APPENDIX C

Biological Reconaissance Survey Report

Biological Resources Reconnaissance Survey and CEQA Analysis

Merced Biogas Pipeline Expansion Project

Location:
Biogas collection pipelines within private property and public right of way within south/central Merced County and north/central Madera County

Permit Sought: Conditional Use Permit Application No. CUP20-017

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Dates of Biological Resources Reconnaissance Survey: November 9 - 10, 2021
Date of Report: December 17, 2021

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1 SUMMARY

Merced Pipeline, LLC recently completed the Merced Biogas Upgrade Facility and Pipeline project (approved by Merced County in 2019) that constructed a biogas upgrade facility and approximately 34 miles of associated pipeline in unincorporated Merced and Madera Counties. The Merced Biogas Pipeline Expansion Project proposes to expand the gathering pipelines that would extend the existing underground pipeline network to serve additional dairy digesters not included in the currently permitted biogas pipeline system. This project would involve the expansion of the underground biogas pipeline alignment west and northwest of the previously approved pipeline alignment, and east of the southern portion of the previously approved pipeline alignment into Madera County. This project includes 39.5 miles of new 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 transport biogas to the previously approved biogas upgrade facility from a cluster of individual dairy digesters in the surrounding area. The upgraded biomethane would be piped to an injection point with a Pacific Gas & Electric (PG&E) gas transmission pipeline. 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 Pipeline Expansion Project in Merced County, California. The Biological Reconnaissance Survey was conducted on November 9 and November 10, 2021 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 Fully Protected Species by the California Department of Fish and Wildlife (CDFW);
- Listed as a species of special concern by the California Department of Fish and Game (CDFW);
- 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 and reproduction in the wild are in immediate jeopardy, present in such small numbers throughout all or a significant portion of its range that it may become endangered, or likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

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 effect 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]).

Section 10 of the Rivers and Harbors Act of 1899. The Corps regulates activities affecting “navigable waters of the United States” under Section 10 of the Rivers and Harbors Act of 1899 (33 USC 403). Navigable waters are defined as “…those waters of the United States that are subject to the ebb and flow of the tide shoreward to the mean high water mark and/or are presently used, or have been used in the past, or may be susceptible to use to transport interstate or foreign commerce.” Structures or work under or over a navigable WoUS is considered to have an impact on the navigable capacity of the waterbody.

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.

Porter-Cologne Water Quality Control Act. The Porter-Cologne Water Quality Control Act mandates that waters of the State of California shall be protected. Current policy in California is that activities that may affect waters of the State shall be regulated to attain the highest quality. Waters of the State include any surface water or groundwater, including saline waters, and any aquatic features that meet the state definition of a wetland, within the boundaries of the state. The Porter-Cologne Act establishes that the state assumes responsibility for implementing portions of the federal Clean Water Act, rather than operating separate state and Federal water pollution control programs in California. Consequently, the state is involved in activities such as setting water quality standards, issuing discharge permits, and operating grant programs. Pursuant to Section 401 of the Clean Water Act, the Corps cannot issue a federal permit until the State of California first issues a water quality certification to ensure that a project will comply with state water quality standards. The Regional Water Quality Control Board issues water quality certifications.

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 2019 IS/MND for the biogas upgrade facility and pipeline project evaluated construction and operation of two biogas upgrade facility alternatives. The biogas

upgrade facility site selected is located in unincorporated Merced County, north of Rahilly Road and east of the Vander Woude Dairy, approximately 1.5 miles west of State Route 59 (see Figure 1). As of November 2021, construction of the biogas upgrade facility and associated pipeline evaluated in 2019 has been completed.

The Merced Biogas Pipeline Expansion Project involves expansion of gathering pipelines that would extend the existing underground pipeline network to serve additional dairy digesters not included in the currently permitted biogas pipeline system. This project would involve the expansion of the underground biogas pipeline alignment west and northwest of the previously approved biogas pipeline alignment, and east of the southern portion of the previously approved alignment into Madera County. The complete pipeline network would be generally located over an area stretching from south of the City of Merced to south of the Merced/Madera County line (Figure 1). The pipelines would be located predominantly on privately owned agricultural property via easements and/or within or across Merced or Madera County public rights-of-way (ROW). There are several alternate pipeline alignments that may run through Merced County (Figure 2). The project site is located in the Atwater, Sandy Mush, El Nido, Plainsburg, and Bliss Ranch USGS 7.5-minute topographic quadrangles.

2.4 PROJECT DESCRIPTION

The proposed project involves the expansion of a dairy biogas collection and biomethane injection project in unincorporated Merced and Madera Counties, California. The proposed project includes a total of up to 39.5 miles of new buried biogas gathering lines, with 31.8 miles of pipeline alignments located in Merced County and 7.7 miles of pipeline alignments located in Madera County (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 or will be permitted separately with Merced and Madera Counties as a modification to the dairy's existing land use permit.

DAIRY DIGESTER LOCATIONS

Individual dairy digesters will be installed/have been installed under separate permits from Merced and Madera Counties. These existing dairy locations include, but may not be limited to, the following locations:

- Melo Dairy
- Homen Dairy
- 3Machado Dairy

- Matos Dairy
- T&C Louters Dairy
- Diamond J Dairy
- Oliveira Family Dairy
- Belo Ranch Dairy
- Carlos Lourenco Dairy
- De Jager North
- Double DJ Dairy

GATHERING LINES

The project proposes to install up to 39.5 miles of low-pressure HDPE biogas gathering lines. The gathering lines would move biogas from each participating dairy to the previously permitted 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 the project applicant, the gathering pipeline system would be considered a Class 1 pipeline and would be classified as a non-jurisdictional gathering pipeline 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 1925, 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. Each blower would be controlled by a central Supervisory Control And Data Acquisition (SCADA) monitoring system that would be overseen by project 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.

Project Construction and Phasing

Construction of the proposed project is scheduled to begin approximately five months after project approval. Construction is anticipated to take approximately nine months to complete.

The proposed pipeline construction method would be open trenching with excavators or wheel trenchers. HDPE pipe would be fused together ahead of time, trench opened, pipe inserted, and backfilled to 90 percent or to 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 Pipeline Expansion Project through a review of available data and field surveys. Prior to the field surveys, Padre conducted a query of California Natural Diversity Database (CNDDB) for the five USGS topographic quadrangles that the project occurs in (Atwater, Sandy Mush, El Nido, Plainsburg, and Bliss Ranch 7.5-minute quadrangles) and for the seven surrounding USGS 7.5-minute topographic quadrangles (Arena, Merced, Santa Rita Bridge, Chowchilla, Turner Ranch, Planada, and Le Grand) (CDFW, 2021). The CNDDB 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, 2021) 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: 08ESMF00-2022-SLI-0223) (USFWS, 2021a). An unofficial species list was obtained from the NMFS for the five quadrangles that the project occurs within (NMFS, 2021). The federal species lists and CNDDB 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 (USFWS, 2021b).

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 pipeline alignment on November 9 and 10, 2021. 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 7:30 am and 5:30 pm and under normal fall conditions (cool and sunny to partially cloudy). 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. Preliminary jurisdictional aquatic resource delineations were not performed. A total of 17 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. The survey was conducted in November, outside of the blooming window for many of the sensitive plants that have potential to occur in the project vicinity.

A survey corridor of 50 feet on either side of the proposed alignment (assumed to be in the roadway) 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 33 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 and enclosed irrigation tailwater return 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 occurs 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, and at one location, the pipeline alignment is immediately adjacent to conservation bank property that is managed to support and promote occurrences of listed species in order to sell habitat mitigation credits. 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. There are no permanent impacts associated with the pipeline expansion project.

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, 2021). The average minimum monthly temperature ranges from 35.6°F in December to 60.9°F in July. The average annual temperature ranges from 47.1°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, 2021).

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, WATERS AND WETLANDS, AND WILDLIFE

Vegetation

The majority of the project area within the pipeline alignment consists of lands involved in agricultural production, dairy farms, and disturbed habitat with ruderal vegetation along roadway shoulders. The agricultural fields are primarily used to produce alfalfa, corn, grain crops and orchard crops; however, many fields were fallowed at the time of field surveys. 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*).

There are several natural drainage crossings throughout the pipeline alignments. At these crossings, the vegetation communities observed were a mix of natural riparian forests and shrublands, emergent vegetation, and annual grassland cover types. Dominant species observed at these drainage crossings varied from crossing to crossing but include common species such as narrow-leaved willow (*Salix exigua*), water smartweed (*Persicaria amphibia*), Himalayan blackberry (*Rubus armeniacus*), tule (*Schoenoplectus acutus* var. *occidentalis*), broad-leaved cattail (*Typha latifolia*), and giant reed (*Arundo donax*). A complete list of plant species observed during field surveys is compiled in Table 1.

Table 1. Plant Species Observed at the Merced Biogas Pipeline Expansion Project Site

Common Name/Family	*Scientific Name*	Growth Habit	Wetland Indicator Status	Native Status	Sensitivity / Listing Status
AMARANTHACEAE (Amaranth Family)					
Pigweed	*Amaranthus* sp.				
Redroot pigweed	*Amaranthus retroflexus*	H	FACU	I	
APIACEAE (Carrot Family)					
Poison hemlock	*Conium maculatum*	H	FACW	I	
ASTERACEAE (Sunflower Family)					
Mugwort	*Artemisia douglasiana*	H	FAC	N	
Italian thistle	*Carduus pycnocephalus* ssp. *pycnocephalus*	H	NL	I	
Tarweed	*Centromadia* sp.	H		N	
Bull thistle	*Cirsium vulgare*	H	FACU	I	
Flax-leaved horseweed	*Erigeron bonariensis*	H	FACU	I	
Horseweed	*Erigeron canadensis*	H	FACU	N	
Common sunflower	*Helianthus annuus*	H	FACU	N	
Lettuce	*Lactuca saligna*	H	UPL	I	
Common groundsel	*Senecio vulgaris*	H	FACU	I	
Milk thistle	*Silybum marianum*	H	NL	I	
Prickly sow thistle	*Sonchus asper* ssp. asper	H	FAC	I	
Spiny cocklebur	*Xanthium spinosum*	H	FACU	I	
Cocklebur	*Xanthium strumarium*	H	FAC	N	
BORAGINACEAE (Borage Family)					
Alkali heliotrope	*Heliotropium curassavicum* var. *oculatum*	H	FACU	N	
Popcornflower	*Plagiobothrys* sp.	H		N	
BRASSICACEAE (Mustard Family)					
Black mustard	*Brassica nigra*	H	NL	I	
Shepard's purse	*Capsella bursa-pastoris*	H	FACU	I	
Mediterranean mustard	*Hirschfeldia incana*	H	NL	I	
Peppergrass	*Lepidium* sp.	H			
CARYOPHYLLACEAE (Pink Family)					
Common chickweed	*Stellaria media*	H	FACU	I	
CHENOPODIACEAE (Goosefoot Family)					
Saltbush	*Atriplex* sp.	H			
Lamb's quarters	*Chenopodium album*	H	FACU	I	
Russian thistle	*Salsola tragus*	H	FACU	I	
CONVOLVULACEAE (Morning-Glory Family)					
Bindweed	*Convolvulus arvensis*	H	NL	I	
EUPHORBIACEAE (Spurge Family)					
Turkey mullein	*Croton setiger*	H	NL	N	
FABACEAE (Legume Family)					
Acacia	*Acacia* sp.	T		I	
Alfalfa	*Medicago sativa*	H	UPL	I	

Table 1. Plant Species Observed at the Merced Biogas Pipeline Expansion Project Site

Common Name/Family	*Scientific Name*	Growth Habit	Wetland Indicator Status	Native Status	Sensitivity / Listing Status
Sweetclover	*Melilotus* sp.	H		I	
Sourclover	*Melilotus indicus*	H	FACU	I	
FAGACEAE (Oak Family)					
Valley oak	*Quercus lobata*	T	FACU	N	
GERANIACEAE (Geranium Family)					
Long-beaked storksbill	*Erodium botrys*	H	FACU	I	
Dove's-foot geranium	*Geranium molle*	H	NL	I	
JUGLANDACEAE (Walnut Family)					
Northern California black walnut	*Juglans hindsii*	T	FAC	N	1B.1
LAMIACEAE (Mint Family)					
Horehound	*Marrubium vulgare*	H	FACU	I	
MALVACEAE (Mallow Family)					
Cheeseweed	*Malva parviflora*	H	NL	I	
MYRTACEAE (Myrtle Family)					
Eucalyptus	*Eucalyptus* sp.	T		I	
Blue gum	*Eucalyptus globulus*	T	NL	I	
ONAGRACEAE (Evening Primrose Family)					
Panicled willow herb	*Epilobium brachycarpum*	H	NL	N	
Hairy willow herb	*Epilobium ciliatum*	H	FACW	N	
PLANTAGINACEAE (Plantain Family)					
English plantain	*Plantago lanceolata*	H	FAC	I	
POLYGONACEAE (Buckwheat Family)					
Water smartweed	*Persicaria amphibia*	H	OBL	N	
Knotweed	*Polygonum aviculare*	H	FAC	I	
Sheep sorrel	*Rumex acetocella*	H	FACU	I	
Curly dock	*Rumex crispus*	H	FAC	I	
ROSACEAE (Rose Family)					
Himalayan blackberry	*Rubus armeniacus*	V	FAC	I	
SALICACEAE (Willow Family)					
Fremont cottonwood	*Populus fremontii* ssp. *fremontii*	T	NL	N	
Willow	*Salix* sp.	T	OBL		
Weeping willow	*Salix babylonica*	T	FAC	I	
Narrow-leaved willow	*Salix exigua*	S	FACW	N	
Red willow	*Salix laevigata*	S	FACW	N	
SIMAROUBACEAE (Quassia Family)					
Tree-of-heaven	*Ailanthus altissima*	T	FACU	I	
SOLANACEAE (Nightshade Family)					
Jimson weed	*Datura wrightii*	H	UPL	N	
Tree tobacco	*Nicotiana glauca*	T	FAC	I	
URTICACEAE (Nettle Family)					

Table 1. Plant Species Observed at the Merced Biogas Pipeline Expansion Project Site

Common Name/Family	*Scientific Name*	Growth Habit	Wetland Indicator Status	Native Status	Sensitivity / Listing Status
Stinging nettle	*Urtica dioica*	H	FACW	N	
VERBENACEAE (Vervain Family)					
Verbena	*Verbena lasiostachys*	H	FAC	N	
ZYGOPHYLLACEAE (Caltrop Family)					
Puncture vine	*Tribulus terrestris*	H	NL	I	
ALISMATACEAE (Water-Plantain Family)					
Sanford's arrowhead	*Sagittaria sanfordii*	H	OBL	N	1B.2
ARACEAE (Arum Family)					
Duckweed	*Lemna* sp.	H		N	
ARECACEAE (Palm Family)					
Fan palm	*Washingtonia* sp.	T	FAC/FACW		
CYPERACEAE (Sedge Family)					
Tall cyperus	*Cyperus eragrostis*	H	FACW	N	
Tule	*Schoenoplectus acutus* var. *occidentalis*	H	OBL	N	
JUNCACEAE (Rush Family)					
Lamp rush	*Juncus effusus*	H	FACW	N	
POACEAE (Grass Family)					
Giant reed	*Arundo donax*	G	FACW	I	
Wild oat	*Avena fatua*	G	NL	I	
Ripgut grass	*Bromus diandrus*	G	NL	I	
Soft chess	*Bromus hordeaceus*	G	FACU	I	
Bermuda grass	*Cynodon dactylon*	G	FACU	I	
Salt grass	*Distichlis spicata*	G	FAC	N	
Barnyard grass	*Echinochloa crus-galli*	G	FACW	I	
Rye grass	*Festuca perennis*	G	FAC	I	
Mediterranean barley	*Hordeum marinum* ssp. *gussoneanum*	G	FAC	I	
Hare barley	*Hordeum murinum* ssp. *leporinum*	G	FACU	I	
Barley	*Hordeum vulgare*	G	NL	I	
Deer grass	*Muhlenbergia rigens*	G	FACW	N	
Fall panic grass	*Panicum dichotomiflorum* ssp. *dichotomiflorum*	G	FACW	I	
Harding grass	*Phalaris aquatica*	G	FACU	I	
Rabbitfoot grass	*Polypogon monspeliensis*	G	FACW	I	
Johnson grass	*Sorghum halepense*	G	FACU	I	
TYPHACEAE (Cattail Family)					
Broad-leaved cattail	*Typha latifolia*	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

Table 1. Plant Species Observed at the Merced Biogas Pipeline Expansion Project Site

Common Name/Family	*Scientific Name*	Growth Habit	Wetland Indicator Status	Native Status	Sensitivity / Listing 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, 2021b).

A total of 33 drainage crossings were mapped during field surveys. These consist of both natural drainages such as the Bear Creek, Black Rascal Creek, Owens Creek Deadman Creek, and the Chowchilla River as well as agricultural ditches (Figure 2). The agricultural ditches varied from large canals with swiftly flowing water such as the Deane 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 or are part of large regional irrigation facilities.

Additional discussion about the drainage crossings and potentially jurisdictional waters and wetlands are discussed in Section 4.4 and each drainage crossing location is detailed in Appendix D.

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 (*Haemorhous mexicanus*), northern mockingbird (*Mimus polyglottos*), brewer's blackbird (*Euphagus cyanocephalus*), red-winged blackbird (*Agelaius phoeniceus*), western kingbird (*Tyrannus verticalus*), and California horned lark (*Eremophila alpestris actia*). At the drainage crossings and in riparian habitat species observed included carp (*Cyprinus carpio*), bullfrog (*Lithobates catesbeianus*), bushtit (*Psaltriparus minimus*), marsh wren (*Cistothorus palustris*), American goldfinch (*Spinus tristis*), cliff swallow (*Petrochelidon pyrrhonota*), raccoon (*Procyon lotor*), coyote (*Canis latrans*), and North American river otter (*Lontra canadensis*). Species observed in agricultural ponds or dairy treatment ponds include killdeer (*Charadrius vociferus*), greater yellowlegs (*Tringa melanoleuca*), least sandpiper (*Calidris minutilla*), great egret (*Ardea alba*), and snowy egret (*Egretta thula*). Raptors observed soaring above the project site include red-tailed hawk (*Buteo jamaicensis*), northern harrier (*Circus hudsonius*), and turkey vultures (*Cathartes aura*).

Table 2. Wildlife Species Observed at the Merced Biogas Pipeline Expansion Project Site

Common Name/ Family	*Scientific Name*	Sensitivity / Listing Status[1]
FISH		
CYPRINIDAE (Minnows and Carp)		
Carp	*Cyprinus carpio*	
AMPHIBIANS		
RANIDAE (True Frogs)		
American Bullfrog	*Lithobates catesbeianus*	
REPTILES		
PHRYNOSOMATIDAE (spiny lizards)		
Western Fence Lizard	*Sceloporus occidentalis*	
BIRDS		
ANATIDAE (Ducks, Geese, and Swans)		
Canada Goose	*Branta canadensis*	M
COLUMBIDAE (Pigeons and Doves)		
Rock Pigeon	*Columba livia*	
Eurasian Collared-Dove	*Streptopelia decaocto*	
Mourning Dove	*Zenaida macroura*	M
TROCHILIDAE (Hummingbirds)		
Anna's Hummingbird	*Calypte anna*	M
GRUIDAE (Cranes)		
Sandhill Crane	*Antigone canadensis*	M
CHARADRIIDAE (Lapwings and Plovers)		
Killdeer	*Charadrius vociferus*	M
SCOLOPACIDAE (Sandpipers, Phalaropes, and Allies)		
Least Sandpiper	*Calidris minutilla*	M
Greater Yellowlegs	*Tringa melanoleuca*	M
LARIDAE (Gulls, Terns, and Skimmers)		
California Gull	*Larus californicus*	M, WL
Herring Gull	*Larus argentatus*	M
PHALACROCORACIDAE (Cormorants)		
Double-crested Cormorant	*Phalacrocorax auritus*	M, WL
ARDEIDAE (Bitterns, Herons, and Allies)		M
Great Blue Heron	*Ardea herodias*	M
Great Egret	*Ardea alba*	M
Snowy Egret	*Egretta thula*	M
CATHARTIDAE (New World Vultures)		
Turkey Vulture	*Cathartes aura*	M
ACCIPITRIDAE (Hawks, Kites, Eagles, and Allies)		
Northern Harrier	*Circus hudsonius*	M, CSC
Red-tailed Hawk	*Buteo jamaicensis*	M
FALCONIDAE (Caracaras and Falcons)		
American Kestrel	*Falco sparverius*	M
TYRANNIDAE (Tyrant Flycatchers)		
Black Phoebe	*Sayornis nigricans*	M
Western Kingbird	*Tyrannus verticalis*	M
LANIIDAE (Shrikes)		

Table 2. Wildlife Species Observed at the Merced Biogas Pipeline Expansion Project Site

Common Name/ Family	*Scientific Name*	Sensitivity / Listing Status[1]
Loggerhead Shrike	*Lanius ludovicianus*	M, CSC, BCC
CORVIDAE (Jays and Crows)		
California Scrub-Jay	*Aphelocoma californica*	M
American Crow	*Corvus brachyrhynchos*	M
ALAUDIDAE (Larks)		
California Horned Lark	*Eremophila alpestris actia*	M, WL
HIRUNDINIDAE (Swallows)		
Cliff Swallow	*Petrochelidon pyrrhonota*	M
AEGITHALIDAE (Bushtits)		
Bushtit	*Psaltriparus minimus*	M
TROGLODYTIDAE (Wrens)		
Marsh Wren	*Cistothorus palustris*	M
MIMIDAE (Mockingbirds and Thrashers)		
Northern Mockingbird	*Mimus polyglottos*	M
STURNIDAE (Starlings)		
European Starling	*Sturnus vulgaris*	
PASSERIDAE (Old World Sparrows)		
House Sparrow	*Passer domesticus*	
House Finch	*Haemorhous mexicanus*	M
American Goldfinch	*Spinus tristis*	M
PARULIDAE (Wood-Warblers)		
Yellow-rumped Warbler	*Setophaga coronata*	M
EMBERIZIDAE (Emberizids)		
Chipping Sparrow	*Spizella passerina*	M
Savannah Sparrow	*Passerculus sandwichensis*	M
White-crowned Sparrow	*Zonotrichia leucophrys*	M
Golden-crowned Sparrow	*Zonotrichia atricapilla*	M
ICTERIDAE (Blackbirds)		
Red-winged Blackbird	*Agelaius phoeniceus*	M
Western Meadowlark	*Sturnella neglecta*	M
Brewer's Blackbird	*Euphagus cyanocephalus*	M
Brown-headed Cowbird	*Molothrus ater*	M
MAMMALS		
SCIURIDAE (Chipmunks, Squirrels, and Marmots)		
California Ground Squirrel	*Spermophilus beecheyi*	
GEOMYIDAE (Pocket Gophers)		
Botta's Pocket Gopher	*Thomomys bottae*	
CRICETIDAE (Deer Mice, Voles, and Relatives)		
California Vole	*Microtus californicus*	
CANIDAE (Foxes, Wolves, and Relatives)		
Coyote	*Canis latrans*	
PROCYONIDAE (Raccoons and Relatives)		
Raccoon	*Procyon lotor*	

Table 2. Wildlife Species Observed at the Merced Biogas Pipeline Expansion Project Site

Common Name/ Family	*Scientific Name*	Sensitivity / Listing Status[1]
MUSTELIDAE (Weasels, Badgers, and Relatives)		
American Badger	*Taxidea taxus*	CSC
North American River Otter	*Lontra canadensis*	
FELIDAE (Cats)		
Domestic Cat	*Felis catus*	

Sensitivity / Listing Status[1]

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: 08ESMF00-2022-SLI-0223) was requested from the USFWS via their Information for Planning and Conservation) IPAC online system (https://ecos.fws.gov/ipac/) (USFWS, 2021a); and
- Queries of the CDFW's California Natural Diversity Database (CNDDB), Biogeographic Information and Observation System (BIOS), and the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants database (CDFW, 2021; CNPS, 2021).

To determine the special-status species that could occur in the vicinity of the project area, a CNDDB query was completed for the five 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, 30 special-status plant species, and 37 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 Sandy Mush Road 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 hammondii*), giant garter snake (*Thamnophis gigas),* western pond turtle (*Emys marmorata*), tricolored blackbird (*Agelaius tricolor*), burrowing owl (*Athene cunicularia*), Swainson's hawk (*Buteo swansoni*), 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. Although no Swainson's hawks were observed during surveys, Swainson's hawk are abundant in the project area and were not observed during the November surveys due to their absence in the area during the winter months. 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. Burrowing owl is known to occur within grazed grassland near the pipeline alignment and numerous burrow clusters suitable for burrowing owl inhabitation were observed during field surveys. 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.

There were no blue elderberry shrubs, potential habitat for the valley elderberry longhorn beetle, observed in the vicinity of the project alignment. The surveys were conducted outside of the blooming window of blue elderberry, so identification of the shrub is more difficult, and detection is less likely, particularly in densely vegetated areas. There is potential for blue elderberry to be growing within the riparian corridors of some of the more densely vegetated riparian crossings (Bear Creek, Black Rascal Creek, Owen's Creek, and Duck Slough) that were not observed during November surveys.

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 majority of 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 within the direct impact area. However, there were significant burrow colonies observed in the grasslands along Sandy Mush Road that would provide suitable habitat for these burrowing species (Figure 2). 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 Pipeline Expansion Project Site

Scientific Name	Common Name	Status[1]	Habitat	Likelihood of Occurrence	Rationale
PLANTS					
Astragalus tener var. *tener*	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 100ft of the alignment in several areas along Sandy Mush Road and Rahilly Road. 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 indirectly impact this species. The nearest occurrence (Occ. #55) from 2002 is approximately 4.9 miles west of the northwestern side of the pipeline alignment.
Atriplex cordulata var. *cordulata*	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 indirectly impact this species. There are several occurrences within one mile of the alignment. The nearest occurrence (Occ. #91) is a historic occurrence from 1994 and is approximately 0.4 miles south of the alignment on Sandy Mush Road. No recent occurrences of this species appeared in the CNDDB search, but seven of the ten historic

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

Scientific Name	Common Name	Status[1]	Habitat	Likelihood of Occurrence	Rationale
					occurrences are considered to be extant.
Atriplex depressa	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 100ft of the alignment in several areas along Sandy Mush Road and Rahilly Road. Proposed construction work in roadways and road shoulders would not directly impact this species; however, construction encroachment on vernal pool or swale habitat could indirectly impact this species. The nearest occurrence (Occ. #70) is a historic occurrence from 1992 and is approximately 13.2 miles west of the northwest corner of the alignment.
Atriplex minuscula	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 recent occurrence (Occ. #56) from 2017 is approximately 1.7 miles south of the western end of the alignment on Sandy Mush Road.
Atriplex persistens	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 100ft of the alignment in several areas along Sandy Mush Road and Rahilly Road. Proposed construction work in roadways and road shoulders would not directly impact this species; however, construction encroachment

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

Scientific Name	Common Name	Status[1]	Habitat	Likelihood of Occurrence	Rationale
					on vernal pool or swale habitat could indirectly impact this species. There are several occurrences within one mile of the alignment. Occurrences #3 and #5 are located approximately 0.4 miles south of the alignment on Sandy Mush Road.
Atriplex subtilis	Subtle orache	CRPR 1B.2	Valley and foothill grassland at elevations ranging from 130 to approximately 330 feet. Blooms from June to September, sometimes into 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 directly impact this species. The nearest occurrence (Occ. #5) is a historic occurrence from 1936 and is approximately 1.5 mile from the southern portion of the alignment. No recent occurrences of this species appeared in the CNDDB search.
Brasenia schreberi	Watershield	CRPR 2B.3	Freshwater marshes and swamps at elevation ranging from 0 to approximately 7,220 feet. Blooms from June to September.	Low	Potentially suitable habitat for this species occurs within some of the larger agricultural ditches and canals although this habitat is highly altered and frequently disturbed. The nearest occurrence (Occ. #42) is a historic occurrence from 1915 and is approximately 4 miles from the alignment. No recent occurrences of this species appeared in the CNDDB search.
Castilleja campestris var. *succulenta*	Succulent owl's-clover	FT, SE, CRPR 1B.2	Vernal pools, often with acidic conditions, at elevations ranging	Low / Moderate	Vernal pool habitat that could support succulent owl's clover is located within 100ft of the alignment in several areas along Sandy Mush Road and Rahilly

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

Scientific Name	Common Name	Status[1]	Habitat	Likelihood of Occurrence	Rationale
			from 165 to 2,460 feet. Blooms from March to May.		Road. Proposed construction work in roadways and road shoulders would not directly impact this species; however, construction encroachment on vernal pool or swale habitat could indirectly impact this species. The nearest occurrence (Occ. #96) from 2004 is approximately 5.8 miles from the northern portion of the alignment.
Cryptantha hooveri	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) is a historic occurence from 1939 that is approximately 0.6 miles south of the southeastern edge of the alignment and is presumed to be extirpated. No recent occurrences of this species appeared in the CNDDB search.
Delphinium recurvatum	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 indirectly impact this species. The nearest extant occurrence (Occ. #78) from 1936 is approximately 0.7 miles from the southern portion of the alignment and is extirpated. The nearest occurrence

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

Scientific Name	Common Name	Status[1]	Habitat	Likelihood of Occurrence	Rationale
					that is presumed extant (Occ. #79) from 1998 is approximately 1 mile south of the alignment on Sandy Mush Road.
Downingia pusilla	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 100ft of the alignment in several areas along Sandy Mush Road and Rahilly Road. Proposed construction work in roadways and road shoulders would not directly impact this species; however, construction encroachment on vernal pool or swale habitat could indirectly impact this species. The nearest occurrence (Occ. #93) from 2001 is approximately 10 miles from the northeast corner of the alignment.
Eryngium racemosum	Delta button-celery	SE, 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 100ft of the alignment in several areas along Sandy Mush Road and Rahilly Road. Proposed construction work in roadways and road shoulders would not directly impact this species; however, construction encroachment on vernal pool or swale habitat could indirectly impact this species. The nearest occurrence (Occ. #17) from 2010 is approximately 2.2 miles from the southern portion of the alignment.
Eryngium spinosepalum	Spiny-sepaled button-celery	CRPR 1B.2	Valley and foothill grasslands and vernal pools at elevations ranging	None / Moderate	Vernal pool habitat that could support spiny-sepaled button-celery is located within 100ft of the alignment in several areas along Sandy Mush Road and

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

Scientific Name	Common Name	Status[1]	Habitat	Likelihood of Occurrence	Rationale
			from 260 to approximately 3,200 feet. Blooms from April to June.		Rahilly Road. Proposed construction work in roadways and road shoulders would not directly impact this species; however, construction encroachment on vernal pool or swale habitat could indirectly impact this species. The nearest occurrence (Occ. #89) from 2011 is approximately 0.6 miles from the eastern portion of the alignment.
Euphorbia hooveri	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	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 indirectly impact this species. The nearest occurrence (Occ. #22) is a historic occurrence from 1987 and is approximately 4.6 miles from the northwestern portion of the alignment. No recent occurrences of this species appeared in the CNDDB search.
Extriplex joaquinana	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 indirectly impact this species. The nearest occurrence (Occ. #74) from 2002 is

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

Scientific Name	Common Name	Status[1]	Habitat	Likelihood of Occurrence	Rationale
					approximately 5 miles from the northwestern portion of the alignment.
Gratiola heterosepala	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 100ft of the alignment in several areas along Sandy Mush Road and Rahilly Road. Proposed construction work in roadways and road shoulders would not directly impact this species; however, construction encroachment on vernal pool or swale habitat could indirectly impact this species. The nearest occurrence (Occ. #83) from 2002 is approximately 15.2 miles from the northeast portion of the alignment.
Lagophylla dichotoma	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) is a historic occurrence from 1915 that is approximately 3.8 miles from the northern portion of the alignment. No recent occurrences of this species appeared in the CNDDB search.
Lasthenia chrysantha	Alkali-sink goldfields	CRPR 1B.1	Alkaline vernal pool habitat at elevations ranging from 0 to approximately 655 feet. Bloom from February to April.	Low / Moderate	Vernal pool habitat that could support vernal alkali-sink goldfields is located within 100ft of the alignment in several areas along Sandy Mush Road and Rahilly Road. Proposed construction work in roadways and road shoulders would not directly impact this species; however, construction encroachment on vernal pool or swale habitat could indirectly impact this species. The nearest occurrence (Occ. #36) is a

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

Scientific Name	Common Name	Status[1]	Habitat	Likelihood of Occurrence	Rationale
					historic occurrence from 1958 that is located adjacent to a portion of the alignment along Sandy Mush Road. Although historic, this occurrence is presumed extant.
Lasthenia glabrata ssp. *coulteri*	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 100ft of the alignment in several areas along Sandy Mush Road and Rahilly Road. Proposed construction work in roadways and road shoulders would not directly impact this species; however, construction encroachment on vernal pool or swale habitat could indirectly impact this species. The nearest occurrence (Occ. #92) from 2002 is approximately 5.1 miles from the northwestern portion of the alignment.
Lepidium latipes var. *heckardii*	Heckard's pepper-grass	CRPR 1B.2	Alkaline flats in valley and foothill grasslands at elevations ranging from 5 to approximately 655 feet. Blooms from March to May	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 indirectly impact this species. The nearest occurrence (Occ. #14) from 2002 is approximately 5.1 miles from the northwestern portion of the alignment.
Navarretia nigelliformis ssp. *radians*	Shining navarretia	CRPR 1B.2	Cismontane woodlands, valley and foothill grasslands, and vernal pools at elevations ranging from	Low / Moderate	Potentially suitable vernal pool habitat that could support shining navarretia occurs within 100ft of the alignment in several areas along Sandy Mush Road

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

Scientific Name	Common Name	Status[1]	Habitat	Likelihood of Occurrence	Rationale
			210 to approximately 3,280 feet. Blooms from March to July.		and Rahilly Road. Proposed construction work in roadways and road shoulders would not directly impact this species; however, construction encroachment on vernal pool or swale habitat could indirectly impact this species. The nearest occurrence (Occ. #37) from 2001 is approximately 8.6 miles from the northeast portion of the alignment.
Navarretia prostrata	Prostrate vernal pool navarretia	CRPR 1B.2	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 along Sandy Mush Road and Rahilly Road. Proposed construction work in roadways and road shoulders would not directly impact this species; however, construction encroachment on vernal pool or swale habitat could indirectly impact this species. The nearest occurrence (Occ. #24) from 2002 is approximately 5.5 miles from the northwest corner of the alignment.
Neostapfia colusana	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 100ft of the alignment in several areas along Sandy Mush Road and Rahilly Road. Proposed construction work in roadways and road shoulders would not directly impact this species; however, construction encroachment on vernal pool or swale habitat could indirectly impact this species. The nearest occurrence (Occ. #39) is a historic occurrence from 1982 and is

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

Scientific Name	Common Name	Status[1]	Habitat	Likelihood of Occurrence	Rationale
					approximately 1.3 miles from the northern central portion of the alignment. Although historic, this occurrence is presumed extant.
Orcuttia inaequalis	San Joaquin Valley Orcutt grass	FT, SE, 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 100ft of the alignment in several areas along Sandy Mush Road and Rahilly Road. Proposed construction work in roadways and road shoulders would not directly impact this species; however, construction encroachment on vernal pool or swale habitat could indirectly impact this species. The nearest occurrence (Occ. #10) is a historic occurrence from 1963 approximately 6.3 miles from the southeastern portion of the alignment and is presumed to be extirpated.
Orcuttia pilosa	Hairy Orcutt grass	FE, SE, CRPR 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 100ft of the alignment in several areas along Sandy Mush Road and Rahilly Road. Proposed construction work in roadways and road shoulders would not directly impact this species; however, construction encroachment on vernal pool or swale habitat could indirectly impact this species. The nearest occurrence (Occ.# 16) is a historic occurrence from 1938 approximately 6.8 miles from the northern alignment and is presumed extirpated.

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

Scientific Name	Common Name	Status[1]	Habitat	Likelihood of Occurrence	Rationale
Puccinellia simplex	California alkali grass	CRPR 1B.2	Alkaline and vernally mesic chenopod scrub, meadows and seeps, vernal pools, and valley and foothill grasslands up to 2,950 feet elevation. Blooms from March to May.	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 indirectly impact this species. The nearest occurrence (Occ. #35) is a historic occurrence from 1935 and is approximately 2.6 miles from the southeastern portion of the alignment. Although historic, this occurrence is presumed extant.
Sagittaria sanfordii	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.	High	Stock ponds, ditches 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 indirectly impact this species. Potential population of Sanford's arrowhead was identified in an excavated agricultural ditch adjacent to the northern portion of the alignment (AD-3). The nearest occurrence (Occ. #75) from 2010 is approximately 3.1 miles from the northern portion of the alignment.
Sidalcea keckii	Keck's checkerbloom	FE, CRPR 1B.1	Serpentine and clayey soils in cismontane woodlands and valley	None	No suitable habitat for this species occurs along the alignment. The nearest occurrence (Occ. #53) from

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

Scientific Name	Common Name	Status[1]	Habitat	Likelihood of Occurrence	Rationale
			and foothill grasslands at elevations ranging from 250 to approximately 2130 feet. Blooms from April to June.		2016 is approximately 9 miles from the northeast edge of the alignment.
Trichocoronis wrightii var. *wrightii*	Wright's trichocoronis	CRPR 2B.1	Alkaline meadows and seeps, marshes and swamps, riparian forests, and vernal pools at elevations ranging from 15 to approximately 1,425 feet. Blooms from May to September.	Low / Moderate	Potentially suitable habitat for this species occurs adjacent to the alignment in several areas along Sandy Mush Road and Rahilly Road. Proposed construction work in roadways and road shoulders would not directly impact this species; however, construction encroachment on vernal pool or swale habitat could indirectly impact this species. The nearest occurrence (Occ. #10) from 2017 is approximately 2.4 miles from the southwest portion of the alignment.
Tuctoria greenei	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 100ft of the alignment in several areas along Sandy Mush Road and Rahilly Road. Proposed construction work in roadways and road shoulders would not directly impact this species; however, construction encroachment on vernal pool or swale habitat could indirectly impact this species. The nearest occurrence (Occ. #13) is a historic occurrence from 1980 and is approximately 6.3 miles from the southeastern portion of the alignment. Although historic, this occurrence is presumed extant.
INVERTEBRATES					

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

Scientific Name	Common Name	Status[1]	Habitat	Likelihood of Occurrence	Rationale
Branchinecta conservatio	Conservancy fairy shrimp	FE	Vernal pools.	Low / Moderate	Suitable habitat for this species occurs within 100ft of the alignment in several areas along Sandy Mush Road and Rahilly Road. Proposed construction work in roadways and road shoulders would not directly impact this species; however, construction encroachment on vernal pool or swale habitat could indirectly impact this species. The nearest occurrence (Occ. #35) from 2019 is located along the pipeline alignment on Sandy Mush Road.
Branchinecta lynchi	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 100ft of the alignment in several areas along Sandy Mush Road and Rahilly Road. Proposed construction work in roadways and road shoulders would not directly impact this species; however, construction encroachment on vernal pool or swale habitat could indirectly impact this species. There are several occurrences within one mile of the pipeline alignment. The nearest occurrence (Occ. #815) from 2019 is located along the pipeline alignment on Sandy Mush Road.
Danaus plexippus	Monarch butterfly	FC	Monarchs roost in eucalyptus, Monterey cypress, Monterey pine, and other trees in groves along the Pacific coastline of California, arriving starting in late October. Dispersal from these roosts generally begins in mid-February. Milkweed and nectar plant	Low	There is no suitable breeding or overwintering habitat to support this species on the project site. Monarchs have been known to feed on the nectar of alfalfa in some instances and may use riparian trees along drainage crossings for migratory roosting habitat. However, migratory habitat along the majority of the alignment is

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

Scientific Name	Common Name	Status[1]	Habitat	Likelihood of Occurrence	Rationale
			availability throughout the spring, summer and fall is important for monarch migration. In areas of the desert southwest, monarchs use nectar and milkweed plants throughout much of the year.		very limited due to the lack of roosting habitat, minimal shade availability, and poor water availability. The nearest occurrence is nearly 75 miles west of the site on the Pacific coast.
Desmocerus californicus dimorphus	Valley elderberry longhorn beetle	FT	Associated with blue elderberry shrubs (*Sambucus nigra* ssp. *caerulea*) in the Central Valley	Low	No blue elderberry shrubs were identified along the pipeline alignment. There is suitable riparian habitat for blue elderberry shrubs on several drainage crossings and surveys were conducted in November when blue elderberry shrubs have no leaves or flowers making identification of individual shrubs in dense riparian cover difficult. There may be elderberry shrubs present within dense riparian habitat along stream crossings and within 165 feet of the pipeline alignment though none were identified immediately adjacent to pipeline crossing locations. The nearest occurrence of VELB (Occ. #121) is a historic occurrence from 1993 and is approximately 5.7 miles from the southeastern portion of the alignment. Although historic, this occurrence is presumed extant.
Lepidurus packardi	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 100ft of the alignment in several areas along Sandy Mush Road and Rahilly Road. Proposed construction work in roadways and road shoulders would not directly impact this species;

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

Scientific Name	Common Name	Status[1]	Habitat	Likelihood of Occurrence	Rationale
					however, construction encroachment on vernal pool or swale habitat could indirectly impact this species. There are several occurrences within one mile of the alignment. The nearest occurrence (Occ. #353) from 2013 is adjacent to the alignment along Sandy Mush Road.
FISHES					
Hypomesus transpacificus	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 60 miles from the northwestern portion of the alignment.
Mylopharodon conocephalus	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) is a historic occurrence from 1989 and is approximately 6 miles from the northeastern portion of the alignment. Although historic, this occurrence is presumed extant.
Oncorhynchus mykiss irideus 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 believed to stop at the Merced River. The nearest occurrence (Occ. #25) from 2013 is approximately 4.7 miles from the southwestern portion of the alignment on the San Joaquin River. This occurrence includes data from

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

Scientific Name	Common Name	Status[1]	Habitat	Likelihood of Occurrence	Rationale
					historic occurrences dating back to 1968.
AMPHIBIANS					
Ambystoma californiense	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 immediately adjacent to the pipeline alignment, but suitable upland and dispersal habitat occurs within vernal pool grasslands immediately adjacent to the pipeline alignment along Sandy Mush Road and Rahilly Road. Potential summer refugia was not identified immediately adjacent to 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 indirectly impact this species. Due to the density of vernal pool habitat in the surrounding area there are multiple occurrences within one mile of the alignment. Along Sandy Mush Road, Occurrence #1220 from 2019 is a breeding occurrence located in vernal pool habitat at the Deadman Creek Conservation Bank adjacent to the alignment.
Lithobates pipiens	Northern leopard frog	CSC	Inhabits grasslands, wet meadows, bogs, marshes, and reservoirs.	None	Poor quality habitat is present at some of the stock ponds along the alignment. The majority of these ponds lack

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

Scientific Name	Common Name	Status[1]	Habitat	Likelihood of Occurrence	Rationale
			Generally, prefers permanent water with abundant aquatic vegetation		sufficient vegetation and support American bullfrogs which are a predator and competitor of the northern leopard frog. The nearest occurrence (Occ. #6) is a historic occurrence from 1976 and is approximately 4 miles from the southwestern portion of the alignment. Although historic, this occurrence is presumed extant.
Rana draytonii	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. This species is not known to occur in the Central Valley. The nearest occurrence (Occ. #901) is a historic occurrence from 1985 and is approximately 30 miles from the southwestern portion of the alignment.
Spea hammondii	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 Sandy Mush Road and Rahilly Road. 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 indirectly impact this species. Due to the density of vernal pool habitat in the surrounding area

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

Scientific Name	Common Name	Status[1]	Habitat	Likelihood of Occurrence	Rationale
					there are multiple occurrences within one mile of the alignment. The nearest occurrence (Occ. #1281) from 2018 is located along the alignment on Sandy Mush Road at the Deadman Creek Conservation Bank located adjacent to the alignment.
REPTILES					
Anniella pulchra pulchra	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 4.9 miles from the northwestern portion of the alignment.
Emys marmorata	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) is a historic occurrence from 1988 and is approximately 0.5 miles from the center of the alignment on Dutchman Creek. Although historic, this occurrence is presumed extant.
Gambelia sila	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) is a historic occurrence from 1991 and is approximately 3.1 miles from the southwestern portion of the alignment. This occurrence is likely extirpated.

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

Scientific Name	Common Name	Status[1]	Habitat	Likelihood of Occurrence	Rationale
Phrynosoma blainvillii	Coast horned lizard	CSC	Coniferous forests, grasslands, chaparral, and woodlands with sandy soil.	Low	No suitable habitat observed from the pipeline alignment. Potential lo quality habitat present off of alignment in undisturbed grasslands The nearest occurrence (Occ. #608) is a historic occurrence from 1989 and is approximately 5 miles from the northwestern portion of the alignment. Although historic, this occurrence is presumed extant.
Thamnophis gigas	Giant gartersnake	FT, ST	Marshes, sloughs, drainage ditches, and canals with slow moving water.	Low	Potentially suitable habitat for this species is present in irrigation 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 natural drainage crossing are intermittent creeks and would not provide summer water for GGS aquatic habitat. The nearest occurrence (Occ. #143) is a historic occurrence from 1976 and is approximately 8.7 miles from the southwestern portion of the alignment. Although historic, this occurrence is presumed extant.
BIRDS					
Accipiter cooperii	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 which is less

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

Scientific Name	Common Name	Status[1]	Habitat	Likelihood of Occurrence	Rationale
					than a mile from the western portion of the alignment.
Accipiter striatus	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 which is less than a mile from the western portion of the alignment.
Agelaius tricolor	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 that support cropland suitable for tricolor nesting and/or in riparian corridors near the pipeline alignment, such as Bear Creek, Black Rascal Creek, and the Chowchilla River. There are several occurrences of tricolor blackbird within one mile of the alignment. The nearest occurrence (Occ. #643) from 2012 is located adjacent to a portion of the alignment along Sandy Mush Road.
Athene cunicularia	Burrowing owl	CSC, BCC	Dry, open short grass, treeless plains that are associated with burrowing species. Underground nesting habitat in burrows.	High	Suitable habitat is present along the alignment in fields that are not actively being used for agricultural production and within grazed pastureland and conservation bank lands. Extensive ground squirrel colonies were observed within grazed pasturelands along Sandy Mush Road and Rahilly Road that provide suitable habitat for burrowing owl in proximity to the proposed pipeline alignment. The nearest occurrence (Occ. #1097) from

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

Scientific Name	Common Name	Status[1]	Habitat	Likelihood of Occurrence	Rationale
					2007 is located adjacent to the alignment south of Sandy Mush Road where extensive burrow clusters were observed during field surveys.
Buteo regalis	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 is present along the alignment. The nearest CNDDB occurrence (Occ.# 60) from 2006 is approximately 5.7 miles from the northwestern portion of the alignment. Unconfirmed citizen reports frequently report winter sightings of ferruginous hawk in the Merced National Wildlife Refuge which is less than a mile from the western portion of the alignment. No suitable breeding habitat is present along the pipeline alignment.
Buteo swainsoni	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 is common in the project area during the breeding season. Suitable nesting trees are present near much of the alignment and along the various riparian corridor crossings. There are several nesting occurrences within one mile of the alignment. The nearest occurrence (Occ. #1315) from 2008 is adjacent to the alignment along Sandy Mush Road.
Charadrius montanus	Mountain plover	CSC, BCC	Winters from September to mid-March in valleys and plains in the Sacramento and San Joaquin Valley.	Low	Potentially suitable wintering habitat is present along portions of 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

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

Scientific Name	Common Name	Status[1]	Habitat	Likelihood of Occurrence	Rationale
					occurrence (Occ. #8) from 1999 is approximately 10.5 miles from the northeastern portion of the alignment.
Circus hudsonius	Northern harrier	CSC	Forages and nests in freshwater and brackish marshes and their adjacent grasslands.	Moderate	This species was observed during surveys. Potentially suitable breeding habitat is located within 500 feet of the project site.
Coccyzus americanus occidentalis	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 drainage crossings that support riparian habitat. The nearest occurrence (Occ. #85) is a historic occurrence from 1950 is approximately 19.6 miles from the southern portion of the alignment.
Elanus leucurus	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 which is less than one mile 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 drainage crossings that support riparian habitat.
Haliaeetus leucocephalus	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	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 7.6 miles from the southeastern portion of the alignment.

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

Scientific Name	Common Name	Status[1]	Habitat	Likelihood of Occurrence	Rationale
			resident in northern California and an uncommon winter migrant in the south of the state		
Lanius ludovicianus	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.
Vireo bellii pusillus	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 drainage crossings that support riparian habitat. 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					
Antrozous pallidus	Pallid bat	CSC	Day roosts is caves and crevices and bridges; occasionally roosts in hollow trees and buildings.	Moderate	Potentially suitable roosting habitat present within riparian crossings with bridges (Black Rascal Creek, Bear Creek, Owens Creek, Duck Slough, Deadman's Creek). The nearest occurrence (Occ. #394) from 1999 is approximately 13.3 miles from the northern portion of the alignment.
Corynorhinus townsendii	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	No suitable roosting habitat occurs along the pipeline alignments that would be impacted by the Project. The nearest occurrence (Occ. #560) from 2010 is located 21 miles from the northeastern portion of the alignment on the Merced River.

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Scientific Name	Common Name	Status[1]	Habitat	Likelihood of Occurrence	Rationale
Dipodomys nitratoides exilis	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 inches in diameter and can extend from12 to 15 inches below ground	None	No suitable habitat is present along the alignment. The nearest occurrence (Occ. #22) from 1934 is located 16.4 miles from the southern portion of the alignment.
Eumops perotis californicus	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 3.9 miles from the northern portion of the alignment.

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

Scientific Name	Common Name	Status[1]	Habitat	Likelihood of Occurrence	Rationale
Lasiurus blossevillii	Western red bat	CSC	Roosts and feeds almost exclusively in riparian areas. Prefers cottonwoods, sycamores, and willows for roosting.	Low	Potentially suitable habitat for this species is present within the various drainage crossings that support riparian habitat. The nearest occurrence (Occ. #79) from 1999 is approximately 13.3 miles from the northeastern portion of the alignment on the Merced River.
Taxidea taxus	American badger	CSC	Drier areas with friable soils	Moderate	Suitable habitat for this species is present in areas along the alignment within grazed pastureland and conservation banks. Significant burrow clusters were observed in grazed pastureland along the alignment on Sandy Mush Road and Rahilly Road. An American badger carcass was observed along the alignment on S. Gurr Road at the Duck Slough drainage crossing. Proposed construction work in roadways and road shoulders would not impact this species. The nearest occurrence (Occ. #295) is located approximately 0.7 miles from a central portion of the alignment.
Vulpes macrotis mutica	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. #602) from 1986 is located at the Merced National Wildlife Refuge which is less than a mile from the western portion of the alignment.

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

Scientific Name	Common Name	Status[1]	Habitat	Likelihood of Occurrence	Rationale

[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, 2021b). 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 within 100 feet of the pipeline alignments (See Figures 2a and 2b).

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. In total, 33 waterway crossings were identified in the field. There were 11 natural drainages (ND) identified and 22 agricultural ditches (AD). The pipeline alignments cross several natural waterways and named waterways. The named natural waterway crossings include: Bear Creek, Black Rascal Creek, Owens Creek, Deadman's Creek, Duck Slough, and the Chowchilla River. The pipeline alignment crosses several of these drainages at two locations including the Chowchilla River, Bear Creek, and Duck Slough. Following is a discussion of site conditions at the notable named natural drainage crossing locations starting in the northwestern corner of the pipeline alignment and moving to the southeast. Please see Appendix D for additional detail about all mapped drainage crossings.

The crossing of Black Rascal Creek (ND-1) occurs on Oak Avenue in the northwestern corner of the pipeline alignment. Oak Avenue is a concrete bridge crossing over Black Rascal Creek which supports old cliff swallow and black phoebe (*Sayornis nigricans*) mud nests. At the time of surveys, water was flowing through the creek and the creek width varied between approximately 40 and 55 feet. The steep banks of the creek supported annual grasslands with a sparse to dense cover of small riparian trees and shrubs including narrow-leaved willow, California black walnut (*Juglans hindsii*), giant reed (*Arundo donax*), and tree tobacco (*Nicotiana glauca*). Several valley oak (*Quercus lobata*) trees also occur on the levees. Additionally, a band of emergent wetland vegetation including tule, broad-leaved cattail, and lamp rush (*Juncus effusus*) occurs along the creek bank.

The northern crossing of Bear Creek (ND-2) also occurs on Oak Avenue and is a concrete bridge similar to the one at ND-1. The width of the Bear Creek channel at this location was approximately 25 feet and at the time of surveys there was no water in the creek bed. At the drainage crossing, the banks of the creek were covered with a dense stand of giant reed with few California black walnut and narrow-leaved willow

interspersed. There was also a dense briar patch of Himalayan blackberry on one of the creek's banks. Some large eucalyptus (*Eucalyptus* sp.) were present on the levees.

The southern crossing of Bear Creek (ND-5) is on West Dickenson Ferry Road. The approximate width of the channel was 35 feet, and the road spanned the creek with a concrete bridge. At the time of surveys, there was a narrow pool of water meandering in the bed of the creek. The banks of the creek under the bridge were covered in large rip rap with limited vegetation present. Vegetation on the creek banks supported a dominance of narrow-leaved willow forming a dense shrub cover adjacent to the bridge.

The Owen's Creek crossing (ND-6) is located on Gurr Road. Gurr Road crosses over Owen's Creek with a small concrete bridge. At the time of surveys, water was flowing through a portion of the bed of the creek. Near the waterline on the banks of the creek, vegetation observed includes mugwort (*Artemisia douglasiana*), stinging nettle (*Urtica dioica*), and water smartweed. Dense stands of tule and broad-leaved cattail were present in the bed of the channel and old cliff swallow nests were observed on the footings of the bridge.

The western crossing of Duck Slough (ND-7) is located on Gurr Road near the western terminus of Rahilly Road. Gurr Road crosses Duck Slough with a concrete bridge. The channel was approximately 25 feet wide and at the time of surveys was mostly dry although there were some isolated pools of water present. The bed of the channel was mostly covered in dense emergent vegetation including water smartweed and tule. Large colonies of red-winged blackbirds were observed in the dense tule cover. To the east of Gurr Road there is another crossing of Duck Slough (ND-9). At this location there is no road crossing over the channel and installation of a pipeline crossing at this location would require boring under the channel or open trench installation through the channel. The channel is approximately 20 feet wide at this location and there was a dense cover of emergent wetland vegetation present in the bed of the channel. There were isolated pools of water present in the bed of the channel as well.

The Deadman's Creek crossing (ND-8) is located on the southern end of Gurr Road near the intersection of Sandy Mush Road. The channel is approximately 25 feet wide and is spanned by a concrete bridge. At the time of surveys there was no water present in the channel and there was very limited vegetation growing on the bed. Water smartweed grew on portions of the bank and in some areas grew into the channel bed as well. Large clusters of cliff swallow nests were identified at the top of all of the footings supporting the bridge.

The western crossing of the Chowchilla River (ND-10) is located on the southeastern portion of the pipeline alignment on Road 9 / Bliss Road south of the intersection of Avenue 26. Flow from the Chowchilla River is directed under Bliss Road through three

large culverts. The channel is approximately 40 feet wide at the crossing and at the time of surveys there was no water present. In the bed of the channel sparse ruderal vegetation was present including common sunflower (*Helianthus annus*) and pigweed (*Amaranthus* sp.).

The eastern crossing of the Chowchilla River (ND-11) is a concrete bridge crossing located on Avenue 26 / Faust Road. At the time of filed surveys, there was a narrow low-flow channel, approximately 6 feet wide, meandering through a shallow floodplain that was approximately 50 feet wide. There was no water present in the channel. A narrow bank of lamp rush was growing along the banks of the narrow channel and the floodplain primarily supported annual grasses and forbes. There was a well-developed riparian forest at this crossing location comprised mostly of large valley oaks and Fremont cottonwoods (*Populus fremontii* ssp. *fremontii*).

The remainder of the drainage crossings mapped along the alignment consist primarily of agricultural ditches that potentially have connectivity to other waterways outside of the agricultural fields or are part of a larger region-wide agricultural irrigation system. Several of the agricultural drainage crossings are large canal features such as the Deane Canal that was conveying swiftly moving water along Gurr Road. 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 south of Rahilly Road and on both the north and south sides of Sandy Mush Road. The grasslands on both sides of Sandy Mush Road are designated as Critical Habitat for federally listed vernal pool species including Colusa grass, vernal pool fairy shrimp, and vernal pool tadpole shrimp. There are numerous locations where vernal pools occur within 100 feet of the roadway and pipeline alignment, and several locations where vernal pools or swales occur in close proximity within 20 feet of the shoulder of the road. The vernal pools observed from the road were all inaccessible for surveys due to their location behind fences on private property; however, vernal pool indicators were visible through binoculars including plant species gradation, low topography, and changes in vegetative cover percentages. Segments of the pipeline alignment with high vernal pool sensitivity are noted on Figure 2 and in several cases the edge of vernal pool habitat occurs within 25 feet of the existing roadway.

The drainage crossings discussed in Appendix D 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 Pipeline Expansion Project would involve the temporary disturbance of up to 39.5 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 33 drainages, which may be completed through trench excavation or boring, depending on the location and feasibility of bridge mounted crossings. 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 Pipeline Expansion 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 USWFS;
- 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 and within the pipeline disturbance area is considered extremely low due to a lack of suitable habitat within agricultural lands routinely disturbed for crop cultivation and developed roadways. Additionally, the likelihood of special-status plant species occurring within farm roads or on County road shoulders is also extremely low due to a lack of suitable habitat and a high level of disturbance. However, special-status plant species are known to occur in 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 and several wetland plant species have the potential to occur in drainage crossings (CNPS, 2021; CDFW, 2021). At several locations (e.g. grazed pasture and conservation bank land along Sandy Mush Road and Rahilly Road) 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 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 but potentially in ditches, or in vernal pools and swales occurring in the vernal pool grasslands along Sandy Mush 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*), alkali-sink goldfields (*Lathenia chrysantha*), 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*), Wright's trichocoronis (*Trichocoronis wrightii* var. *wrightii*), 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 and the earthen agricultural ditch crossing locations are avoided using alternate alignments, bridge mounted crossings, or installed using boring 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 roadway.

BIO-1B: If pipeline installation at the natural drainage crossings and/or earthen agricultural ditch crossings involves trench excavation across the waterways (creeks, channels, swales, earthen ditches), 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 waterway crossing impact areas 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 and vernal pool conservation bank lands. The areas where pipeline construction occurs adjacent to vernal pool grasslands include: Sandy Mush Road (vernal pool grasslands occur on both sides of road at this location) and Rahilly Road (vernal pool grasslands occur on south side 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 Sandy Mush Road is proposed in or on the shoulder of the existing paved roadway. Construction of the pipeline alignment on this road will involve construction in close proximity to vernal pool habitat in two distinct segments. At the western limits of the pipeline alignment along Sandy Mush Road, by the Homen Dairy, vernal pool habitat occurs on the north side of the road in an undeveloped grassland. At this location, the pipeline would be constructed on the south side of Sandy Mush Road east of the entrance to the Homen Dairy in order to provide additional buffer and a developed roadway barrier between pipeline construction activities and habitat suitable for listed vernal pool species.

Further east on Sandy Mush Road, starting approximately at the Merced County Correctional Center, undeveloped grasslands supporting vernal pool and swale habitat occur on both the north and south sides of the road. The vernal pool grassland habitat

continues on both sides of Sandy Mush Road for the majority of the pipeline alignment to the eastern limits at Los Banos Highway.

Construction of the pipeline alignment in this portion of the project is in close proximity to vernal pool grasslands owned by conservation banks and managed to support and promote occurrences of listed species. Vernal pool and swale habitat occurs within 100 feet of the roadway and in some cases, less than 30 feet from the roadway. These features were behind fences on private property and inaccessible for survey but based on habitat suitability observations made from the fence line and known occurrences in the area this vernal pool grassland is highly likely to 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 Rahilly Road is proposed in or on the shoulder of the existing paved roadway. At the Vander Woude Dairy location, on the south side of Rahilly Road, there is grazed pastureland that supports vernal pool habitat with vernal pools that occur near the fence line. At this location, the pipeline would be constructed on the north side of Rahilly Road west 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. Immediately adjacent to the east side of the grazed pasture is a vernal pool grassland that is designated as Critical Habitat for Colusa grass, VPFS, and VPTS (Unit 14J). The vernal pool habitat in the grazed pastureland could support federally listed vernal pool species (USFWS, 2006).

The USFWS typically requires a 250-foot setback for vernal pool habitat occupied by listed branchiopod species 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, and because VPBs are known to occur in vernal pool habitat on conservation bank lands along Sandy Mush Road, we assume listed VPBs are present in vernal pool habitat within 250 feet of the roadway 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 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 Rahilly Road on the north side of the roadway at the Vander Woude Dairy property; the paved section of the roadway or unvegetated road shoulder immediately adjacent to the paved section of Sandy Mush Road on the south side of the roadway at the Homen Dairy property; and within the paved section of the roadway or unvegetated road shoulder immediately adjacent to the paved section of the roadway on Sandy Mush Road from the Merced County Correctional Facility to Los Banos Highway (vernal pool grasslands on both sides).

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 Rahilly Road and Sandy Mush Road 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 installation-related ground disturbance is entirely located within the paved roadway or disturbed shoulder on Sandy Mush Road between the Merced County Correctional Facility and Los Banos Highway; pipeline installation at the western limits of the alignment on Sand Mush Road near Homen Dairy is sited on the south side of the paved roadway (opposite grassland areas supporting vernal pool habitat); and pipeline installation along Rahilly Road is sited on the north side of the paved roadway at the Vander Woude Dairy property (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 Rahilly Road on the north side of the roadway at the Vander Woude Dairy; the paved section of the roadway or unvegetated road shoulder immediately adjacent to the paved section on the south side of Sandy Mush Road by the Homen Dairy; and within the paved section of the roadway or unvegetated road shoulder immediately adjacent to the paved section on Sandy

Mush Road from the Merced County Correctional Facility to Los Banos Highway where vernal pool grassland occurs on both sides of the roadway.

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

> 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.

No excavation directly within vernal pool or swale habitat is planned; therefore, direct habitat modification is not expected, and vernal pool habitat restoration or compensatory mitigation is not required.

Valley Elderberry Longhorn Beetle

No blue elderberry shrubs were identified along the pipeline alignment; however, there is suitable riparian habitat for blue elderberry shrubs on several drainage crossings and surveys were conducted in November when blue elderberry shrubs have no leaves or flowers making identification of individual shrubs in dense riparian cover difficult. There may be elderberry shrubs present within dense riparian habitat along stream crossings and within 165 feet of the pipeline alignment though none were identified immediately adjacent to pipeline crossing locations.

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. Because surveys were conducted during the winter dormant season, occurrence of blue elderberry shrubs within 165 feet of pipeline construction cannot be ruled out and installation of the pipeline may encroach to within 165 feet of potential VELB habitat but would avoid the 20-foot core area of the shrub. **(Potentially significant)**

Recommended Mitigation BIO-3:

BIO-3A: Construction of the pipeline may require excavation within 165 feet of a blue elderberry shrub providing suitable habitat for the VELB. To conclusively determine occurrence of blue elderberry shrubs within 165 feet of the pipeline alignment and apply appropriate mitigation measures, additional surveys for blue elderberry shrubs will be performed within 165 feet of drainage crossings with riparian cover during the blue elderberry blooming period (March through July) when the blue elderberry shrub is detectable in dense riparian vegetation. If no blue elderberry shrubs occur within 165 feet of the pipeline alignment, no mitigation is required.

BIO-3B: If surveys conducted during the blooming period indicate that blue elderberry shrubs occur within 165 feet of the pipeline alignment, 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.

No excavation or ground disturbance within the 20-foot core area of a blue elderberry shrub will occur and no shrub removal is required for the project; direct habitat modification is not expected, and compensatory mitigation is not required.

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 adjacent to the alignment and within one mile of the project site. Additionally, the drainages (channels and swales) within the grassland habitat along Sandy Mush

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 Sandy Mush Road 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 Deadman Creek Mitigation Bank is located adjacent to the project alignment along Sandy Mush Road and the Dutchman Creek Mitigation Bank is located approximately 0.5-mile east of the eastern limits of the pipeline expansion alignment on Sandy Mush Road. There is also a known occurrence of CTS from 1994 in the vernal pool grassland at the Merced National Wildlife Refuge located approximately 0.5-mile southwest of the western limits of the pipeline expansion alignment on Sandy Mush Road (CDFW, 2021). No major barriers or land disturbances are located between the known occurrences of CTS and western spadefoot at Deadman Creek Mitigation Bank and the pipeline alignment along Sandy Mush Road, Rahilly Road, and the southern portion of S. Gurr Road. Active agricultural land occurs between the Dutchman Creek and the Merced National Wildlife Refuge CTS occurrences 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 road shoulders during field surveys; therefore, the impact area associated with pipeline construction does not provide non-nonbreeding 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 known breeding and upland habitat within vernal pool grasslands adjacent to the pipeline alignment, the project could impact CTS or western spadefoot. **(Potentially significant)**

Recommended Mitigation BIO-4:

BIO-4A: If pipeline installation on Sandy Mush Road, Rahilly Road adjacent to vernal pool grasslands, and on S. Gurr Road at the Deadman Creek (ND-8) drainage crossing are designed to avoid impact to suitable amphibian dispersal habitat through installation techniques involving bridge attachment, boring under the drainage, or by using open cut trench excavation only within the disturbed or paved roadway or shoulder, and all ground disturbance is located in developed lands outside of potential amphibian dispersal corridors, then 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 Rahilly Road on the north side of the roadway at the Vander Woude Dairy; the paved section of the roadway or unvegetated road shoulder immediately adjacent to the paved section on the south side of Sandy Mush Road by the Homen Dairy; and within the paved section of the roadway or unvegetated road shoulder immediately adjacent to the paved section on Sandy Mush Road from the Merced County Correctional Facility to Los Banos Highway where vernal pool grassland occurs on both sides of the roadway.

BIO-4B: If pipeline installation on Sandy Mush Road, Rahilly Road adjacent to vernal pool grasslands, and on S. Gurr Road at the Deadman Creek (ND-8) drainage crossing involves trench excavation or any other ground disturbance within the drainage crossing or vernal pool grasslands, the following measures shall be implemented:

1. Construction for pipeline installation at the drainage crossing and/or in 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 in vernal pool grassland habitat and drainage crossing locations focused on identification of burrows or other suitable summer refugia that may be impacted by pipeline installation. Surveys will be completed within 48 hours prior the onset of work activities in these locations.
3. If CTS and/or western spadefoot is observed or burrows or other suitable summer refugia are identified within the construction work area, the biologist will coordinate with CDFW and USFWS to ensure that the individuals are not harmed. If burrow excavation and/or relocation of amphibians 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 burrow excavation and amphibian relocation must be pre-approved by the USFWS and CDFW and be conducted by an agency approved permitted 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). All of the natural waterways within the project area including the Chowchilla River, Deadman’s Creek, and Bear Creek are intermittent and would not provide sufficient

summer aquatic habitat for the GGS. Agricultural ditches and canals have managed flows and some may support summer water; however, ditches and canals 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 Black Rascal Creek, Bear Creek, Duck Slough, Deane Canal, unnamed drainages, and agricultural ponds. There is one historic occurrence of western pond turtle in Dutchman Creek near Sandy Mush Road approximately 0.5 miles from the pipeline alignment. 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 any of the drainage crossing locations 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 the road.

BIO-5B: If pipeline installation at any of the drainage locations 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 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

There is a 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 August 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 for encroachment on the nest protection buffers must be obtained from the CDFW.

Preconstruction surveys and avoidance measures would reduce this impact to less than significant.

Tricolored Blackbird

Tricolored blackbird (TCBB) is a California threatened species under CESA. Based on statewide surveys, the TCBB population has declined by 63 percent in recent 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 nest protection buffer of 100 feet has been applied for 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 gathering pipelines will result in temporary disturbance of habitat along the proposed pipeline alignment. There are no permanent impacts associated with the Merced Biogas Pipeline Expansion Project; 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:

To reduce project related impacts to TCBB nesting colonies, 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.

Burrowing Owl

The burrowing owl, a California Species of Special Concern and USFWS Bird of Conservation Concern, is known to occur within grazed pastureland and on conservation bank lands in close proximity to the pipeline expansion alignment along Sandy Mush Road. Extensive burrow clusters providing suitable habitat for burrowing owl were observed within grazed pastureland along Sandy Mush Road, Rahilly Road, and at one location on Dickenson Ferry Road (see Figure 2). The nearest recorded occurrence is adjacent to the alignment south of Sandy Mush Road where extensive burrow clusters were observed during field surveys.

Due to the proximity of suitable habitat and known occurrences of burrowing owl to the pipeline alignment, impact to nesting burrowing owls could occur as a result of construction disturbance. Nest disturbance would be a potentially significant impact, and the following mitigation would be required. **(Potentially significant)**

Recommended Mitigation BIO-8:

BIO-8A: Pre-construction Survey. A pre-construction survey of areas providing suitable burrowing owl habitat within 1,640 feet (500 meters) of the pipeline alignment will be conducted by a qualified raptor biologist prior to ground disturbance.

1. At least two surveys will be conducted, and surveys will conclude no more than two calendar days prior to construction.
2. To avoid last minute changes in schedule, the project proponent may conduct a preliminary survey up to 14 days before construction. The preliminary survey may count as the first of the two required surveys.

If the required pre-construction surveys show there are no active burrowing owl nests within the 1,640 feet (500 meters) of construction activities, then no further mitigation for burrowing owl nest disturbance will be required.

BIO-8B: Burrow Avoidance. If an occupied burrow is discovered during pre-construction surveys, a protective buffer consistent with CDFW guidelines will be established. Appropriate protective buffers depend on the type of burrowing owl occurrence (nesting or overwinter), level of project disturbance, and time of year that the disturbance occurs. Nest protective buffers consistent with CDFW guidelines are outlined below.

Location	Time of Year	Level of Disturbance		
		Low	Med	High
Nesting Site	April 1 – Aug 15	200 m	500 m	500 m
Nesting Site	Aug 16 – Oct 15	200 m	200 m	500 m
Nesting Site	Oct 16 – March 31	50 m	100 m	500 m

A reduced buffer may be implemented upon CDFW approval and based upon site specific conditions, nesting phenology, and recommendation of the qualified biologist.

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. Suitable Swainson's hawk nesting habitat was observed at several locations in the project site, including but not limited to Eucalyptus trees on Rahilly Road, riparian trees along several drainages in the northern portion of the project site, and riparian trees on the Chowchilla River in the southeastern portion of the project site. Due to the proximity of suitable nesting habitat to the pipeline expansion alignment, direct impacts could occur, if a Swainson's hawk nests in trees on the pipeline alignment. There are 45 Swainson's

hawk occurrences within the quadrangles surrounding the project site, 31 of which are recent occurrences (CDFW, 2021). Swainson's hawks generally forage within 10 miles of their nest tree, and more commonly within five miles of their nest tree (CDFW, 1994).

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). No permanent impacts or cropland conversion would occur as a result of the pipeline expansion project; therefore, no loss of foraging habitat would occur.

Because Swainson's hawk is a state-listed species and there is an abundance of potential nesting habitat in close proximity to the pipeline alignment, nest disturbance would be a potentially significant impact, and the following mitigation would be required. **(Potentially significant)**

Recommended Mitigation BIO-9:

BIO-9A: 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-9B: *Protocol Surveys*: For work that occurs between March 1 and August 30, a qualified biologist with expertise in Swainson's hawk biology 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.

BIO-9C: *Nest Avoidance*: Based on results the protocol surveys, if nesting Swainson's hawks are found to occur within 0.5-mile of the project site, 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.

Bats

Many of the natural drainage crossings have concrete brides that could provide maternal, daytime roosting habitat for bat species including the pallid bat, a California Species of Special Concern. These include crossings at Black Rascal Creek, Bear Creek, Owens Creek, Duck Slough, Deadman's Creek, and the Chowchilla River (ND-1 through ND-8). Depending on the construction methodology employed for the installation of the pipeline across these drainage crossings, the project could have an impact on roosting bats (**Potentially significant)**

Recommended Mitigation BIO-10:

BIO-10A: If pipeline installation across natural drainages is installed using drilling techniques, and all ground disturbance is located in upland areas more than 100 feet from the bridge location, then implementation of the project is expected to have a less than significant impact to bats and no mitigation is required.

BIO-10B: If pipeline installation across natural drainages with a bridge crossing is installed using trench excavation across the waterways within 100 feet of the bridge or the pipeline will 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 bridge crossing locations (during the maternity season (March 1 - August 31). The survey shall be conducted within 14 days of proposed impacts within 100 feet of the bridge location.
2. If a visual survey indicates that the 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 special-status bat species, CDFW will be notified of the presence of special-status bat species and construction within 100 feet of the bridge will take place outside of the maternal roosting season (March 1 - August 31).

San Joaquin Kit Fox (SJKF)/ American Badger

Significant burrow clusters were observed in grazed pastureland along the pipeline alignment on Sandy Mush Road and Rahilly Road providing suitable habitat for SJKF and American badger and a badger carcass was observed on S. Gurr Road at the Duck Slough Crossing. It is not expected either species would den within the excavation footprint of the proposed pipeline alignment due to placement of the pipeline within developed roadways or road shoulders along Sandy Mush Road and Rahilly Road adjacent to grazed pasture with significant burrowing activity. 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 less than a mile west of the project site (CDFW, 2021). The nearest recorded occurrence of American badger is 0.7-mile from the project site at the Dutchman Creek Mitigation Bank and an American badger carcass was observed on S. Gurr Road at the Duck Slough crossing during surveys (CDFW, 2021). (**Potentially significant)**

Recommended Mitigation BIO-11:

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 M 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 CNDDB. 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 33 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 through bridge attachment 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 attachment pipeline installation to span channel to eliminate impact within jurisdictional areas; b) boring installation

techniques 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 federal and state jurisdictional areas and potential project impacts, and 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. The jurisdictional boundaries can be used to calculate impact acreage necessary for preparing a WoUS/Wetland Mitigation Plan and/or permit application if impacts to jurisdictional areas cannot be avoided, or they can be used to further refine 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 majority of the pipeline expansion project occurs within the Grasslands Ecological Area and the Grasslands Focus Area and the western limits of the alignment on Sandy Mush Road are approximately 0.5-mile from the Merced National Wildlife Refuge. The pipeline expansion project would result in only temporary impacts that would be restored to pre-project conditions upon completion of the project; therefore, impacts to wildlife movement are short term and temporary and would not permanently disrupt wildlife movement or impede the use of wildlife nursery sites. (**No impact**)

Conflict with policies or ordinances

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

Conflict with a Conservation Plan

The proposed Merced Biogas Pipeline Expansion 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)**

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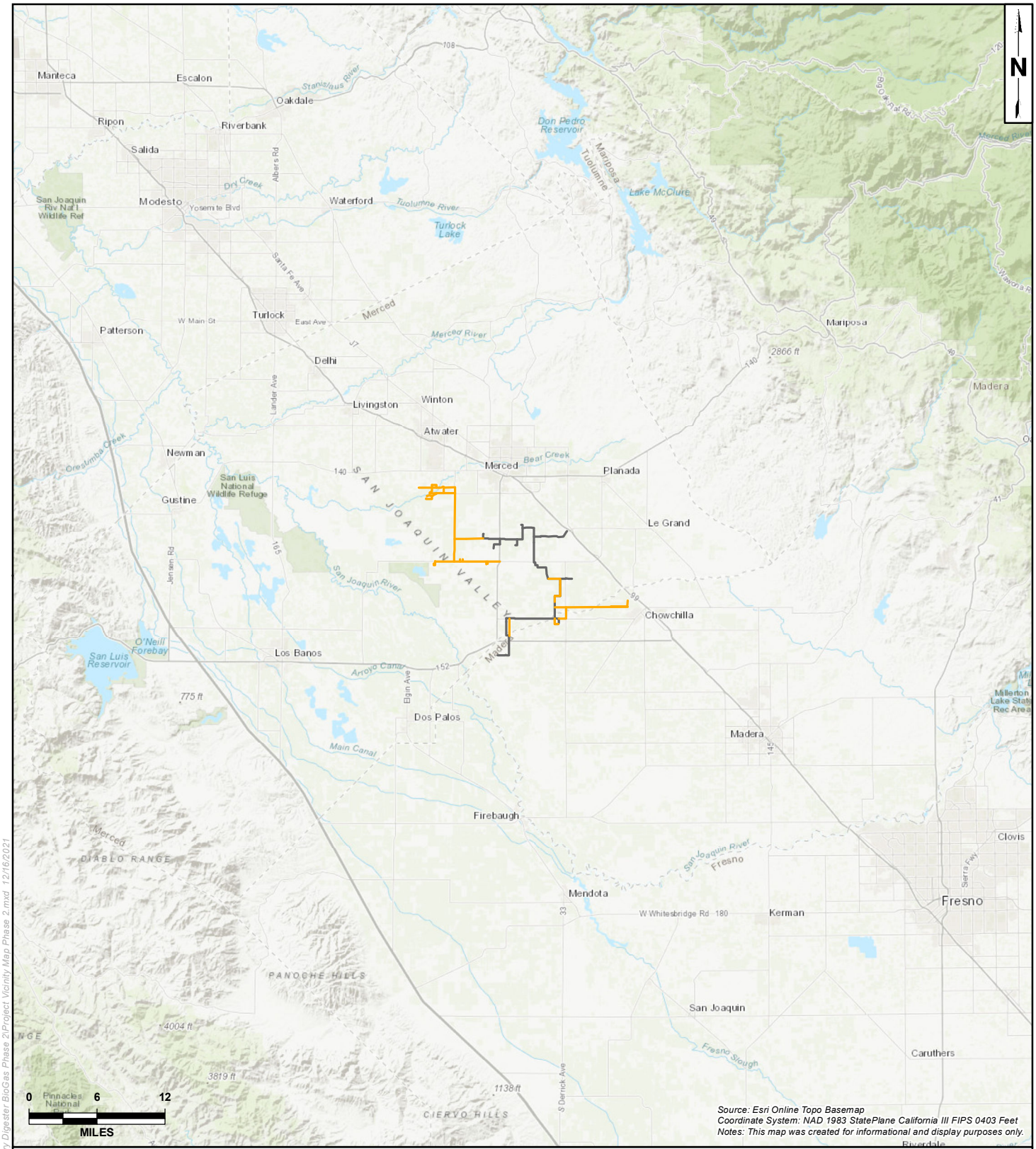
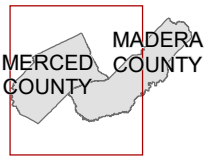
FIGURES



LEGEND:

- Biogas Pipeline (Existing Alignment)
- Biogas Pipeline (Expansion Alignment)

MAP EXTENT:



padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: MERCED BIOGAS PIPELINE EXPANSION PROJECT MERCED COUNTY, CA

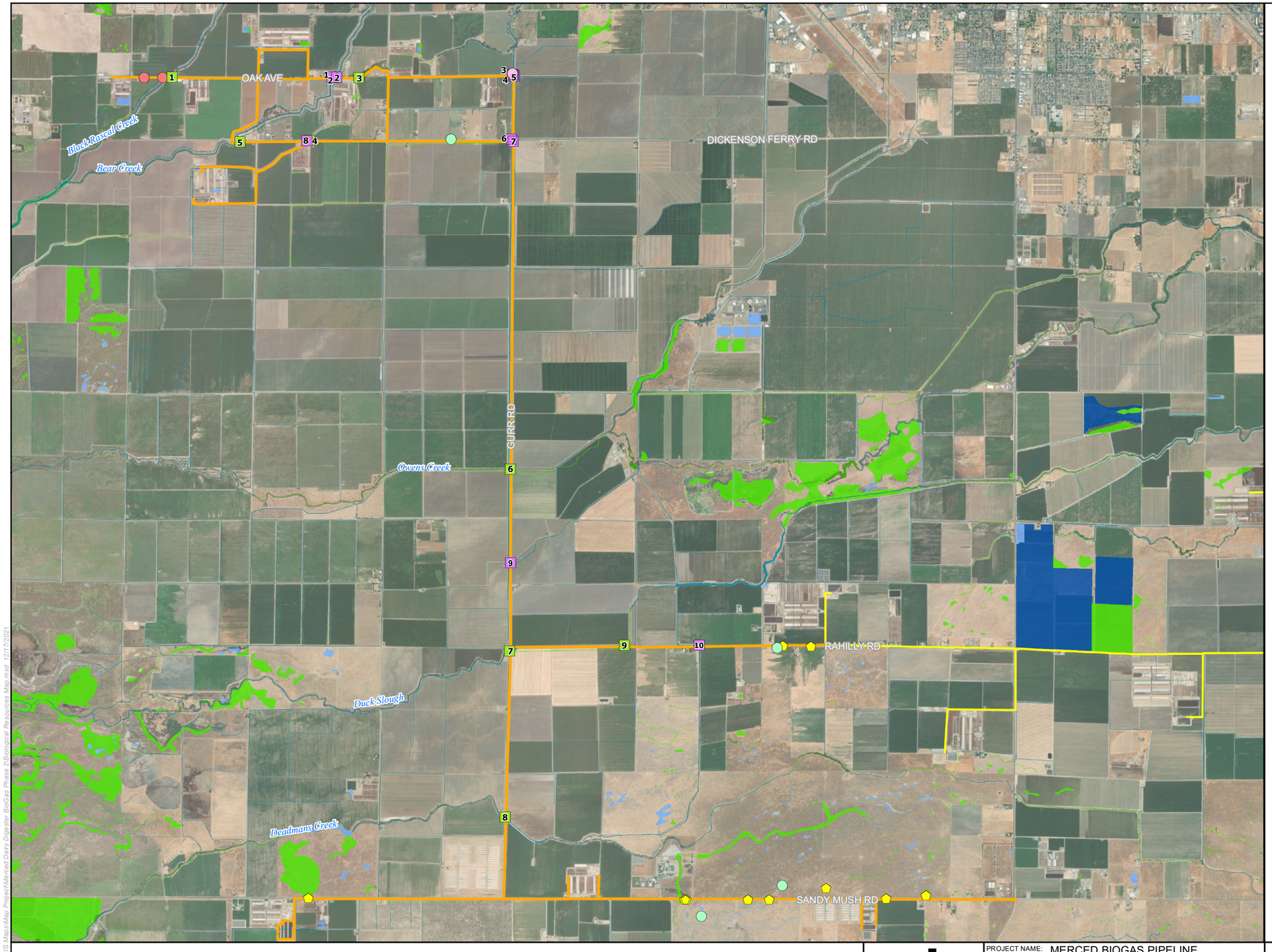
PROJECT NUMBER: 2102-1061

DATE: December 2021

PROJECT VICINITY MAP

FIGURE 1

Z:\GIS Projects\GIS Maps\Map Project\Merced Dairy Digester BioGas Phase 2\Project Vicinity Map Phase 2.mxd 12/16/2021



LEGEND:

Biogas Pipeline Expansion Biological Resources

- Agricultural Ditch or Canal Crossing (AD)
- Large burrow cluster
- Natural Drainage Crossing (ND)
- Potential Population of *Sagittaria* sp.
- Vernal Pool
- Wet Meadow
- Biogas Pipeline (Expansion Alignment)
- Biogas Pipeline (Existing Alignment)

National Wetland Inventory (NWI)

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine
- County Boundary

N

0 2,100 4,200
FEET

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

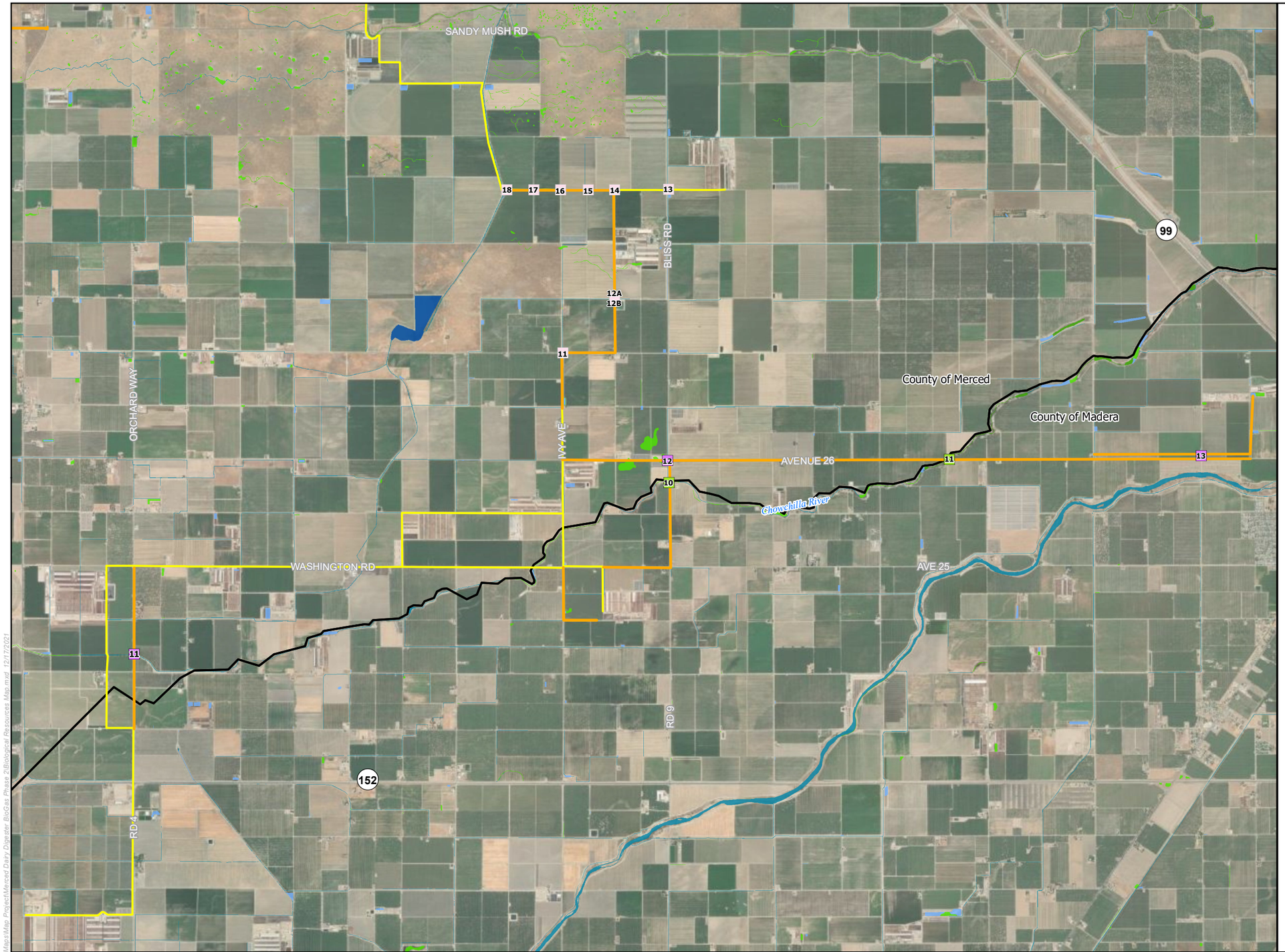
padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: MERCED BIOGAS PIPELINE EXPANSION PROJECT MERCED AND MADERA COUNTY, CA
PROJECT NUMBER: 2102-1061
DATE: December 2021

BIOLOGICAL RESOURCES MAP

FIGURE 2A

Z:\GIS Projects\GIS Maps\Map Project\Merced Dairy Digester BioGas Phase 2\Biological Resources Map.mxd 12/17/2021



LEGEND:

Biogas Pipeline Expansion Biological Resources

- Agricultural Ditch or Canal Crossing (AD)
- Natural Drainage Crossing (ND)
- Biogas Pipeline (Expansion Alignment)
- Biogas Pipeline (Existing Alignment)

Biogas Pipeline Existing Alignment Biological Resources

- Agricultural Ditch or Canal Crossing (Existing Alignment with Updates)

National Wetland Inventory (NWI)

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine
- County Boundary

N

0 2,500 5,000
FEET

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

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: MERCED BIOGAS PIPELINE EXPANSION PROJECT
MERCED AND MADERA COUNTY, CA
PROJECT NUMBER: 2102-1061
DATE: December 2021

BIOLOGICAL RESOURCES MAP

FIGURE 2B

Z:\GIS Projects\GIS Maps\Map Project\Merced Dairy Digester BioGas Phase 2\Biological Resources Map.mxd 12/17/2021

N

LEGEND:

- Biogas Pipeline (Expansion Alignment)
- Five Mile Radius
- USFWS Designated Critical Habitat for Vernal Pool Species

CNDDB Occurrences

- Plant (80m)
- Plant (specific)
- Plant (non-specific)
- Plant (circular)
- Animal (80m)
- Animal (specific)
- Animal (non-specific)
- Animal (circular)
- Terrestrial Comm. (circular)
- Multiple (80m)
- Multiple (specific)
- Multiple (non-specific)
- Multiple (circular)
- Sensitive EO's (Commercial only)

FOR INTERNAL USE ONLY;
NOT FOR PUBLIC RELEASE

0 1.5 3
MILES

Source: Esri Online Imagery Basemap, BioGas Engineering, CNDDB May 2019
Coordinate System: NAD 1983 StatePlane California III FIPS 0403 Feet
Notes: CNDDB = California Natural Diversity Database.
This map was created for informational and display purposes only.

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: MERCED BIOGAS PIPELINE EXPANSION PROJECT MERVED AND MADERA COUNTY, CA
PROJECT NUMBER: 2102-1061
DATE: December 2021

SPECIAL-STATUS SPECIES MAP

FIGURE 3

Project\Merced Dairy Digester BioGas Phase 2\Special Status Species Map Phase 2.mxd 12/2/2021

Photo 1. View of the wet meadow adjacent to Oak Avenue in NW portion of Biogas pipeline expansion alignment. Wet meadow occurs in pastureland on south side of Oak Ave.

Photo 2. View of the concrete bridge at the Black Rascal Creek crossing location (drainage crossing ND-1).

Photo 3. View of Bear Creek and the concrete bridge on Oak Avenue (drainage crossing ND-2). View south toward Oak Avenue.

Photo 4. North view of agricultural ditch immediately adjacent to and west of Bear Creek at the Oak Avenue crossing location (drainage crossing AD-1).

Photo 5. South view of the small concrete bridge on Oak Avenue along the proposed pipeline alignment at a natural drainage crossing (drainage crossing ND-3).

Photo 6. North view of agricultural ditch with population of arrowhead (*Sagittaria* sp.) possible rare plant occurrence. Need to re-visit during blooming period to confirm (drainage AD-3).

Photo 7. South view of agricultural ditch on west side of S. Gurr Road. Proposed pipeline would cross this ditch on Oak Avenue at concrete bridge location (drainage crossing AD-5).

Photo 8. North view of remnant channel segment at W. Dickenson Ferry Road crossing (drainage crossing ND-4).

Photo 9. South view of Bear Creek at bridge crossing on W. Dickenson Ferry Road (drainage crossing ND-5).

Photo 10. North view of pastureland on W. Dickenson Ferry Road that provides suitable burrowing owl habitat. Ground squirrel activity observed in this pasture.

Photo 11. West view of S. Gurr Road at Owens Creek crossing location (drainage crossing ND-6). Dense wetland vegetation occurs in channel east of bridge crossing.

Photo 12. View of concrete bridge at S. Gurr Road crossing of Duck Slough (drainage crossing ND-7).

Photo 13. Cliff swallow nests observed on bridge footings under S. Gurr Road crossing of Duck Slough (drainage crossing ND-7).

Photo 14. View of concrete bridge at S. Gurr Road crossing of Deadmans Creek (drainage crossing ND-8).

Photo 15. North view of pastureland north of Sandy Mush Road. Suitable vernal pool habitat occurs at this location.

Photo 16. South view of vernal pool in grassland pasture south of Sandy Mush Road. Vernal pool is <250 feet from Sandy Mush Road and proposed pipeline alignment.

Photo 17. South view of ground squirrel activity observed in vernal pool grassland south of Sandy Mush Road.

Photo 18. North view of vernal pool grassland north of Sandy Mush Road. Vernal pool grasslands occur on both sides of Sandy Mush Road at this location.

Photo 19. South view of vernal pool grassland and suitable burrowing owl habitat in pasture south of Rahilly Road.

Photo 20. South view of agricultural ditch crossing on Rahilly Road (drainage crossing AD-10).

Photo 21. West view of approximate proposed pipeline crossing location on Duck Slough north of Rahilly Road (drainage crossing AD-9).

Photo 22. Northwest view of Chowchilla River at Road 9 / Bliss Road crossing location (drainage crossing ND-10)

Photo 23. Southwest view of Chowchilla River at Avenue 26 / Faust Road crossing location (drainage crossing ND-11).

Photo 24. North view of agricultural ditch crossing at alternative pipeline alignment through agricultural field north of Avenue 26 (drainage crossing AD-13).

Photo 25. North view of agricultural ditch crossing on private road (drainage crossing AD-12).

Photo 26. View of trees that provide suitable nesting habitat for Swainson's hawk. Biological surveys were conducted outside nesting season.

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	**Ongoing Inventory of Open Space Resources (MPSP/PSR/SO)** 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.
Program NR-G	**Open Space Development Review System (RDR/IGC)** 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. 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. 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. 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: 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. 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-I	**Agricultural Education Program (SO/IGC/PI)** 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. 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.

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: October 27, 2021
Consultation Code: 08ESMF00-2022-SLI-0223
Event Code: 08ESMF00-2022-E-00650
Project Name: Merced Biogas Pipeline Expansion Project

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

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, 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: 08ESMF00-2022-SLI-0223
Event Code: Some(08ESMF00-2022-E-00650)
Project Name: Merced Biogas Pipeline Expansion Project
Project Type: ** OTHER **
Project Description: The Merced Biogas Pipeline Expansion Project would involve the extension of underground pipeline network to serve additional dairy digesters not currently included in the biogas pipeline system. Approximately 39.5 miles of new pipeline is proposed in Merced and Madera Counties.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@37.17315605,-120.41643616774687,14z

Counties: Madera and Merced counties, California

Endangered Species Act Species

There is a total of 13 threatened, endangered, or candidate species on this species list.

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

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

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

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

Mammals

NAME	STATUS
Fresno Kangaroo Rat *Dipodomys nitratoides exilis* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/5150	Endangered
San Joaquin Kit Fox *Vulpes macrotis mutica* 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 *Gambelia silus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/625	Endangered
Giant Garter Snake *Thamnophis gigas* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander *Ambystoma californiense* Population: U.S.A. (Central CA DPS) There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate
Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/7850	Threatened

Crustaceans

NAME	STATUS
Conservancy Fairy Shrimp *Branchinecta conservatio* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/8246	Endangered
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp *Lepidurus packardi* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2246	Endangered

Flowering Plants

NAME	STATUS
Colusa Grass *Neostapfia colusana*	Threatened

There is **final** critical habitat for this species. Your location overlaps the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/5690

Critical habitats

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

NAME	STATUS
Colusa Grass *Neostapfia colusana* https://ecos.fws.gov/ecp/species/5690#crithab	Final
Vernal Pool Fairy Shrimp *Branchinecta lynchi* https://ecos.fws.gov/ecp/species/498#crithab	Final
Vernal Pool Tadpole Shrimp *Lepidurus packardi* 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 (Arena (3712036) OR Atwater (3712035) OR Merced (3712034) OR Planada (3712033) OR Turner Ranch (3712026) OR Sandy Mush (3712025) OR El Nido (3712024) OR Plainsburg (3712023) OR Le Grand (3712022) OR Santa Rita Bridge (3712015) OR Bliss Ranch (3712014) OR Chowchilla (3712013))

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.
Agelaius tricolor tricolored blackbird	G1G2 S1S2	None Threatened	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	955 S:31	1	2	0	0	5	23	14	17	26	5	0
Ambystoma californiense pop. 1 California tiger salamander - central California DPS	G2G3 S3	Threatened Threatened	CDFW_WL-Watch List IUCN_VU-Vulnerable	105 400	1263 S:28	3	7	1	1	1	15	20	8	27	1	0
Anniella pulchra Northern California legless lizard	G3 S3	None None	CDFW_SSC-Species of Special Concern USFS_S-Sensitive	98 98	378 S:1	0	1	0	0	0	0	0	1	1	0	0
Astragalus tener var. tener alkali milk-vetch	G2T1 S1	None None	Rare Plant Rank - 1B.2	90 90	65 S:3	0	1	0	0	0	2	2	1	3	0	0
Athene cunicularia 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	130 320	2011 S:11	4	4	2	0	0	1	3	8	11	0	0
Atriplex cordulata var. cordulata heartscale	G3T2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	95 200	66 S:10	0	2	0	0	3	5	10	0	7	0	3
Atriplex minuscula lesser saltscale	G2 S2	None None	Rare Plant Rank - 1B.1	95 200	52 S:7	0	1	0	0	2	4	6	1	5	0	2
Atriplex persistens vernal pool smallscale	G2 S2	None None	Rare Plant Rank - 1B.2	95 145	41 S:8	2	2	0	0	1	3	4	4	7	1	0
Atriplex subtilis subtle orache	G1 S1	None None	Rare Plant Rank - 1B.2	200 200	24 S:3	0	0	0	0	2	1	3	0	1	0	2

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.
Bombus crotchii Crotch bumble bee	G3G4 S1S2	None None		100 100	437 S:1	0	0	0	0	0	1	1	0	1	0	0
Branchinecta conservatio Conservancy fairy shrimp	G2 S2	Endangered None	IUCN_EN-Endangered	90 320	53 S:10	2	0	0	0	0	8	2	8	10	0	0
Branchinecta lynchi vernal pool fairy shrimp	G3 S3	Threatened None	IUCN_VU-Vulnerable	91 340	795 S:53	22	7	1	0	0	23	37	16	53	0	0
Branchinecta mesovallensis midvalley fairy shrimp	G2 S2S3	None None		95 325	144 S:29	5	0	0	0	0	24	20	9	29	0	0
Brasenia schreberi watershield	G5 S3	None None	Rare Plant Rank - 2B.3 IUCN_LC-Least Concern	170 170	43 S:1	0	0	0	0	0	1	1	0	1	0	0
Buteo regalis 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	1	1	2	0	0
Buteo swainsoni Swainson's hawk	G5 S3	None Threatened	BLM_S-Sensitive IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	95 327	2541 S:46	11	13	3	2	1	16	15	31	45	1	0
Castilleja campestris var. succulenta succulent owl's-clover	G4?T2T3 S2S3	Threatened Endangered	Rare Plant Rank - 1B.2	185 317	99 S:20	0	6	0	0	0	14	12	8	20	0	0
Charadrius montanus 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	1	0	1	0	0
Circus hudsonius northern harrier	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	217 217	54 S:1	0	1	0	0	0	0	0	1	1	0	0
Cryptantha hooveri 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

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.
Delphinium recurvatum recurved larkspur	G2? S2?	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_SBBG-Santa Barbara Botanic Garden	120 135	119 S:3	0	0	0	0	2	1	3	0	1	0	2
Desmocerus californicus dimorphus valley elderberry longhorn beetle	G3T2 S3	Threatened None		270 270	271 S:1	0	0	0	1	0	0	1	0	1	0	0
Dipodomys heermanni dixoni Merced kangaroo rat	G4T2T3 S2S3	None None		300 320	21 S:2	0	0	0	0	0	2	2	0	2	0	0
Downingia pusilla dwarf downingia	GU S2	None None	Rare Plant Rank - 2B.2	273 273	132 S:1	0	1	0	0	0	0	1	0	1	0	0
Emys marmorata western pond turtle	G3G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable USFS_S-Sensitive	175 175	1398 S:2	0	0	1	0	0	1	1	1	2	0	0
Eryngium racemosum 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
Eryngium spinosepalum spiny-sepaled button-celery	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	200 325	108 S:20	2	0	0	0	0	18	16	4	20	0	0
Eumops perotis californicus western mastiff bat	G4G5T4 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
Euphorbia hooveri 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
Extriplex joaquinana San Joaquin spearscale	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	100 100	127 S:1	0	0	0	0	0	1	0	1	1	0	0
Gambelia sila blunt-nosed leopard lizard	G1 S1	Endangered Endangered	CDFW_FP-Fully Protected IUCN_EN-Endangered	120 120	416 S:1	0	0	0	0	1	0	1	0	0	1	0
Gonidea angulata western ridged mussel	G3 S1S2	None None		115 115	157 S:1	0	0	0	0	0	1	1	0	1	0	0

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.
Gratiola heterosepala 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
Haliaeetus leucocephalus 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	270 300	329 S:2	0	0	0	0	0	2	2	0	2	0	0
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	G3G4 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
Lasthenia chrysantha alkali-sink goldfields	G2 S2	None None	Rare Plant Rank - 1B.1	85 190	55 S:6	0	0	0	0	0	6	3	3	6	0	0
Lasthenia glabrata ssp. coulteri Coulter's goldfields	G4T2 S2	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_SBBG-Santa Barbara Botanic Garden	85 85	111 S:2	0	0	0	0	0	2	0	2	2	0	0
Lepidium latipes var. heckardii Heckard's pepper-grass	G4T1 S1	None None	Rare Plant Rank - 1B.2	85 85	14 S:1	0	0	0	0	0	1	0	1	1	0	0
Lepidurus packardi vernal pool tadpole shrimp	G4 S3S4	Endangered None	IUCN_EN-Endangered	88 340	329 S:31	7	5	1	1	0	17	18	13	31	0	0
Linderiella occidentalis California linderiella	G2G3 S2S3	None None	IUCN_NT-Near Threatened	85 355	508 S:38	4	2	1	0	0	31	34	4	38	0	0
Lithobates pipiens northern leopard frog	G5 S2	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	100 100	19 S:1	0	0	0	0	0	1	1	0	1	0	0

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.
Mylopharodon conocephalus hardhead	G3 S3	None None	CDFW_SSC-Species of Special Concern USFS_S-Sensitive	90 90	33 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	2	0	2	0	0
Navarretia nigelliformis ssp. radians shining navarretia	G4T2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	200 320	102 S:15	2	3	2	0	0	8	11	4	15	0	0
Navarretia prostrata prostrate vernal pool navarretia	G2 S2	None None	Rare Plant Rank - 1B.2	90 90	61 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	90 350	66 S:16	1	4	6	0	4	1	11	5	12	3	1
Northern Claypan Vernal Pool Northern Claypan Vernal Pool	G1 S1.1	None None		90 135	21 S:4	0	0	1	0	0	3	4	0	4	0	0
Northern Hardpan Vernal Pool Northern Hardpan Vernal Pool	G3 S3.1	None None		275 315	126 S:2	0	0	0	0	0	2	2	0	2	0	0
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:13	1	4	5	0	2	1	10	3	11	0	2
Orcuttia pilosa hairy Orcutt grass	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	175 175	35 S:1	0	0	0	0	1	0	1	0	0	0	1
Phacelia ciliata var. opaca 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
Phrynosoma blainvillii coast horned lizard	G3G4 S3S4	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	95 95	784 S:1	0	0	0	0	0	1	1	0	1	0	0
Puccinellia simplex California alkali grass	G3 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	100 200	80 S:2	0	0	0	0	1	1	2	0	1	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.
Sagittaria sanfordii Sanford's arrowhead	G3 S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	90 175	126 S:3	0	1	0	0	0	2	2	1	3	0	0
Sidalcea keckii Keck's checkerbloom	G2 S2	Endangered None	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	233 233	50 S:1	0	0	0	1	0	0	0	1	1	0	0
Spea hammondii western spadefoot	G2G3 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened	85 325	1422 S:25	5	8	1	0	0	11	10	15	25	0	0
Taxidea taxus American badger	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	145 184	594 S:2	1	0	0	0	0	1	1	1	2	0	0
Thamnophis gigas giant gartersnake	G2 S2	Threatened Threatened	IUCN_VU-Vulnerable	105 170	373 S:2	0	0	0	0	1	1	2	0	1	1	0
Trichocoronis wrightii var. wrightii Wright's trichocoronis	G4T3 S1	None None	Rare Plant Rank - 2B.1	100 100	12 S:2	1	0	0	1	0	0	0	2	2	0	0
Tuctoria greenei Greene's tuctoria	G1 S1	Endangered Rare	Rare Plant Rank - 1B.1	250 320	50 S:9	1	0	1	3	2	2	7	2	7	1	1
Vulpes macrotis mutica San Joaquin kit fox	G4T2 S2	Endangered Threatened		90 255	1020 S:9	1	2	3	1	0	2	9	0	9	0	0

APPENDIX D

DRAINAGE CROSSING DETAILS

Merced Biogas Pipeline Expansion Project - Drainage Crossing Details		
Drainage Crossing No.	**Classification**	**Field Notes**
Northwestern segment of pipeline expansion		
ND-1	Natural Drainage (Black Rascal Creek)	Black Rascal Creek crossing on Oak Avenue bridge (concrete bridge with concrete footings). Minimal riparian cover north of bridge but banks support band of wetland vegetation. Width of channel approx. 55 feet north of bridge and approx. 40 feet south of bridge. Discontinuous riparian cover south of bridge. Flowing water in channel at time of surveys (Nov 2021). Cliff swallow nests observed on bridge.
AD-1	Agricultural Ditch	Large ditch crossing on Oak Avenue immediately west of Bear Creek. Concrete culvert under Oak Avenue. No flowing water at time of surveys, but ponded water occurs at culvert location. Width of ditch approx. 8 feet. Minimal vegetation.
ND-2	Natural Drainage (Bear Creek)	Bear Creek crossing on Oak Avenue bridge (concrete bridge with concrete footings). Dense patches of giant reed (*Arundo donax*) at bridge crossing. Width of channel approx. 25 feet. Dense vegetation on banks and small pockets of wetland vegetation in channel. No water at the time of surveys.
AD-2	Agricultural Ditch	Large ditch crossing on Oak Avenue immediately east of Bear Creek. Concrete culvert under Oak Avenue. No flowing water at time of surveys, but ponded water occurs at culvert location. Width of ditch approx. 8 feet. Wetland vegetation consisting primarily of lamp rush (*Juncus effusus*) occurs along the banks.
ND-3	Natural Drainage	Natural drainage crossing on Oak Avenue near intersection with S. Buhach Road. Small concrete bridge at this crossing. Channel width at bridge crossing approx. 15 feet but narrows upstream and downstream of bridge to approx. 8-10 feet. Dense Eucalyptus stands occur along this creek and wetland vegetation occurs in channel downstream of bridge. Black phoebe nests observed under bridge. This channel parallels the north side of Oak Avenue to intersection with S. Buhach Road.
AD-3	Agricultural Ditch	Small ditch crossing on Oak Avenue near intersection with S. Gurr Road and immediately adjacent to Ditch #4. Width of ditch approx. 3 feet. Concrete culvert under Oak Avenue. Potential population of Sanford's arrowhead (*Sagittaria sanfordii)* observed in bottom if this ditch (CNPS Rank 1B.2 plant). Need to confirm identification during blooming season. No water in ditch at time of survey.

Merced Biogas Pipeline Expansion Project - Drainage Crossing Details		
Drainage Crossing No.	**Classification**	**Field Notes**
AD-4	Agricultural Ditch	Large agricultural ditch crossing on Oak Avenue near intersection with S. Gurr Road and immediately adjacent to Ditch #3. Width of ditch approx. 15-20 feet. Small concrete bridge at this crossing. No flowing water at the time of surveys but ponded water under bridge and other locations within ditch. Band of wetland vegetation along banks.
AD-5	Agricultural Ditch	Large ditch crossing on S. Gurr Road near intersection with Oak Avenue. Concrete culverts under Gurr Road connect to Ditch #4. East of Gurr Road ditch is approx. 4 feet wide with no flowing water.
AD-6	Agricultural Ditch	Large ditch crossing on W. Dickenson Ferry Road near S. Gurr Road intersection. Small concrete bridge on W. Dickenson Ferry Road at this crossing. Ditch approx. 18 feet wide with thin band of wetland vegetation on bank and no vegetation in ditch.
AD-7	Agricultural Ditch	Ditch crossing on S. Gurr Road near intersection with W. Dickenson Ferry Road. Concrete box culvert under S. Gurr Road. Ditch approx. 8 feet wide. Water in ditch at time of survey. No wetland vegetation.
ND-4	Natural Drainage	Natural drainage crossing on W. Dickenson Ferry Road. Channel north of bridge crossing approx. 15 feet wide supporting dense vegetation consisting of willow (*Salix* sp.), tree of heaven (*Ailanthus altissima*), and one large valley oak (*Quercus lobata*). South of bridge channel has been filled and no longer exists. Walked north on channel and determined this is a remnant segment of channel that has been filled to the north and south. Approx. 100-foot segment of remnant channel remains north of bridge location. No water in channel at time of survey.
AD-8	Agricultural Drainage	Small agricultural ditch adjacent to remnant channel segment ND-4. Concrete culvert under W. Dickenson Ferry Road. No water in ditch at time of surveys except inside culvert. Width approx. 8 feet.
ND-5	Natural Drainage (Bear Creek)	Bear Creek crossing on W. Dickenson Ferry Road bridge (concrete bridge with concrete footings). Deeply incised channel width approx. 35 feet with small flow and water ponded in bottom of channel. Rock slope protection on banks at the bridge abutments (bridge appears new). Dense willow cover on banks and wetland vegetation on lower banks.
ND-6	Natural Drainage (Owens Creek)	Natural drainage crossing on S. Gurr Road bridge (concrete bridge with concrete footings). Flowing water at time of surveys. Dense emergent wetland vegetation occurs in channel consisting primarily of broadleaf cattail (*Typha latifolia*) and bulrush (*Schoenoplectus acutus*).

Merced Biogas Pipeline Expansion Project - Drainage Crossing Details		
Drainage Crossing No.	**Classification**	**Field Notes**
AD-9	Agricultural Ditch	Ditch crossing on S. Gurr Road. Concrete culvert under S. Gurr Road. Ditch approx. 8 feet wide. No water in ditch at time of survey but ponded at culvert. No wetland vegetation. Connects to large agricultural ditch on west side of Gurr Road.
ND-7	Natural Drainage (Duck Slough)	Natural drainage crossing on S. Gurr Road bridge (concrete bridge with concrete footings) near west end of Rahilly Road. Channel width approx. 25 feet with dense emergent vegetation east of bridge and pockets of bulrush in channel west of bridge. Willow scrub riparian west of bridge location.
ND-8	Natural Drainage (Deadman Creek)	Natural drainage crossing on S. Gurr Road bridge (concrete bridge with concrete footings) north of intersection with Sandy Mush Road. Channel width approx. 25 feet with no vegetation in channel and wetland vegetation on banks. No riparian cover. Cliff swallow nests observed on bridge footings.
AD-10	Agricultural Ditch	Ditch crossing on Rahilly Road. Three large concrete culverts under Rahilly Road. Ditch parallels Rahilly Road for short segment on north side before turn under road. Width approx. 6 feet. Wetland vegetation in bottom of channel, no water at time of surveys.
ND-9	Natural Drainage (Duck Slough)	Natural drainage crossing from dirt road at western end of Rahilly Road. No existing road crossing at this location, pipeline would have to trench or bore across open channel. Crossing location near 90-degree turn in channel. Channel width approx. 20 feet. Dense emergent wetland vegetation in channel. Water in bottom of channel at time of surveys (ponded not flowing).
Southeastern Segment of Pipeline Expansion		
AD-11	Agricultural Ditch	Ditch crossing at Road 4 / Orchard Way. Concrete box culvert under roadway. Channel width approx. 10 feet. Maintained earthen channel with minimal vegetation to east of road crossing, channel more natural and vegetated to the west of road crossing. Ponded water in bottom of channel at time of survey. Riparian vegetation consists of black walnut (*Juglans hindsii*) and weeping willow (*Salix babylonica*).
ND-10	Natural Drainage (Chowchilla River)	First Chowchilla River crossing at Road 9 / Bliss Road. Very wide channel, approx. 40 feet in width with three very large CMP culverts at road crossing (Est. 6-foot diameter). No flow in channel at time of surveys and minimally vegetated with upland ruderal species. Large woody debris observed in channel east of crossing.

Merced Biogas Pipeline Expansion Project - Drainage Crossing Details		
Drainage Crossing No.	**Classification**	**Field Notes**
ND-11	Natural Drainage (Chowchilla River)	Second Chowchilla River crossing at Avenue 26 / Faust Road. Low flow channel approx. 6 feet within wider floodplain of approx. 50 feet width. Bridge (concrete bridge with concrete footings) at roadway crossing with field fencing installed under bridge. Horses grazing in channel on south side of road. Lamp rush (*Juncus effusus*) along bank of low flow channel. Mature riparian trees at this location consist of valley oak (*Quercus lobata*), Fremont cottonwood (*Populus fremontii*), and black walnut. No flow in channel at time of surveys.
AD-12	Agricultural Ditch	Alternate alignment on private road (alternate to Bliss Road alignment) crossing of agricultural ditch. Culvert under road crossing, flows managed. Ditch is concrete lined north of crossing and earthen south of crossing with sparse ruderal vegetation. Width approx. 8 feet.
AD-13	Agricultural Ditch	Alternate alignment through AG field would require crossing of large agricultural ditch/pond. No roadway crossing, so alternate pipeline alignment would require trench or bore crossing of this feature. Primary alignment in Avenue 26 would not require crossing of this feature.
Segment of Pipeline Expansion previously surveyed for Existing Biogas Pipeline Alignment (Resurveyed in 2021 - survey update notes provided in parentheses where necessary)		
Previous Survey 11	Agricultural Ditch	Parallel ditch crossing (two ditches). Westernmost ditch is unvegetated with water present. Easternmost ditch is vegetated and dry. (2021 surveys confirmed the notes from previous surveys. In addition, a new ditch was recently excavated north of the crossing location and west of the previously existing ditches. Now three parallel ditches occur at this location).
Previous Survey 12A	Agricultural Ditch	Large ditch crossing. West side is unvegetated, east side of crossing supports patches of cattail (*Typha* sp.) (2021 surveys indicate that no vegetation occurs in this ditch. Both sides of the crossing location are unvegetated and concrete rubble occurs at the crossing location).
Previous Survey 12B	Agricultural Ditch	Small ditch crossing. Unvegetated channel and banks, appears to be routinely disturbed by farm practices.
Previous Survey 13	Agricultural Ditch	Small ditch adjacent to alfalfa field with 10” culvert into pond. Ditch is unvegetated, patches of vegetation in pond.
Previous Survey 14	Agricultural Ditch	Mostly unvegetated ditch, routinely disturbed through farm practices. Flowing water present during field surveys.

Merced Biogas Pipeline Expansion Project - Drainage Crossing Details		
Drainage Crossing No.	**Classification**	**Field Notes**
Previous Survey 15	Agricultural Ditch	Connection of two AG ditches, mostly unvegetated channels. One ditch had water present at time of field surveys.
Previous Survey 16	Agricultural Ditch	Connection of two AG ditches, mostly unvegetated channels. Both had water present at time of field surveys.
Previous Survey 17	Agricultural Ditch	Connection of two AG ditches, mostly unvegetated channels. One ditch had water present at time of field surveys.
Previous Survey 18	Agricultural Ditch	Ditch connected to pond. Water flowing swiftly through large culvert into pond at time of field surveys.
Note: Field observations recorded on November 9 and 10, 2021. See Figure 2 for drainage crossing locations.		