and cliff swallows (*Petrochelidon pyrrhonota*). Species occurring in agricultural ponds or dairy treatment ponds include mallard (*Anas platyrhynchos*), cinnamon teal (*Anas cyanoptera*), black-necked stilt (*Himantopus mexicanus*), long-billed curlew (*Numenius americanus*), greater yellowlegs (*Tringa melanoleuca*), western sandpiper (*Calidris mauri*), and great egret (*Ardea alba*). Raptors observed soaring above the project site include Swainson's hawks (*Buteo swainsoni*), red-tailed hawk (*Buteo jamaicensis*), and turkey vultures (*Cathartes aura*).

**Table 2. Wildlife Species Observed at the Merced Biogas Upgrade Facility
and Pipeline Project Site**

Common Name/ Family	Scientific Name	Sensitivity / Listing Status ¹
AMPHIBIANS		
RANIDAE (True Frogs)		
American Bullfrog	<i>Lithobates catesbeianus</i>	
REPTILES		
PHRYNOSOMATIDAE (spiny lizards)		
Western Fence Lizard	<i>Sceloporus occidentalis</i>	
BIRDS		
ANATIDAE (Ducks, Geese, and Swans)		
Canada Goose	<i>Branta canadensis</i>	M
Mallard	<i>Anas platyrhynchos</i>	M
Cinnamon Teal	<i>Anas cyanoptera</i>	M
COLUMBIDAE (Pigeons and Doves)		
Eurasian Collared-Dove	<i>Streptopelia decaocto</i>	M
Mourning Dove	<i>Zenaida macroura</i>	M
RALLIDAE (Rails, Gallinules, and Coots)		
American Coot	<i>Fulica americana</i>	M
RECURVIROSTRIDAE (Stilts and Avocets)		
Black-necked Stilt	<i>Himantopus mexicanus</i>	M
American Avocet	<i>Recurvirostra americana</i>	M
CHARADRIIDAE (Lapwings and Plovers)		
Killdeer	<i>Charadrius vociferus</i>	M
SCOLOPACIDAE (Sandpipers, Phalaropes, and Allies)		
Long-billed Curlew	<i>Numenius americanus</i>	M, WL, BCC
Western Sandpiper	<i>Calidris mauri</i>	M
Greater Yellowlegs	<i>Tringa melanoleuca</i>	M
PHALACROCORACIDAE (Cormorants)		
Double-crested Cormorant	<i>Phalacrocorax auritus</i>	M, WL
ARDEIDAE (Bitterns, Herons, and Allies)		M
Great Blue Heron	<i>Ardea herodias</i>	M
Great Egret	<i>Ardea alba</i>	M
Snowy Egret	<i>Egretta thula</i>	M
ACCIPITRIDAE (Hawks, Kites, Eagles, and Allies)		
Northern Harrier	<i>Circus cyaneus</i>	M, CSC
Swainson's Hawk	<i>Buteo swainsoni</i>	M, ST, BCC
Red-tailed Hawk	<i>Buteo jamaicensis</i>	M
PICIDAE (Woodpeckers and Allies)		
Nuttall's Woodpecker	<i>Picoides nuttallii</i>	M
FALCONIDAE (Caracaras and Falcons)		
American Kestrel	<i>Falco sparverius</i>	M
TYRANNIDAE (Tyrant Flycatchers)		
Western Kingbird	<i>Tyrannus verticalis</i>	M
LANIIDAE (Shrikes)		
Loggerhead Shrike	<i>Lanius ludovicianus</i>	M, CSC, BCC
CORVIDAE (Jays and Crows)		
Western Scrub-Jay	<i>Aphelocoma californica</i>	M

**Table 2. Wildlife Species Observed at the Merced Biogas Upgrade Facility
and Pipeline Project Site**

Common Name/ Family	Scientific Name	Sensitivity / Listing Status ¹
American Crow	<i>Corvus brachyrhynchos</i>	M
ALAUDIDAE (Larks)		
California Horned Lark	<i>Eremophila alpestris actia</i>	M, WL
HIRUNDINIDAE (Swallows)		
Tree Swallow	<i>Tachycineta bicolor</i>	M
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>	M
Barn Swallow	<i>Hirundo rustica</i>	M
MIMIDAE (Mockingbirds and Thrashers)		
Northern Mockingbird	<i>Mimus polyglottos</i>	M
STURNIDAE (Starlings)		
European Starling	<i>Sturnus vulgaris</i>	
PASSERIDAE (Old World Sparrows)		
House Sparrow	<i>Passer domesticus</i>	
FRINGILLIDAE (Fringilline and Cardueline Finches and Allies)		
House Finch	<i>Haemorhous mexicanus</i>	M
American Goldfinch	<i>Spinus tristis</i>	M
PARULIDAE (Wood-Warblers)		
Wilson's Warbler	<i>Cardellina pusilla</i>	M
EMBERIZIDAE (Emberizids)		
Savannah Sparrow	<i>Passerculus sandwichensis</i>	M
ICTERIDAE (Blackbirds)		
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	M
Western Meadowlark	<i>Sturnella neglecta</i>	M
Brewer's Blackbird	<i>Euphagus cyanocephalus</i>	M
Great-tailed Grackle	<i>Quiscalus mexicanus</i>	M
Brown-headed Cowbird	<i>Molothrus ater</i>	M
MAMMALS		
DIDELPHIDAE (Opossums)		
Virginia Opossum	<i>Didelphis virginiana</i>	
LEPORIDAE (Rabbits and Hares)		
Desert Cottontail	<i>Sylvilagus audubonii</i>	
SCIURIDAE (Chipmunks, Squirrels, and Marmots)		
California Ground Squirrel	<i>Spermophilus beecheyi</i>	
FELIDAE (Cats)		
Domestic Cat	<i>Felis catus</i>	
Sensitivity / Listing Status¹		
M = Protected under the federal Migratory Bird Treaty Act (MBTA) FE = Federally Endangered FT = Federally Threatened FDL = Federally Delisted FSS = Forest Service Sensitive SE = California State Endangered		ST = California State Threatened CSC = California Species of Special Concern FP = California Fully Protected Species BCC = USFWS Birds of Conservation Concern WL = CDFW Watch List

4.3 SENSITIVE HABITATS, SPECIAL-STATUS PLANTS, AND SPECIAL-STATUS WILDLIFE

A list of special-status plant and animal species that historically occurred in the vicinity of the project site was compiled based on the following:

- An official species list (Consultation Code: 08ESMF00-2019-SLI-1087) was requested from the USFWS via their Information for Planning and Conservation) IPAC online system (<https://ecos.fws.gov/ipac/>) (USFWS, 2019a); and
- Queries of the CDFW's California Natural Diversity Database (CNDDDB), Biogeographic Information and Observation System (BIOS), and the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants database (CDFW, 2019; CNPS, 2019).

To determine the special-status species that could occur in the vicinity of the project area, a CNDDDB query was completed for the quadrangles including the project site and the surrounding seven quadrangles. Species occurrences within a five-mile radius of the site are depicted in Figure 3. The species identified from these data sources were further assessed for their potential to occur within the project site based upon previously documented occurrences, their habitat requirements, and the quality and extent of available habitat within the site. The summary of this analysis is presented in Table 3.

One sensitive natural community, 31 special-status plant species, and 38 special-status wildlife species have been recorded in the quadrangles surrounding the project site (Table 3 and Figure 3).

Sensitive natural communities are those that are considered rare within the region, support sensitive plant and/or wildlife species, or function as corridors for wildlife movement. The sensitive natural community recorded in the area is Northern Claypan Vernal Pool. Vernal pool habitat and designated Critical Habitat for vernal pool species occurs adjacent to the project site in several locations (along Healy Road, Whitegate Drive, and Rahilly Road).

A number of special-status species may occur on or adjacent to the proposed pipeline alignments associated with this project. These include: rare plants, vernal pool branchiopods (fairy shrimp and tadpole shrimp), valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), California tiger salamander (*Ambystoma californiense*), western spadefoot (*Spea hammondi*), giant garter snake (*Thamnophis gigas*), western pond turtle (*Emys marmorata*), tricolored blackbird (*Agelaius tricolor*), Swainson's hawk (*Buteo swainsoni*), Northern harrier (*Circus cyaneus*), San Joaquin kit fox (*Vulpes macrotis mutica*), and American badger (*Taxidea taxus*).

Numerous Swainson's hawk and tricolored blackbird occurrences have been reported within five miles of the project site and could nest near the project site and forage within

the crop lands. Two Swainson's hawks were in a nest tree along a farm road in the northeastern portion of the project site and Swainson's hawk were observed soaring over the project site during field surveys. Although no tricolored blackbirds were observed at the project site, they have been known to nest within silage and/or triticale fields associated with dairy farms. The project site does provide potential nesting and foraging habitat for a number of additional sensitive wildlife species including Swainson's hawk and various species of raptors and migratory birds that are protected by the Migratory Bird Treaty Act.

A blue elderberry shrub (*Sambucus mexicanus*), potential habitat for the valley elderberry longhorn beetle, was observed along the pipeline alignment adjacent to a farm road in the northwestern portion of the project site.

Occurrences of California tiger salamander (CTS), western spadefoot, and listed vernal pool branchiopods are recorded within known vernal pool habitat at two mitigation bank locations within five miles of the site, and potential vernal pool grassland habitat occurs in several locations adjacent to the proposed pipeline alignment. Potential habitat for aquatic reptiles including giant garter snake and western pond turtle occur in agricultural ponds/ditches and natural creeks; however adjacent upland habitat for these species is limited due to the expansive agricultural lands involved in crop production in the project area.

Very little ground squirrel activity or ground squirrel burrows were observed along the roadways where the pipeline alignments are proposed. This reduces the potential that burrowing species, such as burrowing owl, American badger, and San Joaquin kit fox (SJKF), or summer refugia habitat for CTS, would occur on the pipeline alignment. No sign of SJKF was observed and the species is widely recognized to be eradicated from its northern range. Agricultural access roads open or fallow fields, and irrigation ditches and canals provide an important corridor for the movements of mammals such as American badger and SJKF, if present in the region.

Table 3 provides an analysis of the probability of occurrence of special-status species on the project site.

Table 3. Special-Status Species Potentially Occurring in the Vicinity of the Merced Biogas Upgrade Facility and Pipeline Project Site

Scientific Name	Common Name	Status ¹	Habitat	Likelihood of Occurrence	Rationale
PLANTS					
<i>Astragalus tener</i> var. <i>tener</i>	Alkali milk-vetch	CRPR 1B.2	Plays, valley and foothill grassland (adobe soils) and vernal pools at elevations ranging from 3 to approximately 200 feet. Blooms from March to June.	Low / Moderate	Vernal pool habitat is located within 30ft of the alignment in several areas. This habitat could support the alkali milk vetch. Proposed construction work in roadways and road shoulders would not directly impact this species; however, construction encroachment on vernal pool or swale habitat could impact this species. The nearest occurrence (Occ. #57) is approximately 10.7 miles northwest of the site.
<i>Atriplex cordulata</i> var. <i>cordulata</i>	Heartscale	CRPR 1B.2	Chenopod scrub, valley and foothill grassland, meadows and seeps, alkaline flats and scalds in the Central Valley. Sandy soils. Found regionally in alkali grassland at elevations ranging from 1 to approximately 500 feet. Blooms from April to October.	Low / Moderate	Potentially suitable habitat for this species occurs adjacent to the alignment in several areas. Proposed construction work in roadways and road shoulders would not directly impact this species; however, construction encroachment on vernal pool or swale habitat could impact this species. The nearest occurrence (Occ. #15) from 1988 is adjacent to the proposed pipeline alignment on Whitegate Drive.
<i>Atriplex depressa</i>	Brittlescale	CRPR 1B.2	Chenopod scrubs, meadows, seeps, playas, and vernal pool in alkaline soils at elevations ranging from 1 to approximately 1,050 feet. Blooms from April to October.	Low / Moderate	Vernal pool habitat that could support this species is located within 30ft of the alignment in several areas. Proposed construction work in roadways and road shoulders would not directly impact this species; however,

Table 3. Special-Status Species Potentially Occurring in the Vicinity of the Merced Biogas Upgrade Facility and Pipeline Project Site

Scientific Name	Common Name	Status ¹	Habitat	Likelihood of Occurrence	Rationale
					construction encroachment on vernal pool or swale habitat could impact this species. The nearest occurrence (Occ. #70) from 1992 is approximately 13.2 miles west of the northwest corner of the alignment.
<i>Atriplex minuscula</i>	Lesser saltscale	CRPR 1B.1	Chenopod scrub, playas, valley and foothill grassland. In alkali sink and grassland in sandy alkaline soils at elevations ranging from 65 to approximately 330 feet. Found locally in heavily alkaline grassland, with a white crust of soil salts. Blooms from May to October.	Low	Potentially suitable habitat for this species occurs adjacent to the alignment in several areas. Proposed construction work in roadways and road shoulders would not impact this species. The nearest occurrence (Occ. #61) from 1989 is approximately 0.3 miles from the eastern portion of the alignment.
<i>Atriplex persistens</i>	Vernal pool smallscale	CRPR 1B.2	Alkaline vernal pools at elevations ranging from 30 to approximately 380 feet in elevation. Blooms from June to October.	Low / Moderate	Vernal pool habitat that could support vernal pool smallscale is located within 30ft of the alignment in several areas. Proposed construction work in roadways and road shoulders would not directly impact this species; however, construction encroachment on vernal pool or swale habitat could impact this species. The nearest occurrence (Occ. #41) from 2011 is approximately 0.4 miles from the north portion of the alignment.
<i>Atriplex subtilis</i>	Subtle orache	CRPR 1B.2	Valley and foothill grassland at elevations ranging from 130 to approximately 330 feet. Blooms from June to September, sometimes	Low	Potentially suitable habitat for this species occurs adjacent to the alignment in several areas. Proposed construction work in

Table 3. Special-Status Species Potentially Occurring in the Vicinity of the Merced Biogas Upgrade Facility and Pipeline Project Site

Scientific Name	Common Name	Status ¹	Habitat	Likelihood of Occurrence	Rationale
			into October.		roadways and road shoulders would not directly impact this species. The nearest occurrence (Occ. #6) from 1936 is approximately 1 mile from the southern portion of the alignment. This occurrence was revisited in 2009 and is presumed extirpated.
<i>Castilleja campestris</i> var. <i>succulenta</i>	Succulent owl's-clover	FT, SE, CRPR 1B.2	Vernal pools, often with acidic conditions, at elevations ranging from 165 to 2,460 feet. Blooms from March to May.	Low / Moderate	Vernal pool habitat that could support succulent owl's clover is located within 30ft of the alignment in several areas. Proposed construction work in roadways and road shoulders would not directly impact this species; however, construction encroachment on vernal pool or swale habitat could impact this species. The nearest occurrence (Occ. #75) from 2001 is approximately 8.3 miles from the northeast portion of the alignment.
<i>Chloropyron molle</i> ssp. <i>hispidum</i>	Hispid salty bird's-beak	CRPR 1B.1	Meadows and seeps, playas, and valley and foothill grasslands with alkaline soils at elevations ranging from sea level to approximately 500 feet. Blooms from June to September.	Low	Potentially suitable habitat for this species occurs adjacent to the alignment in several areas. Proposed construction work in roadways and road shoulders would not directly impact this species. The nearest occurrence (Occ. #31) from 1967 is approximately 11.4 miles away from the southernmost portion of the alignment.
<i>Clarkia rostrata</i>	Beaked clarkia	CRPR	Cismontane woodland, valley and foothill grassland at elevations	None	No suitable habitat is present along the alignment. The nearest

Table 3. Special-Status Species Potentially Occurring in the Vicinity of the Merced Biogas Upgrade Facility and Pipeline Project Site

Scientific Name	Common Name	Status ¹	Habitat	Likelihood of Occurrence	Rationale
		1B.3	ranging from 195 to approximately 1,640 feet in Merced, Mariposa, Stanislaus, and Tuolumne counties. Blooms from April to May.		occurrence (Occ. #2) from 1982 is approximately 12 miles from the northeastern edge of the alignment.
<i>Cryptantha hooveri</i>	Hoover's cryptantha	CRPR 1A	Valley and foothill grassland in coarse sand at elevations ranging from 1 to 500 feet. Blooms from April to May.	Low	Potentially suitable habitat for this species occurs adjacent to the alignment in several areas. Proposed construction work in roadways and road shoulders would not directly impact this species. The nearest occurrence (Occ. #1) from 1939 is approximately 0.6 miles south of the southeastern edge of the alignment.
<i>Delphinium recurvatum</i>	Recurved larkspur	CRPR 1B.2	Chenopod scrub, valley and foothill grassland, cismontane woodland. On alkaline soils; often in valley saltbush or valley chenopod scrub. Found regionally in slightly alkaline beds of vernal pools. Occurs at elevations ranging from 10 to approximately 2,250 feet. Blooms from March to June.	Low / Moderate	Potentially suitable habitat for this species occurs adjacent to the alignment in several areas. Proposed construction work in roadways and road shoulders would not directly impact this species; however, construction encroachment on vernal pool or swale habitat could impact this species. The nearest extant occurrence (Occ. #79) from 1998 is approximately 2.8 miles south of the northern portion of the alignment.
<i>Downingia pusilla</i>	Dwarf downingia	CRPR 2B.2	Valley and foothill grasslands and vernal pools at elevations ranging from 1 to 1,460 feet. Blooms from March to May.	Low / Moderate	Vernal pool habitat that could support dwarf downingia is located within 30ft of the alignment in several areas. Proposed construction work in roadways and

Table 3. Special-Status Species Potentially Occurring in the Vicinity of the Merced Biogas Upgrade Facility and Pipeline Project Site

Scientific Name	Common Name	Status ¹	Habitat	Likelihood of Occurrence	Rationale
					road shoulders would not directly impact this species; however, construction encroachment on vernal pool or swale habitat could impact this species. The nearest occurrence (Occ. #109) from 2001 is approximately 9.8 miles from the northeast corner of the alignment.
<i>Eryngium racemosum</i>	Delta button-celery	CRPR 1B.2	Valley and foothill woodlands and vernal pools at elevations ranging from 250 to 3,200 feet. Blooms from June to October.	Low / Moderate	Vernal pool habitat that could support Delta button-celery is located within 30ft of the alignment in several areas. Proposed construction work in roadways and road shoulders would not directly impact this species; however, construction encroachment on vernal pool or swale habitat could impact this species. The nearest occurrence (Occ. #17) from 2010 is approximately 6.6 miles from the northern portion of the alignment.
<i>Eryngium spinosepalum</i>	Spiny-sepaed button-celery	CRPR 1B.2	Valley and foothill grasslands and vernal pools at elevations ranging from 260 to approximately 3,200 feet. Blooms from April to June.	None / Moderate	Vernal pool habitat that could support spiny-sepaed button-celery is located within 30ft of the alignment in several areas. Proposed construction work in roadways and road shoulders would not directly impact this species; however, construction encroachment on vernal pool or swale habitat could impact this species. The nearest occurrence (Occ. #89) from 2011 is approximately 6.1 miles from the

Table 3. Special-Status Species Potentially Occurring in the Vicinity of the Merced Biogas Upgrade Facility and Pipeline Project Site

Scientific Name	Common Name	Status ¹	Habitat	Likelihood of Occurrence	Rationale
					eastern portion of the alignment.
<i>Euphorbia hooveri</i>	Hoover's spurge	FT, CRPR 1B.2	Valley and foothill grassland, vernal pools on volcanic mudflow or clay substrate. Found regionally in moderately saline-alkaline soils at elevations ranging from 80 to 425 ft. Blooms from July to September, sometimes into October.	None	No suitable habitat for this species occurs along the alignment. The nearest occurrence (Occ. #22) from 1987 is approximately 9.4 miles from the northwestern portion of the alignment.
<i>Extriplex joaquinana</i>	San Joaquin spearscale	CRPR 1B.2	Alkaline soils in chenopod scrub, meadows and seeps, playas, and valley and foothill grasslands. Typically occurs at elevations ranging from sea level to approximately 2,700 feet. Blooms from April to October.	Low / Moderate	Potentially suitable habitat for this species occurs adjacent to the alignment in several areas. Proposed construction work in roadways and road shoulders would not directly impact this species; however, construction encroachment on vernal pool or swale habitat could impact this species. The nearest occurrence (Occ. #74) from 2002 is approximately 10.2 miles from the northwestern portion of the alignment.
<i>Gratiola heterosepala</i>	Boggs Lake hedge-hyssop	SE, CRPR 1B.2	Clayey marshes, swamps, and vernal pools at elevations ranging from 32 to approximately 7,800 feet. Blooms from April to August.	Low / Moderate	Vernal pool habitat that could support this species is located within 30ft of the alignment in several areas. Proposed construction work in roadways and road shoulders would not directly impact this species; however, construction encroachment on vernal pool or swale habitat could impact this species. The nearest occurrence (Occ. #83) from 2002 is

Table 3. Special-Status Species Potentially Occurring in the Vicinity of the Merced Biogas Upgrade Facility and Pipeline Project Site

Scientific Name	Common Name	Status ¹	Habitat	Likelihood of Occurrence	Rationale
					approximately 10.4 miles from the northeast portion of the alignment.
<i>Lagophylla dichotoma</i>	Forked hare-leaf	CRPR 1B.1	Cismontane woodland and valley and foothill grassland at elevations ranging from 147 to approximately 1,100 feet. Blooms from April to May.	None	No suitable habitat for this species occurs along the alignment. The nearest occurrence (Occ. #13) from 1915 is approximately 4.7 miles from the northern portion of the alignment.
<i>Lasthenia glabrata</i> ssp. <i>coulteri</i>	Coulter's goldfields	CRPR 1B.1	Coastal salt marshes and swamps, playas, and vernal pools at elevations ranging from 1 to approximately 4,000 feet. Blooms from February to June.	Low / Moderate	Potentially suitable vernal pool habitat occurs within 30ft of the alignment in several areas. Proposed construction work in roadways and road shoulders would not directly impact this species; however, construction encroachment on vernal pool or swale habitat could impact this species. The nearest occurrence (Occ. #92) from 2002 is approximately 10.8 miles from the northwestern portion of the alignment.
<i>Monardella leucocephala</i>	Merced monardella	CRPR 1A	Valley and foothill grasslands with sandy mesic soils at elevations ranging from 115 to approximately 330 feet. Blooms from May to August.	None	The nearest occurrence (Occ. #2) from 1941 is approximately 18.6 miles from the northern portion of the alignment and is presumed to be extirpated. This species is presumed to be extinct in the state of California.
<i>Navarretia nigelliformis</i> ssp. <i>radians</i>	Shining navarretia	CRPR 1B.2	Cismontane woodlands, valley and foothill grasslands, and vernal pools at elevations ranging from 210 to approximately 3,280 feet. Blooms	Low / Moderate	Potentially suitable vernal pool habitat that could support shining navarretia occurs within 30ft of the alignment in several areas. Proposed construction work in

Table 3. Special-Status Species Potentially Occurring in the Vicinity of the Merced Biogas Upgrade Facility and Pipeline Project Site

Scientific Name	Common Name	Status ¹	Habitat	Likelihood of Occurrence	Rationale
			from March to July.		roadways and road shoulders would not directly impact this species; however, construction encroachment on vernal pool or swale habitat could impact this species. The nearest occurrence (Occ. #44) from 2001 is approximately 8.2 miles from the northeast portion of the alignment.
<i>Navarretia prostrata</i>	Prostrate vernal pool navarretia	CRPR 1B.1	Cismontane woodland, valley and foothill grasslands, and vernal pools at elevations ranging from 250 to approximately 3,300 feet. Blooms from April to July	Low / Moderate	Potentially suitable habitat for this species occurs adjacent to the alignment in several areas. Proposed construction work in roadways and road shoulders would not directly impact this species; however, construction encroachment on vernal pool or swale habitat could impact this species. The nearest occurrence (Occ. #24) from 2002 is approximately 10.8 miles from the northwest corner of the alignment.
<i>Neostapfia colusana</i>	Colusa grass	FT, SE, CRPR 1B.1	Vernal pools at elevations ranging from 15 to approximately 655 feet. Blooms from May to August.	Low / Moderate	Suitable habitat for this species occurs in vernal pools that are within 30ft of the alignment in several areas. Proposed construction work in roadways and road shoulders would not directly impact this species; however, construction encroachment on vernal pool or swale habitat could impact this species. The nearest occurrence (Occ. #39) from 1982 is approximately 0.4 miles from the

Table 3. Special-Status Species Potentially Occurring in the Vicinity of the Merced Biogas Upgrade Facility and Pipeline Project Site

Scientific Name	Common Name	Status ¹	Habitat	Likelihood of Occurrence	Rationale
					northern portion of the alignment.
<i>Orcuttia inaequalis</i>	San Joaquin Valley Orcutt grass	FT, CRPR 1B.1	Vernal pools at elevations ranging from 32 to approximately 2480 feet. Blooms from April to September.	Low / Moderate	Suitable habitat for this species occurs in vernal pools that are within 30ft of the alignment in several areas. Proposed construction work in roadways and road shoulders would not directly impact this species; however, construction encroachment on vernal pool or swale habitat could impact this species. The nearest occurrence (Occ. #51) from 1987 is approximately 8.4 miles from the northeastern portion of the alignment.
<i>Orcuttia pilosa</i>	Hairy Orcutt grass	FE, SE, 1B.1	Vernal pools at elevations ranging from 150 to approximately 660 feet. Blooms from May to September	Low / Moderate	Suitable habitat for this species occurs in vernal pools that are within 30ft of the alignment in several areas. Proposed construction work in roadways and road shoulders would not directly impact this species; however, construction encroachment on vernal pool or swale habitat could impact this species. The nearest occurrence (Occ.# 16) from 1938 is approximately 8.2 miles from the northern alignment and is presumed extirpated.
<i>Puccinellia simplex</i>	California alkali grass	CRPR 1B.2	Alkaline and vernal mesic chenopod scrub, meadows and seeps, vernal pools, and valley and foothill grasslands up to 2,950 feet elevation. Blooms from March to	Low / Moderate	Potentially suitable habitat for this species occurs adjacent to the alignment in several areas. Proposed construction work in roadways and road shoulders

Table 3. Special-Status Species Potentially Occurring in the Vicinity of the Merced Biogas Upgrade Facility and Pipeline Project Site

Scientific Name	Common Name	Status ¹	Habitat	Likelihood of Occurrence	Rationale
			May.		would not directly impact this species; however, construction encroachment on vernal pool or swale habitat could impact this species. The nearest occurrence (Occ. #35) from 1935 is approximately 0.8 miles from the northeastern portion of the alignment.
<i>Sagittaria sanfordii</i>	Sanford's arrowhead	CRPR 1B.2	Assorted freshwater habitats including swamps and marshes at elevations ranging from 0 to 2130 feet. Blooms from May to October, sometimes into November.	Moderate	Stock ponds and drainages with slow moving water and wetlands may provide habitat for this species. Proposed construction work in roadways and road shoulders would not directly impact this species; however, construction encroachment on freshwater wetland or drainage habitat could impact this species. The nearest occurrence (Occ. #10) from 1948 is approximately 9.4 miles from the northwestern portion of the alignment.
<i>Sidalcea keckii</i>	Keck's checkerbloom	CRPR 1B.1	Serpentine and clayey soils in cismontane woodlands and valley and foothill grasslands at elevations ranging from 250 to approximately 2130 feet. Blooms from April to June.	None	No suitable habitat for this species occurs along the alignment. The nearest occurrence (Occ. #6) from 2005 is approximately 11.6 miles from the northeast edge of the alignment.
<i>Sphenopholis obtusata</i>	Prairie wedge grass	CRPR 2B.2	Mesic cismontane woodlands as well as meadows and seeps at elevations ranging from 980 to approximately 6560 feet. Blooms	None	No suitable habitat for this species occurs along the alignment. The nearest occurrence (Occ. #16) from 1969 is approximately 39.6

Table 3. Special-Status Species Potentially Occurring in the Vicinity of the Merced Biogas Upgrade Facility and Pipeline Project Site

Scientific Name	Common Name	Status ¹	Habitat	Likelihood of Occurrence	Rationale
			from April to July.		miles from the northwestern portion of the alignment.
<i>Tuctoria greenei</i>	Greene's tuctoria	FE, SR, 1B.1	Vernal pools at elevations ranging from 100 to 3500 feet. Blooms from May to July, sometimes into September.	Low / Moderate	Suitable habitat for this species occurs in vernal pools that are within 30ft of the alignment in several areas. Proposed construction work in roadways and road shoulders would not directly impact this species; however, construction encroachment on vernal pool or swale habitat could impact this species. The nearest occurrence (Occ. #11) from 2017 is approximately 7.5 miles from the northeastern portion of the alignment.
INVERTEBRATES					
<i>Branchinecta conservatio</i>	Conservancy fairy shrimp	FE	Vernal pools.	Low / Moderate	Suitable habitat for this species occurs within 30ft of the alignment in several areas. Proposed construction work in roadways and road shoulders would not directly impact this species; however, construction encroachment on vernal pool or swale habitat could impact this species. The nearest occurrence (Occ. #34) from 2010 is approximately 0.5 miles from the center of the alignment.
<i>Branchinecta longiantenna</i>	Longhorn fairy shrimp	FE	The habitat characteristics typical of the pools that support the longhorn fairy shrimp are clear to turbid pools often in alkaline soils. These	Low / Moderate	Suitable habitat for this species occurs within 30ft of the alignment in several areas. Proposed construction work in roadways and road shoulders would not directly

Table 3. Special-Status Species Potentially Occurring in the Vicinity of the Merced Biogas Upgrade Facility and Pipeline Project Site

Scientific Name	Common Name	Status ¹	Habitat	Likelihood of Occurrence	Rationale
			include clear-water depressions in sandstone outcroppings, grass-bottomed pools, and claypan pools.		impact this species; however, construction encroachment on vernal pool or swale habitat could impact this species. The nearest occurrence (Occ. #8) from 2008 is linked to a nonspecific area approximately 13 miles west of the alignment.
<i>Branchinecta lynchi</i>	Vernal pool fairy shrimp	FT	Endemic to the grasslands of the central valley, central coast mountains, and south coast mountains, in astatic rain-filled pools. Regionally inhabits small, clear-water sandstone depression pools and grass swale, earth slump or basalt-flow depression pools.	Low / Moderate	Suitable habitat for this species occurs within 30ft of the alignment in several areas. Proposed construction work in roadways and road shoulders would not directly impact this species; however, construction encroachment on vernal pool or swale habitat could impact this species. The nearest occurrence (Occ. #816) from 2010 is approximately 0.5 miles from the center portion of the alignment.
<i>Desmocerus californicus dimorphus</i>	Valley elderberry longhorn beetle	FT	Associated with blue elderberry shrubs (<i>Sambucus nigra</i> ssp. <i>caerulea</i>) in the Central Valley	Low	A single blue elderberry shrub (potential habitat for VELB) was identified adjacent to the pipeline alignment along a farm road south of Hoogendam Dairy and McNamara Road. There may be additional elderberry shrubs present within riparian habitat areas that were inaccessible for surveys although none were identified immediately adjacent to pipeline crossing locations. The nearest occurrence of VELB (Occ. #121) from 1993 is approximately

Table 3. Special-Status Species Potentially Occurring in the Vicinity of the Merced Biogas Upgrade Facility and Pipeline Project Site

Scientific Name	Common Name	Status ¹	Habitat	Likelihood of Occurrence	Rationale
					9.3 miles from the eastern portion of the alignment.
<i>Lepidurus packardii</i>	Vernal pool tadpole shrimp	FE	Occurs in vernal pools within the Central Valley and the Sacramento-San Joaquin Delta east of the San Francisco Bay.	Low / Moderate	Suitable habitat for this species occurs within 30ft of the alignment in several areas. Proposed construction work in roadways and road shoulders would not directly impact this species; however, construction encroachment on vernal pool or swale habitat could impact this species. The nearest occurrence (Occ. #130) from 1999 is adjacent to the northern edge of the alignment located in land designated as critical habitat for the species.
FISHES					
<i>Hypomesus transpacificus</i>	Delta smelt	FT, SE	Sacramento and San Joaquin River Delta	None	No suitable aquatic habitat for this species occurs within the pipeline alignment. The nearest occurrence (Occ. #21) from 2005 is more than 70 miles from the northwestern portion of the alignment.
<i>Mylopharodon conocephalus</i>	Hardhead	CSC	Low to mid-elevation streams in the Sacramento-San Joaquin drainage.	Low	Potentially suitable habitat for this species is present in the perennial streams near the alignment. The nearest occurrence (Occ. #11) from 1989 is approximately 11.2 miles from the eastern portion of the alignment.
<i>Oncorhynchus mykiss irideus</i> pop. 11	Steelhead – Central Valley DPS	FT	Sacramento and San Joaquin Rivers and their tributaries.	Low	The Chowchilla River historically supported steelhead. The southern extent of the current extant range is

Table 3. Special-Status Species Potentially Occurring in the Vicinity of the Merced Biogas Upgrade Facility and Pipeline Project Site

Scientific Name	Common Name	Status ¹	Habitat	Likelihood of Occurrence	Rationale
					believed to stop at the Merced River. The nearest occurrence (Occ. #25) from 2013 is approximately 2.9 miles from the southwestern portion of the alignment on the San Joaquin River. This occurrence includes data from historic occurrences dating back to 1968.
AMPHIBIANS					
<i>Ambystoma californiense</i>	California tiger salamander	FT, ST	Seasonal pools and stockponds for breeding habitat. Needs underground refuges, especially ground squirrel burrows as upland habitat.	Moderate	No suitable breeding habitat occurs within the project site. Potential upland and dispersal habitat occurs within vernal pool grasslands immediately adjacent to the pipeline alignment along Healy Road, Whitegate Drive, and Rahilly Road. Potential summer refugia was not identified along the pipeline alignment in the form of burrows, deep soil cracks, or large old fence post holes within roadways and shoulders. Proposed construction work in roadways and road shoulders would not directly impact this species; however, construction encroachment on vernal pool or swale habitat and associated uplands could impact this species. The nearest occurrence (Occ. #452) from 1999 is adjacent to the northern portion of the alignment north of Rahilly Road. Occurrence #1063 from

Table 3. Special-Status Species Potentially Occurring in the Vicinity of the Merced Biogas Upgrade Facility and Pipeline Project Site

Scientific Name	Common Name	Status ¹	Habitat	Likelihood of Occurrence	Rationale
					2017 is also approximately 0.5 miles from the central portion of the alignment at the Dutchman Creek Mitigation Bank.
<i>Lithobates pipiens</i>	Northern leopard frog	CSC	Inhabits grasslands, wet meadows, bogs, marshes, and reservoirs. Generally, prefers permanent water with abundant aquatic vegetation	None	Poor quality habitat is present at some of the stock ponds along the alignment. The majority of these ponds lack sufficient vegetation and support American bullfrogs which are a predator and competitor of the northern leopard frog. The nearest occurrence (Occ. #6) from 1976 is approximately 8.2 miles from the northwestern portion of the alignment.
<i>Rana draytonii</i>	California red-legged frog	FT, CSC	Found in marshes, lakes, reservoirs, ponds, slow moving segments of streams, and other usually permanent water in lowlands, foothill woodlands, and grasslands. Requires aquatic habitat with extensive emergent vegetation.	None	Poor quality habitat is present at some of the stock ponds along the alignment. The majority of these ponds lack sufficient vegetation and support American bullfrogs which are a known predator and competitor of the California red-legged frog. The nearest occurrence (Occ. #901) from 1985 is approximately 29 miles from the southwestern portion of the alignment.
<i>Spea hammondi</i>	Western spadefoot	CSC	Primarily found in grasslands but can be found in other open areas of woodlands, coastal sage scrub, and chaparral. Breeding requires ponded water, often occurring seasonally from rainfall.	Moderate	Suitable habitat for this species is present within vernal pool grasslands immediately adjacent to the pipeline alignment along Healy Road, Whitegate Drive, and Rahilly Road. Proposed construction work in roadways and road shoulders

Table 3. Special-Status Species Potentially Occurring in the Vicinity of the Merced Biogas Upgrade Facility and Pipeline Project Site

Scientific Name	Common Name	Status ¹	Habitat	Likelihood of Occurrence	Rationale
					would not directly impact this species; however, construction encroachment on vernal pool or swale habitat and associated uplands could impact this species. The nearest occurrence (Occ. # 470) from 2017 is approximately 0.5 miles from a central portion of the alignment at the Dutchman Creek Mitigation Bank.
REPTILES					
<i>Anniella pulchra pulchra</i>	Silvery legless lizard	CSC	Warm loose soils of sparsely vegetated dunes, desert scrub, chaparral, and sandy washes.	None	No suitable habitat for this species occurs along the alignment. The nearest occurrence (Occ. #122) from 2009 is approximately 11.4 miles from the northwestern portion of the alignment.
<i>Emys marmorata</i>	Western pond turtle	CSC	Ponds, marshes, rivers, streams and irrigation ditches with aquatic vegetation. Needs basking sites and suitable upland habitat (sandy banks, grassy open fields) for egg laying	Moderate	Suitable habitat occurs within some of the drainages and stock ponds present along the alignment. The nearest occurrence (Occ. #55) from 1988 is located on the center portion of the alignment on Dutchman Creek.
<i>Gambelia sila</i>	Blunt-nosed leopard lizard	FE SE, FP	Resident of sparsely vegetated alkali and desert scrub habitats, in areas of low topographic relief. Seeks cover in mammal burrows, under shrubs or structures.	Low	Poor quality habitat for this species occurs along portions of the alignment that are not under active agricultural production. The nearest occurrence (Occ. #116) from 1991 is approximately 3.1 miles from the western portion of the alignment.
<i>Thamnophis gigas</i>	Giant gartersnake	FT, ST	Marshes, sloughs, drainage ditches,	Low	Potentially suitable habitat for this species is present in irrigation

Table 3. Special-Status Species Potentially Occurring in the Vicinity of the Merced Biogas Upgrade Facility and Pipeline Project Site

Scientific Name	Common Name	Status ¹	Habitat	Likelihood of Occurrence	Rationale
			and canals with slow moving water.		ditches along the alignment; however, the majority of agricultural ditches observed do not support sufficient wetland vegetation for this species and are surrounded by crop land with no adjacent upland winter refugia. The nearest occurrence (Occ. #161) from 2001 is linked to a nonspecific area located approximately 7.5 miles from the southwestern portion of the alignment.
BIRDS					
<i>Accipiter cooperii</i>	Cooper's hawk	WL	Breeds in forests and streamside trees where it can hunt its prey by ambush in the dense cover. Has also been known to forage in residential areas.	Moderate	Suitable nesting habitat is present along many of the riparian corridors on the pipeline alignment. This species is frequently observed at the Merced National Wildlife Refuge approximately 5.9 miles from the western portion of the alignment.
<i>Accipiter striatus</i>	Sharp-shinned hawk	WL	Breeds in woodland habitat. Typically forages in areas of dense cover where it can ambush its prey.	Moderate	Suitable nesting habitat is present along many of the riparian corridors on the pipeline alignment. This species is frequently observed at the Merced National Wildlife Refuge approximately 5.9 miles from the western portion of the alignment.
<i>Agelaius tricolor</i>	Tricolor blackbird	ST, BCC	Breeding habitat is often found near a source of water and in a grassland, woodland, or agricultural cropland.	Moderate	Potentially suitable breeding habitat is located in agricultural fields adjacent to the pipeline alignment and/or in riparian corridors near the pipeline

Table 3. Special-Status Species Potentially Occurring in the Vicinity of the Merced Biogas Upgrade Facility and Pipeline Project Site

Scientific Name	Common Name	Status ¹	Habitat	Likelihood of Occurrence	Rationale
					alignment, such as Mariposa Creek, Dutchman Creek, and the Chowchilla River. The nearest occurrence (Occ. #645) from 2011 is located adjacent to a portion of the alignment along Mariposa Creek.
<i>Ardea alba</i>	Great egret	CDFS	Nests high in the canopy of trees often over water.	Low	This species was observed during field surveys. Moderately suitable nesting habitat is present within riparian corridors like the Chowchilla River, Dutchman's Creek, and Mariposa Creek. The nearest known rookery (Occ.#7) is approximately 17.5 miles from the northwestern portion of the alignment.
<i>Ardea herodias</i>	Great blue heron	CDFS	Typically nests in large groups in large trees or shrubs, often near water.	Low	This species was observed during field surveys. Moderately suitable nesting habitat is present within riparian corridors like the Chowchilla River, Dutchman's Creek, and Mariposa Creek. The nearest known rookery (Occ. #14) is approximately 17.5 miles from the northwestern portion of the alignment.
<i>Athene cunicularia</i>	Burrowing owl	CSC, BCC	Dry, open short grass, treeless plains that are associated with burrowing species. Underground nesting habitat in burrows.	Low	Suitable habitat is present along the alignment in fields that are not actively being used for agricultural production. Very limited burrowing activity was observed within close proximity to the alignment. The nearest occurrence (Occ. #1097)

Table 3. Special-Status Species Potentially Occurring in the Vicinity of the Merced Biogas Upgrade Facility and Pipeline Project Site

Scientific Name	Common Name	Status ¹	Habitat	Likelihood of Occurrence	Rationale
					from 2007 is approximately 2 miles from the northwestern portion of the alignment.
<i>Buteo regalis</i>	Ferruginous hawk	WL, BCC	Spends the breeding months in the northern United States and Canada. Spends winter foraging in the southwestern United States and Mexico. Forages in open grasslands, fields, and deserts. Begins breeding in April.	None	Suitable wintering habitat present along the alignment. The nearest CNDDB occurrence (Occ.# 60) from 2006 is approximately 9.8 miles from the northwestern portion of the alignment. Unconfirmed citizen reports frequently report winter sightings of ferruginous hawk in the Merced National Wildlife Refuge located approximately 5.9 miles from the western portion of the alignment. No suitable breeding habitat is present at the project sites.
<i>Buteo swainsoni</i>	Swainson's hawk	ST, BCC	Breeds in stands with few trees in juniper-sage flats, riparian areas and in oak savanna. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	High	This species was observed at several locations along the alignment. A potentially active nest occupied by a pair of Swainson's hawks was observed adjacent to the alignment on a farm road south of Hoogendam Dairy and McNamara Road. Suitable nesting trees are present near much of the alignment and along the various riparian corridor crossings. The nearest occurrence (Occ. #643) from 1993 is approximately 1 mile from a central portion of the alignment.
<i>Charadrius montanus</i>	Mountain plover	CSC, BCC	Winters from September to mid-March in valleys and plains in the	Low	Potentially suitable wintering habitat is present along portions of

Table 3. Special-Status Species Potentially Occurring in the Vicinity of the Merced Biogas Upgrade Facility and Pipeline Project Site

Scientific Name	Common Name	Status ¹	Habitat	Likelihood of Occurrence	Rationale
			Sacramento and San Joaquin Valley.		the alignment that are not under active agricultural production. This species is a very rare visitor to the Merced National Wildlife Refuge and the vernal pools located along Sandy Mush Road. The nearest occurrence (Occ. #8) from 1999 is approximately 9.5 miles from the northeastern portion of the alignment
<i>Circus cyaneus</i>	Northern harrier	CSC	Forages and nests in freshwater and brackish marshes and their adjacent grasslands.	Moderate	This species was observed during surveys. Suitable breeding habitat is located within 500 feet of the project site.
<i>Coccyzus americanus occidentalis</i>	Western yellow-billed cuckoo	FT, SE, CSC, BCC	During the summer breeding season, it can be rarely found in valley foothill and desert riparian habitats in California. Typically breeds in dense deciduous riparian vegetation.	Low	Potentially suitable habitat for this species is present along the various riparian areas the alignment crosses like Mariposa Creek, Dutchman Creek, and the Chowchilla River. The nearest occurrence (Occ. #85) from 1950 is approximately 19.6 miles from the southern portion of the alignment.
<i>Elanus leucurus</i>	White-tailed kite	FP	Rolling foothills / valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Forages over grasslands, marshes, and oak savannas close to isolated, dense-topped trees for nesting and perching.	Moderate	This species is frequently observed at the Merced National Wildlife Refuge located approximately 5.9 miles from the western portion of the alignment. Suitable foraging habitat is present in most of the fields adjacent to the alignment. Nesting habitat is present along the various riparian areas the alignment crosses like Mariposa Creek, Dutchman Creek, and the

Table 3. Special-Status Species Potentially Occurring in the Vicinity of the Merced Biogas Upgrade Facility and Pipeline Project Site

Scientific Name	Common Name	Status ¹	Habitat	Likelihood of Occurrence	Rationale
					Chowchilla River.
<i>Haliaeetus leucocephalus</i>	Bald eagle	SE, FP, CDFS BCC	Associated with permanent water sources including lakes, reservoirs, and large free-flowing rivers with abundant fish and nearby old-growth trees or snags for perching, roosting, and nesting. It roosts communally in winter in dense, uneven-aged conifer stands with old-growth components in proximity to feeding areas. It is a permanent resident in northern California and an uncommon winter migrant in the south of the state	Low	Poor quality nesting and foraging habitat may be present within the various riparian corridors near the alignment. The nearest occurrence (Occ. #263) from 2001 is approximately 12.3 miles from the eastern portion of the alignment.
<i>Lanius ludovicianus</i>	Loggerhead shrike	CSC, BCC	Open habitats like prairies and grasslands, with sparse perches.	High	Loggerhead shrikes were observed during field surveys. Suitable nesting habitat is present along portions of the alignment with fence lines and sparse shrub or tree cover.
<i>Vireo bellii pusillus</i>	Least Bell's vireo	FE, SE	Typically nests in riparian habitat with dense shrub cover and a structurally diverse canopy.	Low	Potentially suitable nesting habitat is present along the various riparian areas the alignment crosses like Mariposa Creek, Dutchman Creek, and the Chowchilla River. The nearest occurrence (Occ# 507) from 1919 is approximately 19.5 miles from the northwestern portion of the alignment and is thought to be possibly extirpated.
MAMMALS					

Table 3. Special-Status Species Potentially Occurring in the Vicinity of the Merced Biogas Upgrade Facility and Pipeline Project Site

Scientific Name	Common Name	Status ¹	Habitat	Likelihood of Occurrence	Rationale
<i>Antrozous pallidus</i>	Pallid bat	CSC	Day roosts in caves and crevices and bridges; occasionally roosts in hollow trees and buildings.	Moderate	Potentially suitable low-density tree hollows were identified near the pipeline alignment on the Chowchilla River. Potentially suitable roosting habitat may be present within other riparian crossings or bridges as well. The nearest occurrence (Occ. #394) from 1999 is approximately 17.1 miles from the northern portion of the alignment.
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	CSC	Coniferous forests, deciduous riparian woodlands, and semi-desert and montane shrub lands. Roost in dark places like caves and buildings.	Low	Potentially suitable habitat for this species is present within the various riparian areas the alignment crosses like Mariposa Creek, Dutchman Creek, and the Chowchilla River. The nearest occurrence (Occ. #560) from 2010 is located just over 20 miles from the northeastern portion of the alignment.
<i>Dipodomys nitratoides exilis</i>	Fresno kangaroo rat	FE, SE	Historically, this species occupied of alkaline sink shrublands and arid, alkaline grasslands of the San Joaquin Valley. Breeding behavior is probably initiated in late fall or early winter after onset of the rainy season. This species, like other kangaroo rats, shelter within underground burrows that are dug by the individual or other kangaroo rats. Burrows are usually found in light, friable soils in raised areas. Burrow tunnels are approximately 2	None	No suitable habitat is present along the alignment. The nearest occurrence (Occ. #22) from 1934 is located 19.8 miles from the southern portion of the alignment.

Table 3. Special-Status Species Potentially Occurring in the Vicinity of the Merced Biogas Upgrade Facility and Pipeline Project Site

Scientific Name	Common Name	Status ¹	Habitat	Likelihood of Occurrence	Rationale
			inches in diameter and can extend from 12 to 15 inches below ground		
<i>Eumops perotis californicus</i>	Western mastiff bat	CSC	The western mastiff bat is a year-round resident in California occurring from San Diego County to the Oregon border at low to mid-elevations along the west side of the Sierra Nevada range. It occupies a variety of habitats from desert scrub to chaparral to montane coniferous forest. Distribution is associated with the presence of significant rock features (granite or basalt formations). Day roosts are primarily in crevices in cliff faces, cracks in boulders, and occasionally in buildings.	Low	No suitable habitat is present along the alignment. The nearest occurrence (Occ. #71) from 1991 is approximately 4.7 miles from the northern portion of the alignment.
<i>Lasiurus blossevillei</i>	Western red bat	CSC	Roosts and feeds almost exclusively in riparian areas. Prefers cottonwoods, sycamores, and willows for roosting.	Low	Riparian vegetation adjacent to the drainage crossings is not suitable roosting and foraging habitat. The nearest occurrence (Occ. #70) from 1999 is approximately 14.3 miles from the southern portion of the alignment.
<i>Taxidea taxus</i>	American badger	CSC	Drier areas with friable soils	Low	Suitable habitat for this species is present in areas along the alignment that are not actively used for agricultural production. Proposed construction work in roadways and road shoulders should not impact this species. The nearest occurrence (Occ. #541) from 2018 is located approximately

Table 3. Special-Status Species Potentially Occurring in the Vicinity of the Merced Biogas Upgrade Facility and Pipeline Project Site

Scientific Name	Common Name	Status ¹	Habitat	Likelihood of Occurrence	Rationale
					0.5 miles from a central portion of the alignment.
<i>Vulpes macrotis mutica</i>	San Joaquin Kit fox	FE, ST	Drier areas with friable soils	Low	The alignment is near the northern border of the San Joaquin kit fox range. Potentially suitable dispersal habitat is present within the project area. The nearest occurrence (Occ. #25) from 2001 is approximately 2.9 miles from the northeastern portion of the alignment. This occurrence was in an almond orchard boarded by alfalfa fields.
¹ Status: FE = Federal Endangered FT = Federal Threatened FC = Federal Candidate SE = California State Endangered ST = California State Threatened SC = California State Candidate FP = CDFW Fully Protected CDFS = USFS Sensitive Species BCC = USFWS Bird of Conservation Concern		CRPR 1B.1 = Threatened in California and elsewhere, seriously threatened in California CRPR 1A = Extinct in California and rare or extinct elsewhere CRPR 1B.1 = Threatened in California and elsewhere, seriously threatened in California CRPR 1B.2 = Threatened in California and elsewhere, moderately threatened in California CRPR 1B.3 = Threatened in California and elsewhere, not very threatened in California CRPR 2B = Plants rare, threatened, or endangered in California but more common elsewhere CRPR 3 = Plants about which more information is needed CRPR 4 = Plants of limited distribution CSC = California Species of Special Concern			

4.4 POTENTIALLY JURISDICTIONAL WATERS/WETLANDS

The NWI was queried to see if any mapped wetlands occurred onsite that might be considered jurisdictional under the Clean Water Act to determine potential areas for focus during field surveys. The NWI map depicts numerous drainage crossings along the pipeline alignment (USFWS, 2019b). Some of these are natural drainages and others are agricultural ditches. The NWI map also depicts freshwater emergent wetlands throughout the vernal pool grassland areas, some of which occur immediately adjacent to the pipeline alignments (See Figure 3).

There are numerous waterway crossings identified on the NWI map within the proposed pipeline alignment. Each of the waterway crossings was identified in the field and noted as to whether it could be a potentially jurisdictional waterway. The pipeline alignment crosses several natural waterways and two named waterways: The Chowchilla River and Dutchman Creek. The pipeline alignment crosses the Chowchilla River at two locations in the southern portion of the project. Following is a discussion of site conditions at the notable drainage crossing locations. Please see Appendix D for additional detail about all mapped drainage crossings.

The first crossing of the Chowchilla River (drainage crossing #6) is under Washington Road. At this location, there are three very large culverts (approximately 10-ft each) with a concrete bag infrastructure surrounding the culverts under Washington Road. The ordinary high-water mark (OHWM) at the culvert location is approximately 30 feet, but the channel widens substantially downstream from the roadway crossing. There was water flowing in the river at the time of field surveys and dominant vegetation includes curly dock (*Rumex crispus*) and Italian ryegrass (*Festuca perennis*). There is no riparian corridor on the Chowchilla River at this location and there is limited wetland vegetation at the edge of the channel.

The second crossing of the Chowchilla River (drainage crossing #8) is through a bridge under Ivy Avenue. The OHWM at the bridge location is approximately 40 feet, but the channel narrows both upstream and downstream of the bridge crossing. There is no riparian habitat on the west side of the bridge and a willow dominant riparian corridor on the Chowchilla River east of the bridge. Dominant species include willow (*Salix* spp.) and Fremont cottonwood (*Populus fremontii*).

The pipeline crossing of Dutchmans Creek (drainage crossing #23) under Healy Road near Sandy Mush Road. There are three very large culverts (approximately eight feet each) that convey flows under Healy Road. There was no access to the creek on the east side of Healy Road, but on the west side of the road the OHWM at the culvert outfall location is approximately 30 feet. There is a riparian corridor at this location that

consists of red willow (*Salix laevigata*), Northern California black walnut (*Juglans hindsii*), and Fremont cottonwood (*Populus fremontii*).

Along Healy Road, there are undeveloped grasslands supporting vernal pools and swales. There are five drainage crossings under Healy Road (drainage crossings # 24-28). These drainages are small channel and swale features that support vernal pool or seasonal wetland vegetation, which indicates the potential to support sensitive vernal pool species. Drainage crossings #24 and #25 are channels with OHWM of approximately three feet. Both are culverted crossings with ponded water present at the culvert outfall locations and supports a dominance of wetland vegetation including Mediterranean barley (*Hordeum marinum gussoneanum*), rush (*Juncus* sp.), and cocklebur (*Xanthium strumarium*). Drainage crossings #26-28 are channel swale features that do not appear to be culverted under Healy Road. These drainages consist of channel and swale features that appear to support a dominance of wetland vegetation. The width of the road shoulder on the west side of Healy Road is approximately 12-15 feet between the road shoulder and the fence line. This area supports disturbed and ruderal (weedy) vegetation. The perimeter of the undeveloped area west of the fence line is disked. Beyond the disked perimeter is undeveloped lands supporting vernal pools and swales that appear to be used for cattle grazing.

The remainder of the drainage crossings mapped along the alignment consist primarily of agricultural ditches that appear to have connectivity to other waterways outside of the agricultural fields. Several of the agricultural drainage crossings are large canal features such as the El Nido Canal that convey swiftly moving waters. Some of the agricultural ditches support vegetated banks and some do not, and some of the larger canals have concrete lined channels at box culvert crossing locations. Please see Appendix D for additional details about each drainage crossing identified in Figure 2.

There are undeveloped and undisturbed grasslands supporting vernal pools and swales north of Whitegate Drive and north and south of Rahilly Road in the northern portion of the project site. There are several locations where vernal pools occur immediately adjacent to the fence line on the shoulder of the road with minimal road shoulder width (approximately 10-15 feet) between the edge of pavement and vernal pool habitat. The vernal pools on the opposite side of the fence were inaccessible for surveys; however, vernal pool indicator plant species were observed from the fence line. These pools support species including popcorn flower (*Plagiobothrys* sp.), coyote thistle (*Eryngium* sp.), and downingia (*Downingia* sp.). Locations where vernal pools occur at the fence line are noted on Figure 2 and in several cases the edge of vernal pool habitat occurs between 10 and 25 feet of the pavement of the existing roadway.

The drainage crossings discussed and depicted in Figure 2 were all potentially connected to Traditional Navigable Waters of the U.S. (TNW) or tributaries of TNWs, and as such are potentially jurisdictional waters of the U.S. under Corps jurisdiction.

5 PROJECT IMPACT ANALYSIS

Approval of the Merced Biogas Upgrade Facility and Pipeline Project would involve the temporary disturbance of up to 34 linear miles of pipeline alignment within agricultural lands, existing farm roads, and on the shoulder of County roads for the construction of the biogas gathering lines using trench excavation methods. Construction of the pipelines will require the crossing of up to 39 drainages, which may be completed through trench excavation or by drilling, depending on the location. A total of 0.7-acre of existing cropland will be converted to developed lands for construction of the gas conditioning facility. Because the precise disturbance footprint and construction methodology has not yet been determined, the impact analysis considers that all biological resources occurring within the survey corridor could be directly or indirectly impacted and provides a range of recommended mitigation measures to address all potential impact and mitigation scenarios.

5.1 STANDARDS OF SIGNIFICANCE

State CEQA Guidelines and standard professional practice determine whether the proposed Merced Biogas Upgrade Facility and Pipeline Project would have a significant environmental effect. The project would have a significant impact on biological resources if it would:

- Result in a substantial adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive or special-status species in local or regional plans, policies, or regulations or by CDFW or USFWS;
- Result in a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the CDFW or USFWS;
- Result in a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance;

- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan;
- Result in impacts to biological resources that are individually limited, but cumulatively considerable (i.e., the incremental effects of the project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects).

5.2 IMPACTS TO BIOLOGICAL RESOURCES

SPECIAL STATUS SPECIES

Plants

The likelihood of occurrence of special-status plant species along the alignment is considered extremely low due to a lack of suitable habitat within agricultural lands routinely disturbed for crop cultivation. Additionally, the likelihood of special-status plant species occurring within farm roads or on County road shoulders is also extremely low due to lack of suitable habitat and high level of disturbance. However, special-status plant species are known to occur in the region, and 17 special-status plant species associated with vernal pools and swales have the potential to occur in vernal pool and swale habitat near the site (CNPS, 2019; CDFW, 2019). At several locations (e.g. undeveloped land along Healy Road, Rahilly Road, and Whitegate Drive) vernal pool and swale habitat occurs within the survey area and potential impact area that could provide suitable habitat for special-status vernal pool plant species. Additionally, there is one special-status plant species associated with freshwater wetlands that could potentially occur in freshwater wetlands within the natural drainage crossing locations.

Because of this, there is some potential for project related impact to special-status plants at waterway crossings, particularly the natural drainages, or in vernal pools and swales occurring in the vernal pool grasslands along Healy Road, Whitegate Drive, and Rahilly Road. Special-status plants that could occur in natural drainages or vernal pools and swales include alkali milk-vetch (*Astragalus tener* var. *tener*), heartscale (*Atriplex cordulata* var. *cordulata*), brittlescale (*Atriplex depressa*), vernal pool smallscale (*Atriplex persistens*), succulent owl's-clover (*Castilleja campestris* var. *succulenta*), recurved larkspur (*Delphinium recurvatum*), dwarf downingia (*Downingia pusilla*), Delta button-celery (*Eryngium racemosum*), Spiny-sepaled button celery (*Eryngium spinosepalum*), San Joaquin spearscale (*Extriplex joaquiniana*), Boggs Lake hedge hyssop (*Gratiola heterosepala*), Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*), Shining navarretia (*Navarretia nigelliformis* ssp. *radians*), prostrate vernal pool navarretia (*Navarretia prostrata*), Colusa grass (*Neostapfia colusana*), San Joaquin Valley Orcutt grass (*Orcuttia inaequalis*), Hairy orcutt grass (*Orcuttia pilosa*), California

alkali grass (*Puccinellia simplex*), Sanford's arrowhead (*Sagittaria sanfordii*), and Greene's tuctoria (*Tuctoria greenei*) (see Table 3). Depending on impact footprint and construction methods used for pipeline installation at the natural drainage locations, implementation of the project may have an impact on special-status plants.

(Potentially significant)

Recommended Mitigation BIO-1:

BIO-1A: If pipeline installation at the natural drainage crossing locations (drainage crossing #6, 8, and 23-28) are avoided using alternate alignments, or installed using drilling techniques or open cut trench excavation within the disturbed or paved roadway or shoulder, and all ground disturbance is located in developed lands and/or upland areas outside of potential special-status plant species habitat, implementation of the project is expected to have a less than significant impact to special-status plants, and no mitigation is required. For the purposes of this measure, the "disturbed or paved roadway or shoulder" is defined as the paved section of the roadway or unvegetated road shoulder immediately adjacent to the paved section of Healy Road on the west side of the roadway.

BIO-1B: If pipeline installation at the natural drainage locations (drainage crossing #6, 8, and 23-28) involves trench excavation across the waterways (creeks, channels, swales), or any other ground disturbance within natural waterway crossings or vernal pools and swales, even if conducted when dry, the following measures will be implemented:

1B-1: Pre-construction special-status species plant surveys shall be conducted in natural waterway crossing impact areas; particularly in vernal pool and swale habitats that have the potential to support special-status plants, prior to initiating project activities. All surveys will be conducted in accordance with agency approved survey protocols. If no special-status species are identified in protocol surveys, no mitigation is required.

1B-2: If special-status plants are identified within project impact areas, one of the following measures shall apply:

1B-2.1: If feasible, the project will be adjusted to avoid impacts to special-status plants. If adjustment of construction areas or methods is not feasible, the applicant will develop species-specific measures to minimize the effects of construction. This may include; seasonal construction restrictions, erection of protective barriers, collection and relocation of individual plants or seeds, site monitoring during construction, site restoration, and/or implementation of construction practices that would avoid specific areas.

1B-2.2: If there is no feasible alternative to the disturbance to special-status plants, the applicant will mitigate for impacts to special-status plants. All impacts associated with pipeline installation are expected to be short-term, temporary impacts that would be restored to pre-project conditions upon completion of construction. The applicant shall prepare a site restoration plan that provides for plant salvage and replanting, seed collection and replanting, and/or topsoil collection and replacement as appropriate for species identified within the project impact area. The final restoration plan would, at a minimum, restore the temporary impact areas to pre-project conditions that would support special-status species populations. The restored habitat would be monitored consistent with the requirements of the site restoration plan to ensure that performance criteria established are achieved and maintained through the monitoring period. No permanent impact to special-status plants will occur.

1B-3: If listed species are identified (e.g. federal- or state-listed endangered, threatened, or candidate species) the applicant will consult with the USFWS and/or CDFW to secure proper authorization. Any project component that would jeopardize the continued existence of a listed plant species will be eliminated from consideration.

Wildlife

Vernal Pool Branchiopods

The proposed pipeline alignment will be constructed within farm roads and on the road shoulders adjacent to County roads. In some locations the pipeline alignment on the shoulder of existing County Roads is adjacent to undeveloped grasslands that support vernal pool and swale habitat. The areas where pipeline construction occurs adjacent to vernal pool grasslands include: Healy Road (vernal pool grasslands occur on both sides of road at this location), Whitegate Drive (vernal pool grasslands occur on north side of road at this location), and Rahilly Road (vernal pool grasslands occur on both sides of road at this location). In these locations there could be direct or indirect impact to listed vernal pool branchiopod species (fairy shrimp and tadpole shrimp) potentially occurring in vernal pool or swale habitat, depending on the construction methodology employed to install the pipeline in these locations.

The pipeline alignment along Healy Road is proposed in or on the shoulder of the existing paved roadway. Construction of the pipeline alignment in this portion of the project requires the crossing of five drainages (small channel and swale features numbered 24-28) along Healy Road (see Figure 2 for location). These channel and swale features were inaccessible for survey (behind fences) but appeared to support

vernal pool and/or seasonal wetland vegetation and slow flowing or ponded water during the wet season, indicating the potential to support vernal pool species. These features could potentially support federally listed vernal pool branchiopods (VPBs), such as the vernal pool fairy shrimp (VPFS), Conservancy fairy shrimp, or vernal pool tadpole shrimp (VPTS). The grassland habitat in this portion of the pipeline alignment is designated as Critical Habitat for Colusa grass, VPFS, and VPTS (Critical Habitat Unit 14I) (see Figure 3) and vernal pools and swales in these areas could support federally listed vernal pool species (USFWS, 2006).

The pipeline alignment along Whitegate Drive is proposed in or on the shoulder of the existing roadway north of Red Rock Dairy or within the previously disturbed agricultural lands associated with Red Rock Dairy. Vernal pool grassland occurs north of Whitegate Drive at this location with vernal pools occurring within ten feet of the fence line (see VP-1 on Figure 2). At this location, the pipeline would be constructed on the south side of the road, providing approximately 20-25 feet between construction of the pipeline on the south side of the road and vernal pool habitat on the north side of the road with the roadway barrier between. This vernal pool grassland habitat is not federally designated as Critical Habitat but provides suitable habitat for federally listed vernal pool species.

The pipeline alignment along Rahilly Drive is proposed in or on the shoulder of the existing roadway. Vernal pool grassland occurs north of the road in the eastern portion of the alignment adjacent to Rahilly Road; however, the majority of vernal pools occur in grassland behind residential housing and grazed irrigated pasture lands. Vernal pool habitat may occur within some of the pasture lands, but no vernal pools were observed at the fence line or near the road in this portion of the alignment. At this location, vernal pool grasslands are located behind the housing and over 250 feet of the proposed pipeline alignment. This vernal pool grassland is designated as Critical Habitat for Colusa grass, VPFS, and VPTS (Unit 14K) and could support federally listed species, but would not be a concern for the project due to the distance between features and pipeline construction.

The pipeline alignment along Rahilly Drive is proposed in or on the shoulder of the existing roadway. Vernal pool grassland occurs south of the road in the western portion of the alignment, just prior to the Vander Woude Dairy. In this vernal pool grassland area, vernal pools were observed at or near the fence line. Specifically, there were two vernal pools that occur very close to the fence in this area, one was approximately 15 feet from the edge of pavement (VP-2A) and the other approximately 25 feet from the edge of pavement (VP-2B) (see Figure 2 for location). At this location, the pipeline would be constructed on the north side of Rahilly Road east of the entrance to the Vander Woude Dairy in order to provide additional buffer and a developed roadway barrier between pipeline construction activities and habitat suitable for listed vernal pool

species. This vernal pool grassland is designated as Critical Habitat for Colusa grass, VPFS, and VPTS (Unit 14J) and could support federally listed species.

The USFWS typically requires a 250-foot setback for vernal pool habitat occupied by listed branchiopod species is necessary for full avoidance of potential direct and indirect effects of a project, unless the reach of indirect effects can be determined definitively to be less than 250 feet (USFWS, 1996). Encroachment on vernal pools could result in alteration or loss of the vernal pool contributing watershed or damage to the subsurface impervious layer that supports seasonal inundation of the feature. Because protocol-level surveys have not been completed for presence/absence of VPBs in the vernal pools and swales within 250 feet of the pipeline alignment, we assume listed VPBs are present and measures for full avoidance of direct and indirect impacts to listed VPB are necessary. Location of the pipeline construction within disturbed or paved roadway or shoulder, or within previously disturbed agricultural lands on the opposite side of the road from sensitive vernal pool habitat along Rahilly Road and Whitegate Drive will ensure avoidance of indirect impact to listed species due to the existing developed roadway barrier between pipeline construction activities and sensitive vernal pool habitat. For the purposes of this discussion, the prescribed locations defined for full avoidance of direct and indirect impacts to listed VPBs include the paved section of the roadway or unvegetated road shoulder immediately adjacent to the paved section of Healy Road on the west side of the roadway; the south side of the roadway on Whitegate Drive between the east and west entrance driveways of the Red Rock Dairy; and the north side of the roadway on Rahilly Road from the eastern edge of the existing feedlot to the entrance driveway of the Vander Woude Dairy.

Construction of the pipeline could directly impact listed VPBs if the pipeline is installed using trench excavation methodology at the drainage swale crossings or indirectly impact listed VPBs if the pipeline is installed using methodologies involving ground disturbance and excavation in close proximity to vernal pools or swales that provide suitable habitat for listed vernal pool species. **(Potentially significant)**

Recommended Mitigation BIO-2:

Construction of the pipeline alignment along Healy Road, Rahilly Road, and Whitegate Drive may require the following mitigation measures for direct or indirect impacts on VPBs depending on pipeline location and construction methodologies used:

BIO-2A: If pipeline construction is entirely sited within the paved roadway or disturbed shoulder at the swale crossing locations (natural drainage crossings #24-28) along Healy Road, or pipeline is installed using drilling techniques under these drainages (with all ground disturbance located outside suitable VPB habitat); and pipeline installation along Whitegate Drive is sited on the south side of the paved roadway (opposite the

grassland areas supporting vernal pool habitat); and pipeline installation along Rahilly Road is sited on the north side of the paved roadway (opposite the grassland areas supporting vernal pool habitat); then implementation of the project is expected to have a less than significant impact to VPBs, and no mitigation is required. For the purposes of this discussion, the prescribed locations defined for full avoidance of direct and indirect impacts to listed VPBs include the paved section of the roadway or unvegetated road shoulder immediately adjacent to the paved section of Healy Road on the west side of the roadway; the south side of the roadway on Whitegate Drive between the east and west entrance driveways of the Red Rock Dairy; and the north side of the roadway on Rahilly Road from the eastern edge of the existing feedlot to the entrance driveway of the Vander Woude Dairy.

BIO-2B: If full avoidance of direct or indirect impact to VPB habitat as outlined in BIO-2A is not feasible the following mitigation scenarios may apply:

2B-1: If installation of the pipeline involves excavation in grassland areas within 250 feet of vernal pools or swales that provide suitable habitat for VPBs and without any disturbed or developed land barriers (e.g. disturbed or paved roadway) between construction activities and suitable VPB habitat, there is potential for indirect impact to listed VPBs through alteration of the watershed or damage to subsurface impervious layer, and the following measures shall be implemented:

- (a) Applicant shall consult with USFWS prior to implementation of the project to obtain all required regulatory permits and authorizations for potential indirect impact to listed species.
- (b) All work will be conducted during the dry season when potential habitat features on or near the proposed pipeline installation areas are dry.
- (c) Adequate fencing will be placed and maintained around any vernal pool habitat not approved for impact to prevent encroachment.
- (d) Environmental Awareness Training Program will include information regarding the presence of listed VPB species and the importance of avoiding impacts to these species and their habitat.
- (e) A USFWS-approved biologist will monitor pipeline installation activities in potential VPB habitat or in proximity to known or potential VPB habitat to ensure that no unnecessary take or destruction of habitat occurs. The biologist will have authority to stop activities if necessary, to implement appropriate corrective measures.
- (f) Storm water BMPs (silt fencing and straw waddles) will be placed around excavations and dirt stockpiles to reduce potential for erosion and sedimentation into potential VPB habitat features.
- (g) No application of water (e.g., dust suppression) will occur in vernal pool habitat without additional measures (such as barriers and/or use of low flow

water truck nozzles) in place to keep water out of potential or known VPB habitat features during the dry season.

- (h) Any groundwater encountered within the trench excavation will be pumped into a water truck or other containment device and will be discharged offsite or in upland areas outside of vernal pool grassland habitat.

2B-2: If pipeline installation at the swale locations (drainage crossing #24-28) involves trench excavation or any other ground disturbance within the swales, even if conducted when dry, there is potential for direct impact to listed VPBs, through direct habitat modification, and the following measures shall be implemented:

- (a) Applicant shall consult with USFWS prior to implementation of the project to obtain all required regulatory permits and authorizations for potential direct impact to listed species.
- (b) All work will be conducted during the dry season when potential habitat features on or near the proposed pipeline installation areas are dry.
- (c) Adequate fencing will be placed and maintained around any vernal pool habitat not approved for impact to prevent encroachment.
- (d) Environmental Awareness Training Program will include information regarding the presence of listed VPB species and the importance of avoiding impacts to these species and their habitat.
- (e) A USFWS-approved biologist will monitor pipeline installation activities in potential VPB habitat or in proximity to known or potential VPB habitat to ensure that no unnecessary take or destruction of habitat occurs. The biologist will have authority to stop activities if necessary, to implement appropriate corrective measures.
- (f) Storm water BMPs (silt fencing and straw waddles) will be placed around excavations and dirt stockpiles to reduce potential for erosion and sedimentation into potential VPB habitat features.
- (g) No application of water (e.g., dust suppression) will occur in vernal pool habitat without additional measures (such as barriers and/or use of low flow water truck nozzles) in place to keep water out of potential or known VPB habitat features during the dry season.
- (h) Any groundwater encountered within the trench excavation will be pumped into a water truck or other containment device and will be discharged offsite or in upland areas outside of vernal pool grassland habitat.
- (i) Prior to excavation within potential VPB habitat (vernal pools and swales), the uppermost soil layer that may contain branchiopod eggs (cysts) will be collected, labelled, and stored under appropriate climatic conditions until the pipeline installation has been completed. Topsoil will be placed back in the feature from which it was collected. Additional details regarding appropriate collection and storage methods shall be outlined in a project-specific site restoration plan.
- (j) Project activities in potential or known branchiopod habitat will be conducted when the soil is dry to the touch both at the surface and one inch below the

- surface. After any precipitation event of greater than 0.2-inch, Project activities within habitat areas will be halted and only resumed after the soil has dried sufficiently, and no sooner than 48 hours after the rain event ends.
- (k) For temporary impacts to VPB habitat, the applicant shall prepare a vernal pool and swale habitat restoration and monitoring plan. This plan shall outline appropriate methods for salvage and storage of topsoil with VPB eggs (cysts). The vernal pool and swale habitat restoration and monitoring plan shall, at a minimum, provide for restoration of temporary impact areas to pre-project conditions and restoration of populations of VPBs to pre-project levels or better. The habitat restoration and monitoring plan would outline monitoring methods and performance criteria to ensure success of the restoration. The restored habitat would be monitored for a minimum of five years to ensure that performance criteria established in the habitat restoration plan are achieved and maintained through the monitoring period. The vernal pool and swale habitat restoration and monitoring plan will be submitted to the USFWS during consultation for agency approval.
 - (l) All impacts associated with pipeline installation are expected to be minimal, temporary, and fully restored; however, if compensatory mitigation is required for temporal loss of vernal pool habitat or unsuccessful restoration of vernal pool habitat, the applicant may satisfy all or a portion of species mitigation through the purchase of “credits” at a mitigation bank approved by the USFWS for compensatory mitigation of impacts to listed species, or through other means, such as on-or off-site vernal pool creation, conservation easement, contribution to approved in-lieu habitat fund, etc. If compensatory mitigation is required, the mitigation plan must provide a minimum of 1:1 creation or restoration of listed VPB habitat and 2:1 preservation of listed VPB habitat and must be approved by the USFWS. Ratios may be higher if applicant responsible offsite mitigation is proposed.

Valley Elderberry Longhorn Beetle

One blue elderberry shrub, potential habitat for the valley elderberry longhorn beetle (VELB), occurs within 165 feet of the proposed pipeline alignment on a farm road south of Hoogendam Dairy and McNamara Road. This shrub had multiple stems greater than one inch in diameter. No VELB-sized emergence holes were observed in the stems of the shrub. Removal of the shrub is not required, and the pipeline will be installed on the opposite side of the road from the shrub; therefore, construction will not encroach to within the 20-foot core area of the shrub.

In accordance with The Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (USFWS, 2017), construction activities within 50 meters (165 feet) of an elderberry plant with a stem diameter greater than one-inch at the base is considered a potential impact. Avoidance and minimization measures are recommended to minimize effects to VELB and/or its habitat. Normally, limited activities and temporary disturbance may occur within 165 feet of an elderberry shrub, provided a 20-foot buffer is fenced and disturbance prohibited within that 20-foot area, avoidance

and minimization measures are applied, and temporary disturbance is restored following construction. Construction of the pipeline will encroach to within 165 feet of potential VELB habitat, but will avoid the 20-foot core area of the shrub. **(Potentially significant)**

Recommended Mitigation BIO-3:

Construction of the pipeline will require excavation within 165 feet of a blue elderberry shrub; however, to minimize project impacts to VELB, a minimum 20-foot exclusion zone extending from the dripline of the shrub will be maintained during construction. Consistent with measures outlined by the USFWS to mitigate potential impacts to VELB when working within 165 feet of a blue elderberry shrub, but outside the 20-foot core area the following measures shall be implemented:

- A. Applicant shall consult with USFWS prior to implementation of the project to obtain all regulatory permits and authorizations for potential impact to listed species.
- B. Fence and flag elderberry shrubs to be avoided and provide a minimum setback of at least 20 feet from the dripline of each elderberry plant for ground disturbance activities (e.g. trenching) to ensure that activities will not damage or kill the elderberry shrub.
- C. Brief the contractors and key employees of the need to avoid any impacts to the elderberry plants, and to advise them of penalties associated with damage or destruction of the plants. Instruct work crew about the status of the VELB and the need to protect its elderberry host plant, and possible penalties for non-compliance with avoidance and minimization measures.
- D. A qualified biologist will monitor the work area at project-appropriate intervals to assure that all avoidance and minimization measures are implemented. The amount and duration of monitoring will depend on the project and should be determined in coordination with the USFWS biologist.
- E. As much as feasible, all activities within 165 feet of an elderberry shrub, will be conducted outside the flight season of the VELB (March-July).
- F. Continue to protect both core and buffer avoidance areas after construction from adverse effects of the project.
- G. No insecticides, herbicides, fertilizers, or other chemicals that might harm the VELB or its host plant should be used within 100 feet of any elderberry plant with a stem measuring 1.0 inch or greater in diameter at ground level.
- H. Mechanical vegetation removal within the dripline of an elderberry shrub will be limited to the season when adult VELB are not active (August-February) and will avoid damaging the elderberry.
- I. Erosion control will be implemented, and the affected construction area will be revegetated with appropriate native plants.

California Tiger Salamander / Western Spadefoot

The majority of aquatic habitat within the project site consists of intermittent creeks, seasonal swales, and agricultural ditches and canals. None of the aquatic habitat occurring within the project site would provide suitable breeding habitat for California tiger salamander (CTS) or western spadefoot; however, there is suitable aquatic breeding habitat for these species in pools and ponds occurring within the vernal pool grasslands within one mile of the project site. Additionally, the drainages (channels and swales) along Healy Road could provide suitable dispersal habitat for CTS and/or western spadefoot through the project site, and vernal pool grasslands occurring adjacent to the pipeline alignment along Healy Road, Whitegate Drive, and Rahilly Road could provide suitable upland and dispersal habitat for these amphibian species.

There are known occurrences of CTS and western spadefoot at two mitigation banks located on Sandy Mush Road. The Dutchman Creek Mitigation Bank is located approximately 0.5-mile from of the pipeline alignment and the Deadman Creek Mitigation Bank is located approximately five miles west of the project alignment. There is also a known occurrence of CTS from 1999 in the vernal pool grassland north of Rahilly Road approximately 500 feet from the pipeline alignment on Rahilly Road (CDFW, 2019). No major barriers are located between the known occurrences of CTS and western spadefoot at Dutchman Creek Mitigation Bank and the occurrence north of Rahilly Road; however, cultivated cropland and agricultural ditches and canals occur between the Dutchman Creek Mitigation Bank and the pipeline alignment, and rural residential development and irrigated pasture lands occur between the Rahilly Road occurrence and the pipeline alignment. No burrow habitat or other suitable summer refugia for these species were observed on the pipeline alignment within disturbed or paved roadway and shoulders during field surveys; therefore, the project site does not provide non-breeding or upland habitat onsite.

Placement of the pipeline alignment within the pavement or on the highly compacted shoulder of developed roadways in portions of the alignment that are adjacent to the vernal pool grassland habitat that could support CTS and/or western spadefoot minimizes the potential for impact to these species; however, because of the presence of potential breeding and upland habitat within vernal pool grasslands adjacent to the pipeline alignment, and the potential for project impacts to drainage crossings that constitute potential dispersal corridors for amphibians along Healy Road the project could impact CTS or western spadefoot. **(Potentially significant)**

Recommended Mitigation BIO-4:

BIO-4A: If pipeline installation at the swale crossing locations (drainage crossing #24-28) along Healy Road are avoided by using drilling techniques or open cut trench excavation within the disturbed or paved roadway or shoulder, and all ground

disturbance is located in developed lands outside of potential amphibian dispersal corridors, implementation of the project is expected to have a less than significant impact to CTS and western spadefoot, and no mitigation is required. For the purposes of this measure, the “disturbed or paved roadway or shoulder” is defined as the paved section of the roadway or unvegetated road shoulder immediately adjacent to the paved section of Healy Road on the west side of the roadway.

BIO-4B: If pipeline installation at the swale crossing locations (drainage crossing #24-28) involves trench excavation or any other ground disturbance within the swales, the following measures shall be implemented:

1. Construction for pipeline installation adjacent to vernal pool grasslands will be completed during the dry season when amphibians are not expected to be dispersing and are expected to be in their summer refugia (June 15 and October 31).
2. A pre-construction survey for CTS and western spadefoot will be conducted by a qualified biologist along pipeline segments adjacent to vernal pool grassland habitat and drainage crossing locations. Surveys will be completed within 48 hours prior the onset of work activities in these locations.
3. If CTS is observed within the construction work area, the biologist will coordinate with CDFW and USFWS to ensure that the individuals are not harmed. If relocation of CTS is necessary, they will be relocated the shortest distance possible to a location that contains suitable habitat that will not be affected by activities associated with the proposed project. Any CTS relocation must be pre-approved by the USFWS and CDFW and be conducted by an agency approved permitted biologist.
4. If western spadefoot is observed within the construction work area, the biologist will coordinate with CDFW to ensure that the individuals are not harmed. If relocation of western spadefoot is necessary, they will be relocated the shortest distance possible to a location that contains suitable habitat that will not be affected by activities associated with the proposed project. Any western spadefoot relocation must be pre-approved by the CDFW and be conducted by an agency approved biologist.

Giant Garter Snake

The majority of agricultural ditches and natural waterways within the project site do not contain the three habitat components necessary to support giant garter snake (GGS), which include, aquatic habitat with emergent vegetation and a prey base, an upland component near aquatic habitat for thermoregulation and summer shelter in burrows, and an upland refugia component for use as winter hibernacula (USFWS, 1993). The natural waterways within the project area are intermittent and would not provide sufficient summer aquatic habitat for the GGS. Some of the agricultural ditches have

managed flows and may support summer water; however, many of them are routinely disturbed and don't support emergent bankside vegetation necessary for GGS refuge. Additionally, the majority of waterways and agricultural ditches within the project sites are surrounded by cropland with high levels of disturbance that would not offer sufficient upland habitat for GGS. Consequently, no impacts to the giant garter snake are expected. **(No impact).**

Western pond turtle

Some of the aquatic habitat within or near the project site could provide suitable habitat for western pond turtle. Suitable habitat for western pond turtle includes aquatic habitat with basking sites available for thermoregulation and nearby upland breeding habitat. Examples of potential western pond turtle habitat include the Chowchilla River, Dutchman Creek, unnamed drainages, and agricultural ponds. There is one historic occurrence of western pond turtle in Dutchman Creek near Sandy Mush Road. Because of the proximity of the project to potential western pond turtle habitat and the potential for project impacts at drainage crossings during construction of the pipeline, there is potential for impact to the western pond turtle. **(Potentially significant)**

Recommended Mitigation BIO-5:

BIO-5A: If pipeline installation at the natural drainage crossing locations (drainage crossing #6, 8, and 23-28) are installed using drilling techniques or open cut trench excavation within the disturbed or paved roadway or shoulder, and all ground disturbance is located in upland areas outside of potential pond turtle habitat or the drainage crossing are dry at the time of construction, implementation of the project is expected to have a less than significant impact to western pond turtle and no mitigation is required. For the purposes of this measure, the "disturbed or paved roadway or shoulder" is defined as the paved section of the roadway or unvegetated road shoulder immediately adjacent to the paved section of Healy Road on the west side of the roadway.

BIO-5B: If pipeline installation at the natural drainage locations (drainage crossing #6, 8, and 23-28) involves trench excavation across the waterways with water present (creeks, channels, swales), or any other ground disturbance within natural waterway crossings or vernal pools and swales, the following measures will be implemented:

1. A qualified biologist shall conduct preconstruction surveys for western pond turtles if construction activities will result in impacts to any of the natural drainages (e.g. Chowchilla River, Dutchman Creek, or unnamed natural drainages). Surveys shall be conducted within 48 hours of the start of construction at these locations.

2. If western pond turtle is found within the construction work area the biologist will coordinate with CDFW to ensure that the turtles are not harmed. If relocation of individuals is necessary, turtles will be relocated the shortest distance possible to a location that contains suitable habitat and will not be affected by activities associated with the proposed project. Relocation of turtles will be pre-approved by the CDFW and will be conducted by an agency approved biologist.

Nesting Birds

Implementation of the project would result in the conversion of 0.7-acre of croplands to developed lands for the construction of the biogas upgrade facility. The biogas facility would be constructed on land that is currently cultivated alfalfa and provides foraging habitat for a variety of special-status and migratory bird species.

There is also the potential for migratory birds to nest in trees or grasslands along the pipeline alignment. Suitable habitat for ground nesting birds such as western meadowlark, killdeer, short-eared owl, and horned occurs along roadways and within adjacent undeveloped grasslands. Suitable habitat for raptors and other tree nesters occurs in trees along the pipeline alignment, particularly in riparian areas. **(Potentially significant)**

Recommended Mitigation BIO-6:

To reduce project related impacts to active bird nests and to reduce the potential for construction activities to interrupt nesting and rearing behaviors of birds, the following measures shall be implemented prior to and during construction activities:

- A. A preconstruction survey shall be conducted to determine the presence of nesting birds if vegetation removal or construction activities will be initiated during the breeding season (February 15 through September 15). The project site and potential nesting areas within 100 feet of the site for MBTA protected passerines and 500 feet for raptors shall be surveyed within seven days prior to the initiation of construction. Surveys will be performed by a qualified biologist or ornithologist to verify the presence or absence of nesting birds.
- B. Construction shall not occur within a 500-foot buffer surrounding nests of raptors or a 100-foot buffer surrounding nests of MBTA protected passerines (including killdeer, house finch, mourning dove, etc.).
- C. If construction within these buffer areas is required, prior approval must be obtained from the CDFW.

Preconstruction surveys and avoidance measures would reduce this impact to less than significant. Further, while approximately 0.7-acre of cropland would be converted to developed land, vast areas of cropland would remain in the surrounding area and continue to provide foraging habitat.

Tricolored Blackbird

Tricolored blackbird (TCBB) is a California threatened species under CESA as of April 19, 2018. Based on a recent statewide survey, the TCBB population has declined by 63 percent in the last six years (Meese, 2014). TCBB is a highly colonial species that nests in large flocks near open water with a protected substrate and nearby foraging area. TCBB have two specific peaks in breeding activity, one in the first week of June and one in the first two weeks of July. Total nesting duration is approximately 45 days. Historically, TCBB nested within emergent wetland in the Central Valley; however, currently 38 percent of TCBB nests occur on triticale, a wheat-rye hybrid grown for forage on dairies (Meese, 2014). The timing of triticale harvest conflicts with TCBB nesting, putting entire colonies at risk from harvesting activities that occur before fledging (Meese, 2009). TCBB foraging typically occurs within three to five miles of the nesting colony. Lightly grazed fields, irrigated pastures, annual grasslands, and grain fields that provide habitat for a supply of large insects such grasshoppers, dragonflies, and damselflies offer the best foraging habitat. However, dairy and silage edge as well as feed lots maybe used for foraging. Although TCBB was not observed during the site survey, some of the croplands and riparian habitat along the proposed pipeline alignment could provide suitable nesting habitat for TCBB.

Currently, there are no specific mitigation requirements for the loss of TCBB nesting or foraging habitat. Both nesting and foraging mitigation options are currently being developed by CDFW and the Tricolored Blackbird Working Group (TBWG). If there is a permanent loss of TCBB breeding habitat, this impact may require compensatory mitigation. Loss of TCBB habitat may be compensated through a combination of: 1) creation of replacement habitat; 2) habitat preservation through Conservation Easement; 3) acquisition of credits at an approved mitigation bank; 4) in-lieu contribution to a regional habitat restoration fund; and/or 5) other compensatory measures that are deemed acceptable by the CDFW. According to Samantha Arthur of the TBWG a disturbance buffer of 100 feet has been given to nesting TCBB at dairy operations in the Central Valley (Airola, et al., 2016). Although not currently required, mitigation for foraging habitat will likely be required in the future. Mitigation for the loss of foraging habitat could have a similar approach to what is currently being required for the Swainson's hawk, where compensatory mitigation is required for the conversion of foraging habitat within a specific buffer from a nest (Airola, et al., 2016).

Construction of the proposed biogas upgrade facility and gathering pipelines would result in the conversion of approximately 0.7-acres of cropland to developed land and temporary disturbance of habitat along the proposed pipeline alignment. The proposed biogas upgrade facility is located in alfalfa cropland, which would not be suitable breeding habitat for TCBB; therefore, this project is not expected to result in permanent loss of potential breeding habitat and no compensatory mitigation is required. The project could result in disturbance to breeding colonies of TCBB if they are present within 100 feet of the proposed pipeline alignment **(Potentially significant)**

Recommended Mitigation BIO-7:

Due to the disturbance within 100 feet of potential breeding habitat, the following measures shall be implemented prior to and during construction activities:

BIO-7A: If ground clearing or construction activities will be initiated during the breeding season (February 15 through September 15), a preconstruction survey shall be conducted to determine presence / absence of TCBB. This measure is also required for all MBTA protected nesting birds, as indicated above. If no TCBB nesting occurrences are found, no further mitigation is required.

BIO-7B: If a TCBB nest colony is discovered during preconstruction surveys, the following measures shall be implemented:

1. Applicant shall consult CDFW to determine the appropriate avoidance buffer and or required mitigation.
2. Project shall avoid construction activities within the established avoidance buffer of TCBB colonies until young have fledged.

Swainson's Hawks

The state-threatened Swainson's hawk is known to nest and forage in the project vicinity and several suitable nest trees were noted along the pipeline alignment. Swainson's hawks were observed soaring over the project site during surveys and a pair of Swainson's hawks were observed at a nest tree adjacent to the pipeline alignment along a farm road south of Hoogendam Dairy and McNamara Road. Additionally, suitable Swainson's hawk nesting habitat was observed at several locations in the project site, including Eucalyptus trees on Healy Road and Rahilly Road, riparian trees along several drainages in the southern portion of the project site, riparian trees on Dutchman Creek, and riparian trees along Mariposa Creek in the northern portion of the project site. Due to the proximity of the suitable nesting habitat, direct impacts could occur, if a Swainson's hawk nests in trees onsite. There are 46 Swainson's hawk occurrences within the quadrangles surrounding the project site, 32 of which are recent occurrences (CDFW, 2019). Swainson's hawks generally forage

within 10 miles of their nest tree, and more commonly within five miles of their nest tree (CDFW, 1994). Because cropland provides foraging habitat for small ground dwelling mammals, which are prey species for raptors, conversion of cultivated farmland to developed land would contribute to the loss of foraging habitat for the Swainson's hawk. In the San Joaquin Valley, this loss of habitat is considered cumulatively significant, unavoidable and unmitigable.

According to the CDFW Staff Report regarding Mitigation for Impacts to Swainson's Hawks (CDFW, 1994), the following vegetation types are considered small mammal and insect foraging habitat for Swainson's hawks: alfalfa; fallow fields; beet, tomato, and other low-growing row or field crops; dry-land and irrigated pasture; rice land (when not flooded); and cereal grain crops (including corn after harvest). Because Swainson's hawk is a state-listed species, approximately 0.7-acre of foraging habitat would be removed with project implementation, and the abundance of potential nesting habitat in close proximity to the pipeline alignment, this would be a potentially significant impact, and the following compensatory mitigation would be required. **(Potentially significant)**

Recommended Mitigation BIO-8:

BIO-8A: If construction work occurs after August 30 and ends before March 1 (outside of the breeding season), impacts to the Swainson's hawk would be avoided. Surveys would not be required for work conducted during this part of the year, and no further mitigation for nest disturbance is required.

BIO-8B: *Protocol Surveys:* For work that begins between March 1 and August 30, a qualified biologist with expertise in Swainson's hawk shall conduct protocol surveys of potential nesting habitat within 0.5 mile of any construction activities prior to initiation of such activities. The project applicant shall conduct a protocol-level survey in conformance with the "Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley," Swainson's Hawk Technical Advisory Committee (<https://www.wildlife.ca.gov/conservation/survey-protocols#377281284-birds>) (May 31, 2000) hereby incorporated by reference. This protocol prescribes minimum standards for survey equipment, mode of survey, angle and distance to tree, speed, visual and audible clues, distractions, notes and observations, and timing of surveys.

A written report with the pre-construction survey results must be provided to the Planning Department and CDFW within 30 days of the commencement of construction-related activities. The report shall include: the date of the report, authors and affiliations, contact information, introduction, methods, study location, including map, results, discussion, and literature cited.

If the required protocol surveys show there are no active Swainson's hawk nests within the 0.5-mile of construction activities, then no further mitigation for nest disturbance will be required. If protocol surveys show that there are no active Swainson's hawk nests

within 10 miles of the site, then no further mitigation for foraging impacts will be required.

BIO-8C: *Nest Avoidance:* If nesting Swainson's hawks are observed within 0.5-mile of the project site during the protocol surveys, the project applicant must implement CDFW pre-approved mitigation measures to avoid nest impacts during construction. These measures include:

1. All project-related activities with the potential to cause nest abandonment or forced fledging of young shall be avoided until the young have fledged.
2. If disturbances, habitat conversions, or other project-related activities, that may cause nest abandonment or forced fledging, are necessary, within the nest protection buffer zone (0.5-mile), monitoring of the nest site by a qualified raptor biologist, funded by the project applicant, shall be required to determine if the nest is abandoned. If the nest is abandoned, but the nestlings are still alive, the project proponent is required to fund the recovery and hacking, that is the controlled release of captive reared young, of the nestling.
3. The project applicant shall be required to coordinate with CDFW to determine if project activities with the potential to cause disturbance to nesting Swainson's hawks within the 0.5-mile buffer may proceed with a reduced nest buffer and an approved biological monitor. CDFW may authorize a reduced nest buffer with the presence of a monitoring biologist during construction activities to ensure that the nest is not disturbed.
4. Routine disturbances such as agricultural activities, commuter traffic, and routine maintenance activities within 0.5-mile of an active nest are not prohibited.

BIO-8D: *Foraging Impacts:* If nesting occurrences of Swainson's hawks occur within 10 miles of the permanent impact areas (e.g. the Biogas Upgrade Facilities) mitigation for loss of foraging habitat is required. Generally, CDFW requires mitigation for loss of Swainson's hawk foraging habitat based on the presence of active nests within 10 miles of the project. If an active nest site is identified within ten miles of the Biogas Upgrade Facility Project Site Boundary, the project proponent will be required by CDFW to provide off-site foraging habitat management lands at a specified Mitigation Ratio that is based on nest proximity to the project site, as follows:

Distance from Project Boundary	Mitigation Acreage Ratio*
Within 1 mile	1.00:1**
Between 1 and 5 miles	0.75:1
Between 5 and 10 miles	0.50:1
*Ratio means [acres of mitigation land] to [acres of foraging habitat impacted]. **This ratio shall be 0.5:1 if the acquired lands can be actively managed for prey production.	

CDFW provides options for off-site habitat management by fee title acquisition or conservation easement acquisition with a CDFW-approved management plan, and by

the acquisition of comparable habitat. Mitigation credits may be pursued through a CDFW-approved mitigation bank for Swainson's hawk impacts in Merced County. Go to: www.dfg.ca.gov/habcon/conplan/mitbank/catalogue

The CDFW pre-approved CEQA mitigation measures are found at: "DFG Staff Report Regarding Mitigation for Impacts to Swainson's Hawks in the Central Valley of California," CDFW (http://www.madera-county.com/rma/archives/uploads/1188143775_Document_upload_23w.pdf) (November 8, 1994).

The Merced County Community and Economic Development Department may negotiate Management Conditions that differ from the foregoing CDFW pre-approved mitigation measures if such conditions are consistent with California Fish and Wildlife Commission and the state legislative policy and such conditions are approved by CDFW prior to reaching agreement with the project applicant.

Bats

The Chowchilla bridge (drainage crossing # 8) along the pipeline alignment could provide maternal, daytime roosting habitat for bat species including the pallid bat, a California Species of Special Concern. Depending on the construction methodology employed for the installation of the pipeline across the Chowchilla River (drainage crossing # 8), the project could have an impact on roosting bats (**Potentially significant**)

Recommended Mitigation BIO-9:

BIO-9A: If pipeline installation across the Chowchilla River (drainage crossing # 8) is installed using drilling techniques, and all ground disturbance is located in upland areas more than 100 feet from the bridge, or the alternate pipeline alignment is selected which avoids Chowchilla River crossings, then implementation of the project is expected to have a less than significant impact to bats and no mitigation is required.

BIO-9B: If pipeline installation across the Chowchilla River (drainage crossing # 8) is installed using trench excavation across the waterways within 100 feet of the bridge or the pipeline will span the Chowchilla River and be attached to the bridge, the following measures will be implemented:

1. A preconstruction visual survey shall be conducted to determine presence / absence of roosting bat species at the Chowchilla Bridge (during the maternity season (March 1 - August 31). The survey shall be conducted within 14 days of proposed impacts within 100 feet of the Chowchilla Bridge.
2. If a visual survey indicates that the Chowchilla Bridge is being used by bats; an acoustic bat survey to determine the species of bat utilizing the bridge will be conducted. If the acoustic survey determines that the bats onsite are Pallid bats or any other CSC-listed bat species, CDFW will be notified of the presence of

sensitive bat species and construction within 100 feet of the Chowchilla Bridge will take place outside of the maternal roosting season (March 1 - August 31).

San Joaquin Kit Fox (SJKF)/ American Badger

No suitable sized burrows were observed within the project area during field surveys and it is not expected the species would den within the proposed development footprint for the biogas facility or along the pipeline alignment. However, drainages could constitute migration or dispersal corridors for these species. Additionally, trenches left open overnight could entrap SJKF or American badger moving through the project area. The nearest record of SJKF occurrence is 2.9 miles northeast of the project site (CDFW, 2019). The nearest occurrence of American badger is 0.5-mile from the project site at the Dutchman Creek Mitigation Bank (CDFW, 2019). **(Potentially significant)**

Recommended Mitigation BIO-10:

Because there is the potential for San Joaquin kit fox and American badgers to occur within the project area, the *Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance* (USFWS, 2011) shall be followed. The measures that are listed below have been excerpted from those guidelines and will protect San Joaquin kit fox and American badgers.

- A. Project-related vehicles should observe a daytime speed limit of 20-mph throughout the site in all project areas, except on county roads and state and federal highways; this is particularly important at night when kit foxes are most active. Night-time operations should be minimized to the extent possible. However, if it does occur, then the speed limit should be reduced to 10-mph. Off-road traffic outside of designated project areas should be prohibited.
- B. To prevent inadvertent entrapment of San Joaquin kit foxes or other animals, all excavated, steep-walled holes or trenches more than two feet deep should be covered at the close of each working day by plywood or similar materials. If the trenches cannot be closed, one or more escape ramps constructed of earthen-fill or wooden planks shall be installed. Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals. If at any time a trapped or injured San Joaquin kit fox is discovered, USFWS and CDFW shall be contacted as noted under Measure 13 referenced below.
- C. San Joaquin kit foxes are attracted to den-like structures such as pipes and may enter stored pipes and become trapped or injured. All pipes, culverts, or similar structures with a diameter of four-inches or greater that are stored at the site for one or more overnight periods should be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a San Joaquin kit fox is discovered inside a pipe, that section of pipe should not be moved until the USFWS has been consulted. If necessary, and under the

direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity, until the fox has escaped.

- D. All food-related trash items such as wrappers, cans, bottles, and food scraps should be disposed of in securely closed containers and removed at least once a week from the project site.
- E. No firearms shall be allowed on the project site.
- F. If any San Joaquin kit fox or American badger, or their sign, are detected onsite, dogs and cats shall be kept off the project site to prevent harassment, mortality of San Joaquin kit foxes or American badgers, and/or destruction of their dens.
- G. Use of rodenticides and herbicides in project areas should be restricted. This is necessary to prevent primary or secondary poisoning of San Joaquin kit foxes and the depletion of prey populations on which they depend. All uses of such compounds should observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other state and federal legislation, as well as additional project-related restrictions deemed necessary by the USFWS. If rodent control must be conducted, zinc phosphide should be used because of a proven lower risk to kit fox.
- H. A representative shall be appointed by the project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a San Joaquin kit fox or who finds a dead, injured or entrapped San Joaquin kit fox. The representative will be identified during the employee education program and their name and telephone number shall be provided to the Service.
- I. An employee education program should be conducted for any project that has anticipated impacts to kit fox or other endangered species. The program should consist of a brief presentation by persons knowledgeable in kit fox biology and legislative protection to explain endangered species concerns to contractors, their employees, and military and/or agency personnel involved in the project. The program should include the following: A description of the San Joaquin kit fox and its habitat needs; a report of the occurrence of kit fox in the project area; an explanation of the status of the species and its protection under the Endangered Species Act; and a list of measures being taken to reduce impacts to the species during project construction and implementation. A fact sheet conveying this information should be prepared for distribution to the previously referenced people and anyone else who may enter the project site.
- J. Upon completion of the project, all areas subject to temporary ground disturbance, including storage and staging areas, temporary roads, pipeline corridors, etc. should be recontoured if necessary, and revegetated to promote restoration of the area to pre-project conditions.

- K. In the case of trapped animals, escape ramps or structures should be installed immediately to allow the animal(s) to escape, or the USFWS should be contacted for guidance.
- L. Any contractor, employee, or military or agency personnel who are responsible for inadvertently killing or injuring a San Joaquin kit fox shall immediately report the incident to their representative. This representative shall contact the CDFW immediately in the case of a dead, injured or entrapped kit fox. The CDFW contact for immediate assistance is State Dispatch at (916) 445-0045. They will contact the local warden or Mr. Paul Hoffman, the wildlife biologist at (530) 934-9309. The USFWS should be contacted at the numbers below.
- M. The Sacramento Fish and Wildlife Office and CDFW shall be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during project related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The USFWS contact is the Chief of the Division of Endangered Species, at the addresses and telephone numbers below. The CDFW contact is Mr. Paul Hoffman at 1701 Nimbus Road, Suite A, Rancho Cordova, California 95670, (530) 934-9309.
- N. New sightings of San Joaquin kit fox shall be reported to the CNDDDB. A copy of the reporting form and a topographic map clearly marked with the location of where the kit fox was observed should also be provided to the USFWS at the address below.
- O. Any project-related information required by the USFWS or questions concerning the above conditions or their implementation may be directed in writing to the U.S. Fish and Wildlife Service at: Endangered Species Division, 2800 Cottage Way, Suite W2605, Sacramento, California, 95825-1846, (916) 414-6620 or (916) 414-6600.

Sensitive Natural Community

Northern claypan vernal pool is a sensitive natural community known to occur in the region. There are several undeveloped grassland areas adjacent to the proposed pipeline alignment that support vernal pools and swales. These areas are also federally designated Critical Habitat for federally listed species including Colusa grass, vernal pool fairy shrimp, and vernal pool tadpole shrimp. See the vernal pool branchiopod and plant measures outlined above for avoidance and minimization of impacts to this sensitive natural community. **(Potentially Significant)**

Wetlands

The proposed pipeline alignment includes as many as 39 drainage crossings, consisting of both stream crossings and agricultural ditch crossings. These crossings could

potentially impact water and/or wetland regulated by the Corps under Section 404 of the Clean Water Act, the RWQCB under Section 401 of the Clean Water Act, and the CDFW under Section 1600 of the California Fish and Game Code. Biological reconnaissance surveys of the proposed project site and pipeline alignment identified many drainage crossings including primarily crossings of intermittent streams or agricultural ditches and canals. A preliminary aquatic resources delineation was not conducted as part of the reconnaissance surveys, and the proposed project may include design measures to avoid impacts to waters and wetlands and these drainage crossings (e.g. installation of the pipeline on bridges or directional drilling to install the pipeline below the drainage). **(Potentially significant)**

Depending on the construction methodology employed for the installation of the pipeline at each of these drainage crossings, some of the following authorizations may be required:

- Clean Water Act Section 404 Discharge/Fill Permit by the Corps;
- Clean Water Act Section 401 Water Quality Certification by the CVRWQCB; and,
- Fish and Game Code Section 1600 Lake/Streambed Alteration Agreement with CDFW.

Recommended Mitigation BIO-12:

Impacts to waters and/or wetlands may be reduced by project design avoidance and minimization measures such as: a) use of existing bridge to span channel to eliminate impact within jurisdictional areas; b) drill under streams and ditches to install new pipelines; or, c) realignment of pipelines to avoid jurisdictional areas. Once the pipeline alignment has been determined, construction methodology defined, and precise impact areas and extents identified, the following measures will be implemented:

BIO-12A: The applicant shall conduct a jurisdictional delineation of WoUS on the project site to confirm the limits of jurisdictional areas and potential project impacts. The delineation shall be verified by the Corps. The verified delineation will provide the applicant with the extent of federal jurisdiction within the defined Project Study Area boundary and the impact acreage necessary for preparing a WoUS/Wetland Mitigation Plan and/or permit application if impacts to jurisdictional areas cannot be avoided, or the jurisdictional boundaries to further refined the project to avoid impact to jurisdictional areas. If the Project is able to avoid impact to jurisdictional waters and wetlands based on the verified delineation, no further mitigation is required.

BIO-12B: If project impacts to federal and state jurisdictional areas are identified and unavoidable, the applicant shall obtain all necessary permits for impacts to WoUS and wetlands from the Corps and the RWQCB and/or for impacts to the Streambed from

CDFW prior to project implementation. The project must comply with all permit conditions. Compensatory mitigation, if required, must be consistent with the Corps' standards pertaining to mitigation type, location, and ratios, but will be accomplished with a minimum of 1:1 replacement ratio.

12B-1: If compensatory mitigation is needed, the applicant may satisfy all or a portion of WoUS and wetlands mitigation through the purchase of “credits” at a mitigation bank approved by the Corps, RWQCB, and/or CDFW for compensatory mitigation of impacts to hydrologically similar WoUS, or through other means, such as on- or off-site wetland creation, conservation easement, contribution to approved in-lieu habitat fund, etc. The mitigation plan must be approved by the permitting agencies.

Wildlife movement and nursery sites

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

The project area consists primarily of agricultural lands. Intensively cultivated fields and dairy farms are not suitable wildlife corridors or nursery sites. The creeks and drainages provide potential wildlife movement corridors and potential nursery sites. Riparian habitat along the creeks within the project site are often discontinuous, but still serves as a preferred movement corridor for wildlife. Additionally, the Grasslands Wildlife Management Area (GWMA), which consists of two national wildlife refuges, four state wildlife areas, and private conservation lands provide extensive wetland habitat used as nursery sites or a stopover for avian species during migration. This area is an extremely important component of the Pacific Flyway. The GWMA is located approximately 10-15 miles west of the proposed project site. Due to the distance between the project site and the conservation lands associated with the GWMA and because construction of the pipelines at creek crossing locations would result in only

temporary impacts that would be restored to pre-project conditions upon completion of the project, the project would not interfere with wildlife movement or impede the use of wildlife nursery sites. **(No impact)**

Conflict with policies or ordinances

Implementation of the proposed Biogas Upgrade Facility and Pipeline Project would not conflict with any Merced County policies or ordinances pertaining to biological resources. **(No impact)**

Conflict with a Conservation Plan

The proposed Biogas Upgrade Facility and Pipeline Project is not located within an area covered by an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. **(No impact)**

Cumulative Biological Impacts

The proposed Biogas Upgrade Facility and Pipeline Project, which involves the conversion of a small area (0.7-acre) of cropland to developed land, would contribute to the cumulative loss of foraging habitat for songbirds and raptors in the Merced County area. In the San Joaquin Valley, this loss of habitat is considered cumulatively significant, unavoidable and unmitigable. **(Cumulatively significant, unavoidable and unmitigable loss of foraging habitat).**

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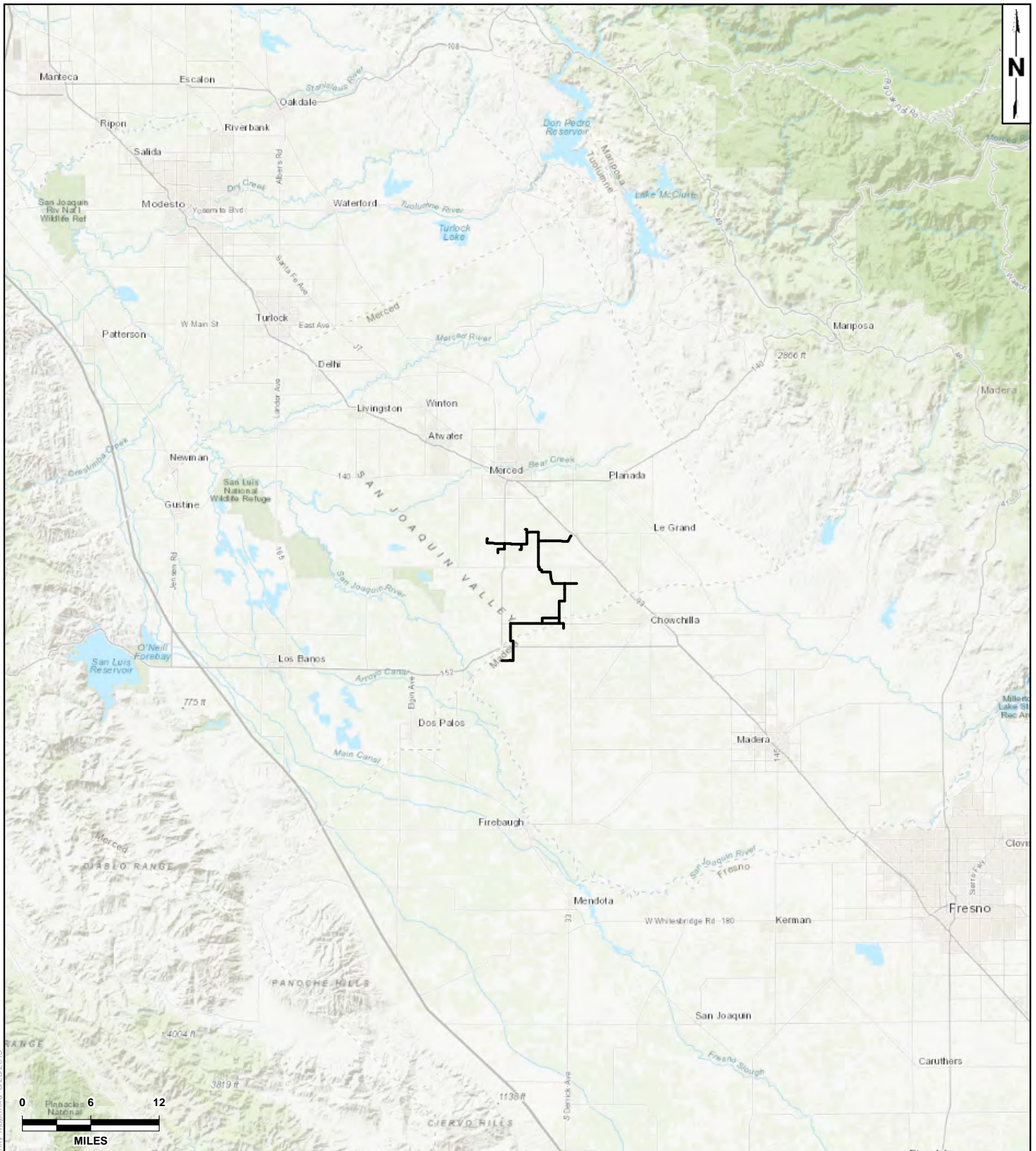
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FIGURES



LEGEND:
 Project Location

MAP EXTENT:



Source: Esri Online Topo Basemap
 Coordinate System: NAD 1983 StatePlane California III FIPS 0403 Feet
 Notes: This map was created for informational and display purposes only.

padre
 associates, inc.
 ENGINEERS, GEOLOGISTS &
 ENVIRONMENTAL SCIENTISTS

PROJECT NAME: MERCED BIOGAS UPGRADE FACILITY AND PIPELINE PROJECT MERCED AND MADREA COUNTY, CA	
PROJECT NUMBER: 1802-3131	DATE: May 2019

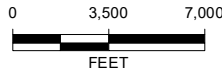
PROJECT VICINITY MAP

FIGURE
1



LEGEND:

- Proposed Pipeline Alignment
- Proposed Alternative Pipeline Alignment
- National Wetland Inventory (NWI) Data
- Biological Resources**
- Agricultural Ditch or Canal Crossing
- Natural Drainage Crossing (Creek or Swale)
- Vernal Pool
- Blue Elderberry Shrub
- Swainson's Hawk Nest



Source: Esri Online Imagery Basemap, BioGas Engineering, USFWS
Coordinate System: NAD 1983 StatePlane California III FIPS 0403 Feet
Notes: This map was created for informational and display purposes only.



PROJECT NAME: MERCED BIOGAS UPGRADE FACILITY AND PIPELINE PROJECT MERCED AND MADERA COUNTY, CA	
PROJECT NUMBER: 1802-3131	DATE: September 2019

**BIOLOGICAL
RESOURCES MAP**

**FIGURE
2**

FIGURE 3

SPECIAL-STATUS SPECIES MAP

**CNDDDB GEOSPATIAL DATA IS CONFIDENTIAL – FIGURE
AVAILABLE UPON REQUEST**



Photo 1. View of the proposed pipeline crossing over agricultural canal north of East Jefferson Road (drainage crossing #3). Canal is concrete lined at crossing location.



Photo 2. View of the southernmost proposed pipeline crossing of the Chowchilla River on Washington Road (drainage crossing #6).



Photo 3. View of northernmost proposed pipeline crossing of the Chowchilla River on Ivy Avenue (drainage crossing #8).



Photo 4. View of proposed pipeline crossing over a large canal with a bridge that supports nesting cliff swallows (drainage crossing #19).



Photo 5. View of the proposed pipeline crossing on Dutchman Creek at Healey Road (drainage crossing #23).



Photo 6. View of riparian corridor on Dutchman Creek along east side of Healy Road.



Photo 7. View of a channel / swale crossing on Healy Road (drainage crossing #26).



Photo 8. View of vernal pool grasslands west of Healy Road. Road shoulder supports ruderal vegetation and disked firebreak occurs just inside fence line.



Photo 9. View of the proposed pipeline crossing at the El Nido Canal (drainage crossing #30).



Photo 10. View of potential Swainson's hawk nesting habitat in eucalyptus grove along the proposed pipeline alignment.



Photo 11. View of willow tree containing a Swainson's hawk nest adjacent to the proposed pipeline alignment (location identified on Figure 2).



Photo 12. View of elderberry shrub adjacent to the proposed pipeline alignment (location identified in Figure 2).



Photo 13. View of a vernal pool feature near the fence line north of Whitegate Drive (identified as vernal pool #1 in Figure 2).



Photo 14. View of a vernal pool feature at the fence line on south side of Rahilly Road (identified as vernal pool 2A in Figure 2).



Photo 15. View of a vernal pool feature near the fence line south of Rahilly Road (identified as vernal pool 2B in Figure 2).



Photo 16. View of a typical roadside agricultural ditch.



Photo 17. View of a typical agricultural pond. Some ponds were larger and had slightly more vegetation on the perimeter or within the pond.



Photo 18. View of northeastern location for proposed Biogas Upgrade Facility in northeastern corner of an agricultural field. Highway 99 visible in background.

APPENDIX A

BIOLOGICAL RESOURCE POLICIES FROM THE 2030 MERCED COUNTY GENERAL PLAN

BIOLOGICAL RESOURCES POLICIES FROM THE 2030 MERCED COUNTY GENERAL PLAN ADOPTED DECEMBER 10, 2013	
POLICY	DESCRIPTION
Land Use Element	
LU-1.13	Wetland Habitat Area Separation (RDR) Do not allow rural commercial and industrial uses, secondary residences, and ancillary agricultural uses within a half mile of either State or Federal wildlife refuges, or managed wetlands within the Grasslands Ecological Area when it is determined by the County that there could be an unmitigated impact to natural resources or habitat.
LU-2.4:	Secondary Uses in Agricultural Areas (RDR) Except as otherwise provided by law, limit ancillary uses in Agricultural and Foothill Pasture areas to include secondary single-family residences, farm worker housing, agricultural tourism related uses, and agricultural support services, provided that such uses do not interfere with historic agricultural practices, result in adverse health risks, or conflict with sensitive habitats or other biological resources.
LU-2.7	Rural Energy Production (RDR/SO) Allow the development of ethanol production, co-generation, solar, and wind facilities in Agricultural and Foothill Pasture areas that produce renewable energy, support agricultural-related industries, and/or use agricultural waste, provided that such uses do not interfere with agricultural practices or conflict with sensitive habitats or other biological resources.
LU-3.4:	New Rural Residential Center Prohibition (RDR) Prohibit the creation of any new, or the expansion of any existing, Rural Residential Centers in the unincorporated county.
LU-4.7:	Wildlife Refuge Separation (RDR) Do not allow rural commercial and industrial uses, secondary residences, and ancillary agricultural uses within a half mile of either State or Federal wildlife refuges, or managed wetlands within the Grasslands Ecological Area when it is determined by the County that there could be an unmitigated impact to natural resources or habitat.
LU-10.14:	Consultation with Grassland Resources Regional Working Group (IGC) Consult with the Grasslands Resources Regional Working Group during project review and conservation planning efforts for projects within the boundaries of the Grasslands Focus Area.
LU-10.12:	Consultation with State and Federal Agencies (IGC) Continue to consult with applicable State and Federal regulatory agencies during project review and permitting activities.
Natural Resources Element	
NR-1.1:	Habitat Protection (RDR/PSR) Identify areas that have significant long-term habitat and wetland values including riparian corridors, wetlands, grasslands, rivers and waterways, oak woodlands, vernal pools, and wildlife movement and migration corridors, and provide information to landowners.
NR-1.2	Protected Natural Lands (RDR/PSR) Identify and support methods to increase the acreage of protected natural lands and special habitats, including but not limited to, wetlands, grasslands, vernal pools, and wildlife movement and migration corridors, potentially through the use of conservation easements.
NR-1.3	Forest Protection (SO) Preserve forests, particularly oak woodlands, to protect them from degradation, encroachment, or loss.
NR-1.4	Important Vegetative Resource Protection (SO) Minimize the removal of vegetative resources which stabilize slopes, reduce surface water runoff, erosion, and sedimentation.

BIOLOGICAL RESOURCES POLICIES FROM THE 2030 MERCED COUNTY GENERAL PLAN ADOPTED DECEMBER 10, 2013	
POLICY	DESCRIPTION
NR-1.5	Policy NR-1.5: Wetland and Riparian Habitat Buffer (PSR/RDR) Identify wetlands and riparian habitat areas and designate a buffer zone around each area sufficient to protect them from degradation, encroachment, or loss.
NR-1.6	Policy NR-1.6: Terrestrial Wildlife Mobility (SO) Encourage property owners within or adjacent to designated habitat connectivity corridors that have been mapped or otherwise identified by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service to manage their lands in accordance with such mapping programs. In the planning and development of public works projects that could physically interfere with wildlife mobility, the County shall consult with the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service to determine the potential for such effects and implement any feasible mitigation measures.
NR-1.7	Policy NR-1.7: Agricultural Practices (SO) Encourage agricultural, commercial, and industrial uses and other related activities to consult with environmental groups in order to minimize adverse effects to important or sensitive biological resources.
NR-1.8	Policy NR-1.8: Use of Native Plant Species for Landscaping (SO) Encourage the use of native plant species in landscaping, and, where the County has discretion, require the use of native plant species for landscaping.
NR-1.9	Policy NR-1.9: Rural to Urban Redesignations (MPSP) Carefully consider the potential impacts on significant habitats from new development when redesignating land from a rural to an urban use.
NR-1.10	Policy NR-1.10: Aquatic and Waterfowl Habitat Protection (MPSP) Cooperate with local, State, and Federal water agencies in their efforts to protect significant aquatic and waterfowl habitats against excessive water withdrawals or other activities that would endanger or interrupt normal migratory patterns or aquatic habitats.
NR-1.11	Policy NR-1.11: On-Going Habitat Protection and Monitoring (PSR) Cooperate with local, State, and Federal agencies to ensure that adequate on-going protection and monitoring occurs adjacent to rare and endangered species habitats or within identified significant wetlands.
NR-1.12	Policy NR-1.12: Wetland Avoidance (RDR/PSR/MPSP) Avoid or minimize loss of existing wetland resources by careful placement and construction of any necessary new public utilities and facilities, including roads, railroads, high speed rail, sewage disposal ponds, gas lines, electrical lines, and water/wastewater systems.
NR-1.13	Policy NR-1.13: Wetland Setbacks (RDR) Require an appropriate setback, to be determined during the development review process, for developed and agricultural uses from the delineated edges of wetlands.
NR-1.14	Policy NR-1.14: Temporary Residential Uses (RDR) Ensure that buildings and structures approved for temporary residential use in significant wetland areas are not converted to permanent residential uses.
NR-1.15	Policy NR-1.15: Urban Forest Protection and Expansion (SO/MPSP) Protect existing trees and encourage the planting of new trees in existing communities. Adopt an Oak Woodland Ordinance that requires trees larger than a specified diameter that are removed to accommodate development be replaced at a set ratio.
NR-1.16	Policy NR-1.16: Hazardous Waste Residual Repository Location (RDR) Require new hazardous waste residual repositories (e.g., contaminated soil facilities) to be located at least a mile from significant wetlands, designated sensitive species habitat, and State and Federal wildlife refuges and management areas.

BIOLOGICAL RESOURCES POLICIES FROM THE 2030 MERCED COUNTY GENERAL PLAN ADOPTED DECEMBER 10, 2013	
POLICY	DESCRIPTION
NR-1.17	Policy NR-1.17: Agency Coordination (MPSP/IGC/JP) Consult with private, local, State, and Federal agencies to assist in the protection of biological resources and prevention of degradation, encroachment, or loss of resources managed by these agencies.
NR-1.18	Policy NR-1.18: San Joaquin River Restoration Program Support (MPSP/SO) Monitor the San Joaquin River Restoration Program efforts to ensure protection of landowners, local water agencies, and other third parties.
NR-1.19	Policy NR-1.19: Merced River Restoration Program Support (MPSP/SO) Support the restoration efforts for the Merced River consistent with the Merced River Corridor Restoration Plan.
NR-1.20	Policy NR-1.20: Conservation Easements (SO/IGC/JP) Encourage property owners to work with land trusts and State and Federal agencies to pursue voluntary conservation easements.
NR-1.21	Policy NR-1.21: Special Status Species Surveys and Mitigation (RDR/SO/IGC) Incorporate the survey standards and mitigation requirements of state and federal resource management agencies for use in the County's review processes for both private and public projects.
Program NR-C	GIS Mapping (PSR, PI) Update the existing Geographical Information System to include current protected or designated habitat spatial information, including wildlife refuges, Grasslands Focus Area (GFA) and Grasslands Ecological Area (GEA) boundaries, mitigation banks, Williamson Act parcels, Habitat Connectivity Corridors, priority riparian corridors, and habitat preserves. Implements Which Policies: NR-1.1, NR-1.2, NR-1.5
Program NR-D	Sensitive Habitat Guidelines (MPSP) Prepare and adopt guidelines and thresholds of significance pursuant to State CEQA Guidelines Section 15064.7 for evaluating project impacts to identified sensitive habitat, including a significance criterion for potential effects on habitat values within Grasslands Focus Area (GFA) boundaries. The guidelines shall be made available for public comment prior to final adoption. For discretionary projects within the boundaries of the GFA, the guidelines shall require the preparation of an appropriate project-level CEQA document with a review and evaluation of biological resources impacts at a level of detail commensurate with the proposed project's effects to such resources in addition to implementation of the Open Space Development Review System. For non-discretionary or ministerial projects within the GFA boundaries, the Guidelines shall require the County to implement the Open Space Development Review System, including referral to GRRWG (Grasslands Resources Regional Working Group) as appropriate. The guidelines shall recommend measures such as buffers, clustered development, project design alterations, and transferable development rights, sufficient to protect sensitive habitats from encroachment. Implements Which Policies: NR-1.1, NR-1.2, NR-1.3, NR-1.4, NR-1.5, NR-1.7, NR-1.10, NR-1.12, NR-1.13, NR-1.14, NR-1.17, NR-1.21
Program NR-E	Biological Resources Review Requirements (RDR/MPSP/IGC) County biological resources review requirements should identify state and federal biological significance thresholds and species-specific survey guidelines, and should include types of survey reports, surveyor qualifications, countywide habitat classifications, foraging crop habitat values, approved mitigation banks, and procedures to facilitate pre-consultation with state and federal agencies. State and federal mitigation standards should be considered as minimum County standards. Submit results of biological resources assessments, surveys and proposed mitigation measures to the appropriate state and federal agency as early in the review process as practicable, to expedite and ensure regulatory consistency among local, regional, state, and federal agencies with jurisdiction over such resources. Implements Which Policies: NR-1.1, NR-1.2, NR-1.3, NR-1.4, NR-1.5, NR-1.7, NR-1.10, NR-1.12, NR-1.13, NR-1.14, NR-1.17, NR-1.21.

**BIOLOGICAL RESOURCES POLICIES FROM THE 2030 MERCED COUNTY
GENERAL PLAN ADOPTED DECEMBER 10, 2013**

POLICY	DESCRIPTION
Program NR-F	<p>Ongoing Inventory of Open Space Resources (MPSP/PSR/SO)</p> <p>The County shall maintain an open space and conservation inventory to delineate those areas that have significant open space or conservation value. Those areas include agricultural lands, native pasture lands, parks and recreation areas, historic resources, scenic highways, wetland, wildlife and vegetation habitat resources, mineral and energy resource areas, fire hazard areas, geologic and flood hazard areas, noise impacted areas and other resource and hazard areas. Implements Which Policies: AG-2.1, AG-2.8, AG-2.9, AG-4.5, NR-1.1, NR-1.2, NR-1.7, NR-1.11, NR-3.4, NR-4.1, NR-4.2, HS-1.1, HS-1.3, HS-1.6, HS-1.7, HS-2.6, HS-2.7, HS-2.9, HS-2.10, HS-2.13, HS-3.8, HS-7.1, HS-7.3.</p>
Program NR-G	<p>Open Space Development Review System (RDR/IGC)</p> <p>The Open Space Development Review System (OSDRS) is one of the primary implementing tools of the County's Open Space Action Plan. Through such a review system, daily planning and permit approval decisions should reflect and implement the adopted policies and development standards of the 2030 General Plan.</p> <p>Other federal, state and local agencies also have responsibility for the protection, maintenance and development of Open Space resources. The referral of projects and consultation with appropriate responsible and trustee agencies is part of the program.</p> <p>The system is intended for utilization both by developers in the design and building of projects, and by planners and decision makers in review of projects for conformance with County policy. The system is basically a process for assessing the appropriateness of proposed developments, including their compatibility with surrounding environmental constraints and resources. The general review system will be organized in a five step process. This process will be implemented in conformance with the Sensitive Habitat Guidelines developed under Implementation Program NR-D of this Element.</p> <p>This system of review will be required of all projects for which a building permit or other entitlement is necessary such as a land division or use permit, as well as during policy and ordinance amendment. The Community and Economic Development Department has developed a five-step process consisting of:</p> <ol style="list-style-type: none"> 1. Basic Land Use Category, Zone Code Consistency, and Community Service Availability Determination 2. Open Space Inventory Map and Data Base Review 3. Demonstration by the permit applicant of consultation with the California Department of Fish and Wildlife, the Central Valley Regional Water Quality Control Board, the State Water Resources Control Board, the U.S. Fish and Wildlife Service, National Marine Fisheries Service, and/or the Army Corps of Engineers, and any water purveyor serving the project area, as appropriate, to evaluate resources that could be affected by the proposed action; and proof of issuance of permits by these agencies, as required 4. Environmental Determination 5. Land Use and Sensitive Resource Compatibility Determination. <p>Implements Which Policies: NR-1.1, NR-1.2, NR-1.3, NR-1.4, NR-1.5, NR-1.7, NR-1.10, NR-1.12, NR-1.13, NR-1.14, NR-1.17, NR-1.21.</p>
Program NR-I	<p>Agricultural Education Program (SO/IGC/PI)</p> <p>In a coordinated effort between the Department of Community and Economic Development and the County Agricultural Commissioner, the County shall produce a brochure or publication outlining the responsibilities of landowners in managing and preserving sensitive environmental resources on their properties. The brochure shall set forth state and federal regulatory requirements and permitting procedures, state and federal agency contact information, and statutory penalties for noncompliance, including the loss of commodity support and other assistance offered through the USDA. The brochures will be made available at the offices of the County departments cited above, the County Building Division counter, posted on the County's website, and provided to the various Resource Conservation Districts throughout the county for additional distribution.</p> <p>Implements Which Policies: AG-1.10, AG-4.6, NR-1.1, NR-1.2, NR-1.3, NR-1.4, NR-1.5, NR-1.7, NR-1.10, NR-1.12, NR-1.13, NR-1.14, NR-1.17, NR-1.21.</p>

APPENDIX B

USFWS SPECIES LIST



United States Department of the Interior



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

In Reply Refer To:

February 19, 2019

Consultation Code: 08ESMF00-2019-SLI-1087

Event Code: 08ESMF00-2019-E-03431

Project Name: Merced Dairy Digester Pipeline

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

To Whom It May Concern:

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

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

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

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

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

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

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

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

Attachment(s):

- Official Species List

Official Species List

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

This species list is provided by:

Sacramento Fish And Wildlife Office

Federal Building

2800 Cottage Way, Room W-2605

Sacramento, CA 95825-1846

(916) 414-6600

Project Summary

Consultation Code: 08ESMF00-2019-SLI-1087

Event Code: 08ESMF00-2019-E-03431

Project Name: Merced Dairy Digester Pipeline

Project Type: AGRICULTURE

Project Description: The project involves the construction of a centralized dairy digester biogas cleanup facility and the construction of a biogas pipeline approximately 15 inches in diameter and 33.8 miles long.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/37.14726711470626N120.44042712438136W>



Counties: Madera, CA | Merced, CA

Endangered Species Act Species

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

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

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

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

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Fresno Kangaroo Rat <i>Dipodomys nitratoideis exilis</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5150 Species survey guidelines: https://ecos.fws.gov/ipac/guideline/survey/population/37/office/11420.pdf	Endangered
San Joaquin Kit Fox <i>Vulpes macrotis mutica</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2873	Endangered

Reptiles

NAME	STATUS
Blunt-nosed Leopard Lizard <i>Gambelia silus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/625	Endangered
Giant Garter Snake <i>Thamnophis gigas</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
<p>California Red-legged Frog <i>Rana draytonii</i></p> <p>There is final critical habitat for this species. Your location is outside the critical habitat.</p> <p>Species profile: https://ecos.fws.gov/ecp/species/2891</p>	Threatened
<p>California Tiger Salamander <i>Ambystoma californiense</i></p> <p>Population: U.S.A. (Central CA DPS)</p> <p>There is final critical habitat for this species. Your location is outside the critical habitat.</p> <p>Species profile: https://ecos.fws.gov/ecp/species/2076</p>	Threatened

Fishes

NAME	STATUS
<p>Delta Smelt <i>Hypomesus transpacificus</i></p> <p>There is final critical habitat for this species. Your location is outside the critical habitat.</p> <p>Species profile: https://ecos.fws.gov/ecp/species/321</p>	Threatened

Insects

NAME	STATUS
<p>Valley Elderberry Longhorn Beetle <i>Desmocerus californicus dimorphus</i></p> <p>There is final critical habitat for this species. Your location is outside the critical habitat.</p> <p>Species profile: https://ecos.fws.gov/ecp/species/7850</p> <p>Habitat assessment guidelines:</p> <p>https://ecos.fws.gov/ipac/guideline/assessment/population/436/office/11420.pdf</p>	Threatened

Crustaceans

NAME	STATUS
<p>Conservancy Fairy Shrimp <i>Branchinecta conservatio</i></p> <p>There is final critical habitat for this species. Your location is outside the critical habitat.</p> <p>Species profile: https://ecos.fws.gov/ecp/species/8246</p>	Endangered
<p>Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i></p> <p>There is final critical habitat for this species. Your location overlaps the critical habitat.</p> <p>Species profile: https://ecos.fws.gov/ecp/species/498</p>	Threatened
<p>Vernal Pool Tadpole Shrimp <i>Lepidurus packardii</i></p> <p>There is final critical habitat for this species. Your location overlaps the critical habitat.</p> <p>Species profile: https://ecos.fws.gov/ecp/species/2246</p>	Endangered

Flowering Plants

NAME	STATUS
Colusa Grass <i>Neostapfia colusana</i> There is final critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5690	Threatened

Critical habitats

There are 3 critical habitats wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Colusa Grass <i>Neostapfia colusana</i> https://ecos.fws.gov/ecp/species/5690#crithab	Final
Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i> https://ecos.fws.gov/ecp/species/498#crithab	Final
Vernal Pool Tadpole Shrimp <i>Lepidurus packardii</i> https://ecos.fws.gov/ecp/species/2246#crithab	Final

APPENDIX C

CNDDB QUERY RESULTS



Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database



Query Criteria: Quad< IS /span>(Atwater (3712035)< OR /span>Merced (3712034)< OR /span>Planada (3712033)< OR /span>Sandy Mush (3712025)< OR /span>El Nido (3712024)< OR /span>Plainsburg (3712023)< OR /span>Santa Rita Bridge (3712015)< OR /span>Bliss Ranch (3712014)< OR /span>Chowchilla (3712013)< OR /span>Turner Ranch (3712026)< OR /span>Delta Ranch (3712016))
< AND /span>Taxonomic Group< OR /span>Fish< OR /span>Amphibians< OR /span>Reptiles< OR /span>Birds< OR /span>Mammals< OR /span>Mollusks< OR /span>Arachnids< OR /span>Crustaceans< OR /span>Insects< OR /span>Ferns< OR /span>Gymnosperms< OR /span>Monocots< OR /span>Dicots< OR /span>Lichens< OR /span>Bryophytes)

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Agelaius tricolor</i> tricolored blackbird	G2G3 S1S2	None Candidate Endangered	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_EN-Endangered NABCI_RWL-Red Watch List USFWS_BCC-Birds of Conservation Concern	95 294	952 S:27	1	2	0	0	3	21	12	15	24	3	0
<i>Ambystoma californiense</i> California tiger salamander	G2G3 S2S3	Threatened Threatened	CDFW_WL-Watch List IUCN_VU-Vulnerable	105 325	1185 S:16	1	6	0	1	0	8	3	13	16	0	0
<i>Athene cunicularia</i> burrowing owl	G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	130 275	1976 S:10	3	4	2	0	0	1	0	10	10	0	0
<i>Atriplex cordulata</i> var. <i>cordulata</i> heartscale	G3T2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	95 200	66 S:8	0	1	0	0	3	4	8	0	5	0	3
<i>Atriplex minuscula</i> lesser saltscale	G2 S2	None None	Rare Plant Rank - 1B.1	100 200	52 S:6	0	0	0	0	2	4	5	1	4	0	2
<i>Atriplex persistens</i> vernal pool smallscale	G2 S2	None None	Rare Plant Rank - 1B.2	95 145	41 S:6	2	1	0	0	1	2	3	3	5	1	0
<i>Atriplex subtilis</i> subtle orache	G1 S1	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	200 200	24 S:3	0	0	0	0	2	1	3	0	1	0	2
<i>Bombus crotchii</i> Crotch bumble bee	G3G4 S1S2	None None		100 100	234 S:1	0	0	0	0	0	1	1	0	1	0	0



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Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Branchinecta conservatio</i> Conservancy fairy shrimp	G2 S2	Endangered None	IUCN_EN-Endangered	85 320	43 S:8	2	0	0	0	0	6	1	7	8	0	0
<i>Branchinecta lynchi</i> vernal pool fairy shrimp	G3 S3	Threatened None	IUCN_VU-Vulnerable	85 340	767 S:46	20	7	1	0	0	18	5	41	46	0	0
<i>Branchinecta mesoatlantica</i> midvalley fairy shrimp	G2 S2S3	None None		130 305	128 S:23	2	0	0	0	0	21	3	20	23	0	0
<i>Branta hutchinsii leucopareia</i> cackling (=Aleutian Canada) goose	G5T3 S3	Delisted None		100 100	19 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Brasenia schreberi</i> watershield	G5 S3	None None	Rare Plant Rank - 2B.3	170 170	43 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Buteo regalis</i> ferruginous hawk	G4 S3S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	175 290	107 S:2	0	0	1	0	0	1	0	2	2	0	0
<i>Buteo swainsoni</i> Swainson's hawk	G5 S3	None Threatened	BLM_S-Sensitive IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	90 290	2469 S:46	9	12	3	3	1	18	14	32	45	1	0
<i>Castilleja campestris var. succulenta</i> succulent owl's-clover	G4?T2T3 S2S3	Threatened Endangered	Rare Plant Rank - 1B.2	185 300	95 S:14	0	5	0	0	0	9	0	14	14	0	0
<i>Charadrius montanus</i> mountain plover	G3 S2S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened NABCI_RWL-Red Watch List USFWS_BCC-Birds of Conservation Concern	275 275	90 S:1	1	0	0	0	0	0	0	1	1	0	0
<i>Chloropyron molle ssp. hispidum</i> hispid salty bird's-beak	G2T1 S1	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive	95 100	35 S:4	1	1	0	0	0	2	4	0	4	0	0
<i>Circus hudsonius</i> northern harrier	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	-3 217	53 S:2	0	2	0	0	0	0	0	2	2	0	0



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California Department of Fish and Wildlife

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Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Cryptantha hooveri</i> Hoover's cryptantha	GH SH	None None	Rare Plant Rank - 1A	175 175	4 S:1	0	0	0	0	1	0	1	0	0	1	0
<i>Delphinium recurvatum</i> recurved larkspur	G2? S2?	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	120 135	100 S:3	0	0	0	0	2	1	3	0	1	0	2
<i>Downingia pusilla</i> dwarf downingia	GU S2	None None	Rare Plant Rank - 2B.2	273 273	132 S:1	0	1	0	0	0	0	0	1	1	0	0
<i>Emys marmorata</i> western pond turtle	G3G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable USFS_S-Sensitive	100 175	1357 S:4	0	2	1	0	0	1	1	3	4	0	0
<i>Eryngium racemosum</i> Delta button-celery	G1 S1	None Endangered	Rare Plant Rank - 1B.1	85 100	26 S:4	1	1	0	0	0	2	2	2	4	0	0
<i>Eryngium spinosepalum</i> spiny-sepaled button-celery	G2 S2	None None	Rare Plant Rank - 1B.2	200 325	108 S:9	2	0	0	0	0	7	0	9	9	0	0
<i>Eumops perotis californicus</i> western mastiff bat	G5T4 S3S4	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern WBWG_H-High Priority	180 180	296 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Euphorbia hooveri</i> Hoover's spurge	G1 S1	Threatened None	Rare Plant Rank - 1B.2	95 95	29 S:1	0	1	0	0	0	0	1	0	1	0	0
<i>Gambelia sila</i> blunt-nosed leopard lizard	G1 S1	Endangered Endangered	CDFW_FP-Fully Protected IUCN_EN-Endangered	120 120	329 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Gratiola heterosepala</i> Boggs Lake hedge-hyssop	G2 S2	None Endangered	Rare Plant Rank - 1B.2 BLM_S-Sensitive	305 305	99 S:1	1	0	0	0	0	0	0	1	1	0	0
<i>Haliaeetus leucocephalus</i> bald eagle	G5 S3	Delisted Endangered	BLM_S-Sensitive CDF_S-Sensitive CDFW_FP-Fully Protected IUCN_LC-Least Concern USFS_S-Sensitive USFWS_BCC-Birds of Conservation Concern	270 270	327 S:1	0	0	0	0	0	1	1	0	1	0	0



Summary Table Report

California Department of Fish and Wildlife

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Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Lagophylla dichotoma forked hare-leaf	G2 S2	None None	Rare Plant Rank - 1B.1		7 S:1	0	0	0	0	0	1	1	0	1	0	0
Lasiurus cinereus hoary bat	G5 S4	None None	IUCN_LC-Least Concern WBWG_M-Medium Priority		238 S:2	0	0	0	0	0	2	2	0	2	0	0
Lepidurus packardii vernal pool tadpole shrimp	G4 S3S4	Endangered None	IUCN_EN-Endangered	85 340	325 S:24	4	5	1	1	0	13	4	20	24	0	0
Linderiella occidentalis California linderiella	G2G3 S2S3	None None	IUCN_NT-Near Threatened	85 355	437 S:25	0	2	1	0	0	22	4	21	25	0	0
Lithobates pipiens northern leopard frog	G5 S2	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	100 100	22 S:1	0	0	0	0	0	1	1	0	1	0	0
Mylopharodon conocephalus hardhead	G3 S3	None None	CDFW_SSC-Species of Special Concern USFS_S-Sensitive	90 90	32 S:1	0	0	0	0	0	1	1	0	1	0	0
Myotis yumanensis Yuma myotis	G5 S4	None None	BLM_S-Sensitive IUCN_LC-Least Concern WBWG_LM-Low-Medium Priority	215 233	265 S:2	0	2	0	0	0	0	0	2	2	0	0
Navarretia nigelliformis ssp. radians shining navarretia	G4T2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	200 320	81 S:14	2	3	2	0	0	7	0	14	14	0	0
Navarretia prostrata prostrate vernal pool navarretia	G2 S2	None None	Rare Plant Rank - 1B.1	90 90	60 S:1	1	0	0	0	0	0	0	1	1	0	0
Neostapfia colusana Colusa grass	G1 S1	Threatened Endangered	Rare Plant Rank - 1B.1	95 350	64 S:14	1	4	5	0	3	1	8	6	11	2	1
Oncorhynchus mykiss irideus pop. 11 steelhead - Central Valley DPS	G5T2Q S2	Threatened None	AFS_TH-Threatened		31 S:1	0	0	0	1	0	0	0	1	1	0	0
Orcuttia inaequalis San Joaquin Valley Orcutt grass	G1 S1	Threatened Endangered	Rare Plant Rank - 1B.1	200 350	47 S:9	1	3	4	0	1	0	3	6	8	0	1
Orcuttia pilosa hairy Orcutt grass	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1	175 175	34 S:1	0	0	0	0	1	0	1	0	0	0	1



Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database



Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Phacelia ciliata</i> var. <i>opaca</i> Merced phacelia	G5TH SH	None None	Rare Plant Rank - 3.2	200 270	7 S:6	0	0	0	0	1	5	6	0	5	1	0
<i>Puccinellia simplex</i> California alkali grass	G3 S2	None None	Rare Plant Rank - 1B.2	200 200	71 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Sagittaria sanfordii</i> Sanford's arrowhead	G3 S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	90 175	126 S:4	0	1	0	0	0	3	3	1	4	0	0
<i>Spea hammondi</i> western spadefoot	G3 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened	85 285	516 S:6	2	0	0	0	0	4	1	5	6	0	0
<i>Taxidea taxus</i> American badger	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	145 184	563 S:2	1	0	0	0	0	1	1	1	2	0	0
<i>Thamnophis gigas</i> giant gartersnake	G2 S2	Threatened Threatened	IUCN_VU-Vulnerable	100 170	366 S:4	0	1	0	0	1	2	3	1	3	1	0
<i>Trichocoronis wrightii</i> var. <i>wrightii</i> Wright's trichocoronis	G4T3 S1	None None	Rare Plant Rank - 2B.1	100 100	9 S:1	1	0	0	0	0	0	1	0	1	0	0
<i>Tuctoria greenei</i> Greene's tuctoria	G1 S1	Endangered Rare	Rare Plant Rank - 1B.1	250 280	50 S:4	0	0	0	2	1	1	3	1	3	0	1
<i>Vulpes macrotis mutica</i> San Joaquin kit fox	G4T2 S2	Endangered Threatened		90 255	1017 S:9	1	2	3	1	0	2	2	7	9	0	0

APPENDIX D

DRAINAGE CROSSING DETAILS

Merced Biogas Upgrade Facility and Pipeline Project Drainage Crossing Details		
Drainage Crossing No.	Type	Field Notes
1	AG ditch	Small ditch crossing, culvert under road, estimated 12". Riparian cover occurs east of crossing, no riparian cover west of this crossing. Water ponded at culvert intake during field surveys but no flowing water in the channel.
2	AG ditch	Small ditch crossing. No riparian or wetland vegetation present at the crossing location. Bullfrogs observed in channel. Ponded water present in channel during field surveys.
3	AG ditch	Large ditch crossing. Minimal vegetation in channel or on banks, concrete lined at road crossing location. Riparian corridor present with non-native trees as dominant species (weeping willow and eucalyptus). Channel width approx. 15-20' water present at time of field surveys. Bullfrogs present in channel.
4	AG ditch	Large ditch crossing culverted under Washington Road. Width of channel is 12-15' wide at crossing location. Banks vegetated with FAC dominant grasses.
5	AG ditch	Large ditch crossing. Channel mostly unvegetated. Low flow present at time of field surveys.
6	Natural Drainage (Chowchilla River)	Chowchilla River crossing on Washington Road. Three large culverts under Washington Road, approx. 10 ft each. OHWM at culvert crossing location approx. 30 ft, but widens to approx. 50 ft just downstream of crossing location. No riparian vegetation present, limited wetland vegetation in channel and on banks. Flowing water present at time of field surveys.
7	AG ditch	Small ditch crossing at Troost Dairy, approx. 12" culvert under road. Cross ditch connects with primary ditch at this location. Channel width approx. 2-3 ft. Minimal vegetation in channel or on banks, ditch appears to be routinely managed by dairy farm.
8	Natural Drainage (Chowchilla River)	Chowchilla River crossing on Ivy Avenue. Bridge crossing at this location. OHWM at crossing location approx. 40 ft at bridge location but narrows substantially both upstream and downstream of bridge location. Willow riparian present east of crossing, no riparian corridor on west side. Flowing water present at time of field surveys.
9	AG ditch	Small ditch crossing under Ivy Avenue, approx. 12" culvert. Scoured unvegetated banks.
10	AG ditch	Small ditch crossing at El Nido and Ivey Avenue. Two ponds occur east of Ivey avenue in this location, one unvegetated and the other with emergent wetland vegetation.
11	AG ditch	Parallel ditch crossing (two ditches). Westernmost ditch is unvegetated with water present. Easternmost ditch is vegetated and dry.

Merced Biogas Upgrade Facility and Pipeline Project Drainage Crossing Details		
Drainage Crossing No.	Type	Field Notes
12A	AG ditch	Large ditch crossing. West side is unvegetated, east side of crossing supports patches of cattail (<i>Typha</i> sp.)
12B	AG ditch	Small ditch crossing. Unvegetated channel and banks, appears to be routinely disturbed by farm practices.
13	AG ditch	Small ditch adjacent to alfalfa field with 10" culvert into pond. Ditch is unvegetated, patches of vegetation in pond.
14	AG ditch	Mostly unvegetated ditch, routinely disturbed through farm practices. Flowing water present during field surveys.
15	AG ditch	Connection of two AG ditches, mostly unvegetated channels. One ditch had water present at time of field surveys.
16	AG ditch	Connection of two AG ditches, mostly unvegetated channels. Both had water present at time of field surveys.
17	AG ditch	Connection of two AG ditches, mostly unvegetated channels. One ditch had water present at time of field surveys.
18	AG ditch	Ditch connected to pond. Water flowing swiftly through large culvert into pond at time of field surveys.
19	AG ditch	Large ditch. Swiftly flowing water (deep). Steel and concrete bridge crossing at this location with cliff swallow nests under bridge. Banks of ditch are vegetated with wetland indicator species. Eroded banks. Approximate width of ditch is 20 feet.
20	AG ditch	Ditch flows into concrete intake on north side of road crossing. Concrete outfall on south side of road crossing. No water flowing at time of field surveys. Assume this is a ditch crossing (intake/outfall widely separated and not obviously connected).
21	AG ditch	Ditch flows into concrete intake on north side of road crossing. Concrete outfall on south side of road crossing. No water flowing at time of field surveys. Assume this is a ditch crossing (intake/outfall widely separated and not obviously connected).
22	AG ditch	Small ditch connected via culvert to pond, pipeline crosses culvert at this location. Ditch unvegetated and appears to be routinely disturbed by farm practices.
23	Natural Drainage (Dutchman Creek)	Dutchman Creek crossing at Healy Road (just north of Sandy Mush Road). 3 large culverts at this crossing location, each approximately 8 ft wide. OHWM at outfall (west side of Healy Road) is approximately 25-30 ft. Riparian cover consists primarily of willow, walnut, and cottonwood. Portions of banks eroded/undercut and banks mostly vegetated. Limited access to creek at this location.

Merced Biogas Upgrade Facility and Pipeline Project Drainage Crossing Details		
Drainage Crossing No.	Type	Field Notes
24	Natural Drainage (unnamed channel/swale)	Channel / swale supporting wetland vegetation. OHWM on channel portions approximately 2-3 ft other portions of feature swale-like with no OHWM. Conveyed into approx. 4 ft culvert under Healy Road. Ponded water at culvert intake, but no water on west side of Healy Road. Channel width at outfall is approximately 5-6 ft but quickly reduced to 3-4 ft width downstream. Concrete lining at outfall location.
25	Natural Drainage (unnamed channel)	Deeply incised channel supporting wetland vegetation. OHWM approx. 2-3 ft but increased to approx. 6 ft at culvert intake location. Culvert estimated 36 inch. Ponded water present in channel at time of field surveys, large pond at outfall location.
26	Natural Drainage (unnamed channel)	No culvert apparent under Healy Road at this channel crossing location. Channel width approx. 3-4 ft on east side, supports wetland grasses.
27	Natural Drainage (unnamed channel)	Historic channel appears to no longer be connected via culvert under Healy Road. Appears to support wetland vegetation.
28	Natural Drainage (unnamed channel)	Historic channel appears to no longer be connected via culvert under Healy Road. Ag ditch on east side of road connect by culvert to channel. Appears to support wetland vegetation.
29	AG ditch	Small ditch, mostly unvegetated, dry at time of surveys.
30	AG ditch (El Nido Canal)	Deep, swiftly flowing water in El Nido Canal. Canal is culverted and concrete lined at crossing location. Vegetated banks beyond concrete lined channel. Canal width approx. 18-20 ft at crossing location.
31	AG ditch	Smaller ditch immediately adjacent to El Nido Canal (#30). Vegetated banks, channel with approx. 8-10 ft at crossing location.
32	AG ditch	Recently excavated AG ditch. Spoil piles present and blocking road. No culvert yet installed, road does not connect. Unvegetated and no water present at time of surveys.
33	AG ditch	Ditch crossing at Healy Road. Concrete channel at culvert location with flow control valves. Eucalyptus trees present along ditch on west side of crossing. Water present at culvert location.
34	AG ditch	Ditch on north side of Ranch Road near proposed Biogas upgrade facility location. Unvegetated ditch, width is approx. 3 ft, no water present at the time of surveys.
35	AG ditch	Ditch on north side of McNamara Road crosses to concrete structure on south side of road at pump location. Approximate width is 12-15 ft with vegetated banks.

Merced Biogas Upgrade Facility and Pipeline Project Drainage Crossing Details		
Drainage Crossing No.	Type	Field Notes
36	AG ditch	Large ditch, approx. 8-10 ft wide. Upstream segment (north of crossing) is unvegetated. Downstream segment is more natural with large Eucalyptus trees on east bank. Ponded water at intake and outfall locations, remainder of ditch is dry. Culvert estimated 24 inches wide.
37	AG ditch	Small ditch with vegetation present, culvert approx. 24 inches wide. No water present at time of surveys. Channel with approx. 4-5 ft.
38	AG ditch	Vegetated ditch with ponded water at culvert location. Channel width approximately 4-5 ft. Bullfrogs observed in channel. Swainson's hawk nest observed in willow tree on this ditch, pair was present on nest.
39	AG ditch	Small ditch crossing at entrance to Vander Woude Dairy. Mostly unvegetated with small patch of grass. Channel width approximately 3 ft on west side of crossing and 4-5 ft on east side of crossing. Flowing water present at time of surveys.
Note: Field observations recorded on April 23 and 24, 2019. See Figure 2 for drainage crossing locations.		