BIOLOGICAL TECHNICAL REPORT

PACIFIC GAS & ELECTRIC COMPANY
LINE 057A-1 MCDONALD ISLAND TO PALM TRACT PIPELINE DECOMMISSIONING PROJECT
SAN JOAQUIN AND CONTRA COSTA COUNTIES, CALIFORNIA

Project No. 1902-4302

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1.0 INTRODUCTION

Pacific Gas and Electric Company (PG&E) is planning the decommissioning of four segments of the previously retired L-057A-1 natural gas pipeline crossings through Latham Slough, Mildred Island, Middle River, and Old River in San Joaquin and Contra Costa Counties, California. A portion of the L-057A-1 alignment was the subject of an emergency effort conducted in December 2019 to re-sink an approximately 900 linear foot segment of the pipeline that had floated to the surface across the breached entrance to Mildred Island. The currently proposed Line 057A-1 McDonald Island to Palm Tract Pipeline Decommissioning Project would formally decommission and remove that section of pipeline, as well as the remaining waterway crossings and levee landing segments of the L-057A-1 pipeline that were retired in place in 1993. L-057A-1 was constructed by Standard Oil of California in 1949, purchased by PG&E in 1959, replaced by PG&E in 1993 and the original pipeline (L-057A-1) was retired in place at that time. The purpose of this Biological Technical Report is to detail the findings of the biological reconnaissance surveys conducted for the proposed Project in San Joaquin and Contra Costa Counties, California.

Following this introduction, there is a description of the proposed Project, followed by the methodology section, which describes field studies and analytical methods used to assess the Project site. The methodology section includes a review of literature concerning special-status species, sensitive habitats, general biological site conditions, and a description of field reconnaissance methods. The environmental setting describes abiotic and biotic conditions at the Project site including climate, soils, typical habitats and associated plant and wildlife species, and special-status species reported in or near the Project area. A review of regulatory requirements is then provided, and the final section summarizes the anticipated impacts of Project implementation along with suggested mitigation measures to reduce Project impacts to less than significant levels.

2.0 BACKGROUND

PG&E is planning the decommissioning of four segments of the previously retired L-057A-1 natural gas pipeline crossings through Latham Slough, Mildred Island, Middle River, and Old River in San Joaquin and Contra Costa Counties, California. The Project objective is to decommission and remove the segments of pipeline with exposure or shallow depth of burial.

2.1 LOCATION

The site is located on privately owned islands used for agricultural crop lands in the Sacramento-San Joaquin River delta west of Stockton, California (Figure 1). The Project study area is located in Sections 32, 33, 34, and 35 of Township 2 North, Range 4 East and Sections 5 and 6 of Township 1 North, Range 4 East in the Holt and Woodward Island U.S. Geological Survey (USGS) 7.5-minute topographic quadrangles (USGS, 1978). Figure 1 depicts the general site location and Project vicinity. The approximate coordinates for the pipeline segments are as follows:

Latham Slough Crossing at McDonald Island shoreline	37° 58’ 29.83” N, 121° 30’ 42.09” W
Mildred Island crossing at levee breach location	37° 58’ 22.03” N, 121° 30’ 42.09” W
Middle River Crossing at Bacon Island shoreline	37° 58’ 22.16” N, 121° 31’ 38.38” W
Old River Crossing Palm Tract shoreline	37° 58’ 4.65” N, 121° 34’ 21.79” W

The site consists of tidal waters, shoreline emergent and submerged wetlands, levees with rock slope protection, and disturbed areas adjacent to agricultural farmlands. The site is bordered by agricultural farmlands and open waters used for boating and fishing.

2.2 PROJECT DESCRIPTION

PG&E is planning the decommissioning and removal of four segments of the previously retired L-057A-1 natural gas pipeline at the Latham Slough, Mildred Island, Middle River, and Old River crossings. The study area is 126.5 acres consisting primarily of tidally influenced river crossings (Latham Slough, Middle River, and Old River) and associated levees that protect agricultural lands on McDonald Island, Bacon Island, and Palm Tract in the Sacramento-San Joaquin River Delta. In addition, a substantial portion of the pipeline alignment study area parallels the partially submerged levee on the south side of the currently inundated Mildred Island. Approximately 600 feet of this levee was breached in 1983 and the island has been inundated since that time. The study area is surrounded by agricultural farmland on McDonald Island, Bacon Island, and Palm Tract.

Segment No. 1 of the L-057A-1 pipeline planned for decommissioning crosses underneath Latham Slough and consists of a 14-inch diameter nominal pipe that extends from its current termination point near the crown of the McDonald Island west levee to the Mildred Island east levee. Depth of burial on this pipeline segment ranges from exposed to approximately four feet of cover. The portion of this pipeline within the McDonald Island levee is proposed for cement slurry installation and retirement in place. The portion of this pipeline segment within Latham Slough is proposed for removal (Figure 2).

Segment No. 2 of the L-057A-1 pipeline is an 18-inch diameter nominal pipe that extends from its connection point with the 14-inch diameter pipe crossing Latham Slough to its connection point with the pipeline in Segment No. 3 (Middle River crossing). Segment No. 2 of L-057A-1 was installed as a terrestrial pipeline in 1949 at the toe of the southern Mildred Island levee but now occurs in shallow water along the shoreline of the partially submerged levee on the south side of Mildred Island. Approximately 900 feet of this segment of pipeline broke free of its anchors and floated to the water surface across the breached levee entrance to Mildred Island. In December 2019 a water ballast was installed in this pipeline segment to re-sink the floating portion to the island floor. Depth of burial on this pipeline segment ranges from exposure to approximately three feet of cover. This entire segment is proposed for removal through both the east and west Mildred Island levees and across the southern extent of the currently inundated Mildred Island (Figure 2).

Segment No. 3 of the L-057A-1 pipeline planned for decommissioning crosses underneath Middle River and consists of a 14-inch diameter nominal pipe that extends from the Mildred Island west levee to its current termination point in the Bacon Island east levee. Depth of burial on this pipeline segment ranges from four to 12 feet of cover. The portion of this pipeline within the Bacon Island levee is proposed for cement slurry installation and retirement in place and the portion of this pipeline segment within Middle River is proposed for removal (Figure 2).

Segment No. 4 of the L-057A-1 pipeline planned for decommissioning crosses underneath Old River and consists of 14-18 inch diameter nominal pipe that extends from its termination point near the crown of the Palm Tract east levee across the river and through the Bacon Island west levee to a terrestrial termination point. Depth of burial on this pipeline segment ranges from two to four feet of cover. The portion of the pipeline within the waterside slope of the Palm Tract and Bacon Island levees are proposed for cement slurry installation and retirement in place to minimize disturbance to the armored levees. The portion of this pipeline segment within Old River is proposed for removal due to shallow depth of burial, and the portion of this segment within the landward slope of the Bacon Island west levee is proposed for removal (Figure 2).

All pipeline segments will be cleaned and flushed prior to decommissioning and removal of the waterway crossing segments. Portions of the pipeline proposed for retirement in place will be filled with cement slurry.

Terrestrial staging areas have been established near each of the waterway crossings at the following locations: McDonald Island west levee near Latham Slough, Bacon Island east levee near Middle River, Bacon Island west levee near Old River, and Palm Tract east levee near Old River. The terrestrial staging areas were established within developed and disturbed lands whenever possible and within areas supporting upland habitat to minimize impact to wetlands. Staging areas will be used for equipment and materials storage and to stage tanks for pipeline flush water. Access to each of the terrestrial work areas will be from existing roadways (Figure 4).

A total of six excavation areas will be required at the levee crossings to pig and flush the pipelines and remove the segments of pipeline planned for removal. Additionally, four underwater excavations will be required at the pipeline cut points near the toe of the McDonald Island levee, Bacon Island east levee, Bacon Island west levee, and Palm Tract levee. Removal of the pipeline from the waterway crossings may require underwater excavation using a Toyo pump, hand jets, and/or clam buckets depending on the site conditions; however, because of the shallow depth of burial and exposure along segments of pipeline proposed for removal, the majority of the underwater pipeline crossing is expected to easily lift from the waterway using a crane with minimal underwater excavation. The levee and underwater excavation areas are necessary for pigging and flushing, installation of cement slurry, and removal of the pipeline segments with less than five feet of cover. Table 2-1 outlines the discrete excavation footprints at each described location. Figure 4 depicts the excavation areas and other temporary disturbance associated with the pipeline decommissioning and removal Project.

Table 2-1. L-057A-1 Pipeline Decommissioning Project - Excavation Footprints

Work Area	Excavation	Excavation Dimensions (ft)	Approximate Area (ft^2)
Segment No. 1 – Latham Slough Submarine Pipeline Crossing			
McDonald Island west levee	Waterside levee slope excavation for access the pipeline for pigging and flushing, and installation of cement slurry	10 x 10	100
Latham Slough	Underwater excavation at toe of McDonald Island levee for access to the pipeline at the cut point	Irregular shape	5,500
Latham Slough	Underwater excavation to expose pipeline for removal (if necessary)		
Mildred Island east levee	Excavation to remove pipeline from partially submerged levee	10 x 50	500
Segment No. 2 – Mildred Island Submerged Terrestrial Pipeline Segment			
Mildred Island	Underwater excavation to expose pipeline for removal (if necessary)		65,000
Segment No. 3 – Middle River Submarine Pipeline Crossing			
Mildred Island west levee	Excavation to remove pipeline from partially submerged levee	10 x 60	600
Middle River	Underwater excavation at toe of Bacon Island levee for access to the pipeline at the cut point	Irregular shape	9,500

Work Area	Excavation	Excavation Dimensions (ft)	Approximate Area (ft^2)
Middle River	Underwater excavation to expose pipeline for removal (if necessary)		
Bacon Island east levee	Waterside levee slope excavation for removal of the pipe riser after pigging and flushing, and installation of cement slurry	8 x 16	128
Segment No. 4 – Old River Submarine Pipeline Crossing			
Bacon Island west levee	Landside levee slope excavation to remove segment of terrestrial pipeline	Irregular shape	1,160
Bacon Island west levee crown	Waterside levee slope excavation for access the pipeline for pigging and flushing, and installation of cement slurry	9 x 13	117
Old River	Underwater excavation at toe of Bacon Island levee for access to the pipeline at the cut point	Irregular Shape	10,500
Old River	Underwater excavation to expose pipeline for removal (if necessary)		
Old River	Underwater excavation at toe of Palm Tract levee for access to the pipeline at the cut point		
Palm Tract east levee crown	Waterside levee slope excavation for access the pipeline for pigging and flushing, and installation of cement slurry	9 x 18	162
Note: Dimensions based on 60% Design Plans prepared by Longitude 123, Inc.			

A Turbidity Monitoring Plan will be developed for the project, which will include provisions for monitoring turbidity during underwater excavation and other project activities that have the potential to increase turbidity. Turbidity curtains may be used if turbidity monitoring indicates that turbidity levels would exceed permitted thresholds, and site conditions, such as strong currents, at the time of construction do not make their use infeasible.

Once the pipelines have been pigged and flushed and filled with cement slurry, divers will excavate the pipeline at the cut point location using a Toyo pump, hand jets, or clam bucket depending on existing site conditions. The pipeline will be cut at the underwater cut points with a hydraulically powered reciprocating saw, connected to the crane rigging, and lifted from the sediments to the barge deck. From that point on, pipeline will be lifted to the deck of the barge

and cut above the water surface. For removal of the pipeline from the interior of Mildred Island, the derrick barge will work from Empire Cut outside Mildred Island reaching over the levee with a crane to lift the pipe. This is due to shallow water and limited access to the interior of Mildred Island for a large barge spread. A smaller diver barge and support vessels will also work inside Mildred Island.

All recovered pipe will be cut into sections and loaded onto trucks to be removed from the site for transfer to an approved recycling or disposal facility (as applicable). All underwater debris associated with the pipeline (e.g. articulated mats, concrete blocks, helical screw anchors, etc.) will also be removed by divers during pipeline removal operations and the two concrete valve boxes on the Mildred Island levees will be removed and restored to contours matching surrounding locations.

All terrestrial and levee slope excavation areas will be backfilled with excavated spoils and restored to pre-Project contours with rock slope protection replaced after completion of construction. Underwater excavations would be allowed to backfill through natural hydrogeomorphic processes. Pipeline decommissioning and removal activities will result in a total temporary disturbance footprint of approximately 68.11 acres (including aquatic area for barge spread throughout the site) and a total excavation footprint of approximately 2.09 acres (Figure 4). There are no permanent impacts or loss of habitat associated with this Project, all temporary impacts will be restored upon completion of Project activities.

Pipeline decommissioning and removal is planned for implementation during late summer/fall of 2021. Total duration of Project activities is expected to take approximately three months. Work within the waterways will be limited to August 1 to October 31 to coincide with the period when special-status fish species are least likely to occur. Work activities will generally be conducted Monday through Saturday (occasionally Sunday) with approximately 10 to 12 hours per workday. Weekend work may occur, if necessary, to complete the Project within the defined seasonal constraints.

3.0 METHODOLOGY

3.1 LITERATURE REVIEW

Padre biologists reviewed available Project design information, San Joaquin and Contra Costa County soil survey maps, National Wetland Inventory (NWI) Maps, the USGS 7.5-minute topographic map for the Woodward Island quadrangle, and other environmental documents. The California Natural Diversity Database (CNDDB) was queried for records of special-status species reported within a five-mile radius surrounding the Project site (California Department of Fish and Wildlife [CDFW], 2020). A list of federally listed Threatened and Endangered species was obtained from the U.S. Fish and Wildlife Service (USFWS) and from the National Marine Fisheries Service (NMFS), and are included under Appendix A (USFWS, 2020a). Special-status taxa that are known to exist or have the potential to exist on the Project site were also identified through a review of relevant literature (California Native Plant Society [CNPS], 2020; Zeiner et al., 1988; 1990a, b).

3.2 FIELD RECONNAISSANCE SURVEY

Field surveys were conducted within a portion of the study area boundary by Padre biologists for the purposes of Project planning and permitting of the L-057A pipeline emergency re-sinking project in 2019. Site characterization and aquatic resource delineation surveys for that effort were completed on November 25, 2019. Additional reconnaissance-level field surveys for the purposes of site characterization and preliminary aquatic resources delineation within the study area defined for the decommissioning Project were completed on September 9 and 11, 2020.

A biological resources study area (study area) was identified prior to beginning field surveys. The study area includes all temporary impact areas, staging areas, access routes, and the surrounding areas. Boundaries of the study area are depicted in Figures 3 and 4. Surveys of the study area were conducted to assess the potential for biological resources and to determine the likelihood of occurrence for special-status species and/or sensitive and regulated habitats on the site. Detection methods included direct observation with binoculars; examination and identification of tracks, scats, previous years nests, burrows/diggings, and carcasses/skeletal remains; and identification of vocalizations (calls and songs). No trapping or netting was performed during surveys. Plants not identified in the field were collected and returned to the lab for identification using standard taxonomic references (Baldwin et al., 2012), when possible.

Prior to the field surveys, the CNDDB query was reviewed to identify occurrences of special-status plant and animal species in the Project vicinity (Appendix B). During the field surveys, vegetative cover types and significant habitat features, such as waters and wetlands, potential nest trees, and potential dens or burrows, were noted. Lists of plants and wildlife associated with the various cover types were compiled and are included in Appendix C and Appendix D.

4.0 ENVIRONMENTAL SETTING

4.1 GEOLOGY/GEOMORPHOLOGY

The Project site is located within the Delta subsection of the Great Valley ecological section of California (Miles and Goudey, 1997). The Delta subsection occurs in a low area, near sea level, at the confluence of the Sacramento and San Joaquin Rivers. The geomorphology of this subsection is a level plain, except for the levees of the Sacramento and San Joaquin Rivers. Many artificial levees have been constructed to prevent flooding of land committed to agriculture with elevation ranges of a few feet on levees to seas-level, or lower, throughout the rest of the plain. Decomposition of organic deposits and consequential land subsidence is the main geomorphic process. Fluvial erosion and deposition are the main geomorphic processes on and adjacent to levees. Three soil types that have been mapped by the Natural Resources Conservation Service (NRCS) are distributed across the site, as described in Section 5.2 below.

The Project is located within the San Joaquin Valley subregion of the Great Valley California floristic region (Baldwin et al., 2012). The entire alignment is surrounded by delta islands that are used as agricultural farmlands. Mildred Island and surrounding waterways are also used for recreational boating and fishing.

4.2 CLIMATE

The Project site is situated in Climate Zone 14, which includes Northern California's inland areas with some ocean influence. This zone has relatively mild summers and winters that would otherwise be colder and hotter without the moderating effect of the marine air (Clark, 1985).

The nearest meteorological station (045296) is located in Mandeville Island, just north of the project site; however, the climate summary available for this station only includes a historical ten-year period of record from 1955 to 1965. The next nearest meteorological station (048560), located at the Stockton Fire Station 4, is located approximately nine miles east-northeast of the site and includes a 110-year period of record from 1906 to 2016. Based on the 110-year period of record at the station, the average maximum monthly temperature ranges from 54.4°F in January to 92.8°F in July (Western Regional Climate Center, 2020). The average minimum monthly temperature ranges from 36.1°F in December and January to 56.8°F in July. The average annual temperature ranges from 46.3°F to 74.5°F. The average monthly precipitation ranges from 0.02 inches in July to 3.06 inches in January. The average total annual precipitation is 15.37 inches and 0.01-inch occurs as snowfall (Western Regional Climate Center, 2020).

4.3 SOILS

Most of the soils in the Delta subsection are poorly to very poorly drained. Soil temperature regimes are thermic (nearly mesic). Soil moisture regimes are mostly aquic, and some are xeric on levees.

Based on a review and analysis of the U.S. Department of Agriculture's Web Soil Survey for San Joaquin and Contra Costa counties (NRCS, 2020), the project site is underlain by Rindge muck, 0 to 2 percent slopes, partially drained, MLRA 16 (map unit symbol Rd in Contra Costa County and 225 in San Joaquin County), Kingile muck, partially drained, 0 to 2 percent slopes, MLRA 16 (map unit symbol 190), and Ryde clay loam, partially drained, 0 to 2 percent slopes,

MLRA 16 (map unit symbol 230). The characteristics of these soil mapping units are outlined below in Table 4-1.

4.4 WATER QUALITY

Water quality is an important factor in determining habitat suitability for special-status fish species, specifically salmonids. Water temperature in this portion of the Sacramento-San Joaquin River Delta is typically too high to support salmonids during the late summer months, with water temperatures regularly exceeding 70° Fahrenheit (F) (21° Celsius [C]). Typically, salmonids prefer cool streams and rivers with a maximum temperature of 64° F (18°C). High water temperatures result in reduced levels of dissolved oxygen, which can impact growth and development of all life stages of salmonids. Salmon have been documented to have an avoidance response to unfavorable dissolved oxygen levels (Carter, 2005). Typical salmonid behavioral response when temperatures become too high is to go upstream to locations where conditions are more favorable.

Higher water temperatures routinely observed at the Middle River USGS station approximately 2.3 miles south of the Project site during summer months indicate inhospitable habitat conditions for salmonid species and a low likelihood of occurrence of salmonids at the Project location during summer months. These high water temperatures support the seasonal in-water work window of August 1 to October 31, intended for avoidance of listed fish species, specifically salmonids.

A review of real time temperature data from the past 10 years at the USGS on Middle River (Middle R Station # 11312676), located 2.3 miles south of the Project site at the intersection of Middle River along the east side of Bacon Island, Lower Jones Tract and Woodward Island, indicates that water temperatures above 70 degrees F are typical between June and October, and occasionally can reach 70 degrees F as early as April (USGS, 2020).

Table 4-1. Soil Mapping Units and Characteristics at the PG&E L-057A-1 Decommissioning Project Study Area

Soil Mapping Unit	Location	Soil Profile (by horizon)	Drainage Class[1]	PERM[2]	AWC[3]	Runoff[4]	ERD[5]	Hydric
Rindge muck, 0 to 2 percent slopes, partially drained, MLRA 16 (Rd) (225)	West side of Old River crossing (Palm Tract), most of Mildred Island levee, and east side of Latham Slough crossing (McDonald Island)	0-10" muck 10-71" muck 71-79" silty clay loam	7	--	5	5	1	Yes
Kingile muck, partially drained, 0 to 2 percent slopes, MLRA 16 (190)	East side of Old River crossing (Bacon Island) and east portion of Mildred Island levee	0-12" muck 12-17" muck 17-25" silty clay 25-36" silty clay loam 36-61" silty clay	7	--	3	3	1	Yes
Ryde clay loam, partially drained, 0 to 2 percent slopes, MLRA 16 (230)	West side of Middle River crossing (Bacon Island)	0-8" clay loam 8-24" clay loam 24-32" mucky clay loam 32-79" stratified muck to silty clay loam	7	--	3	1	1	Yes

[1]Drainage Class
1 Excessively drained
2 Somewhat excessively drained
3 Well drained
4 Moderately well drained
5 Somewhat poorly drained
6 Poorly drained
7 Very poorly drained

[2]PERM (Permeability)
1 Very slow (< 0.06 inch)
2 Slow (0.06 to 0.2 inch)
3 Moderately slow (0.2 to 0.6 inch)
4 Moderate (0.6 to 2 inches)
5 Moderately rapid (2 to 6 inches)
6 Rapid (6 to 20 inches)
7 Very rapid (>20 inches)

[3]AWC (Available Water Capacity)
1 Very low (0 to 2.5 inches)
2 Low (2.5 to 5 inches)
3 Moderate (5 to 7.5 inches)
4 High (7.5 to 10 inches)
5 Very High (> 10 inches)

[4]Surface Runoff
1 Negligible
2 Very low
3 Low
4 Medium
5 High
6 Very high

[5]ERD (Effective Rooting Depth)
1 Very deep (> 60 inches)
2 Deep (40 to 60 inches)
3 Moderately deep (20 to 40 inches)
4 Shallow (10 to 20 inches)
5 Very shallow (< 10 inches)

4.5 HABITAT DESCRIPTIONS AND VEGETATION

The study area is located west of the City of Stockton. The surrounding area consists of agricultural land on reclaimed delta islands.

Vegetation communities were characterized and described using two vegetation classification systems: *The Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland, 1986) and *The Manual of California Vegetation* (Sawyer et al., 2009). Wetlands are also classified according to the *Wetlands and Deepwater Habitat* (Cowardin et al., 1979). A combination of vegetation classification systems was used because it allows for accurate description of the vegetation communities while recognizing the limitations of field surveys (site access limitations) and limitations within each of the classification systems. Site access to the partially submerged levee on the south side of Mildred Island is very limited, and field surveys of this area occurred primarily from a distance using binoculars to view from terrestrial viewing locations and from the interior of Mildred Island accessed by boat. Therefore, comprehensive classification of the vegetation communities in this portion of the study area is limited due to the limited inability of surveyors to collect detailed field data at the species level in multiple locations to confirm membership rules. Therefore, classifications for the purposes of vegetation community mapping (Figure 3) is based on the more general *Terrestrial Natural Communities of California* and aerial imagery of the site was used to map vegetation communities in the field. Descriptions of each of the natural communities mapped are further described according to Alliance or Association level classifications, where appropriate (Sawyer et al., 2009).

Vegetation communities identified within the study area as mapped in Figure 3 using the Terrestrial Natural Communities of California classification include: Ruderal, Non-native Grassland, Coastal and Valley Freshwater Marsh, and Great Valley Willow Scrub. In addition, non-vegetated areas are identified as either Disturbed/Developed Lands or Tidal Water cover types (Holland, 1986). These vegetation communities can be further described in more detail using Alliance and Associated information as: Perennial rye grass fields, upland mustards, pampas grass patches, sandbar willow thickets, California bulrush marsh, and hardstem bulrush marsh (Sawyer et al., 2009).

The area surrounding the Project site has been heavily influenced by historic alterations to hydrology of the Sacramento-San Joaquin Delta associated with reclamation efforts for the purposes of agricultural development. This includes the construction of a levee system to protect the farmlands from flooding that has resulted in an altered hydrology and landscape that is generally dominated by lands in agricultural production, levees and disturbed lands supporting weedy vegetation, and stands of remnant native habitat consisting of riparian scrub and emergent wetlands that are intermixed with stands of non-native weedy species.

The study area consists primarily of tidally influenced riverine waters at each of the waterway crossings (Latham Slough, Middle River, and Old River) and lacustrine waters within Mildred Island. The primary vegetation communities along the shorelines and on the Mildred Island levee were Coastal and Valley Freshwater Marsh and Great Valley Willow Scrub (California bulrush marsh and sandbar willow thickets interspersed with stands of Pampas grass). The McDonald Island levee, Bacon Island levees, and the Palm Tract levee consist primarily of disturbed and developed lands with rock slope protection (mostly unvegetated) on the waterside slope of the levee, developed roadways along the crown of the levee, and disturbed lands on the

landside slope of the levee. In most cases, the landside slope of the levee and areas within the proposed staging locations supported the Ruderal (upland mustards) and Non-native Grasslands (Perennial rye grass fields) vegetation community. Small pockets of discontinuous emergent vegetation occur within riverine habitat along the banks of the waterway crossings, but these waterways primarily consist of unvegetated open waters. The Mildred Island levee is partially submerged and supports wetlands throughout. Wetland vegetation communities consist of great valley willow scrub and coastal valley freshwater marsh (consisting of both emergent wetlands and aquatic bed). The study area also consists of open water areas that are tidally influenced riverine and lacustrine waters.

Vegetation communities were determined based on species composition *The Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland, 1986) and the *Manual of California Vegetation Second Edition* (Sawyer et al., 2009), but were modified as needed to accurately describe the existing habitat observed onsite which has been altered by human influence and to describe vegetated areas not included in these classifications. Table 4-2 provides a comparison of the vegetation community classification systems used, followed by a brief description of each community and location within the Study Area following the table. A list of plant species observed within the study area is included in Appendix C.

Table 4-2. Comparison of the Vegetation Community Classification Systems

Terrestrial Natural Communities of California	Manual of California Vegetation	Classifications of Wetlands & Deepwater Habitats of the U.S.
Non-native Annual Grassland	Perennial Rye Grass Fields	Upland
Ruderal	Upland Mustards	Upland
Ruderal	Pampas Grass Patches	Upland
Great Valley Willow Scrub	Sandbar Willow Thickets	Palustrine Scrub-shrub Wetland
Coastal and Valley Freshwater Marsh – Emergent Wetland	California Bulrush Marsh	Palustrine emergent wetland
Coastal and Valley Freshwater Marsh – Emergent Wetland	Hardstem Bulrush Marsh	Palustrine emergent wetland
Coastal and Valley Freshwater Marsh - Aquatic Bed[1]	--	Lacustrine Aquatic Bed
Developed Lands[2]	--	Upland
--	--	Tidal Waters (Riverine and Lacustrine)

Notes:

[1]Submerged Aquatic Vegetation is mapped as Aquatic Bed and loosely fits within the Coastal and Valley Freshwater Marsh Community in Terrestrial Natural Communities of California but is not adequately described in the Manual of California Vegetation because it consists predominantly of invasive species.

[2]Developed Lands are not described in the *Terrestrial Natural Communities of California* or *Manual of California Vegetation* but are included in this table and vegetation community section because they occur as distinct areas within the study area.

4.5.1 Non-Native Grasslands

Non-native grasses that were introduced during European settlement typically dominate annual grasslands. There is a limited diversity of plant species within this cover type. Typical species include non-native grasses such as Italian rye grass (*Festuca perennis*), Bermuda grass (*Cynodon dactylon*), wild oat (*Avena fatua*), soft chess (*Bromus hordeaceus*), and ripgut brome (*Bromus diandrus)*. Native and non-native herbaceous plant species such as field bindweed (*Convolvulus arvensis*), prickly lettuce (*Lactuca serriola*), and yellow star thistle (*Centaurea solstitialis*) occur within this cover type as well. A total of 0.95-acre of non-native grasslands were mapped on the site (Figure 3) and were classified primarily as perennial rye grass fields.

4.5.1.1 Perennial Rye Grass Fields

Perennial rye grass fields are found in lowlands, disked fields, and vernal pool landscapes, often in areas where periodic flooding occurs. Perennial rye grass fields are found from 0 to approximately 3,300 feet in elevation. These grasslands are characterized by a dominance of Italian rye grass. Other herbs and grasses are often found in this cover type including: ripgut brome, soft chess, wild oat, and black mustard (*Brassica nigra*). Perennial rye grass fields are not heavily used by wildlife for forage and typically occur on nutrient-poor soils.

This semi-natural herbaceous community occurs within the staging area on the east side of Bacon Island, west of the Middle River Crossing. Within the Study Area other species that occur within this community include black mustard, Bermuda grass, wild radish, field bindweed, and annual beard grass (*Polypogon monspeliensis*). This community was determined to be an upland community.

4.5.2 Ruderal

Ruderal lands support a mix of native and non-native weed species that thrive in disturbed areas such as roadsides, parking lots, cultivated and fallow fields, and urban areas in towns and cities. Non-native species occurring within the study area that are typical of this cover type consists of weedy species along the perimeters of agricultural fields, edges of levee roads, and within disturbed lands such as Johnson grass (*Sorghum halipense*), poison hemlock (*Conium maculatum*), Italian thistle (*Carduus pycnocephalus*), fennel (*Foeniculum vulgare*), black mustard, and wild radish (*Raphanus sativus*). A total of 1.56 acres of ruderal lands were mapped on the study area (Figure 3) and were characterized primarily as upland mustards and pampas grass patches.

4.5.2.1 Upland Mustards

The upland mustards can be found in fallow fields, grasslands, roadsides, levee slopes, disturbed scrublands, riparian areas, and waste places. There are 24 species in the mustard family that are considered weedy in California. Many are associated with agricultural lands, but some can form large stands in wildland settings. The six most common mustards form dense colonies that overtop most other plants, all respond positively to regular and frequent disturbance, but often tend to segregate by moisture and temperature tolerance. These include species of *Brassica*, *Hirschfeldia*, *Isatis*, and *Raphanus* (Sawyer et al., 2009). Within the study area this semi-natural herbaceous community is characterized by a dominance of black mustard, mustard (*Hirschfeldia incana*), and wild radish. Annual grasses and other herbaceous species often occur as associate species. Within the study area, associate species include ripgut brome, soft chess,

Italian rye grass, wild oat, prickly lettuce, and horseweed (*Erigeron canadensis*). Most of the species in this community are non-native and some are considered invasive.

Within the study area, this community was present in the upland areas on the landward side of the agricultural levees, along roadsides, and within the proposed staging areas. This community was determined to be an upland community.

4.5.2.2 Pampas grass patches

Pampas grass patches can be found in coastal lands, disturbed areas, estuaries, grasslands, urban areas, and wetlands. There are two species of pampas grass Andean pampas grass (*Cortaderia jubata)* and pampas grass (*Cortederia selloana*), both of which are a large tussock grass with big showy plumes and abundant small seeds. This plant reproduces both by seed and vegetatively, and all seeds are highly fertile, small, and easily dispersed. Plants grow vigorously and both species of pampas grass are considered invasive with a Cal-IPC ranking of high. Pampas grass is the more invasive species and invades a wider variety of vegetation communities from coastal California to inland locations. This species also tolerates a wider range of environmental conditions. Within the Sacramento-San Joaquin River Delta, pampas grass occurs on levees and in disturbed areas at the edge of the marsh (Sawyer et al., 2009).

Within the study area this semi-natural herbaceous community is characterized by a dominance of pampas grass, primarily observed on the Mildred Island levee. Other grass species, such as giant reed (*Arundo donax*) and common reed (*Phragmites australis*), also occur and are commonly considered invasive. Within the study area, this community was present on the Mildred Island levee and was identified as a wetland community in this location because of its integration with wetland vegetation.

4.5.3 Great Valley Willow Scrub

Great Valley Willow Scrub habitat is a riparian cover type. The riparian cover type is typically associated with a channel or riverine system and consists of the vegetation growing along the banks and within the floodplains. Great Valley Willow Scrub consists of an open to dense, broadleafed, winter-deciduous shrubby streamside thicket dominated by any of several willow species (*Salix* sp.). Dense stands often have little understory and open stands often have grassland understories dominated by introduced species. Within the study area this community consisted primarily of dense sandbar willow (*Salix exigua*) thickets with occasional occurrence of red willow (*Salix laevigata*) and Gooddings willow (*Salix gooddingii*). A total of 5.52 acres of Great Valley willow scrub was mapped on the site (Figure 3) and is characterized as sandbar willow thickets.

4.5.3.1 Sandbar Willow Thickets

Sandbar willow thickets can be found in temporarily flooded floodplains, depositions along rivers and streams, and at springs. Sandbar willow is the dominant species in the shrub canopy with shrubs less than 23 feet tall and intermittent to continuous canopy. This species produces both sexually and vegetatively; however clonal reproduction through root suckers and regeneration through broken pieces of woody tissue are very common. Co-dominant and associate species include Himalayan blackberry (*Rubus armeniacus*), California rose (*Rosa californica*) and other species of willow (Sawyer et al., 2009).

Within the study area, this community occurs along the western portion of the Mildred Island levee. On the Mildred Island levee, other species occurring in this community include Himalayan blackberry and pampas grass as co-dominant species in certain locations. This vegetation community was mapped within the palustrine scrub-shrub wetland classification.

4.5.4 Coastal and Valley Freshwater Marsh

The coastal and valley freshwater marsh community is dominated by perennial, emergent, herbaceous monocots often with very dense cover. This community occurs in quiet sites permanently flooded with fresh water and is similar to coastal brackish marsh but with lower salinity. This community often intergrades with coastal brackish marsh near the mouths of rivers, with particularly high levels of intergradation in the Sacramento-San Joaquin Delta. Within the study area the coastal and valley freshwater marsh community is further divided into emergent wetland or aquatic bed depending on whether the plant community supports primarily emergent vegetation or submerged aquatic and floating vegetation. The emergent wetland portion of this community is characterized as California bulrush marsh and hardstem bulrush marsh and the aquatic bed portion of this community is not adequately described by the Manual of California Vegetation. A total of 37.92 acres of coastal and valley freshwater marsh was mapped on the site and is comprised of 6.88 acres of emergent wetland and 31.04 acres of aquatic bed.

4.5.4.1 California Bulrush Marsh

California bulrush marsh can be found in brackish to freshwater marshes, shorelines, bars, and channels of river mouth estuaries. Soils in this community have a high organic content and are poorly aerated. California bulrush (*Schoenoplectus californicus*) is the dominant or co-dominant species, with Indian hemp (*Apocynum cannabinum*), hardstem bulrush (*Schoenoplectus acutus*), broadleaf cattail (*Typha latifolia*), common reed, exotic invasive water hyacinth (*Eichhornia crassipes*), and exotic invasive water primrose (*Ludwigia* sp.). The alliance is a widespread emergent marsh and although California bulrush and hardstem bulrush commonly occur in the same area, California bulrush tends to dominate on the outer exposed edges of marshes adjacent to open water and is more tolerant of brackish water conditions. Mixed stands of California bulrush and hardstem bulrush are generally mapped in the California bulrush marsh community (Sawyer et al., 2009).

Within the study area this community occurs primarily along the Mildred Island levee and supported a dominance of California bulrush with hardstem bulrush, water hyacinth, and water primrose (*Ludwigia hexapetala*) as co-dominant or associate species at various locations. This vegetation community was mapped as palustrine emergent wetland classification.

4.5.4.2 Hardstem Bulrush Marsh

Hardstem bulrush marsh can be found along streams, ditches, around ponds and lakes, in sloughs, and in freshwater and brackish marshes. Soils have a high organic content and are poorly aerated. Hardstem bulrush is the dominant species and occurs with many of the same species identified as co-dominants or associates in the California bulrush marsh community.

Within the study area this community occurs primarily as small stands along the shoreline at the Old River crossing location. This vegetation community was mapped within the palustrine emergent wetland classification.

4.5.4.3 Aquatic Bed

The submerged aquatic vegetation occurring within the study area isn't adequately described by any of the vegetation communities described in *The Preliminary Descriptions of the Terrestrial Natura Communities of California* or in the *Manual of California Vegetation Second Edition* because it consists primarily of non-native and nuisance species. Floating and submerged vegetation occurs in shallow water areas primarily along the shoreline of the Mildred Island levee inside Mildred Island. This community consists of both native species and non-native and nuisance species. Native species observed in this community include common waterweed (*Elodia canadensis*), coon's tail (*Ceratophyllum demensum*), longleaf pondweed (*Potamogeton nodosus*), and wheeled marsh pennywort (*Hydrocotyle verticillate*). Non-native species occurring in this community include Brazilian waterweed (*Egeria densa*), matermilfoil (*Myriophyllum spicatum*), curlyleaf pondweed (*Potamogeton crispus*), Carolina fanwort (*Cabomba caroliniana*), water hyacinth, Uruguayan primrose, and American frogbit (*Limnobium spongia*). Quantification of species dominance from the surface is difficult and quantitative sampling was not performed to determine dominant species within this cover type. Underwater video footage and collection of submerged and floating vegetation along the shoreline indicate that the dominant species appear to be common waterweed, Brazilian waterweed, and coon's tail.

Water hyacinth and Uruguayan primrose were also dominant in patches of floating vegetation lodged along the shoreline. Within the study area floating vegetation occurs throughout all waterways and cover is highly variable, changing with the currents and tides. Floating and submerged aquatic vegetation occurs consistently along the shoreline of the Mildred Island levee inside the island where the water current is reduced, and typically occurs in shallow water habitat (depths that are less than 10 feet). This vegetation community was mapped within the aquatic bed wetland classification and integrates with emergent vegetation along the shoreline. This vegetation community was mapped within the lacustrine aquatic bed wetland classification.

4.5.5 Developed Lands

This community is not described in *The Preliminary Descriptions of the Terrestrial Natural Communities of California* or the *Manual of California Vegetation Second Edition* because it is not a natural community and is typically associated with human disturbance. Within the study area, developed lands occur along the rock armor face of the levee, the crown of the levee (along levee roads), and within parking and staging areas. Within this area the vegetation was generally sparse and composed of species that are commonly associated with disturbance. Some of these species include pampas grass, knotweed (*Polygonum aviculare*), fennel, and yellow start-thistle. This vegetation community was mapped as upland. A total of 5.04 acres of developed land was mapped on the site. This area consists of gravel or dirt roadway or staging areas that support little to no vegetation.

4.6 WATERS AND WETLANDS

The Project site was examined for evidence of regulated habitats, such as waters and wetlands, under regulatory authority of the U.S. Army Corps of Engineers (Corps) under Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act of 1899. A Preliminary Aquatic Resource Delineation was conducted during September 2020 for the Project site. The Preliminary Aquatic Resource Delineation identified and delineated the geographic extent of

Federal jurisdictional waters of the U.S. and wetlands and aquatic features under State jurisdiction (Padre, 2020).

As a result of the preliminary aquatic resource delineation, Padre identified a total of 118.87 acres of Federal jurisdictional waters and wetlands, waters of the State, and stream features within the 126.45 acre study area. Activities within these delineated areas are regulated by the Federal government and/or the State of California.

Old River, Middle River, Mildred Island, and Latham Slough are all Navigable Waterways under Section 10 of the Rivers and Harbors Act of 1899 and Waters of the U.S. under Section 404 of the Clean Water Act and are subject to Corps jurisdiction. Adjacent lands meeting the three-parameter definition of a Federal wetland are also Corps jurisdictional under Section 404 of the Clean Water Act. These waterways and adjacent wetlands also meet the definition of waters of the State defined within the Porter-Cologne Water Quality Control Act to include any surface water or groundwater, including saline waters, within the boundaries of the State and regulated by the Regional Water Quality Control Board (RWQCB). The bed and bank of Old River, Middle River, and Latham Slough are also regulated under Section 1600 of the California Fish and Game Code administered by the CDFW.

Within the study area there are several wetland types and other waters present that are subject to Federal and State jurisdiction. These different wetland types are defined both by their abiotic features such as water regime and topography as well as biotic factors like vegetation communities. The three wetland types found within the study area include Scrub-shrub Wetland, Emergent Wetland, and Aquatic Bed. Other Waters of the U.S. present at in the study area are classified as tidally influenced riverine and lacustrine waters and are identified in the delineation map as Tidal Waters (Latham Slough, Mildred Island, Middle River, and Old River). Wetland types were determined by the aforementioned abiotic and biotic factors and the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin, 1979). Below is a brief description of each wetland type and of the other waters present in the study area.

4.6.1 Tidal Waters (Waters of the U.S.)

Tidal waters can belong to a variety of wetland and deepwater habitat systems including marine, riverine, estuarine, and occasionally lacustrine. Determining which system a site's tidal waters belong to involves identifying the geomorphologic characteristics of the site. A marine system consists of open ocean and is associated with high-energy coastlines. Estuarine systems consist of deepwater tidal habitat and the adjacent tidal wetlands that are influenced by ocean salinity but are diluted from freshwater flow. The riverine system is defined by the presence of wetlands and/or deepwater habitat contained within a channel feature and with less influence from ocean salinity (typically less than 0.5 parts per thousand [ppt]). Lacustrine systems include wetland and deepwater habitats that are situated in topographic depression or a dammed river channel, lacking vegetation with greater than 30 percent aerial cover, and total greater than 20 acres in size.

Within the study area, the tidal waters present in Latham Slough, Middle River, and Old River are contained within a channel which makes them part of the riverine classification. Within the riverine system classification there are four subsystems. These are tidal, lower perennial, upper perennial, and intermittent. The tidal riverine subsystem is classified by its low flow and the ocean derived salt concentration below 0.5 ppt. This subsystem usually has a muddy stream

bottom due to the fine particulates settling out of the water column in low flows. The tidal waters present within Mildred Island are considered lacustrine because they occur in a topographic low area, greater than 20 acres in size and with less than 30 percent vegetative cover; however, for mapping purposes both riverine and lacustrine tidal waters were mapped as tidal waters. In tidal systems, the limits of Corps jurisdiction on waters of the U.S. are defined by the high tide line (limits of Clean Water Act Section 404 jurisdiction) and mean high water line (limits of Rivers and Harbors Act Section 10 jurisdiction). See the Preliminary Resources Aquatic Delineation Map (Figure 4) for the location of the high tide line and mean high water line at each of the waterway crossings. A total of 75.45 acres of tidal waters occur within the study area and are subject to Corps, RWQCB, and CDFW jurisdiction (Figure 4).

4.6.2 Palustrine Scrub-Shrub Wetland (Wetland)

The palustrine classification of wetlands includes a wide variety of different wetland types. Wetlands commonly called ponds, prairies, fens, bogs, marshes, and swamps are all types of palustrine wetlands. In most circumstances, palustrine wetlands are dominated by persistent emergent herbs, shrubs, or trees and are found in non-tidal areas. Palustrine wetlands can occur in tidal wetlands if the salinity derived from the ocean is below 0.5 ppt (Cowardin, 1979).

Palustrine scrub-shrub wetlands have a dominance of woody plants that are less than 20 feet tall. Scrub-shrub wetlands often develop from adverse environmental conditions like flooding and erosion which prevent larger or older woody plants from developing. For this reason, a palustrine scrub-shrub wetland may be an early succession of a palustrine forested wetland and could develop into a forest given enough time to develop without adverse environmental conditions.

Within the study area, palustrine scrub-shrub wetlands were present on the western portion of the Mildred Island levee. Scrub-shrub wetlands consist of willow species and supported a dominance of sandbar willow. Palustrine scrub-shrub wetlands were mapped within the Great Valley willow scrub community. A total of 5.51 acres of palustrine scrub-shrub wetlands occur within the study area and are subject to Corps, RWQCB, and CDFW jurisdiction (Figure 4).

4.6.3 Emergent Wetland (Wetland)

Emergent wetlands have a dominance of erect, rooted, herbaceous hydrophytes, typically perennial species, that are present for much of the growing season in most years. Emergent wetlands can occur in all systems except marine and are divided into two subclasses, persistent and nonpersistent. Within the study area, emergent wetlands occur within tidal lacustrine and riverine systems and are considered persistent because the herbaceous species present are visible above the soil or water surface year-round.

Within the study area emergent wetland features occur at various locations along the partially submerged Mildred Island levee. Dominant species include California bulrush and hardstem bulrush. A total of 2.09 acres of emergent wetlands occur within the study area and are subject to Corps, RWQCB, and CDFW jurisdiction (Figure 4).

4.6.4 Aquatic Bed Wetland (Wetland)

Aquatic bed is a class of wetland that can occur within any of the deepwater habitat systems and is dominated by plants that grow primarily on or below the surface of the water for most of the growing season in most years. Aquatic bed wetlands consist of plant communities that require surface water for growth and reproduction. They are best developed in relatively permanent water or in conditions of repeat flooding. The plants are either attached to the substrate or float freely in the water above the bottom or on the surface.

Within the study area, aquatic beds consist of rooted vascular plants such as Brazilian waterweed, common waterweed, coon's tail, watermilfoil and curlyleaf pondweed and floating vascular plants such as water hyacinth. A total of 31.04 acre of aquatic bed wetlands occur within the study area and are subject to Corps, RWQCB, and CDFW jurisdiction (Figure 4).

4.7 WILDLIFE

Wildlife observed at the Project site was characteristic of the region and of the tidal riverine and estuarine habitats of the Sacramento-San Joaquin River Delta. A list of wildlife species observed during the surveys are included in Appendix D. Special-status wildlife species (i.e., endangered, threatened, rare, or other special-status species) occurring, or potentially occurring, within the Project site and surrounding area are discussed in Section 4.8 below.

The network of vegetation communities and open water habitat within the Study Area provide habitat for a wide variety of resident and migratory wildlife species. The composition, density, distribution, and physical characteristics of vegetative communities determine the diversity and abundance of wildlife species residing in the Project area. Wildlife species observed within the vegetative cover types present on the site are discussed below.

The majority of the terrestrial portions of the Study Area are highly altered landscapes used for agriculture. These areas include man-made levees with steep rip-rap covered slopes, gravel roadways, and laydown areas. Within the Study Area, these zones are either devoid of vegetation or have a sparse to dense cover of disturbance adapted weedy plant species like black mustard, wild radish, and fennel. The high-level of disturbance associated with these areas and the lack of vegetation cover diversity limits their suitability for wildlife habitat. Bird species that have adapted well to human disturbance including brewer's blackbird (*Euphagus cyanocephalus*), European starling (*Sturnus vulgaris*), northern mockingbird (*Mimus polyglottos*), barn swallow (*Hirundo rustica*), and Eurasian collared-dove (*Streptopelia decaocto*) were commonly observed using this terrestrial habitat for foraging and perching. Furthermore, scat from raccoons (*Procyon lotor*), was observed on the levee crowns, suggesting their cohabitation of the agricultural area with humans.

Large broad-winged raptors including northern harrier (*Circus cyaneus*), red-tailed hawk (*Buteo jamaicensis*), and Swainson's hawk (*Buteo swainsoni*) were observed soaring over agricultural fields for potential prey species including voles (*Microtus* sp.) and California ground squirrels (*Spermophilus beecheyi*). Nesting sites for Swainson's hawk and other tree nesting raptors is limited within the Study Area due to the lack of large trees; however, there is suitable nesting habitat in surrounding areas and an abundance of farmland for foraging. Nesting habitat for ground nesting northern harrier does not occur within the Study area due to extent of disturbance and lack of suitable vegetative cover; however, there is suitable nesting habitat for

northern harrier in surrounding undisturbed areas with an abundance of foraging habitat in surrounding marsh and farmlands.

The terrestrial portions of the Study Area that receive less human disturbance occur primarily on the partially submerged Mildred Island levee. Along this levee, Great Valley willow scrub and coastal and valley freshwater marsh vegetation communities provide habitat for a large variety of wildlife species that commonly interface with the aquatic environment. Species commonly observed in or near the freshwater marshes of the Study Area and the greater Sacramento-San Joaquin River delta include great blue heron (*Ardea herodias*), great egret (*Ardea alba*), marsh wren (*Cistothorus palustris*), common yellowthroat (*Geothlypis trichas*), song sparrow (*Melospiza melodia*), red-winged blackbird (*Agelaius phoeniceus*), and double-crested cormorant (*Phalacrocorax auritus*). Many of these species are reliant on the emergent vegetation of marshes for cover, nesting habitat, and production of their food base.

Within the aquatic segments of the Study Area, sparse to dense beds of submerged aquatic vegetation including common waterweed, coon's tail, and Brazilian waterweed provide habitat for many fish species that occur in tidally influenced habitat. Some of the species that were observed during field surveys include western mosquito fish (*Gambusia affinis*), largemouth bass (*Micropterus salmoides*), and striped bass (*Morone saxatalis*). These fish species provide a valuable food source for many of the aforementioned marshland birds including great egret, great blue heron, and double-crested cormorant as well as other fishing specialists including osprey (*Pandion haliaetus*), belted kingfisher (*Megaceryle alcyon*), and Caspian tern (*Hydroprogne caspia*). Mammalian species that were observed using aquatic habitat within the study area include North American river otter (*Lontra canadensis*) and California sea lion (*Zalophus californianus*).

4.8 SPECIAL-STATUS SPECIES

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

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

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

Based on the literature review and species lists obtained from USFWS (IPaC Trust Resource Report) (Consultation code: 08FBDT00-2020-SLI-0236) and from NMFS (NMFS, 2020) for the Woodward Island quadrangle, a list of special-status species that have been reported within a five-mile radius surrounding the Project site has been compiled. Special-status species with occurrences within five miles of the site that were considered for potential occurrence on the

Project site are listed in Table 4-3. Table 4-3 also includes rationale for why certain species were excluded from further analysis in this document. Special-status species occurring within five miles of the Project are depicted in Figure 5.

An analysis of the likelihood of occurrence for each species was conducted on the basis of species ranges, previous observations, contemporary sightings, and presence of suitable habitat elements. The Project may be located outside of the known range of some species, or within the geographic range for a certain species, but suitable habitat, such as vernal pool habitat is absent onsite. For the purpose of this analysis, potential special-status species that occur in the general area of the Project, and for which the Project may provide habitat, are discussed in greater detail in Sections 4.8.1 and 4.8.2 below.

Table 4-3. Special-Status Species Occurring Within Five Miles of the Site and Considered for Potential Occurrence in the Vicinity of the PG&E L-057A-1 Decommissioning Project

Scientific Name	Common Name	Status[1]	Habitat	Probability of Occurrence
PLANTS				
Amsinckia grandiflora	Large-flowered fiddleneck	FE	Native perennial bunch grasslands communities in well-drained areas from sea level to 3,940 ft in valley and foothill grassland and cismontane woodland communities. Booms April to May.	**Absent.** No suitable habitat is present onsite or adjacent to the Project site for this species. Nearest recent occurrence (Occ. #4) is approximately 23 miles south.
Extriplex joaquinana	San Joaquin spearscale	1B.2	Alkaline environments, chenopod scrub, meadows and seeps, playas, and valley and foothill grasslands. Occurs at elevations of 1 to 2,740 ft and blooms from April to October.	**Absent.** No suitable habitat is present onsite or adjacent to the Project site for this species. Nearest occurrence (Occ. #70) is from 1927, is approximately 13 miles southeast and is extirpated.
Hibiscus lasiocarpos var. occidentalis	Woolly rose-mallow	1B.2	Marshes and swamps with low peat islands in sloughs or riprap levees. Blooms June to September.	**High.** Suitable habitat occurs at the Project site, specifically on the Mildred Island levee. Also known to occur in riprap on levees. Known occurrences are mapped on the Mildred Island levee.
Lathyrus jepsonii var. jepsonii	Delta tule pea	1B.2	Freshwater and brackish marshes. Found with *Typha* and *Juncus* spp. along marsh edges. Blooms May to July.	**High.** Suitable habitat occurs at the Project site, specifically on the Mildred Island levee. Nearest recent occurrence (Occ. #16) is approximately 1.8 miles south.
Lilaeopsis masonii	Mason's lilaeopsis	1B.1	Marshes and swamps, riparian scrub in tidal zones with muddy or silty soils. Blooms April to November.	**High.** Suitable habitat occurs at the Project site, specifically on the Mildred Island levee. Several occurrences are mapped around the perimeter of Mildred Island.
Limosella australis	Delta mudwort	2B.1	Riparian scrub, marshes and swamps usually on mud banks in marshy or scrub riparian associations, often with *Lilaeopsis masonii.* Blooms May to August.	**High.** Suitable habitat occurs at the Project site, specifically on the Mildred Island levee. Several occurrences are mapped around the perimeter of Mildred Island.
Scutellaria galericulata	Marsh skullcap	2B.2	Swamps and marshes, lower montane coniferous forests, meadows, and seeps. Blooms June to September.	**Moderate.** Suitable habitat occurs at the Project site. Nearest occurrence is from 1978 (Occ. #2) and is approximately 4.5 miles upstream of the Project site.

Scientific Name	Common Name	Status[1]	Habitat	Probability of Occurrence
Symphyotrichum lentum	Suisun marsh aster	1B.2	Marshes and swamps most often seen along sloughs with *Phragmites spp., Scirpus spp., Typha* spp. Blooms May to November.	**High.** Suitable habitat occurs at the Project site, specifically on the Mildred Island levee. Several occurrences are mapped around the perimeter of Bacon Island.
INVERTEBRATES				
Brachinecta longiantenna	Longhorn fairy shrimp	FE	The habitat characteristics typical of the pools that support the longhorn fairy shrimp are clear to turbid pools often in alkaline soils. These include clear-water depressions in sandstone outcroppings, grass-bottomed pools, and claypan pools.	**Absent.** No suitable habitat is present onsite or adjacent to the Project site for this species. Nearest recent occurrence (Occ. #3) is from 2018 is approximately 10 miles southwest.
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 grassed swale, earth slump or basalt-flow depression pools.	**Absent.** No suitable habitat is present onsite or adjacent to the Project site for this species. Nearest recent occurrence (Occ. #288) is from 2001 is approximately 7 miles southwest.
Callophrys mossii bayensis	San Bruno elfin butterfly	FE	Coastal grassland and low scrub of north-facing slopes within the fog belt where host plant, *Sedum spathulifolium* (stonecrop) grows.	**Absent.** No suitable habitat is present onsite or adjacent to the Project site for this species. Nearest recent occurrence (Occ. #4) is from 2016 and is more than 50 miles west.
Desmocerus californicus dimorphus	Valley elderberry longhorn beetle	FT	Occurrences of the VELB are primarily in the vicinity of moist valley oak woodlands associated with riparian corridors in the lower Sacramento River and upper San Joaquin River drainages (U.S. Fish and Wildlife Service, 1984). Elderberry plants are obligate hosts for the VELB, providing a source of food and brood wood.	**Low.** No blue elderberry shrubs were observed within 165 feet of the Project site during biological surveys. Nearest recent occurrence of VELB (Occ. #158) is from 1984 is approximately 10 miles southeast.

Scientific Name	Common Name	Status[1]	Habitat	Probability of Occurrence
Lepidurus packardi	Vernal pool tadpole shrimp	FE	Found in seasonally ponded habitats including vernal pools, swales, ephemeral drainages, stock ponds, reservoirs, ditches, and ruts caused from vehicular traffic.	**Absent.** No suitable habitat is present onsite or adjacent to the Project site for this species. Nearest recent occurrence (Occ. #210) is from 1990 is approximately 13 miles south.
FISH				
Acipenser medirostris	Green sturgeon – Southern DPS	FT, CSC	Anadromous fish species found in near shore marine and estuarine environments from Alaska to Baja California, Mexico. Juveniles have been collected in the San Francisco Bay up to the lower reaches of the Sacramento and San Joaquin Rivers. Green sturgeon depend on large rivers to spawn, typically in deep pools in large turbulent mainstem rivers. Spawning is documented in Sacramento River, but little is known about specific spawning locations.	**Moderate.** The Project is outside of the species' known spawning range. Extent to which species uses San Joaquin River is unclear, though a recent adult occurrence in Stanislaus River (major tributary to San Joaquin River) indicates some use. Juvenile green sturgeon have been salvaged at the pumping plant and fish collection facility in south Delta approximately 10 miles south of the Site (USDA and DBW, 2012). No species occurrence data available in CNDDB for the Sacramento-San Joaquin River Delta. Species is not common in south Delta but can occur.
Acipenser transmontanus	White Sturgeon	CSC	Spend most of their time in estuary habitat and migrate up the Sacramento and San Joaquin Rivers to spawn.	**Moderate.** This species has been documented in the San Joaquin River and could occur in the Project site; however, site does not provide suitable spawning habitat. No species occurrence data available in CNDDB but this is an important sport fish in the San Joaquin River delta. Documented occurrences from 2019 in Suisun Bay, approximately 35 miles downstream of Project site (Danos et al., 2020).
Oncorhynchus mykiss	Central Valley steelhead	FT	Sacramento and San Joaquin River systems, Sacramento-San Joaquin Delta, and San Francisco Bay	**High**. The species could be found in the vicinity of the Project site seasonally during migration to spawning habitat upstream of the site. Site does not provide suitable spawning habitat. Nearest recent occurrence (Occ. #27) is from 2012 within Old and Middle River within the Project site.

Scientific Name	Common Name	Status[1]	Habitat	Probability of Occurrence
Oncorhynchus tshawytscha	Central Valley spring-run chinook salmon ESU	FT, ST	Sacramento River, Sacramento-San Joaquin Delta, and San Francisco Bay. Preferred spawning habitat for chinook salmon are in gravel areas of large rivers and tributaries.	**High.** This ESU could be found in the vicinity of the Project site seasonally during migration to spawning habitat upstream of the site. Site does not provide suitable spawning habitat. This species has recently been reintroduced to the San Joaquin River watershed and is considered an experimental population. Designated as non-essential experimental population pursuant to Section 10(j) of the FESA. As non-essential experimental population, take prohibitions are relaxed.
	Central Valley fall-run chinook salmon ESU	CSC	Sacramento River, Sacramento-San Joaquin Delta, and San Francisco Bay. Preferred spawning habitat for chinook salmon are in gravel areas of large rivers and tributaries.	**High.** This ESU could be found in the vicinity of the Project site seasonally during migration to spawning habitat upstream of the site. Site does not provide suitable spawning habitat.
Archoplites interruptus	Sacramento perch	CSC	Most often found in warm reservoirs and ponds. Capable of surviving high temperatures, high salinities, high turbidity, and low water clarity. Often found in clear water among beds of aquatic vegetation, they may occur in greater numbers.	**Low.** Species historically occurred in the San Joaquin River; however, it appears to be extinct in its native range with 25 isolated populations remaining, many of which were introduced to habitat outside the native range (CDFG, n.d.).
Entosphenus tridentata	Pacific lamprey	CSC	The adults live at least one to two years in the ocean and then return to fresh water to spawn. Require gravel for spawning.	**Moderate**. Pacific lamprey are known to occur in major river systems on the west coast, including the Sacramento-San Joaquin Rivers. The species could be found in the vicinity of the Project site; however, habitat onsite is not suitable for spawning.
Hypomesus transpacificus	Delta smelt	FT, SE	Endemic to the upper Sacramento/San Joaquin Delta, it mainly inhabits the freshwater-saltwater mixing zone of the estuary, except during its spawning season, when in moves into freshwater during the early spring months from March until May.	**High.** Suitable habitat occurs at the Project site. Nearest occurrences (Occ. #18 and 19) are from 2007 and occur on the south ends of Mildred and Bacon Islands within Empire Cut.

Scientific Name	Common Name	Status[1]	Habitat	Probability of Occurrence
Lampetra ayresii	River lamprey	CSC	Associated with large river systems. Need clean, gravelly riffles in permanent streams for spawning, while the ammocoetes require sandy backwaters or stream edges.	**Moderate**. River lamprey is known to occur in the San Francisco Bay-Delta; however, detailed information on their distribution is lacking. Appears to be concentrated only in particular rivers, and only in the lower portions of large rivers. Known occurrences in San Joaquin River system and tributaries, including Stanislaus and Tuolumne Rivers (USFWS, 2004). The species could be found in the vicinity of the Project site; however, habitat onsite is not suitable for spawning.
Lavinia exilicauda exilicauda	Sacramento hitch	CSC	Sacramento hitch are most often found in slow warm water, including lakes and quiet stretches of rivers. Hitch are sometimes found in cool and clear, low-gradient streams, hiding among aquatic vegetation in sandy runs or pools.	**Low.** Species historically occurred in the San Joaquin River; however, it appears to be largely confined to the northern Delta and has been extirpated from the southern Delta by the mid-1990's (CDFG, n.d.).
Pogonichthys macrolepidotus	Sacramento splittail	CSC	Sacramento splittail are freshwater species that are highly tolerant of brackish water. Shallow seasonally flooded vegetation is the preferred spawning substrate for the Sacramento splittail. Commonly occur in brackish waters of Suisun Bay, Suisun Marsh, and the Sacramento-San Joaquin Delta.	**High.** Species is known to occur in the San Joaquin River and are likely distributed much more widely in small creeks and marshes throughout the lower portions of the Estuary than known occurrences indicate (USFWS, 2010). Project site provides suitable shallow water habitat for the species.
Spirinchus thaleichthys	Longfin smelt	FC, ST, CSC	Occupies a variety of coastal waters including estuaries, bays, and rivers. During breeding, this species spawns in freshwater tributaries near the ocean.	**High.** Suitable habitat occurs at the Project site. Nearest occurrences (Occ. #39 and 40) are from 2012 and occur on the south ends of Mildred and Bacon Islands. IEP surveys in March 2020 documented longfin smelt south of Bradford Island, 8 miles downstream of the Project site.
AMPHIBIANS				
Ambystoma californiense	California tiger salamander	FT, ST	Needs underground refuges, especially ground squirrel burrows as upland habitat for aestivation and vernal pools or other seasonal water sources as aquatic habitat for breeding.	**Absent.** No suitable upland or aquatic habitat is present onsite or adjacent to the Project site for this species. Nearest recent occurrence (Occ. #1019) is from 2007 is approximately 9 miles southwest.

Scientific Name	Common Name	Status[1]	Habitat	Probability of Occurrence
Rana draytonii	California red-legged frog	FT, CSC	Found in marshes, lakes, reservoirs, ponds, slow parts of streams, and other usually permanent water in lowlands, foothill woodlands and grasslands. Require areas with extensive emergent vegetation. High value habitats are deep-water ponds with dense stands of overhanging willows and a fringe of cattails.	**Absent.** No suitable habitat is present onsite or adjacent to the Project site for this species. Nearest recent occurrence (Occ. #862) is from 2009 is approximately 11 miles southwest.
REPTILES				
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 or grassy open fields) for egg laying.	**High**. Suitable habitat occurs at the Project site. Nearest recent occurrence (Occ. #186) is from 2000 is on the northern edge of Mildred Island within Latham Slough.
Thamnophis gigas	Giant garter snake	FT, ST	Freshwater marshes and streams. Has adapted to rice fields, drainage canals and irrigation ditches.	**Moderate.** There is suitable aquatic habitat that occurs at the Project site, specifically along the vegetated shoreline inside Mildred Island which provides emergent vegetation adjacent to aquatic habitat; however, upland refugia with small mammal burrows is very limited in the Project site. The nearby recent occurrences include two from 2010 and 2012 (#307 and #403, respectively) approximately 5.2 and 4.6 miles northeast of the Project site. A 2018 occurrence (Occ. #425) within the San Joaquin River at Blackwater slough, is 5.3 miles east of the Project site.
BIRDS				

Scientific Name	Common Name	Status[1]	Habitat	Probability of Occurrence
Ardea herodias	Great blue heron	CSC	Rookery sites are in close proximity to foraging areas such as marshes, lake margins, tide-flats, rivers, streams and wet meadows.	**High.** There is suitable foraging habitat within the Project site, however there are no tall trees suitable for a rookery within the Project site. Nearest occurrence (Occ. #64) is from 2000 and is a rookery within Middle River approximately 2.5 miles south.
Athene cunicularia	Burrowing owl	CSC	Open, dry annual or perennial grasslands, deserts, and scrublands; Breeding is dependent on California ground squirrel burrows	**Low.** Suitable foraging and over-wintering habitat occurs in areas surrounding the terrestrial portion of the Project site; however, suitable nesting habitat does not occur onsite. No ground squirrel colonies observed during field surveys. Nearest recent occurrence (#1878) is a 2006 breeding pair 2.9 miles west of the Old River crossing near Byron. (Occ. #770) is from 2006 approximately 4 miles east.
Buteo swainsoni	Swainson's hawk	ST, BCC	Breeds in stands with few trees in juniper-sage flats, riparian areas and in oak savannah. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	**High.** This species is likely to nest and forage within 0.5-mile of the Project site. Two nesting occurrences (#1652 and 2377) were documented in 2009 and 2010 near confluence of Middle River and Empire Cut. One nesting occurrence (#1917) occurs on Old River north of the Project site.
Circus cyaneus	Northern harrier	CSC	Forages and nests in freshwater and brackish marshes and their adjacent grasslands.	**High**. Species was observed during surveys foraging in fields adjacent to the site. Suitable nesting habitat does not occur onsite due to disturbance and lack of vegetation in terrestrial habitat within the study area, but suitable nesting habitat occurs in surrounding area adjacent to the Project site.
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.	**High**. Species is known to occur in the area. Suitable foraging and nesting habitat is limited on site due to extent of aquatic habitat; however, the willow scrub on Mildred Island levee offers suitable nesting habitat. Suitable nesting and foraging habitat also occur in surrounding farmland adjacent to the Project site.

Scientific Name	Common Name	Status[1]	Habitat	Probability of Occurrence
Melospiza melodia	Song sparrow ("Modesto" population)	CSC	Marsh and riparian scrub; Resident of the north-central portion of the Central Valley.	**High.** This species is known to occur within the vicinity of the Project site. Nearest recent occurrence (Occ. #18) is mapped around the perimeter of Mildred Island and within the Project site within Middle River and Latham Slough.
Laterallus jamaicensis coturniculus	California black rail	BCC, ST, FP	Freshwater marshes, wet meadows and shallow margins of saltwater marshes with water depths of approximately one inch that do not fluctuate during the year and dense vegetation for nesting.	**Moderate.** Suitable foraging habitat present along levees within Project site; however, marsh habitat on levees may not be extensive enough for suitable nesting habitat and may be subject to inundation. Suitable nesting habitat occurs in remnant marsh habitat located on in-channel islands near the site. Nearest occurrences (Occ. #98 and #295) are from 1992 and 2010, respectively and are mapped on islands on the east and west sides of Mildred Island.
MAMMALS				
Vulpes macrotis mutica	San Joaquin kit fox	FE, ST	Annual grasslands or grassy open stages with scattered shrubby vegetation. Need loose-textured sandy soils for burrowing and suitable prey base.	**Absent**. Suitable habitat does not occur at the Project site. Nearest occurrence (Occ. #575) is from 1991 is approximately 9 miles southwest.

[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 CSC = California Species of Special Concern BCC = USFWS Bird of Conservation Concern	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 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

4.8.1 Special-Status Plants

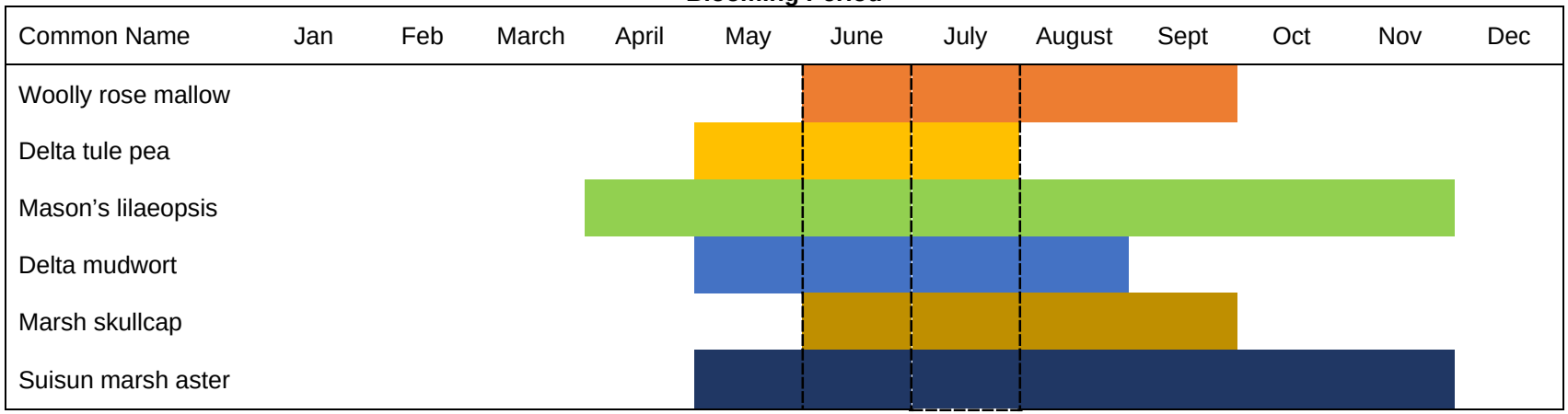
Habitat assessments and surveys for the Project were conducted in November 2019 and September 2020 outside of the blooming season for most special-status plant species; however, suitable habitat for special-status plants is limited to marginally suitable habitat on McDonald Island levee, Bacon Island levees, and Old River levee. Suitable special-status plant species habitat occurs along the Mildred Island levee and known occurrences of special-status plant species are reported in this location from 2009 surveys conducted in support of the Bay Delta Conservation Plan / California Water Fix Project (BDCP/Cal Water Fix) (California Department of Water Resources [DWR] and U.S. Bureau of Reclamation [BOR], 2016). Other areas within the study area (e.g. laydown sites and access roads) do not provide suitable habitat for special-status plant species.

4.8.1.1 Woolly rose-mallow (*Hibiscus lasiocarpos var. occidentalis*)

Woolly rose-mallow is a CNPS List 1B.2 species. It is a perennial herbaceous species that blooms from June through September (Table 4-4). It occurs in freshwater marsh habitat at elevations up to 400 feet. Wooly rose-mallow can be found on riverbanks and low peat islands in sloughs. It can also occur on riprap and man-made levees. Suitable habitat occurs at the Project site and several known occurrences are mapped on the Mildred Island levee, including one occurrence (Occ. #3) within the study area (CDFW, 2002a). Excavation within levees for access to the pipeline and/or removal of pipeline segments has the potential to impact this species, particularly the removal of the pipeline from the Mildred Island levees at the eastern and western crossing location. Additionally, because this species can occur within riprap on armored levees, this species could occur on McDonald Island levee, Bacon Island levees, and Palm Tract levee; although it was not observed during field surveys conducted for this Project.

Table 4-4. Blooming Period for Special-Status Plant Species - PG&E L-057A-1 Decommissioning Project

Blooming Period



4.8.1.2 Delta tule pea (*Lathyrus jepsonii var. jepsonii)*

Delta tule pea is a Federal species of concern and a CNPS List 1B.2 species. This is a perennial herbaceous species that blooms May through July (Table 4-4). It is associated with both brackish marshes and freshwater marshes throughout the Delta and Central Valley. Delta tule pea is found with other marsh species including cattail, Suisun marsh aster (*Symphyotrichum lentum*), California rose, and various species of rush and bulrush on the margins of sloughs and within tidal wetlands. The nearest occurrence (Occ. #16) was mapped in 1987 approximately 1.8 miles south; however, more recent occurrences were document in 2009 on the east side of Bacon Island. Suitable habitat occurs within the study area, particularly within emergent wetland habitat along the Mildred Island levee. The species was not mapped on the south Mildred Island levee during 2009 surveys in support of the BDCP/Cal Water Fix Project, it has potential to occur (DWR and BOR, 2016). Excavation within levees for access to the pipeline and/or removal of pipeline segments has the potential to impact this species, particularly the removal of the pipeline from the Mildred Island levees at the eastern and western crossing location.

4.8.1.3 Mason's lilaeopsis (*Lilaeopsis masonii*)

Mason's lilaeopsis is a State-listed Rare species, and a CNPS List 1B.1 species. This is a perennial herbaceous species that blooms April through November (Table 4-4). This species is associated with tidally influenced marsh habitats, mudflats, and levee banks in the Delta and suitable habitat occurs within the study area, particularly along the southern Mildred Island levee. The nearest occurrence (Occ. #194) is mapped on a portion of southern Mildred Island that is tidally submerged and within the study area for the Project. Excavation within levees for access to the pipeline and/or removal of pipeline segments has the potential to impact this species, particularly the removal of the pipeline from the Mildred Island levees at the eastern and western crossing location.

4.8.1.4 Delta mudwort (*Limosella australis*)

Delta mudwort is a CNPS List 2B.1 species. It is a stoloniferous, aquatic, perennial herb in the Scrophulariaceae (snapdragon) family, and is restricted to muddy, intertidal flats and banks in brackish marshes, freshwater marshes, and riparian scrub in the Sacramento-San Joaquin Delta. It is found in association with other rare plants, especially Mason's lilaeopsis, delta tule pea, and Suisun Marsh aster. It blooms from May through August (Table 4-4). Several occurrences are documented around the perimeter of Mildred Island and on the tidal mud flats on in-channel islands. Suitable habitat for delta mudwort occurs within the study area, particularly along the southern Mildred Island levee. Excavation within levees for access to the pipeline and/or removal of pipeline segments has the potential to impact this species, particularly the removal of the pipeline from the Mildred Island levees at the eastern and western crossing location.

4.8.1.5 Marsh skullcap (*Scutellaria galericulata*)

Marsh skullcap is a CNPS List 2B.2 species. It is a rhizomatous perennial herbaceous species that typically occurs in marshes and swamps at elevations up to 6,400 feet and blooms June through September (Table 4-4). Marsh skullcap can be found from the Sacramento- San Joaquin Delta to lower montane coniferous forests, meadows and mountain seeps. The nearest occurrences (Occ. #1 and #2) are from 1978 and are documented within Middle River

approximately 4.5 miles upstream of the Project site. Suitable habitat is present within the Project site; however, no recent occurrences (less than five years) have been documented near the Project site. Suitable habitat occurs within the study area, particularly along the southern Mildred Island levee. Excavation within levees for access to the pipeline and/or removal of pipeline segments has the potential to impact this species, particularly the removal of the pipeline from the Mildred Island levees at the eastern and western crossing location.

4.8.1.6 Suisun marsh aster (*Symphyotrichum lentum*)

Suisun Marsh aster is a CNPS List 1B.2 species. Suisun Marsh aster is a rhizomatous, perennial herbaceous species that typically occurs in brackish marshes, but can also occur in freshwater marshes at elevations up to 10 feet. This species blooms May through November (Table 4-4). The nearest occurrences are mapped along the sloughs and riverbanks around Mildred and Bacon Islands. Suitable habitat for Suisun marsh aster occurs within the study area, particularly along the southern Mildred Island levee. Excavation within levees for access to the pipeline and/or removal of pipeline segments has the potential to impact this species, particularly the removal of the pipeline from the Mildred Island levees at the eastern and western crossing location.

4.8.2 Special-Status Wildlife

This section includes a discussion of special-status wildlife species that are known to occur or have potential to occur at the Project site based on habitat availability and known locations of species within the vicinity of the Project site. Certain species, such as vernal pool invertebrate and amphibian species listed in Table 4-4 above, may occur within the quadrangle and/or within five miles of the Project site; however, based upon a thorough analysis of the Project site, these species were determined to be absent due to a lack of suitable habitat and, therefore, are not included in this section. Other species may have been eliminated from consideration because the Project site is beyond the recorded geographic and/or elevational range for these species.

4.8.2.1 Green sturgeon (*Acipenser medirostris*)

The green sturgeon is a federally listed Threatened species in the southern range or distinct population segment (DPS). It is also a California Species of Special Concern and a NMFS Species of Concern. Green sturgeon is an anadromous species, but little is known about its biology because they are much less abundant than white sturgeon and regarded as inferior quality for consumption (Moyle, 2002). Juvenile green sturgeon have been collected in the San Francisco Bay up to the lower reaches of the Sacramento and San Joaquin rivers; however, spawning occurs in cool sections of the upper Sacramento River where there are deep, turbulent flows and clean, hard substrates. In the autumn, the post-spawning adults move back down the river and re-enter the ocean. After hatching, larvae and juveniles migrate downstream toward the Sacramento-San Joaquin Delta and estuary where they spend a few years maturing before the move out to the ocean. Green sturgeon can utilize high tide habitat; therefore, it could benefit the species to start or work during low tide. During high tide the area usually contains more submerged vegetation that can support sturgeon. In 2019, three green sturgeon were caught during monitoring surveys in Suisun Bay, approximately 35 miles downstream of the Project site (Danos et al., 2020). Green sturgeon have not been identified at Interagency Ecological Program (IEP) survey stations within the Project area; however, there is a low likelihood that juvenile green

sturgeon may utilize the deeper areas of the Project site for foraging and/or emigrating out to the ocean. Fish salvage data reported for the State Water Project and Central Valley Project from diversion points approximately 10 miles south and upstream of the study area indicate that green sturgeon were salvaged, typically in low numbers, at the salvage facilities during a period of record from 1981 to 2012 (CDFW, 2020b). Green sturgeon could occur in the Project site; however, the site does not provide spawning habitat. See Table 4-5 for migration and spawning periods for special-status fish species that may occur in the Project area.

All in-water work associated with pipeline decommissioning and removal will be conducted during the delta aquatic work window of August 1 to October 31, which is a combined species work window for avoidance and minimization of special-status fish species (resident fishes and anadromous fishes). The work window may be modified based on conditions of permits issued by regulatory agencies.

Table 4-5. Migration and Spawning Periods of Special-Status Fish Species within the Project Area

Common Name			Migrating/Spawning Seasons											
Species	**Status**	**Occurrence Migration/Spawning**	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**
Anadromous Species														
Fall-run Chinook Salmon	CSC	High/None									XXXX	XXXX		
Spring-run Chinook Salmon	CSC/FT	High/None					XXXX	XXXX						
CV Steelhead	SE/FT	High/None		XXXX	XXXX							XXXX	XXXX	
Green Sturgeon	FT	Low/None												
White Sturgeon	CSC	Moderate/None			XXXX	XXXX	XXXX	XXXX						
River Lamprey	CSC	Moderate/None												
Pacific Lamprey	CSC	Moderate/None			XXXX	XXXX	XXXX	XXXX						
Resident Species														
Delta Smelt	FT, SE	Moderate/Low					XXXX	XXXX						
Longfin Smelt	ST, FC	Moderate/Low									XXXX	XXXX		
Sacramento splittail	CSC	Moderate/Low	XXXX	XXXX	XXXX									

Status:
SE = State Endangered
ST = State Threatened
CSC = California Species of Special Concern
FE = Federally Endangered
FT = Federally Threatened

Migration period
XXXX Peak migration period
Spawning period
XXXX Peak spawning period
Overlap of migration and spawning periods

4.8.2.2 White sturgeon (*Acipenser transmontanus*)

The white sturgeon is a California Species of Special Concern. White sturgeon have a marine distribution spanning from the Gulf of Alaska south to Mexico but a spawning distribution ranging only north of the San Joaquin River (McCabe and Tracy, 1994, and Jackson et al., 2016). Currently, spawning populations are known to occur in the San Joaquin, Sacramento, Fraser, and Columbia Rivers. In California, primary abundance is in the San Francisco Bay, with spawning occurring mainly in the Sacramento and Feather Rivers (Klimley et al., 2015). White sturgeon spend most of their lives in estuaries of large rivers, only moving into freshwater to spawn (Moyle, 2002). Sturgeon migrate upstream when they are ready to spawn in response to flow increases. Male white sturgeon are at least 10 to 12 years old before sexual maturity (Moyle, 2002). Spawning takes place between late February and early June when water temperatures range from 46 to 66 degrees Fahrenheit. In the San Joaquin River, telemetry studies have documented adult white sturgeon occurrences as far upstream as Patterson (USFWS, 2015). In 2019, 269 white sturgeon were caught during monitoring surveys in Suisun Bay, approximately 35 miles downstream of the Project site (Danos et al., 2020). White sturgeon have not been identified at IEP survey stations within the Project area; however, this species could be found in the Project area when the water temperatures are suitable. Fish salvage data reported for the State Water Project and Central Valley Project from diversion points approximately 10 miles south and upstream of the study area indicate that white sturgeon were salvaged, typically in low numbers, at the salvage facilities during a period of record from 1981 to 2012 (CDFW, 2020b). White sturgeon could occur in the Project site; however, the site does not provide suitable spawning habitat. See Table 4-5 for migration and spawning periods for special-status fish species that may occur in the Project area.

All in-water work associated with pipeline decommissioning and removal will be conducted during the delta aquatic work window of August 1 to October 31, which is a combined species work window for avoidance and minimization of special-status fish species (resident fishes and anadromous fishes). The work window may be modified based on conditions of permits issued by regulatory agencies.

4.8.2.3 Central Valley steelhead (*Oncorhynchus mykiss irideus*)

Central Valley steelhead is a federally listed Threatened species. Steelhead have been separated into 14 ESUs. The California Central Valley evolutionary significant unit (ESU) and the Central California Coast ESU could occur in the vicinity of the Project. Steelhead are an anadromous form of the rainbow trout native to the Pacific Ocean and coastal drainages. Steelhead and rainbow trout did not arise from two distinct evolutionary lines (Behnke, 1992). General factors influencing steelhead abundance include reduction in spawning, incubation, and rearing success due to barriers to passage, diversions, flow fluctuations, sub-optimal water temperature, and sedimentation of spawning habitat. Steelhead live the majority of their life cycle in the Pacific Ocean then migrate upstream to spawn between October and January. Spawning typically occurs between December and April. Steelhead are iteroparous and do not die after spawning and thus may spawn again the following year. Most naturally produced Central Valley steelhead rear in freshwater for 1 to 3 years before emigrating to the ocean. Steelhead eggs hatch in about 30 days at 51 degrees Fahrenheit (Leitritz and Lewis 1980). Studies of Central Valley steelhead have shown that the population is polymorphic, where two-year-old non-

anadromous males are breeding with anadromous females. The polymorphism in the Central Valley population is due to the extreme variation in rainfall and climate which can result in flashfloods and/or droughts lasting years. The species flexibility has allowed it to persist in the Central Valley through the additions of dams and reduction of accessible spawning grounds.

Like Chinook salmon, steelhead were likely more widely distributed within the San Joaquin River and its tributaries but the presence of dams upstream restricted upstream migration. Currently the species is isolated to the San Joaquin River mainstem and/or larger tributaries. However, the mainstem of the river and other low gradient portions of the river provide juvenile rearing, including in the vicinity of the study area. Steelhead are unlikely to occur in the Project area location during the summer months when in-water work will occur due high water temperature and low dissolved oxygen. It is likely smolts or non-anadromous individuals would be located upstream of the site where the water temperature is cooler and within habitat providing vegetation and/or structure for individuals to seek refuge or riffles to provide increased dissolved oxygen.

The in-water work associated with decommissioning and removal of the pipeline will occur during the delta species in-water work window (August 1 to October 31) which corresponds to the warmest water temperatures of the year at the Project location and, therefore, the least favorable conditions for fish, particularly salmonids. Water temperatures in the Project area from August through October range between 71 and 82 degrees Fahrenheit and average around 76 degrees Fahrenheit (USGS, 2020), exceeding temperature thresholds for salmonids and reducing the habitat suitability due to the reduction of dissolved oxygen. Steelhead will likely have an avoidance response and will stay upstream of the Project where conditions are cooler and more favorable. Adults migrating from the ocean will stay in nearshore waters until water temperatures become cooler before they start their journey upstream, typically beginning in October.

All in-water work associated with pipeline decommissioning and removal will be conducted during the delta aquatic work window of August 1 to October 31, which is a combined species work window for avoidance and minimization of special-status fish species (resident fishes and anadromous fishes). The work window may be modified based on conditions of permits issued by regulatory agencies.

4.8.2.4 Chinook salmon (*Oncorhynchus tshawyscha*)

The Chinook salmon is an anadromous species spending most of its adult life in the ocean and then returning to freshwater streams to spawn. They spend 3 to 6 years maturing in the ocean before they migrate upstream to spawn. Adult Chinook salmon die after spawning. Juveniles spend from several months to over a year rearing in their natal streams before emigrating to the ocean. Preferred spawning grounds for Chinook salmon are in gravel areas of large rivers and tributaries (Goals Project, 2000). Chinook salmon have been separated into 17 distinct groups or ESU based on similarity in life history, location, and genetic markers and the Project is located within the San Joaquin Delta Hydrologic Unit (18040003) identified within the Pacific Coast Salmon Fisheries Management Plan (NMFS, 2020).. The Central Valley spring-run and fall run ESU's have the potential to occur in and around the Project area when habitat conditions are suitable.

4.8.2.5 Central Valley Spring-Run Chinook Salmon

The Central Valley spring-run Chinook salmon is a federally Threatened species and California Threatened species. Central Valley spring-run Chinook salmon migration period occurs from March through July with a peak in May and June. The spawning period is late August through late October (Goals Project, 2000). The juvenile downstream emergence period is between November and March with a 3 to 15-month freshwater residency period between November and January (Year-2), concluding with an estuarine emigration period between November and June.

In the San Joaquin River, spring-run Chinook salmon historically spawned as far as Mammoth Pool Reservoir, located on the San Joaquin River northeast of Fresno, where their upstream migration historically was blocked by a natural velocity barrier. The construction of Friant Dam blocked significant spawning habitat between Millerton Lake and Mammoth Pool Reservoir (Yoshiyama et al. 1998; CDWR and USDIBR, 2017). Historically, spring-run Chinook salmon juveniles likely used the San Joaquin River as a migration corridor and a rearing area due to the extensive floodplain habitat present. Based on data collected at the Yolo Bypass and Cosumnes River Floodplain, it is understood that increased growth rate occurs within floodplain habitat due to the abundant invertebrate prey present compared to that of the Sacramento River (Sommer et al. 2001; CDWR and USDIBR, 2017). By the 1950s, the entire run of spring-run Chinook salmon was extirpated from the San Joaquin River (Fry, 1961).

Due to the severely decimated population of Central Valley spring-run Chinook salmon, the San Joaquin River Restoration Program (SJRRP) helped initiate a reintroduction program. Reintroduced individuals are classified as a 10(j) non-essential experimental population under the FESA, which means that the unintentional take of Central Valley spring-run Chinook salmon in the experimental population area that is caused by otherwise lawful activities is excepted from the take prohibitions under Section 9 of FESA. Examples of otherwise lawful activities include, but are not limited to, recreation, agriculture, municipal usage, flood control, water management, and other similar activities which are carried out in accordance with Federal, State, and local laws and regulations (NMFS, 2013). Reintroduced Central Valley spring run Chinook salmon could occur in the Project area during migration upstream to spawning habitat.

4.8.2.6 Central Valley Fall-Run Chinook Salmon

The Central Valley fall-run Chinook salmon are a California Species of Special Concern. The migration period for fall and late-fall run Chinook salmon is August through April with peaks in September through October and December, respectively. Their spawning period is late September through late April with peaks in late October and early February, respectively (Goals Project, 2000). The juvenile downstream emergence period is between December and June with freshwater residency periods of 4 to 7 months between December and June for fall-run and seven to 13 months between April of year 1 and April of year-2 for late fall-run. The residency periods end with an estuarine emigration period between March and July for fall-run and between October and May for late fall-run (Goals Project, 2000).

Fall-run Chinook salmon generally spawn lower in the watersheds than spring-run Chinook salmon (CDFG, 1957). Fall-run Chinook salmon historically spawned in the main stem San Joaquin River upstream from the Merced River confluence near the town of Friant and in the main stem channels of the major tributaries (Yoshiyama et al. 1998). However, currently, they

are limited to the Merced, Stanislaus, and Tuolumne Rivers where they spawn and rear downstream from mainstem dams (CDWR and USDIBR, 2017). Central Valley fall-run Chinook salmon could occur in the Project area during migration upstream to spawning habitat.

The in-water work associated with decommissioning and removal of the pipeline will occur during the delta species in-water work window (August 1 to October 31) which corresponds to the warmest water temperatures of the year at the Project location and, therefore, the least favorable conditions for fish, particularly salmonids. Water temperatures in the Project area from August through October range between 71 and 82 degrees Fahrenheit and average around 76 degrees Fahrenheit (USGS, 2020), exceeding temperature thresholds for salmonids and reducing the habitat suitability due to the reduction of dissolved oxygen. Chinook smolts will likely have an avoidance response and will stay upstream of the Project where conditions are cooler and more favorable. Fall run Chinook adults migrating from the ocean will stay in nearshore waters until water temperatures become cooler before they start their journey upstream, typically beginning in October. See Table 4-5 for migration and spawning periods for special-status fish species that may occur in the Project area.

All in-water work associated with pipeline decommissioning and removal will be conducted during the delta aquatic work window of August 1 to October 31, which is a combined species work window for avoidance and minimization of special-status fish species (resident fishes and anadromous fishes). The work window may be modified based on conditions of permits issued by regulatory agencies.

4.8.2.7 Pacific lamprey (*Entosphenus tridentatus*)

Pacific lamprey is a California species of special concern that is found in nearly all California streams entering the Pacific Ocean, unless blocked by barriers or low flows. The adults often start their spawning migration from the ocean into freshwater in the fall and can be seen moving upstream throughout the winter and early spring except during high water. In some rivers these migrations continue into late spring. Pacific lampreys construct nests for spawning. They dig shallow depressions in stream riffles by moving stones with their suctorial mouth. The eggs are deposited in the crevices of the rocky nest area, after which the adults die. The eggs hatch and the young lampreys burrow into the stream bottom, where they remain in a larval stage for three or four years. During this time, they feed on material they filter from the water and gradually change into miniature adults. At a length of about six inches, they move into the stream and migrate to the ocean (Moyle et al., 2015).

Pacific lamprey are known to occur in the San Francisco Bay-Delta including the San Joaquin River. They could occur in the Project site during migration to spawning habitat; however, the site does not provide suitable spawning habitat. Species spawning season is from March through June, which is before planned in-water construction would occur. See Table 4-5 for migration and spawning periods for special-status fish species that may occur in the Project area.

All in-water work associated with pipeline decommissioning and removal will be conducted during the delta aquatic work window of August 1 to October 31, which is a combined species work window for avoidance and minimization of special-status fish species (resident fishes and anadromous fishes). The work window may be modified based on conditions of permits issued by regulatory agencies.

4.8.2.8 Delta Smelt (*Hypomesus transpacificus*)

The delta smelt is a federally Threatened and State Endangered species endemic to the Bay-Delta estuary. Critical habitat for delta smelt includes Suisun, Grizzly, and Honker bays, Goodyear, Suisun, Cutoff, First Mallard, and Montezuma sloughs, and the Sacramento-San Joaquin Delta (USFWS, 1996). Decline in populations are primarily attributed to habitat loss, high diversions of freshwater, reduced water flow, and reduced quality and quantity of suitable nursery habitat. Other contributing factors may include the presence of toxic compounds in the water, competition and predation by nonnative species, reduced food supply, disease, high outflows, and low spawning stock (Goals Project, 2000). Adult delta smelt inhabit open water areas where they feed on small zooplankton. They spawn in freshwater from late winter to early summer (primarily February through April) and usually die shortly afterward. Adhesive eggs sink and attach to substrates such as cattails, tules, tree roots, and submerged branches. They hatch after two weeks and larvae begin to feed on zooplankton within a few days.

Delta smelt spawning occurs primarily in shallow freshwater or slightly brackish water upstream of the mixing zone in backwater sloughs and channel edgewaters (Wang, 1991). Delta smelt are known to spawn in the lower reaches of the Sacramento and San Joaquin rivers as well as various sites within the Delta in shallow waters and dead-end sloughs. Important spawning habitat includes Barker, Lindsey, Cache, Prospect, Georgiana, Beaver, Hog, and Sycamore sloughs, the Sacramento River, and tributaries of northern Suisun Bay (USFWS, 1997). The center of spawning occurs around Bradford Island in the Delta and in the Sacramento River just below Rio Vista, (Wang, 1991). Spawning varies from year to year but is generally between December and July. Rearing habitat includes an area eastward from Carquinez Straits, including Suisun, Grizzly, and Honker bays, Montezuma Slough and its tributary sloughs, up the Sacramento River to its confluence with Three Mile Slough, and south along the San Joaquin River including Big Bend. An adequate river flow is necessary to transport larvae from upstream spawning areas to rearing habitat. Suitable transport conditions may be required from February to August.

The L-057A-1 site occurs within the Central Zone of the range of the delta smelt, which includes all of the legal delta and the entire designated critical habitat for delta smelt (USFWS, 2006a). Much of the Project site consists of shallow water habitat, defined as waters with depths less than three meters. Shallow water habitat is within the photic zone, is highly productive, and is considered suitable habitat for delta smelt whether vegetated or unvegetated (USFWS, 2006a).

A delta smelt 20-millimeter (mm) net surveys conducted by CDFW in the Delta, Sacramento and San Joaquin rivers, and their tributaries sampled for juvenile delta smelt in the Project area as part of the IEP. IEP stations 914 and 915 are closest to the Project site; however, no juvenile delta smelt have been captured in surveys at these stations in the last five years (IEP, 2020). The occurrences recorded in the IEP surveys in 2018 and 2019 were found primarily within the Sacramento River and it's tributaries or in the western Delta (Chipps Island, Honker Bay, and Suisun Bay). Adult delta smelt were collected in midwater trawls conducted in March 2018 and 2019 at the monitoring station on Chipps Island to the west of the Project area (IEP, 2020). Smelt salvage data reported for the State Water Project and Central Valley Project from diversion points approximately 10 miles south and upstream of the study area indicate that low numbers of delta smelt were salvaged at this location in 2018 and 2019 and no delta smelt were salvaged at this

location in 2020 (CDFW, 2020b). Migrating adults, including gravid females, have been collected at the Central Valley Project and State Water Project fish facilities in the south Delta in the 1990's and February 2000 (USFWS, 2006a). Spawning locations vary widely from year to year and could include the Project site; however, Delta smelt occurrence in the south delta has declined dramatically in recent years as evidenced by the lack of catch data and declining salvage numbers in recent years (IEP, 2020; CDFW, 2020b). See Table 4-5 for migration and spawning periods for special-status fish species that may occur in the Project area.

All in-water work associated with pipeline decommissioning and removal will be conducted during the delta aquatic work window of August 1 to October 31, which is a combined species work window for avoidance and minimization of special-status fish species, including the delta smelt. The work window may be modified based on conditions of permits issued by regulatory agencies.

4.8.2.9 River lamprey (*Lampetra ayresi*)

River lamprey is a California species of special concern. Habitat requirements of spawning adults and ammocoetes have not been studied in California. Presumably, the adults need clean, gravelly riffles in permanent streams for spawning, while the ammocoetes require sandy backwaters or stream edges in which to bury themselves, where water quality is continuously high and temperatures do not exceed 77°F (25°C). In California, they have been recorded only from the lower Sacramento and San Joaquin rivers (and tributaries including Stanislaus and Tuolumne Rivers) and from the Russian River. The river lamprey has become uncommon in California, and it is likely that the populations are declining because the Sacramento, San Joaquin, and Russian rivers and their tributaries have been severely altered by dams, diversions, pollution, and other factors (Moyle et al., 2015).

River lamprey has the potential to occur in the study area during migration but would not spawn in this area due to the lack of suitable spawning habitat. The species spawns from February through May, which is before planned in-water construction would occur. See Table 4-5 for migration and spawning periods for special-status fish species that may occur in the Project area.

All in-water work associated with pipeline decommissioning and removal will be conducted during the delta aquatic work window of August 1 to October 31, which is a combined species work window for avoidance and minimization of special-status fish species (resident fishes and anadromous fishes). The work window may be modified based on conditions of permits issued by regulatory agencies.

4.8.2.10 Sacramento splittail (*Pogonichthys macrolepidotus*).

The Sacramento splittail is a federally Threatened species and a California species of special concern. The Sacramento splittail is endemic to lakes and rivers of the Central Valley but can tolerate moderate levels of salinity. The loss of floodplain and wetlands used for spawning, rearing, barriers within the migration areas, and foraging habitat is the primary reason for splittail decline (Goals Project, 2000). High flows and floodplain inundation are key factors in increasing splittail abundance. Sacramento splittail are most common in the brackish waters of Suisun Bay, Suisun Marsh, and the Sacramento-San Joaquin Delta; however, in wet years they occur within San Pablo and San Francisco Bays (Goals Project, 2000). Upstream spawning migration occurs from November through May and spawning occurs from April to July (see Table 4-5). Preferred

spawning substrate consists of freshwater areas that support submerged vegetation within inundated floodplains. Flooded banks and inundated areas used for spawning are also preferred habitat for rearing and foraging. After spawning, most juveniles move downstream into shallow, productive bay and estuarine water in response to increased water flows (Moyle, 2002). Non-breeding splittail are found in temperatures up to 75°F (Young and Cech, 1996); however, juveniles and adults have optimal growth at 68°F, with negative physical responses above 84°F (California Department of Water Resources [CDWR] and U.S. Department of Interior Bureau of Reclamation [USDIBR], 2017; Young and Cech, 1995).

Splittail are known to occur in both the Sacramento and San Joaquin Rivers, and spawning can range from the lower Sacramento and San Joaquin Rivers down to Montezuma Slough (Wang, 1986). They are likely distributed much more widely in small creeks and marshes throughout the lower portions of the Estuary than known occurrences indicate (USFWS, 2010). The Project site provides suitable shallow water habitat for this species. See Table 4-5 for migration and spawning periods for special-status fish species that may occur in the Project area.

All in-water work associated with pipeline decommissioning and removal will be conducted during the delta aquatic work window of August 1 to October 31, which is a combined species work window for avoidance and minimization of special-status fish species (resident fishes and anadromous fishes). The work window may be modified based on conditions of permits issued by regulatory agencies.

4.8.2.11 Longfin smelt (*Spirinchus thaleichthys*)

Longfin smelt is a Federal candidate species and State Threatened species. It is native to the Delta and was once abundant. The decline in longfin smelt abundance is primarily associated with the diversion of freshwater from the Delta. Another contributing factor is reproductive failure during drought years. Consecutive drought years leading to reproductive failure could result in the extirpation of longfin smelt because of their two-year life cycle (Goals Project 2000). Longfin smelt occur in the Sacramento-San Joaquin Delta but can range as far as the South San Francisco Bay and the open ocean. They are most abundant in Suisun Bay and San Pablo Bay. Adult longfin smelt, like the delta smelt, inhabit open water areas of the Delta and feed on zooplankton. They tolerate a wide range of salinity conditions. Longfin smelt migrate upstream to spawn in brackish water between January and April. The species is known to spawn over sandy or gravelly substrate with rock or plant material to attach their adhesive eggs to when deposited. The nearest recent occurrence of longfin smelt was recorded in March 2020 during 20-mm net surveys at Station 901 (south of Bradford Island), approximately seven miles downstream of the Project site (IEP, 2020). Smelt salvage data reported for the State Water Project and Central Valley Project from diversion points approximately 10 miles south and upstream of the study area indicate that longfin smelt were salvaged at this location in relatively high numbers between April and June of 2020, in low numbers in 2019, and no longfin smelt were salvaged at this location in 2017 and 2018 (CDFW, 2020b). See Table 4-5 for migration and spawning periods for special-status fish species that may occur in the Project area.

All in-water work associated with pipeline decommissioning and removal will be conducted during the delta aquatic work window of August 1 to October 31, which is a combined species work window for avoidance and minimization of special-status fish species (resident fishes and

anadromous fishes). The work window may be modified based on conditions of permits issued by regulatory agencies.

4.8.2.12 Western pond turtle (*Emys marmorata*)

Western pond turtle (WPT) is a California species of special concern. The WPT occurs in open water habitats throughout much of California, although at much lower numbers and fewer localities than historical populations, especially in urban areas. WPT prefer slack or slow water habitats with dense stands of submergent or emergent vegetation for food and cover, and with abundant basking habitat. WPT are a semi-aquatic species inhabiting streams, marshes, ponds, and irrigation ditches within woodland, grassland, and open forest communities, but they require upland sites for nesting and over-wintering. Presence of nearby nesting sites and lack of exotic predators are also good habitat components (Bury, 1986). Nearest recent occurrence (Occ. #186) is from 2000 is on the north side of Mildred Island within Latham Slough (CDFW, 2020a). This species was not observed during surveys conducted for the Project; however, there is a high likelihood that the species could occur due to shallow, warm water with abundant prey base and presence of basking sites on levees within the Project site and Project implementation has the potential for limited short term impacts on WPT. Avoidance and Minimization Measures from the PG&E San Joaquin Valley Habitat Conservation Plan (SJVHCP) will be implemented for avoidance and minimization of impact to WPT.

4.8.2.13 Giant garter snake (*Thamnophis gigas*)

Giant garter snake (GGS) is a State and federally listed Threatened species found in emergent marsh habitats associated with waterways during spring and summer and hibernates in adjacent upland habitat during the winter. Recorded occurrences in the Sacramento-San Joaquin Delta included sightings at Liberty Island and Decker Island in Solano County, Sherman Island in Sacramento County, Jersey Island in Contra Costa County, and the San Joaquin River near Medford Island in San Joaquin County (CNDDB, 2020a). Essential components of giant garter snake habitat include:

- A fresh-water aquatic component with adequate water from early spring through fall to provide foraging habitat and cover;
- Emergent herbaceous wetland vegetation to provide foraging habitat, cover, and basking areas;
- An upland component near the aquatic habitat that can be used for thermoregulation, cover, and retreat; and
- An upland refugia component at higher elevation sites that will serve as winter hibernacula and provide cover and refuge from flood waters (Hansen and Brode, 1980; USFWS, 1997).

There are three recent occurrences of GGS within approximately five miles of the site. There is a 2010 occurrence (Occ #307) of GGS recorded on Empire Tract Road approximately 5.2 miles northeast of the Project site and a 2016 occurrence (Occ #403) of GGS recorded on Empire Tract Road approximately 4.6 miles northeast of the site. Both of these occurrences involved GGS individuals basking on the levee road and one instance of GGS roadkill. A 2018 occurrence (Occ. #425) within the San Joaquin River at Blackwater slough is approximately 5.3

miles east of the Project site. This occurrence involved multiple GGS individuals awakening from brumation in April 2018 (CNDDB, 2020a).

There is suitable aquatic habitat that occurs at the Project site, specifically along the Mildred Island levee which provides suitable aquatic habitat with emergent herbaceous vegetation along the levee shoreline and submerged aquatic vegetation within adjacent shallow water. Remnant riprap within openings in emergent vegetation along the levee providing suitable upland habitat for basking. Factors that would reduce the likelihood of occurrence of GGS in aquatic habitat within Mildred island include introduced species including predatory fish and bullfrogs as well as introduced plants, including a high density of nuisance species such as Brazilian waterweed, water hyacinth, and water primrose. GGS are known to occur in areas with water primrose (*Ludwigia* spp.) and other invasive aquatic species; however, they're generally restricted to edge habitat between aquatic vegetation and open water. Excessive growth of invasive plant species can be detrimental to GGS by eliminating open water habitat or restricting movements and increasing susceptibility to predators (USFWS, 2006b; Hansen et.al., 2010). Introduced and native floating vegetation can also be detrimental to GGS because of altered water chemistry, shading, and prey communities that occur with these communities and also because of measures used to control these species (USFWS, 2006b).

Access to the partially submerged and disconnected Mildred Island levee is limited; therefore, extensive surveys of the Mildred Island levee were not conducted to determine if there is suitable upland habitat to provide winter refugia; however, suitable upland winter refugia habitat appears to be limited within the Project site and surrounding area due to high water conditions during the winter months. High waters during the GGS dormancy period could overtop the partially submerged Mildred Island levee flooding any potential winter refugia that would occur there. Riprap along the McDonald Island levee (Latham Slough), Bacon Island levees (Middle River and Old River), and Palm Tract levee (Old River) do not provide preferred GGS upland habitat due to a lack of vegetative cover, though GGS are known to occur within riprap. Agricultural lands surrounding the study area is highly disturbed by ongoing agricultural activities and provides limited potential for GGS upland habitat for winter refugia. Agricultural ditches within the agricultural lands but outside the study area provide additional suitable aquatic habitat and potential dispersal habitat and hydrologic connectivity. Because there are known occurrences of GGS in the region and the site provides suitable aquatic habitat, there is a moderate likelihood of occurrence of GGS within the Project site and Project implementation has the potential for limited short term impacts on GGS Avoidance and Minimization Measures from the PG&E SJVHCP will be implemented for avoidance and minimization of impact to GGS.

4.8.2.14 Great blue heron (*Ardea herodias*)

Great blue heron is not a Federal or State listed species; however, its rookery sites are considered sensitive and protected by the State of California. This species is common throughout the year in most of California's shallow estuaries and fresh and saltwater wetlands. Rookeries are scattered throughout Northern California where great blue herons start building their nests in February and usually breed between March and May. There are no known rookeries in the Project site; however, there are mapped rookeries in the *Eucalyptus sp.* stands on islands within Middle River's channel. Great blue heron may forage in the Project site, but trees and shrubs within the Project site do not provide suitable roosting or nesting habitat.

4.8.2.15 Swainson's Hawk (*Buteo swainsoni*)

Swainson's Hawk is a California Threatened species and a Bird of Conservation Concern. This species breeds in open habitats in western North America from Alaska south to Mexico. In California, it breeds mainly in the Central Valley, Klamath Basin, Northeastern Plateau, and Mojave Desert (CDFG, 1994). It winters primarily on the pampas of southern South Americaand Mexico, though a few overwinter in California, the southwestern U.S., and Florida. The species is absent from most of its former range in California, where its population declined by more than 90 percent during the 1900's (CDFG, 1994).

In California, it usually arrives in March and April and leaves in September or October. Loss of habitat is the major threat to this species in California. Residential and commercial development continues to reduce Swainson's hawk habitat. Pesticides and herbicides are also a major threat, particularly on their wintering grounds. They are also sensitive to disturbance while nesting and may abandon nests if disturbed before the eggs hatch (CDFG, 2006).

This species forages in grassland or areas of sparse trees or shrubs, and often forages in agricultural areas in the Central Valley. It nests in the scattered trees within these habitats such as those along waterways. During the breeding season, it feeds primarily on small mammals and reptiles. During other seasons, large insects (especially grasshoppers) are the bulk of its diet.

The riparian habitat along waterways near the Project site offers plenty of suitable nesting trees for Swainson's hawks and adjacent agricultural land provides optimal foraging grounds. Surveys for decommissioning and removal of the pipeline were conducted outside of breeding season; however, there are known occurrences of Swainson's hawk within 0.5-mile of the Project site. The nearest occurrences include 2009 and 2010 occurrences (#1652 and #2377) within the riparian wooded habitat on small, vegetated islands in Middle River, both within 0.5-mile of the Project site. Although there is suitable nesting habitat and there are known occurrences, Project activities will occur within the aquatic work window (currently expected to be August 1 through October 31), which is toward the end of Swainson's hawk nesting season and will minimize potential impacts to nesting Swainson's hawk. Implementation of Avoidance and Minimization Measures from the PG&E SJVHCP will further reduce potential for impact.

4.8.2.16 Northern Harrier (*Circus cyaneus*)

Northern harrier (*Circus cyaneus*) is a California Species of Special Concern. The Northern Harrier inhabits meadows, grasslands, open rangelands, desert sinks, fresh and saltwater emergent wetlands; seldom found in wooded areas. It forages mostly on voles and other small mammals, birds, frogs, small reptiles, crustaceans, insects, and, rarely on fish. Breeding occurs between April and September, with peak nesting in June and July. Destruction of wetland habitat, native grassland, and wet meadows, and the burning and plowing of nesting areas during early stages of the breeding cycle, are major reasons for the decline of this species (Remsen, 1978). Northern harrier was observed foraging within open farmlands adjacent to the Project site. There are no recorded occurrences in the CNDDB within 5 miles of the site; however, the species is known to occur in the region and was observed during field surveys. Nesting and foraging habitat within the Project site is limited because the site is primarily aquatic and because terrestrial areas within the site are subject to high level of disturbance; however, suitable nesting and foraging habitat occurs in adjacent marsh and agricultural lands.

4.8.2.17 White-tailed kite (*Elanus leucurus*)

White-tailed kite (*Elanus leucurus*) is a California Fully Protected species. It is a small raptor with a total length of about 12 inches and is often identified from a distance by its hovering or "kiting" behavior while hunting. White-tailed kites predate mostly on voles and other diurnal mammals, but will occasionally prey on birds, insects, reptiles, and amphibians. It typically forages over open grasslands and emergent wetlands. White-tailed kites nest in dense foliage in treetops near grassy foothills, marshes, riparian woodland, savanna, and partially cleared fields. Preferred nesting trees include oak, willow, sycamores, or other tree stands. White-tailed kites range from western California and southwestern Oregon to southeastern Arizona, and along the Gulf Coast from Texas to Florida, and peninsular Florida (Wheeler and Clark, 1995). White-tailed kite was not observed during field surveys but is known to occur in the area. Suitable foraging and nesting habitat is limited onsite due to the extent of aquatic habitat within the study area; however, the willow scrub riparian habitat on the Mildred Island levee offers suitable nesting habitat and the marsh and agricultural lands adjacent to the Project site provide suitable nesting and foraging habitat.

4.8.2.18 Song Sparrow ("Modesto" population) (*Melospiza melodia*)

The Modesto population of the song sparrow is a California Species of Special Concern and is endemic to California, where it resides only in the north-central portion of the Central Valley. Highest densities occur in the Butte Sink area of the Sacramento Valley and in the Sacramento-San Joaquin Delta. Song sparrows breed from mid-March to early August and are resident species of the Sacramento Valley and Delta. Song sparrows are frequently seen within mature riparian corridors, such as the Cosumnes and Stanislaus Rivers, and less frequently within irrigation canals and levees. The Modesto population of song sparrow has an affinity for emergent freshwater marshes dominated by tules (*Scirpus* spp.) and cattails (*Typha* spp.) as well as riparian willow (*Salix* spp.) thickets. Song Sparrows also nest in riparian forests of Valley Oak (*Quercus lobata*) with a sufficient understory of blackberry (*Rubus* spp.), along vegetated irrigation canals and levees (Shuford et al., 2008); however, nests appear to be more successful in early succession riparian wetland communities, such as restoration sites. The nearest recent occurrence (Occ. #18) is from 2009 and mapped around the perimeter of Mildred Island and within the Project site within Middle River and Latham Slough where nesting behavior was observed. The potential for occurrence of "Modesto" song sparrow is high due to the presence of suitable habitat and known occurrences; however, pipeline removal activities will be conducted between August 1 and October 31, outside of their peak nesting season, and is expected to minimize potential impacts to nesting birds. Implementation of PG&E's Nesting Bird Management Plan will further reduce potential for impact.

4.8.2.19 California black rail (*Laterallus jamaicensis coturniculus*)

California black rail is a State-listed Threatened species, a CDFW Fully Protected species, and a Bird of Conservation Concern. It is a permanent resident of saline, brackish, and freshwater marshes containing dense tall growths of emergent vegetation. Historically, this species could be found from central California south to Baja. It now occurs primarily in three locations: the San Francisco Bay Area; the lower Imperial Valley; and, the lower Colorado River. Over 90 percent of the population is found within the tidal marshes of the San Francisco Bay Estuary (Goals Project, 2000). The northern part of San Pablo Bay, the Carquinez Strait, and Suisun Bay contain

the greatest numbers of birds. Fewer black rails are found in the Delta, and they are very rare in the South Bay (Goals Project, 2000). Black rails are associated with dense marsh vegetation, most notably pickleweed and bulrush. These two plants are important as nesting cover, a wider variety of vegetation will be used outside of the nesting season (Spautz and Nadav, 2002). They prefer a thick canopy of vegetation with a relatively open understory. Nests are placed above ground level under heavy cover and are accessed from a side entrance. They also require vegetation around the periphery of the marsh for cover during the highest tides (Goals Project, 2000). This species is most often found in large tracts of marsh, which are far from urbanization (Spautz and Natav, 2002). They also prefer marshes with unrestricted tidal influence over muted marshes (Goals Project, 2000). The nearest occurrences (Occ. #98 and #295) are from 1992 and 2010, respectively and are mapped on small, vegetated islands in Middle River and Latham Slough. Emergent wetland habitat along the Mildred Island levee consists of remnant linear freshwater marsh habitat and is not likely dense enough to support black rail; however, some of the larger remnant islands of freshwater wetland habitat in Old River, Middle River, Latham Slough, and Empire Cut provide suitable habitat for black rail. Pipeline removal activities will be conducted between August 1 and October 31, toward the end of black rail nesting season, and is expected to minimize potential impacts to nesting black rail.

4.9 WILDLIFE 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 waterways, particularly areas with contiguous riparian vegetation offer migration corridors for mammals, reptiles, and birds. Mammals and reptiles present within the study area likely use the riparian cover as a travel corridor regardless of the season. Birds such as warblers, hummingbirds, etc. migrate to higher elevations in the spring and lower elevations in the fall and the riparian habitat within the Project site offers shelter, forage, and water for migrating species traversing to the Sierra Nevada Range to nest. Resident species may make local migrations for foraging and/or nesting habitat along the river. Additionally, the waterways provide seasonal migration habitat for anadromous fish species moving upstream to spawning grounds and provide connections for resident fish species to other aquatic habitat within the watershed.

5.0 REGULATORY SETTING

5.1 FEDERAL

5.1.1 Special-Status Species

The Federal Endangered Species Act (FESA), administered by the USFWS and the NMFS (collectively referred hereafter as the "Services"), provides protection to species listed as Threatened (FT) or Endangered (FE), or proposed for listing as Threatened (PFT) or Endangered (PFE). The Services maintain lists of species that are neither formally listed nor proposed but could be listed in the future. These Federal candidate species (FC) include taxa for which substantial information on biological vulnerability and potential threats exists and are maintained in order to support the appropriateness of proposing to list the taxa as an endangered or threatened species.

Additionally, the FESA can protect a DPS of a species. The "Distinct Population Segment" is the smallest division of a taxonomic species that can be protected under the FESA. Three elements are considered in determining whether DPS is a factor as endangered or threatened under FESA. These elements are *discreteness* of the population segment in relation to the remainder of the species, the *significance* of the population segment to the species, and the population segment's *conservation status* in relation to FESA's standards for listing. If a DPS is determined to be discrete and significant, its evaluation for endangered or threatened status will be based on FESA's definitions of those terms and a review of the factors included in section 4(a) of the FESA.

With respect to salmonid DPS, the NMFS has developed a policy that applies only to species of salmonids native to the Pacific. Under the policy, Pacific salmon is considered a DPS if it represents an evolutionarily significant unit (ESU) of a biological species (NOAA, 1996). A species must meet two criteria to be considered a separate ESU: it must be substantially reproductively isolated from other conspecific population units; and it must represent an important component in the evolutionary legacy of the species.

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 Services. 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 Services to fully determine the project's potential effect on listed species. The Services 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.

Section 10 consultation is conducted when there is no Federal involvement in a project except compliance with FESA.

The USFWS administers the Federal Migratory Bird Treaty Act (MBTA) of 1918 (16 USC 703-711) and the Bald Eagle and Golden Eagle Protection Act (16 USC 668-688). The MBTA prevents the removal of trees, shrubs, and other structures containing active nests of migratory bird species that may result in the loss of eggs or nestlings. Adherence to construction windows either before the initiation of breeding activities or after young birds have fledged is a typical step to protect migratory birds and comply with the MBTA. The Bald Eagle and Golden Eagle Protection Act prohibits the taking or possession of bald and golden eagles, their eggs, or their nests without a permit from the USFWS.

5.1.2 Waters and Wetlands

The 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 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]).

In tidal areas, the Corps' jurisdiction under Section 404 extends to the high tide line (HTL), which, in the absence of actual data, is defined as:…"*a line of oil or scum along shore objects, a more or less continuous deposit of fine shells or debris on the foreshore or berm, other physical*

markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide."

Wetlands could also be regulated as waters of the U.S. if they were adjacent to jurisdictional waters (other than waters that are themselves wetlands). The Corps' regulation concerning wetlands adjacent to jurisdictional waters is defined at 33 CFR 328.4(c)(4):

On June 29, 2015, the Corps and EPA issued new definitions for waters/wetlands (U.S. Army Corps of Engineers and U.S. Environmental Protection Agency, 2015), intended to become effective on August 28, 2015. These regulatory definitions are known as the 2015 Clean Water Rule but were never fully implemented because of legal challenges.

In December 2018 the ACOE and EPA proposed a revised definition of waters of the U.S. that was published in the Federal Register in early 2019, and subsequently repealed the 2015 Clean Water Rule reverting regulation back to the 1986 regulations and subsequent guidance for Approved Jurisdictional Determinations. On January 23, 2020, the ACOE and EPA finalized the Navigable Waters Protection Rule to define Waters of the U.S. and streamline the definition so that it includes four categories of jurisdictional waters, provides clear exclusions for features not regulated, and defines terms in the regulatory text. The Navigable Waters Protection Rule fulfills Executive Order 13788 and became effective on June 23, 2020.

The four clear categories of waters that are considered waters of the U.S. under the Navigable Waters Protection Rule include the following:

- Territorial seas and TNW;
- Perennial and intermittent tributaries that contribute surface flow, directly or through non-jurisdictional surface water features, to a TNW in a typical year;
- Lakes, ponds, and impoundments of jurisdictional waters; and
- Adjacent wetlands (wetlands that are physically touching, separated by natural feature, or separated by artificial feature with direct hydrologic surface water connection).

The Navigable Waters Protection Rule also outlines what aquatic features are not waters of the U.S. The most notable of these are groundwater, ephemeral features, many farm and roadside ditches, artificial lakes and ponds or water filled depressions excavated in upland, stormwater control and groundwater recharge features.

5.1.3 Section 10 of the Rivers and Harbors Act of 1899 (33USC 403)

In addition to Section 404, 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* (33 CFR 322.2[a])."

Structures or work under or over a navigable WoUS is considered to have an impact on the navigable capacity of the waterbody (33 CFR 322.3[a]). Latham Slough, Mildred Island, Middle River, and Old River are considered Section 10 waterways.

5.1.4 Section 14 of the Rivers and Harbors Act of 1899 (33USC 408)

The Corps Civil Works Program is responsible for reviewing all Projects approvals that alter or occupy Civil Works projects. Section 408 provides that the Corps may grant permission for another party to alter a Civil Works project upon a determination that the alternation proposed will not be injurious to the public interest and will not impair the usefulness of the Civil Works project. The levees that occur within the Project site are not Federal levees and the proposed pipeline decommissioning and removal activities will not require a Section 408 review and permission.

5.2 STATE

5.2.1 Special-Status Species

The CDFW administers a number of laws and programs designed to protect the State's fish and wildlife resources. Principal of these is the California Endangered Species Act of 1984 (CESA) (Fish and Game Code Section 2050), which regulates the listing and take of State endangered (SE) and threatened species (ST). Under Section 2081 of CESA, CDFW may authorize an incidental take permit allowing the otherwise unlawful take of a SE or ST species.

CDFW maintains lists of Candidate-Endangered species (SCE) and Candidate-Threatened species (SCT). These candidate species are afforded the same level of protection as listed species. CDFW designates Species of Special Concern (SSC) that are species of limited distribution, declining populations, diminishing habitat, or unusual scientific, recreational, or educational value. These species do not have the same legal protection as listed species but may be added to official lists in the future. The SSC list is intended by CDFW as a management tool for consideration in future land use decisions.

Other State laws also protect wildlife and plants. Section 3511 of the California Fish and Game Code (F&G Code), for example, designates species that are afforded "Fully Protected" (FP) status. F&G Code Sections 4700 and 5515 assign the same status to specified mammals and fish. These statutes generally provide that specifically identified birds, mammals, and fish "or parts thereof may not be taken or possessed at any time and no provision of [the Fish and Game] code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected [bird, mammal, or fish] and no permits or licenses heretofore issued shall have any force or effect" for any such purpose. For fully protected fish and mammals, the only exception to the take prohibition is that the Fish and Game Commission may authorize the collecting of such species "for necessary scientific research" (F&G Code, Sections 4700, 5515). With a proper permit, fully protected species may also be captured live and relocated "for the protection of livestock" (Section 3511). Section 3503.5 protects birds-of-prey (Falconiformes and Strigiformes), their eggs, and their nests. That statute provides that, "[I]t is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto."

CDFW manages the California Native Plant Protection Act (CNPPA) of 1977 (F&G Code Section 1900, et seq.), which was enacted to identify, designate and protect rare plants. In accordance with CDFW guidelines, all California Rare Plant Rank (CRPR) 1 (A and B), Rank 2 (A and B), Rank 3, and some Rank 4 plants are considered "rare" under the Act, and meet the

definition of Rare or Endangered under the CEQA Guidelines §15125 and/or §15380. Potential impacts to these species are considered during CEQA review of a proposed project. The CNPPA allows landowners, under most circumstances involving new development, to take rare plant species, provided that the owners first notify CDFW and give the agency at least 10 days to come and retrieve (and presumably replant) the plants before they are plowed under or otherwise destroyed (F&G Code Section 1913 exempts from "take" prohibition "the removal of endangered or rare native plants from a canal, lateral ditch, building site, or road, or other right of way").

5.2.2 Waters and Wetlands

Pursuant to Section 1602 of the Fish and Game Code, a Lake or Streambed Alteration Agreement (LSAA) between the CDFW and State or local governmental agency, public utility, or private citizen is required before the initiation of a construction project that will: (1) divert, obstruct, or change the natural flow or the bed, channel, or bank of a river, stream, or lake; (2) use materials from a streambed; or (3) result in the disposal or deposition of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake. Therefore, the CDFW claims jurisdiction over the bed, bank, and channel of drainage features with regard to activities regulated under Section 1602 of the California Fish and Game Code. The CDFW has adopted the same wetland definition as the USFWS, classified by the presence of only one parameter; however, CDFW does not specifically regulate wetlands.

The Porter-Cologne Water Quality Control Act (CA Water Code §§ 13000-13999.10) 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, within the boundaries of the State. The Porter-Cologne Act establishes that the State assumes responsibility for implementing portions of the Federal CWA, 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 authority to issue water quality certifications in the Project area is vested with the Central Valley Regional Water Quality Control Board (CVRWQCB).

In April 2019, the State Water Resources Control Board adopted the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material (Procedures), for inclusion in the Water Quality Control Plan for Inland Surface Waters and Enclosed Bays and Estuaries and Ocean Waters of California. The Procedures consist of four major elements: 1) a wetland definition; 2) wetland delineation procedures; 3) a wetland jurisdictional framework; and 4) procedures for the submittal, review and approval of applications for Water Quality Certifications and Waste Discharge Requirements for dredge or fill activities. The Procedures took effect in May 2020.

The new Procedures also include a State wetland definition. A State wetland is defined in the new Procedures as an aquatic feature that "…*under normal circumstances has continuous or recurrent saturation of the upper substrate caused by groundwater, shallow surface water, or both; duration of saturation sufficient to cause anaerobic conditions in the upper substrate; and, vegetation that is dominated by hydrophytes or lacks vegetation."*

If an aquatic feature meets the definition of a wetland it may be considered a water of the State.

5.3 LOCAL AND REGIONAL PLANS

5.3.1 San Joaquin County General Plan

The unincorporated lands of San Joaquin County fall under the jurisdiction of the County. Most of the study area is within San Joaquin County, except the west bank of the Old River and Palm Tract. The Natural and Cultural Resources section as well as the Delta sections of the San Joaquin County General Plan contain goals and policies pertaining to biological resources of San Joaquin County (San Joaquin County, 2016). Goals and policies that are relevant to biological resources are included in this Section. Implementing Measures (IM) relevant to the County's policy are also included.

5.3.1.1 Open Space

Goals: To conserve and enhance the County's open space resources

Policy NCR-1.1: The County shall protect, preserve and enhance important natural resource habitat, biological diversity, and the ecological integrity of natural systems in the County.

IM NCR-A Acquisition of Open Space. The County shall conduct a study to identify planned open space areas that are in jeopardy of conversion to other uses. Based on the findings of the study, the County shall work for public acquisition of the areas.

5.3.1.2 Wildlife Habitat

Goal: To preserve and protect wildlife habitat areas for the maintenance and enhancement of biological diversity and ecological integrity.

Policy NCR-2.1: The County shall protect significant biological and ecological resources including: wetlands; riparian areas; vernal pools; significant oak woodlands and heritage trees; and rare, threatened, and endangered species and their habitats.

Policy NCR-2.2: The County shall collaborate with the California Department of Fish and Wildlife during the review of new development proposals to identify methods to protect listed species.

Policy NCR-2.3: The County shall continue to implement the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan to mitigate biological impacts resulting from open space land conversion.

Policy NCR-2.5: The County shall not allow development to result in a net loss of riparian or wetland habitat.

Policy NCR-2.7: The County shall strive to preserve, protect, and enhance feeding areas and winter habitat for migratory waterfowl.

Policy NCR-2.8: The County shall require a natural open space buffer to be maintained along any natural waterway to provide nesting and foraging habitat and to protect waterway quality.

5.3.1.3 Water Resources and Water Quality

Goal: To ensure the quality of water for municipal and industrial uses, agriculture, recreation, and fish and wildlife.

Policy NCR-3.6: The County shall prohibit the discharge of sewage sludge or septage to surface water or surface water drainage sources, including wetlands and waterways.

Policy NCR-3.9: The County shall require water projects to incorporate safeguards for fish and wildlife and mitigate erosion and seepage to adjacent lands.

Policy NCR-3.10: The County shall coordinate with city, State, and Federal agencies to implement policies regarding protection and enhancement of waterways and levees.

5.3.1.4 Delta Resources

Goal: To preserve and protect open space and resource conservation areas within the Delta.

Policy D-5.1: The County shall support the protection and restoration of the Delta ecosystem in perpetuity, including adequate water supply and quality.

5.3.2 Contra Costa County General Plan

The unincorporated lands of Contra Costa County fall under the jurisdiction of the County. Old River is the boundary between San Joaquin and Contra Costa Counties; therefore, the Palm Tract portion of the study area occurs within Contra Costa County. The Conservation Element section of the Contra Costa County General Plan contains goals and policies pertaining to biological resources of Contra Costa County (Contra Costa County, 2005). Goals and policies that are relevant to biological resources are included in this Section. Implementing Measures relevant to the County's policy are also included.

5.3.2.1 Vegetation and Wildlife

Goal 8-E. To protect rare, threatened and endangered species of fish, wildlife and plants, significant plant communities, and other resources which stand out as unique because of their scarcity, scientific value, aesthetic quality or cultural significance. Attempt to achieve a significant net increase in wetland values and functions within the County over the life of the General Plan. The definition of rare, threatened and endangered includes those definitions provided by FESA, CESA, the California Native Plant Protection Act, and CEQA.

Goal 8-F. To encourage the preservation and restoration of the natural characteristics of the San Francisco Bay/Delta estuary and adjacent lands, and recognize the role of Bay vegetation and water area in maintains favorable climate, air and water quality, and fisheries and migratory waterfowl.

Policy 8-6. Significant trees, natural vegetation, and wildlife populations generally shall be preserved.

Policy 8-7. Important wildlife habitats which would be disturbed by major development shall be preserved, and corridors for wildlife migration between undeveloped lands shall be retained.

Policy 8-13. The critical ecological ad scenic characteristics of rangelands, woodlands, and wildlands shall be recognized and protected.

Policy 8-15. Existing vegetation, both native and non-native, and wildlife habitat areas shall be retained in the major open space areas sufficient for the maintenance of a healthy balance of wildlife populations.

Policy 8-17. The ecological value of wetland areas, especially the salt marshes and tidelands of the bay and delta, shall be recognized. Existing wetlands in the County shall be identified and regulated. Restoration of degraded wetland areas shall be encouraged and supported whenever possible.

Policy 8-24. The County shall strive to identify and conserve remaining upland habitat areas which are adjacent to wetlands and are critical to the survival and nesting of wetland species.

Policy 8-25. The County shall protect marshes, wetlands, and riparian corridors from the effects of potential industrial spills.

IM 8-r. Encourage the revegetation of native grass species on lands which have been modified for agriculture, where appropriate.

6.0 SIGNIFICANCE CRITERIA

The impact of the Project on biological resources was evaluated in terms of mandatory findings of significance at Section 15065 of CEQA and Appendix G of the State CEQA Guidelines (Governor's Office of Planning and Research, 2018). The various components of the Project were considered in association with site conditions and were evaluated against CEQA criteria and County General Plan policies pertaining to biological issues. In accordance with these CEQA Guidelines, a project will normally result in a significant impact if any of the following conditions would result from project implementation:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW, USFWS, or NMFS;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulation, or by the CDFW, USFWS, or NMFS;
- Have 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 site;
- Conflict with any local polices or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and,
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State Habitat Conservation Plan.

Additionally, the CEQA Guidelines Initial Study Land Use and Planning checklist notes that conflicts with applicable land use plans, policies, or regulations of an agency with jurisdiction over the project should be considered during a project's environmental review.

7.0 PROJECT IMPACT ANALYSIS

Effects on biological resources at the Project site will be entirely temporary. There will be a temporary loss of potential fish and wildlife habitat during decommissioning and removal of the pipeline. General construction will temporarily alter the natural movement and behavior of wildlife in the area surrounding the Project. Construction may also result in indirect impacts that affect the quality of habitat on the Project site and in the Project area.

7.1 IMPACT CATEGORIES

Short-term and long-term impacts are analyzed for the proposed Project. Each impact statement is classified as to the level of significance, based on the significance thresholds from Section 6.0, and the availability of measures to feasibly mitigate project effects. Impact categories include:

- **Significant Unavoidable Impact** is an adverse effect that cannot be mitigated. This category of impact is one for which a solution has not been formulated, either because of the limits of technical and/or scientific knowledge, or unfeasibility from a technical, economic, and/or political perspective. Under CEQA, a Significant Unavoidable impact would require a "finding of overriding consideration" by the Lead Agency to approve the project;
- **Significant Mitigable Impact** is an adverse environmental effect that can be mitigated to less than significant levels. Measures have been identified that can feasibly be implemented and will avoid the impact altogether by not taking a certain action or parts of an action; minimize impacts by limiting the degree or magnitude of the action and its implementation; rectify the impact by repairing, rehabilitating, or restoring the affected environment; or compensate for the impact by replacing or providing substitute resources or environments;
- **Less than Significant Impact** is an adverse environmental effect that is less than significant or has no identified impact. These impacts, while adverse, are not of a sufficient magnitude, intensity, or duration to disrupt the environment, and have no serious consequences. As a result, no mitigation is required; and
- **Beneficial Impacts** is an environment effect of the project that benefits or improves the environment, and no mitigation is required.

7.2 IMPACTS TO BIOLOGICAL RESOURCES

Effects on biological resources include primarily temporary impacts associated with pipeline excavation for pigging and flushing of the existing pipeline, installation of concrete slurry into sections of pipeline designated to be retired in place, and excavation and removal of segments of pipeline designated for removal. There will be no permanent impacts to habitat as part of the Project. Temporary impacts associated with the Project include habitat disturbance, localized turbidity, and vegetation removal. Indirect impacts include invasion of non-native plants into natural areas, noise disturbances, and temporary declines in air and water quality. Removal of retired pipeline facilities from the waterway crossings may also result in a benefit to the watershed. Final decommissioning and removal of the pipeline crossings will eliminate exposed

pipeline features and associated debris on bottom and eliminate the potential that the pipeline could become detached from its anchors and buoyed at the surface again in the future requiring emergency remediation. Removal of the pipeline and associated debris from the river beds and from the inundated area of Mildred Island will result in restored underwater habitat at these locations once the project is complete.

PG&E has an agency approved Habitat Conservation Plan (HCP) that provides a comprehensive framework for conserving sensitive habitats for protected species for PG&E Operations and Maintenance (O&M) activities in the San Joaquin Valley (Jones & Stokes, 2006). The PG&E San Joaquin Valley Habitat Conservation Plan (SJVHCP) was developed in collaboration with the USFWS and CDFW and was implemented in 2008. The L-057A-1 Site occurs primarily within the SJVHCP Area, with the westernmost portion of the alignment (western half of the Old River Crossing) extending into Contra Costa County and the Bay Area Habitat Conservation Plan (BAHCP) Area. However, species coverage for HCP covered species for this Project will be provided by the SJVHCP and Avoidance and Minimization Measures outlined for species protection in the SJVHCP will be implemented by this Project.

Special-status species-related impacts of the Project cannot be entirely covered by the SJVHCP because listed fish that occur within the Project site are not species that are covered by the HCP, and the need to conduct in-water work to meet the Project objectives will have the potential to impact those non-covered fish species. For consistency with the agency-approved PG&E SJVHCP, Avoidance and Minimization Measures (AMMs) outlined for species protection in the SJVHCP will be implemented by this Project because they will be effective in reducing impacts to covered species. Consistent with implementation practices of the SJVHCP, AMM 1 through AMM 11 are implemented, where practicable, for all PG&E O&M Projects within the SJVHCP Plan Area. These measures are considered to be practicable where physically possible and not conflicting with other regulatory obligations or safety considerations (Jones & Stokes, 2006). AMM 1 through AMM 11 from the PG&E SJVHCP will be implemented as part of the Project. Additional relevant species-specific AMMs from the SJVHCP are also included as part of the Project for protection of HCP covered species that could occur, and these AMMS are described individually below. The implementation of these measures was considered when analyzing the potential impacts of the Project and are outlined in Table 7-1.

Table 7-1. PG&E Proposed Measures - SJVHCP Avoidance and Minimization Measures to be Implemented as Part of the Project

SJVHCP Measure No.	Measure Description	Applicability for L-057A-1 Decommissioning Project
	SJVHCP General Measures for all Covered Activities[1]	
AMM 1	Employees and contractors performing PG&E O&M activities will receive ongoing environmental education. Training will include review of environmental laws and guidelines that must be followed by all personnel to reduce or avoid effects on covered species during O&M activities.	Applicable

SJVHCP Measure No.	Measure Description	Applicability for L-057A-1 Decommissioning Project
AMM 2	Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas to the extent practicable.	Applicable
AMM 3	The development of new access and ROW roads by PG&E will be minimized and clearing vegetation and blading for temporary vehicle access will be avoided to the extent practicable.	N/A – No permanent new access roads will be necessary
AMM 4	Vehicles will not exceed a speed limit of 15 mph in the ROWs or on unpaved roads within sensitive land-cover types.	Applicable
AMM 5	Trash dumping, firearms, open fires (such as barbecues) not required by the PG&E O&M activity, hunting, and pets (except for safety in remote locations) will be prohibited in O&M work activity sites.	Applicable
AMM 6	No vehicles will be refueled within 100 feet of a wetland, stream, or other waterway unless a bermed and lined refueling area is constructed.	Applicable
AMM 7	During any reconstruction of existing overhead electric facilities in areas with a high risk of wildlife electrocution (e.g., nut/fruit orchards, riparian corridors, areas along canal or creek banks, PG&E's raptor concentration zone [RCZ]), PG&E will use insulated jumper wires and bird/animal guards for equipment insulator bushings or will construct lines to conform to the latest revision of PG&E's Bird and Wildlife Protection Standards.	N/A – no overhead electrical work involved
AMM 8	During fire season in designated State Responsibility Areas (SRAs), all motorized equipment will have federal or state approved spark arrestors; a backpack pump filled with water and a shovel will be carried on all vehicles; and fire-resistant mats and/or windscreens will be used when welding. In addition, during fire "red flag" conditions as determined by California Department of Forestry (CDF), welding will be curtailed, each fuel truck will carry a large fire extinguisher with a minimum rating of 40 B:C, and all equipment parking and storage areas will be cleared of all flammable materials.	Applicable
AMM 9	Erosion control measures will be implemented where necessary to reduce erosion and sedimentation in	Applicable

SJVHCP Measure No.	Measure Description	Applicability for L-057A-1 Decommissioning Project
	wetlands, waters of the United States, and waters of the state, and habitat occupied by covered animal and plant species when PG&E O&M activities are the source of potential erosion problems.	
AMM 10	If an activity disturbs more than 0.25 acre in a grassland, and the landowner approves or it is within PG&E rights and standard practices, the area should be returned to pre-existing conditions and broadcast-seeded using a commercial seed mix. Seed mixtures/straw used for erosion control on projects of all sizes within grasslands will be certified weed-free. PG&E shall not broadcast-seed (or apply in other manner) any commercial seed or seed-mix to disturbance sites within other natural land-cover types, within any vernal pool community, or within occupied habitat for any plant covered-species.	Applicable
AMM 11	When routine PG&E O&M activities are conducted in an area of potential VELB habitat, a qualified individual will survey for the presence of elderberry plants within a minimum of 20 feet from the worksite. If elderberry plants have one or more stems measuring 1 inch or more in diameter at ground level are present, the qualified individual will flag those areas to avoid or minimize potential impacts on elderberry plants. If impacts (pruning/trimming, removal, ground disturbance or damage) are unavoidable or occur, then additional measures identified in the VELB conservation plan and compliance brochure will be implemented. The VELB compliance brochure must be carried in all vehicles performing PG&E O&M activities within the potential range of VELB.	Applicable
	SJVHCP Measures for Covered Species	
AMM 12	If a covered plant species is present, a qualified biologist will stake and flag exclusion zones of 100 feet around plant occupied habitat (both the standing individuals and the seed bank individuals) of the covered species prior to O&M activities*. (Note: AMM 11 addresses elderberry plants and valley elderberry longhorn beetle.)	Applicable
AMM 16	If suitable habitat for giant garter snake is present and protocol-level surveys have not been conducted, a qualified biologist will stake and flag an exclusion zone of 250 feet around the habitat prior to O&M activities.* Work will be	Applicable

SJVHCP Measure No.	Measure Description	Applicability for L-057A-1 Decommissioning Project
	avoided within this zone from October 1 to May 1 for giant garter snake.	
AMM 17	If suitable habitat for covered amphibians and reptiles is present and protocol-level surveys have not been conducted, a qualified biologist will conduct preconstruction surveys prior to PG&E O&M activities involving excavation. If necessary, barrier fencing will be constructed around the worksite to prevent reentry by the covered amphibians and reptiles. A qualified biologist will stake and flag an exclusion zone of 50 feet around the potentially occupied habitat.* No monofilament plastic will be used for erosion control in the vicinity of special-status amphibians and reptiles. Barrier fencing will be removed upon completion of work. Crews will also inspect trenches left open for more than 24 hours for trapped amphibians and reptiles. A qualified biologist will be contacted before trapped amphibians or reptiles (excluding blunt nosed leopard lizard and limestone salamander) are moved to nearby suitable habitat.	Applicable

Note: When working in areas of natural vegetation, these avoidance and minimization measures (AMMs) will be implemented where practicable. SJVHCP AMM 1 through AMM 11 will be implemented for all PG&E O&M Activities in the SJVHCP.

If an exclusion zone cannot extend the specified distance from the habitat, the biologist will stake and flag a restricted activity zone of the maximum practicable distance from the exclusion zone around the habitat. This exclusion zone distance is a guideline that may be modified by a qualified biologist, based on site-specific conditions (including habituation by the species to background disturbance levels). Measures are practicable where physically possible and not conflicting with other regulatory obligations or safety considerations; O&M activities will be prohibited or greatly restricted within restricted activity zones. However, vehicle operation on existing roads and foot travel will be permitted. A qualified biologist will monitor O&M activities near flagged exclusion and restricted activity zones. Within 60 days after O&M activities have been completed at a given worksite, all staking and flagging will be removed.

The following analysis provides an assessment of potential impacts from the proposed Project components and includes the PG&E SJVHCP AMMs, Project-specific applicant proposed AMMs, and/or prescribed mitigation measures to reduce impacts to special-status species or other biological resources to a level of less than significant.

IMPACT BIO-1: Construction of the pipeline maintenance projects may result in impacts to special-status plant species.

DISCUSSION: There are known occurrences of special-status plant species on the partially submerged Mildred Island levee including woolly rose mallow, Mason's lilaeopsis, and delta mudwort. Other special-status species, such as delta tule pea and Suisun marsh aster have not been previously documented on the Mildred Island levee but have the potential to occur in fresh or brackish wetlands in the delta. The known occurrences of special-status plant species on the Mildred Island levee were reported from 2009 surveys conducted in support of the Bay Delta Conservation Plan / California Water Fix Project (DWR and BOR, 2016).

Surveys for the L-057A-1 Project were conducted outside the blooming window for these species and access to the Mildred Island levee for focused terrestrial plant surveys was limited for initial surveys because it is inaccessible from land. There is potential for impact to these species if they occur within the excavation footprint for removal of the pipeline from the partially submerged Mildred Island levees, both on the west bank of Latham Slough and the east bank of Middle River. Additionally, there is limited potential for occurrence of special-status plant species within the excavation area on McDonald Island levee, Bacon Island east levee, Bacon Island west levee, and Palm Tract levee, particularly for species known to occur within levee rip rap. Temporary impact to terrestrial areas that provide suitable habitat for special-status species is relatively small (0.04-acre). All special-status plant species known or potentially occurring within this area are California Rare Plant Rank (CRPR) species. No state or federal listed species have potential to occur.

IMPACT CATEGORY: Potentially Significant Impact with Mitigation Required.

RECOMMENDED MITIGATION MEASURE – BIO-1: SJVHCP AMM 12 will be implemented for protection of covered plant species. In addition to AMM 12, the following recommended mitigation measures would reduce project impacts to special-status plants at the Project site to less than significant.

a. Prior to the start of construction, a qualified botanist shall survey the Project impact areas to identify special-status plants potentially occurring within the impact footprint. The surveys would be conducted during the appropriate blooming period (June and July is the concurrent blooming period for all target special-status species – see Table 4-4).

b. If a special-status plant population is found, it shall be flagged for avoidance, if feasible.

c. If temporary impacts cannot be avoided, impact to special-status plant populations shall be restored upon project completion to pre-existing condition. A Site Restoration Plan shall be prepared that provides for plant salvage and transplantation and/or seed

collection and replanting, as appropriate, and establish performance criteria and monitoring to ensure restoration to pre-project conditions.

BIO-1 IMPACT CATEGORY: Less than Significant with implementation MM BIO-1.

IMPACT BIO-2: The decommissioning and removal of the L-057A-1 pipeline from the waterways could impact special-status fish species if present at the Project site during construction. Construction will temporarily increase turbidity to the aquatic environment surrounding the pipeline removal location. Increases in turbidity can result in physical effects that adversely affect habitat and temporary suspension of sediments, organic matter, or contaminated constituents contained within the sediments could be introduced into the water column. Large-scale increases of organic matter within a water column, usually associated with fine sediments, such as silts and clays, can increase dissolved nutrient concentrations, resulting in increased algal blooms or decrease dissolved oxygen when the suspended sediments are anoxic or have a high chemical oxygen demand. The use of a turbidity curtain, if determined to be necessary, may be deployed at the in-water work sites to minimize the effects of increased turbidity to surrounding areas.

In-water work and the installation of a turbidity curtain, if determined to be necessary, could temporarily prevent fish movement through the area and preclude fish use of the aquatic habitat at the pipeline removal location for a short period of time. The use of a turbidity curtain, if determined to be necessary, may be deployed at the in-water work sites to minimize the effects of increased turbidity to surrounding areas.

PROJECT-SPECIFIC APPLICANT PROPOSED AMMs: The applicant has proposed Project-specific AMMs to reduce the potential for impact to special-status fish species and has incorporated them into the Project design. The following measures will be implemented during construction activities involving work in or on the banks of Latham Slough, Mildred Island, Middle River, and Old River.

- An environmental training program will be developed and presented by a qualified biologist. All contractors and employees involved with the Project will be required to attend the training program. At a minimum the program will cover special-status species that could occur on the site, their distribution, identification characteristics, sensitivity to human activities, legal protection, penalties for violation of state and federal laws, reporting requirements, and required Project avoidance, minimization, and mitigation measures.
- Construction activities in surface water or on the banks of the waterways will be conducted within the agency approved aquatic work windows for avoidance of listed fish species (August 1 to October 31). This coincides with the timeframe when the aquatic work area is least likely to support special-status fish species based on water temperature, dissolve oxygen, and seasonal migration and spawning.
- A qualified biological monitor will be present to monitor project activities during all in-water work and initial ground disturbance that has the potential to impact special-status species.

- A Turbidity Monitoring Plan will be implemented during all in-water work to ensure that turbidity levels upstream and downstream of the Project site are compliant with regulatory requirements.
- Turbidity curtains, if determined to be necessary and feasible will be installed around the in-water work area prior to any work in surface waters. The feasibility of use of turbidity curtain will be determined based on site conditions at the time of construction (water depth, currents, etc.) and the need for turbidity curtain will be based on the results of the turbidity monitoring program.

BIO-2 IMPACT CATEGORY: Less than Significant with implementation of Applicant Proposed AMMs.

IMPACT BIO-3: Construction activities within and adjacent to Latham Slough, Mildred Island, Middle River, and Old River could potentially impact aquatic special-status species such as western pond turtle and giant garter snake.

DISCUSSION: Based on the review of pertinent literature, the proximity to known occurrences, and field surveys, WPT has a high potential for occurrence and GGS has a moderate potential to occur within the Project site, particularly along the Mildred Island levee which offers suitable aquatic habitat with emergent vegetation and remnant rock rip rap as basking habitat. Upland winter refugia for GGS and suitable nesting habitat for WPT are limited in the area and do not occur within the Project site. Implementation of the Project will result in short-term temporary impacts to these species but will not eliminate suitable habitat. Implementation of AMMs from the SJVHCP will further reduce the potential for impact to these species.

SJVHCP SPECIES-SPECIFIC AMMs: Consistent with the PG&E SJVHCP, the following measures will be implemented during construction activities for protection of WPT and GGS and to reduce Project impacts to less than significant levels:

SJVHCP AMM-16: If suitable habitat for giant garter snake is present and protocol-level surveys have not been conducted, a qualified biologist will stake and flag an exclusion zone of 250 feet around the habitat prior to O&M activities.* Work will be avoided within this zone from October 1 to May 1 for giant garter snake.

SJVHCP AMM-17: If suitable habitat for covered amphibians and reptiles is present and protocol-level surveys have not been conducted, a qualified biologist will conduct preconstruction surveys prior to PG&E O&M activities involving excavation. If necessary, barrier fencing will be constructed around the worksite to prevent reentry by the covered amphibians and reptiles. A qualified biologist will stake and flag an exclusion zone of 50 feet around the potentially occupied habitat.* No monofilament plastic will be used for erosion control in the vicinity of special-status amphibians and reptiles. Barrier fencing will be removed upon completion of work. Crews will also inspect trenches left open for more than 24 hours for trapped amphibians and reptiles. A qualified biologist will be contacted before trapped amphibians or reptiles (excluding blunt nosed leopard lizard and limestone salamander) are moved to nearby suitable habitat.

The asterisk in SJVHCP AMM-16 and AMM-17 provides an additional note that if an exclusion zone cannot extend the specified distance from the habitat, the biologist will

stake and flag a restricted activity zone of the maximum practicable distance from the exclusion zone around the habitat. This exclusion zone distance is a guideline that may be modified by a qualified biologist, based on site-specific conditions (including habituation by the species to background disturbance levels). Measures are practicable where physically possible and not conflicting with other regulatory obligations or safety considerations; O&M activities will be prohibited or greatly restricted within restricted activity zones. However, vehicle operation on existing roads and foot travel will be permitted. A qualified biologist will monitor O&M activities near flagged exclusion and restricted activity zones. Within 60 days after O&M activities have been completed at a given worksite, all staking and flagging will be removed. It should be noted that the seasonal work window applied in AMM-16 for protection of GGS would only apply to initial ground disturbance within terrestrial areas that provide potentially suitable habitat for GGS during their non-active season. In-water work and backfill and restoration of terrestrial excavations would not be limited to the seasonal work window for protection of GGS because those activities would not have the potential to impact GGS in hibernacula. No impacts to or excavation of hibernacula will occur after October 1.

BIO-3 IMPACT CATEGORY: Less than Significant with implementation of SJVHCP AMM-16 and AMM-17.

IMPACT BIO-4: Ground-clearing and construction activities could impact nesting Swainson's hawk or white-tailed kite.

DISCUSSION: The State-threatened Swainson's hawk and CDFW fully protected white-tailed kite occurs in the Project vicinity and could nest in proximity to construction areas. There are known nesting occurrences of Swainson's hawk within 0.5-mile of the Project site (two near the Middle River crossing and one near the Old River crossing). There are no nesting occurrences of white-tailed kite within 0.5-mile of the Project site; however, due to the relatively common nature of this species, occurrences are not typically reported within CNDDB. Either of these species could nest in proximity to the site because of the presence of suitable nesting habitat and the extent of agricultural lands surrounding the site providing suitable foraging habitat. The Project site is primarily aquatic and would not result in any impact to raptor foraging habitat.

Because Swainson's hawk is a state-listed species and white-tailed kite is a fully protected species, and there are known nesting occurrences in the vicinity of the Project site, there is the potential that construction in proximity to Swainson's hawk and/or white-tailed kite nests could disrupt breeding activities.

IMPACT CATEGORY: Potentially Significant Impact with Mitigation Required.

The following mitigation measure would reduce impacts to nesting Swainson's hawk or white-tailed kite resulting from Project construction.

SJVHCP SPECIES-SPECIFIC AMM-19. Consistent with the PG&E SJVHCP, the following measure is required to reduce Project impacts to nesting occurrences of Swainson's hawk or white-tailed kite to less than significant levels:

SJVHCP AMM-19: If a Swainson's hawk nest or white-tailed kite nest is known to be within 0.25 mile of a planned worksite, a qualified biologist will evaluate the effects of the

planned PG&E O&M activity. If the biologist determines that the activity would disrupt nesting, a buffer and limited operation period (LOP) during the nesting season (March 15-June 30) will be implemented. Evaluations will be performed in consultation with the local CDFW representative.

BIO-4 IMPACT CATEGORY: Less than Significant with implementation of SJVHCP AMM-19.

IMPACT BIO-5: Ground-clearing and construction activities could impact nesting California black rail.

DISCUSSION: The State-threatened and CDFW fully-protected California black rail occurs in the Project vicinity and could nest in proximity to construction areas. There are known occurrences of black rail on several small vegetated islands in Latham Slough, Middle River and Old River. There is suitable breeding habitat for this species within marsh vegetation in and surrounding the Project site.

IMPACT CATEGORY: Potentially Significant Impact with Mitigation Required.

California black rail is not a covered species in the SJVHCP. The following recommended mitigation measure would reduce project impacts to California black rail to less than significant.

RECOMMENDED MITIGATION MEASURE – BIO-5: If construction is scheduled to occur within 250 feet of suitable habitat during California black rail breeding season (February 1 to August 15), a qualified biologist shall conduct a breeding season survey to identify nesting locations of California black rail. Surveys shall be conducted between February 1 and August 1 in accordance with accepted protocols.

If active nests are identified, work within 250 feet of any nest location shall not occur until after August 15, unless a variance is approved by the CDFW and a biological monitor is present and has the authority to stop work if nesting rails are disturbed by construction activities.

BIO-5 IMPACT CATEGORY: Less than Significant with implementation of MM BIO-5.

IMPACT BIO-6. Vegetation removal, ground-clearing activities, or construction in close proximity to active nests could impact bird species protected under the Migratory Bird Treaty Act (MBTA) or raptors or other special-status bird species such as northern harrier, , osprey, and song sparrow (Modesto population).

DISCUSSION: Vegetation present within the biological study area that could provide nesting habitat for bird species protected by the MBTA or raptors and other special-status bird species. Vegetation removal or ground-clearing activities could potentially impact nesting birds that are protected under the federal MBTA of 1918 (16 USC 703-711) and Fish and Game codes (Sections 3503, 3503.5, and 3800). The laws and regulations prohibit the take, possession, or destruction of birds, their nests, or eggs. Disturbance that causes nest abandonment and/or loss of reproductive effort could be considered a “take”.

PROJECT-SPECIFIC APPLICANT PROPOSED AMMs: The applicant has proposed Project-specific AMMs to reduce the potential for impact to raptors and other special-

status bird species to reduce project impact to less than significant levels:

- Schedule vegetation removal and ground-clearing activities prior to the initiation of nesting activity (March) or after fledging (August).
- Conduct pre-construction surveys between March 1 and August 1 in potential nesting habitat within 350 feet of the Project site to identify nest sites. If an active raptor or passerine bird nest is identified, an appropriate species-specific nest protection buffer will be identified based on PG&E's Nesting Bird Management Plan. Construction activities will be prohibited within the established buffer zones until the young have fledged.

BIO-6 IMPACT CATEGORY: Less than Significant with implementation of SJVHCP AMM-22.

IMPACT BIO-7: The Project will result in temporary impacts to aquatic resources (waters of the U.S. and wetlands) regulated by the Corps under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. The Project will also result in temporary impacts to aquatic resources regulated by the Central Valley RWQCB under Section 401 of the Clean Water Act and CDFW under Section 1600 of the California Fish and Game Code.

DISCUSSION: A Preliminary Aquatic Resource Delineation has been conducted for the Project to determine the geographic extent of federal and state regulatory jurisdiction (Padre, 2020). Up to 68.11 acres of temporary disturbance to federally jurisdictional waters and wetlands may occur as a result of the equipment access necessary and excavation for removal of segments of the decommissioned pipeline at the Latham Slough, Mildred Island, Middle River, and Old River crossing locations. Up to 68.11 acres of waters of the State and CDFW stream features may also be temporarily impacted by the Project. Of this disturbance area, up to 2.09 acres of excavation within federal and state jurisdictional features may be necessary for decommissioning and removal of the pipeline. Figure 4 depicts temporary impacts to aquatic resources.

*BIO-7 IMPACT CATEGORY***:** Potentially Significant Impact with Mitigation Required.

RECOMMENDED MITIGATION MEASURE – BIO-7:

- PG&E shall obtain all necessary permits for impacts to jurisdictional aquatic resources from the Corps, CVRWQCB, and CDFW prior to Project implementation. The Project must comply with all permit conditions. Compensatory mitigation must be consistent with the regulatory agency standards pertaining to mitigation type, location, and ratios. PG&E has a Master Streambed Alteration Agreement with CDFW for PG&E O&M Projects in the SJVHCP Plan Area. If determined to be appropriate, this may be used to cover streambed impacts associated with the Project and located within the Plan area.
- Standard best management practices, such as the use of silt fencing and straw wattle, will be implemented within the disturbance footprints at each terrestrial excavation location to minimize erosion, increased turbidity, and sedimentation to the waters and wetlands.

- After decommissioning and removal activities are complete, the shoreline and levee disturbance areas will be restored to pre-project contours and condition. Levee disturbance areas will be restored consistent with Reclamation District (RD-2023, RD-2028, and RD-2030) requirements and RD encroachment permits. Wetland impact areas on the Mildred Island levee will be restored to wetland habitat. A Site Restoration Plan will be developed that will include the restoration of emergent wetland habitat removed for completion of the Project.

BIO-7 IMPACT CATEGORY: Less than Significant with implementation of MM BIO-7.

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FIGURES

LEGEND:

Study Area (126.45 ac)

MAP EXTENT:

Source: Esri Online Topo Basemap
Coordinate System: NAD 1983 StatePlane California I FIPS 0401 Feet
Notes: This map was created for informational and display purposes only.

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME:
PG&E L-057A-1 MCDONALD ISLAND
TO PALM TRACT PIPELINE DECOMMISSIONING PROJECT
SAN JOAQUIN AND CONTRA COSTA COUNTIES, CA

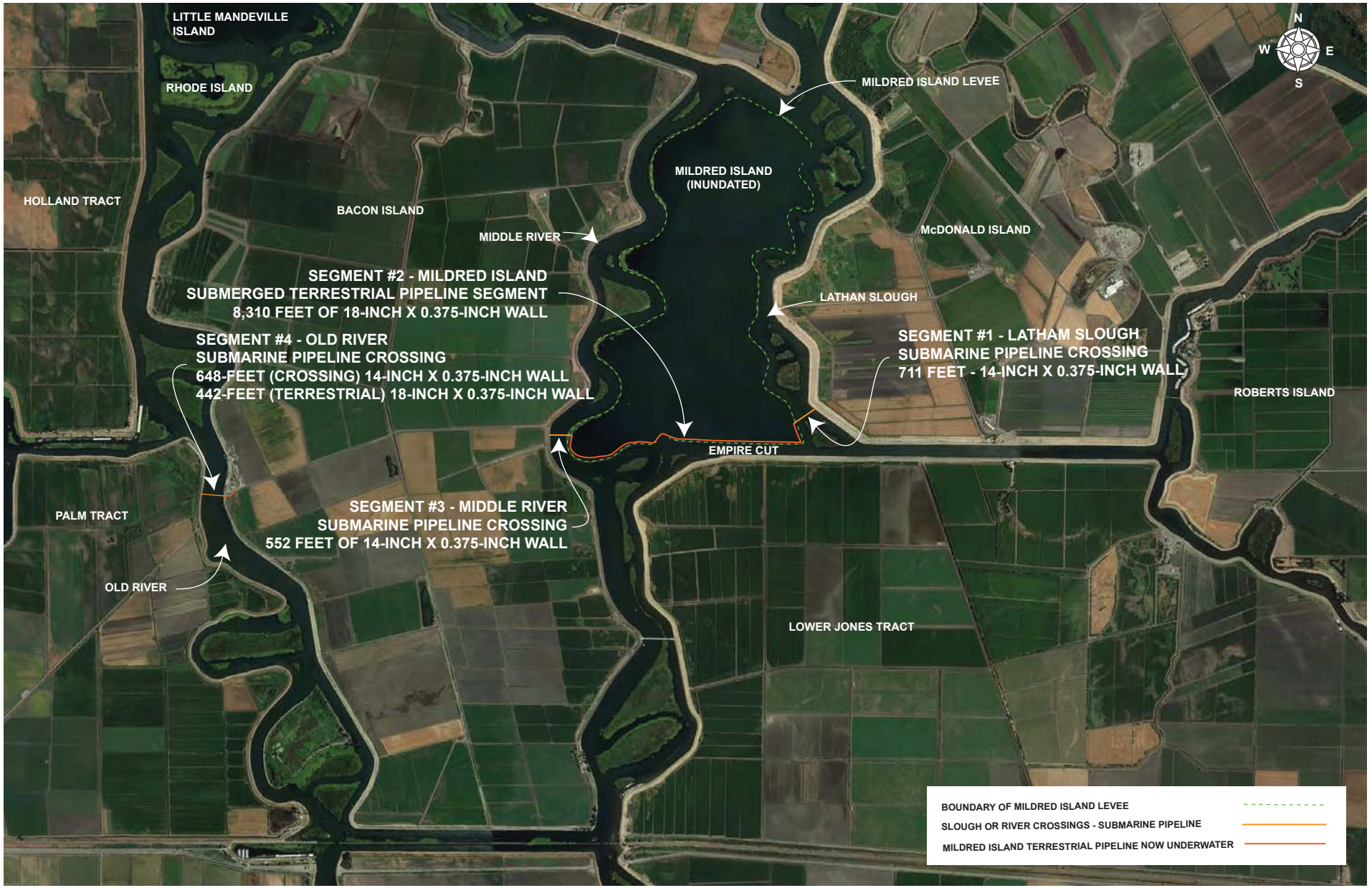
PROJECT NUMBER: 1902-4302

DATE: December 2020

PROJECT LOCATION MAP

FIGURE 1

Z:\GIS Projects\GIS Maps\Map Project\PG&E L-057A-1 Pipeline - Mildred Island Decommissioning\Project Vicinity Map_Expanded 2020.mxd 12/17/2020



Z:\GIS Projects\GIS Maps\Map Project\PG&E L-057A-1 Pipeline - Mildred Island Decommissioning\Project Overview.mxd 12/17/2020

Source: Longitude 123
Notes: This map was created for informational and display purposes only.

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME:
PG&E L-057A-1 MCDONALD ISLAND
TO PALM TRACT PIPELINE DECOMMISSIONING PROJECT
SAN JOAQUIN AND CONTRA COSTA COUNTIES, CA

PROJECT NUMBER: 1902-4302

DATE: December 2020

PROJECT OVERVIEW

FIGURE 2

INSET 1

-121.574576,
37.96841

1 inch = 100 feet

SEE INSET 1

-121.574576,
37.96841

SEE INSET 2

-121.571634,
37.967072

SP1A

Palm Tract

Bacon Island

LEGEND:

- Control Point
- Upland Sample Plot Location
- PG&E L-057A-1
- Study Area (126.45 ac)

Vegetation Communities

- Developed Lands (5.04 ac)
- Ruderal (1.56 ac)
- Tidal Waters (75.46 ac)

N

MAP EXTENT:

0 150 300
FEET
1 inch = 400 feet

Source: NAIP Imagery 2018
Coordinate System: NAD 1983 StatePlane California III FIPS 0403 Feet
Notes: This map was created for informational and display purposes only.

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME:
PG&E L-057A-1 MCDONALD ISLAND
TO PALM TRACT PIPELINE DECOMMISSIONING PROJECT
SAN JOAQUIN AND CONTRA COSTA COUNTIES, CA

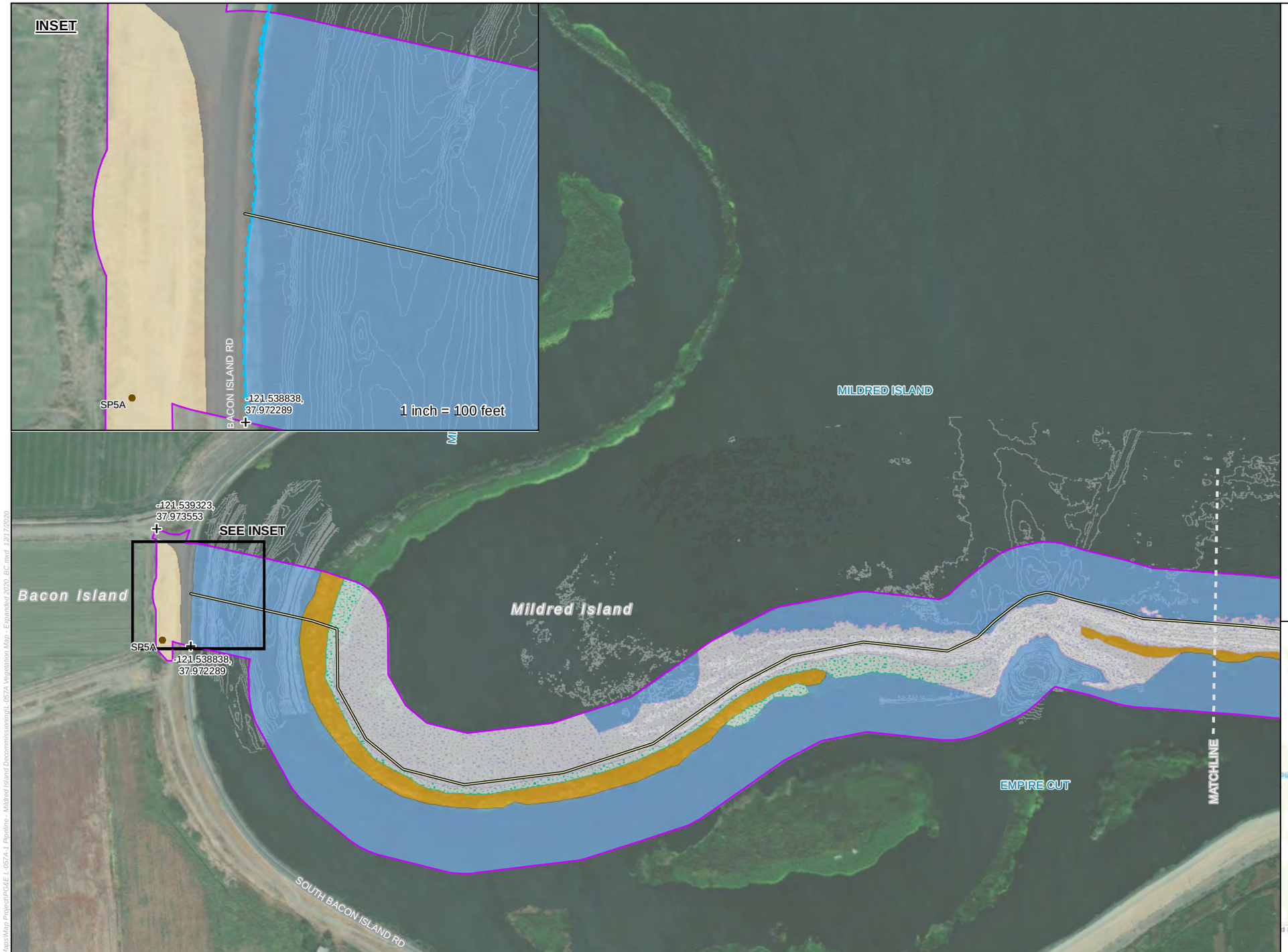
PROJECT NUMBER: 1902-4302

DATE: December 2020

VEGETATION COMMUNITY MAP

FIGURE 3A

Z:\GIS Projects\GIS Mxds\Map Project\PG&E L-057A-1 Pipeline - Mildred Island Decommissioning\L-057A Vegetation Map - Expanded 2020_A.mxd 12/17/2020



LEGEND:

- Control Point
- Upland Sample Plot Location
- PG&E L-057A-1
- Study Area (126.45)

Vegetation Communities

- Developed Lands (5.04 ac)
- Great Valley Willow Scrub (5.52 ac)
- Non-native Grassland (0.95 ac)
- Tidal Waters (75.46 ac)
- Coastal Valley Freshwater Marsh - Aquatic Bed (31.04 ac)
- Coastal Valley Freshwater Marsh - Emergent Wetland (6.88 ac)

N

MAP EXTENT:

0 200 400
FEET
1 inch = 400 feet

Source: NAIP Imagery 2018
Coordinate System: NAD 1983 StatePlane California III FIPS 0403 Feet
Notes: This map was created for informational and display purposes only.

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME:
PG&E L-057A-1 MCDONALD ISLAND
TO PALM TRACT PIPELINE DECOMMISSIONING PROJECT
SAN JOAQUIN AND CONTRA COSTA COUNTIES, CA

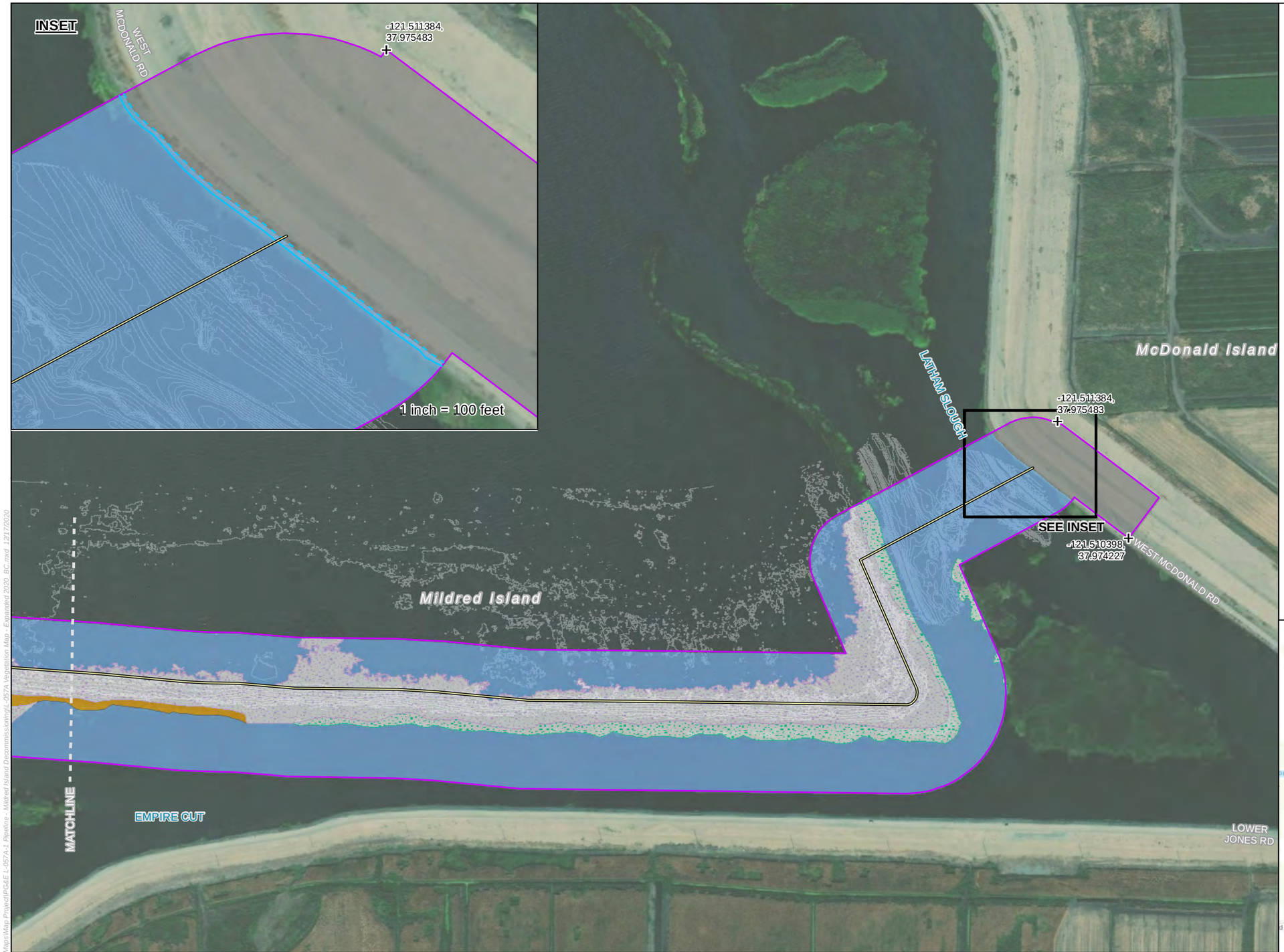
PROJECT NUMBER: 1902-4302

DATE: December 2020

VEGETATION COMMUNITY MAP

FIGURE 3B

Z:\GIS Projects\GIS Maps\Map Project\PG&E L-057A-1 Pipeline - Mildred Island Decommissioning\L-057A Vegetation Map - Expanded 2020_BC.mxd 12/17/2020



LEGEND:

- Control Point
- PG&E L-057A-1
- Study Area (126.45 ac)

Vegetation Communities

- Developed Lands (5.04 ac)
- Great Valley Willow Scrub (5.52 ac)
- Tidal Waters (75.46 ac)
- Coastal Valley Freshwater Marsh - Aquatic Bed (31.04 ac)
- Coastal Valley Freshwater Marsh - Emergent Wetland (6.88 ac)

N

MAP EXTENT:

0 200 400
FEET
1 inch = 400 feet

Source: NAIP Imagery 2018
Coordinate System: NAD 1983 StatePlane California III FIPS 0403 Feet
Notes: This map was created for informational and display purposes only.

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: PG&E L-057A-1 MCDONALD ISLAND TO PALM TRACT PIPELINE DECOMMISSIONING PROJECT SAN JOAQUIN AND CONTRA COSTA COUNTIES, CA

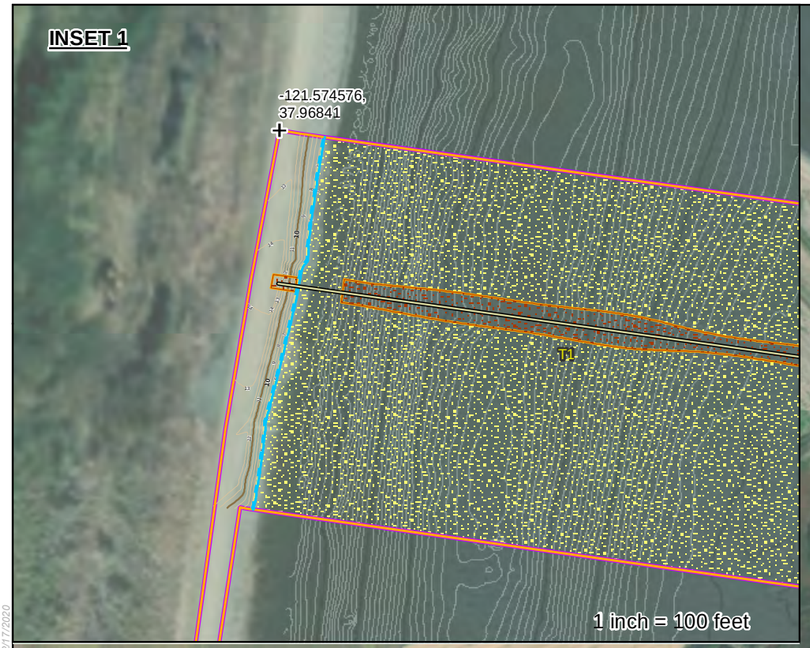
PROJECT NUMBER: 1902-4302

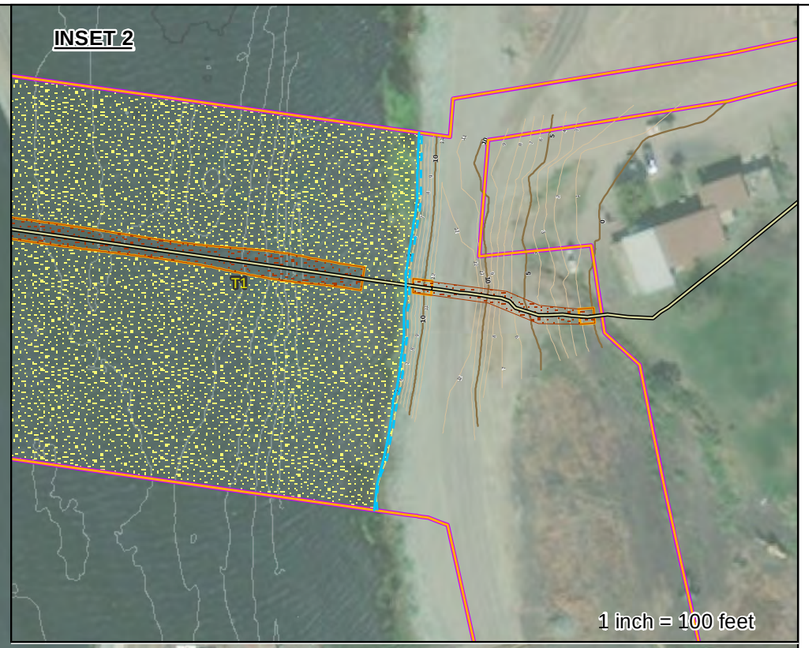
DATE: December 2020

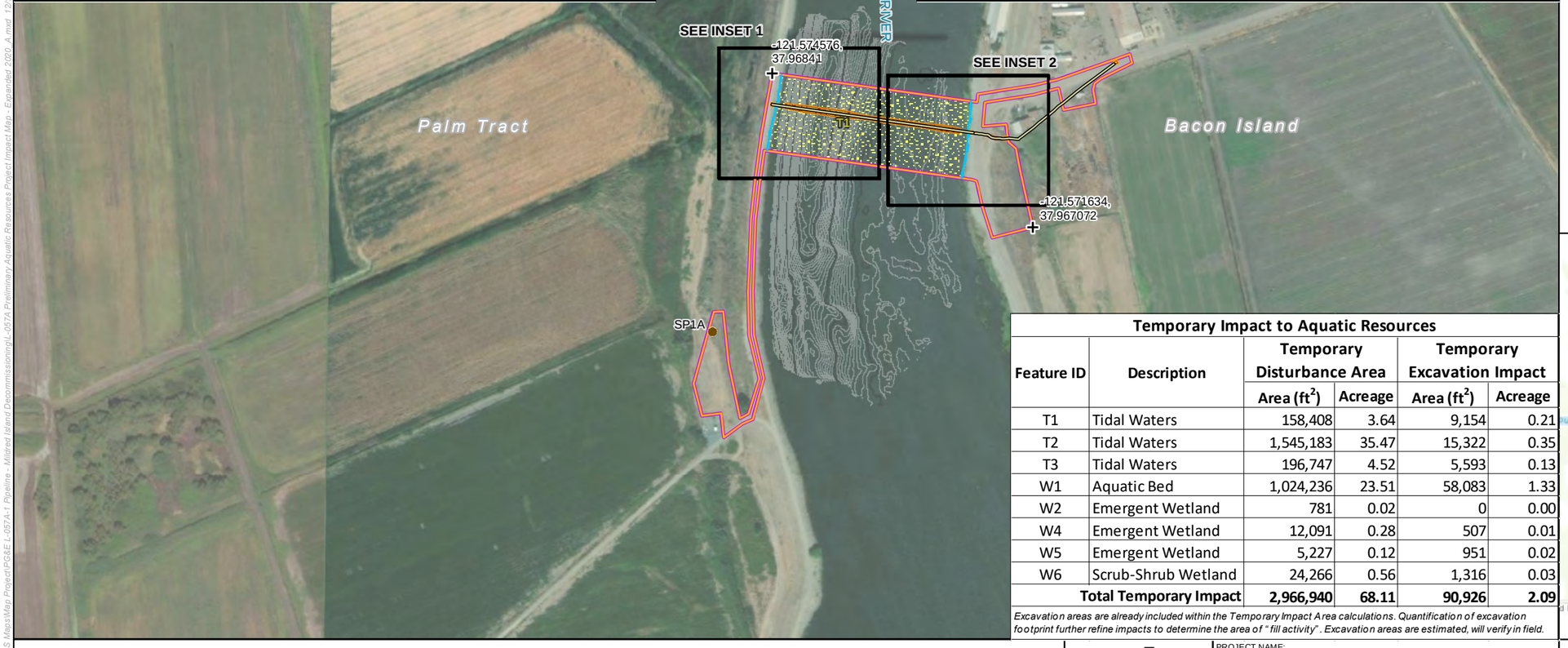
VEGETATION COMMUNITY MAP

FIGURE 3C

Z:\GIS Projects\GIS Maps\Map Project\PG&E L-057A-1 Pipeline - Mildred Island Decommissioning\L-057A Vegetation Map - Expanded 2020_BC.mxd 12/17/2020







LEGEND:

- Control Point
- Upland Sample Plot Location
- PG&E L-057A-1
- High Tide Line (Limits of Section 404 Jurisdiction)
- Mean High Water Line (Limits of Section 10 Jurisdiction)
- Total Excavation Area (2.12 ac)
- Total Temporary Impact Area (72.30 ac)
- Study Area (126.45 ac)

Preliminary Waters of the U.S.

- Tidal Waters

N

Temporary Impact to Aquatic Resources

Feature ID	Description	Temporary Disturbance Area		Temporary Excavation Impact	
		Area (ft^2)	Acreage	Area (ft^2)	Acreage
T1	Tidal Waters	158,408	3.64	9,154	0.21
T2	Tidal Waters	1,545,183	35.47	15,322	0.35
T3	Tidal Waters	196,747	4.52	5,593	0.13
W1	Aquatic Bed	1,024,236	23.51	58,083	1.33
W2	Emergent Wetland	781	0.02	0	0.00
W4	Emergent Wetland	12,091	0.28	507	0.01
W5	Emergent Wetland	5,227	0.12	951	0.02
W6	Scrub-Shrub Wetland	24,266	0.56	1,316	0.03
Total Temporary Impact		**2,966,940**	**68.11**	**90,926**	**2.09**

Excavation areas are already included within the Temporary Impact Area calculations. Quantification of excavation footprint further refine impacts to determine the area of "fill activity". Excavation areas are estimated, will verify in field.

MAP EXTENT:

0 150 300
FEET
1 inch = 400 feet

Source: NAIP Imagery 2018
Coordinate System: NAD 1983 StatePlane California III FIPS 0403 Feet
Notes: This map was created for informational and display purposes only.

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: PG&E L-057A-1 MCDONALD ISLAND TO PALM TRACT PIPELINE DECOMMISSIONING PROJECT SAN JOAQUIN AND CONTRA COSTA COUNTIES, CA

PROJECT NUMBER: 1902-4302

DATE: December 2020

PRELIMINARY AQUATIC RESOURCES PROJECT IMPACT MAP

FIGURE 4A

Z:\GIS Projects\GIS Maps\Map Project\PG&E L-057A-1 Pipeline - Mildred Island Decommissioning\L-057A Preliminary Aquatic Resources Project Impact Map - Expanded 2020_A.mxd 12/17/2020

Temporary Impact to Aquatic Resources

Feature ID	Description	Temporary Disturbance Area		Temporary Excavation Impact	
		Area (ft^2)	Acreage	Area (ft^2)	Acreage
T1	Tidal Waters	158,408	3.64	9,154	0.21
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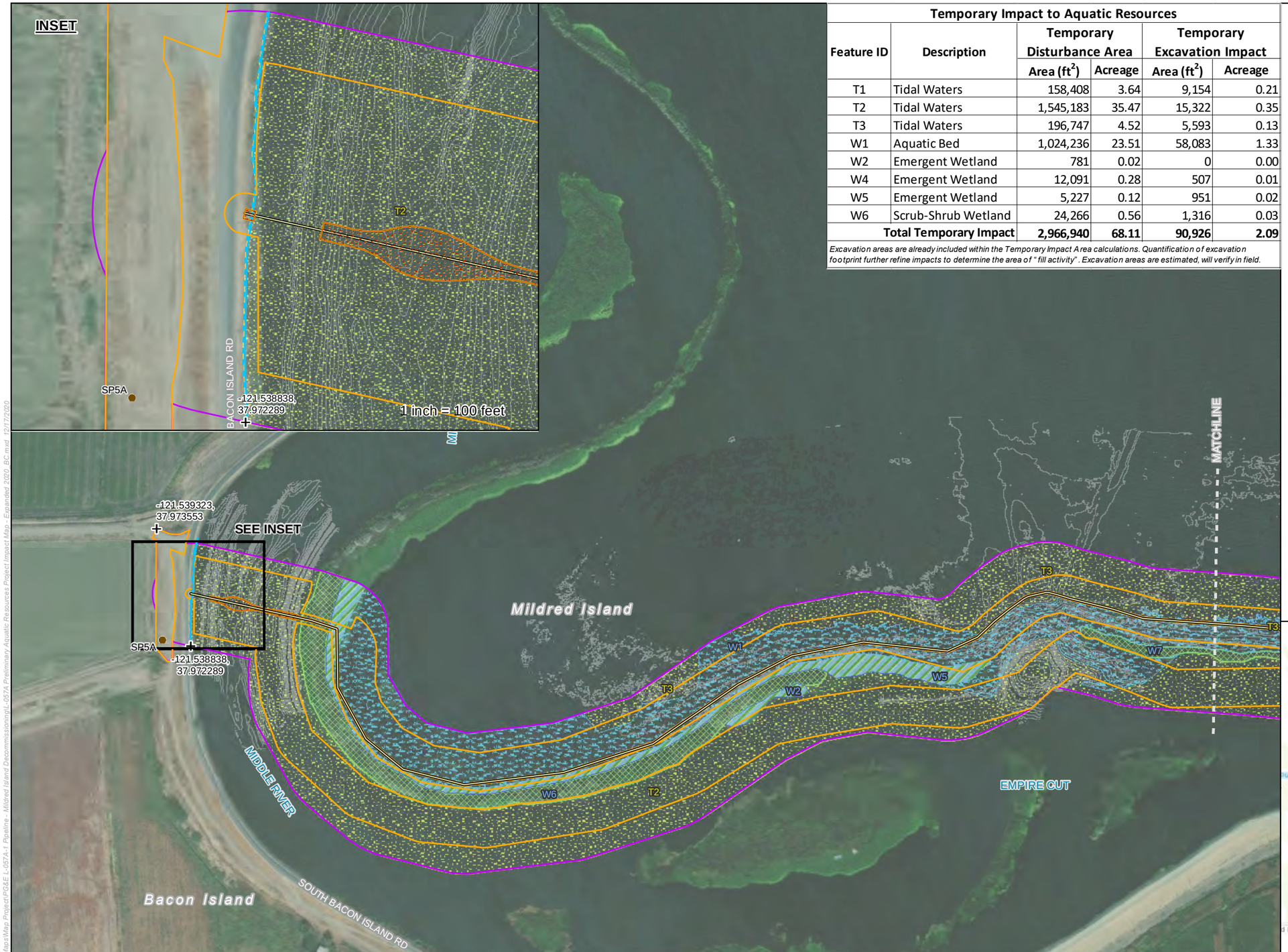
Excavation areas are already included within the Temporary Impact Area calculations. Quantification of excavation footprint further refine impacts to determine the area of "fill activity". Excavation areas are estimated, will verify in field.



LEGEND:

- Control Point
- Upland Sample Plot Location
- High Tide Line (Limits of Section 404 Jurisdiction)
- Mean High Water Line (Limits of Section 10 Jurisdiction)
- PG&E L-057A-1
- Total Excavation Area (2.12 ac)
- Total Temporary Impact Area (72.32 ac)
- Study Area (126.45 ac)

Preliminary Waters of the U.S.

- Aquatic Bed
- Emergent Wetland
- Scrub-Shrub Wetland
- Tidal Waters

N

MAP EXTENT:

0 200 400
FEET
1 inch = 400 feet

Source: NAIP Imagery 2018
Coordinate System: NAD 1983 StatePlane California III FIPS 0403 Feet
Notes: This map was created for informational and display purposes only.

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: PG&E L-057A-1 MCDONALD ISLAND TO PALM TRACT PIPELINE DECOMMISSIONING PROJECT SAN JOAQUIN AND CONTRA COSTA COUNTIES, CA

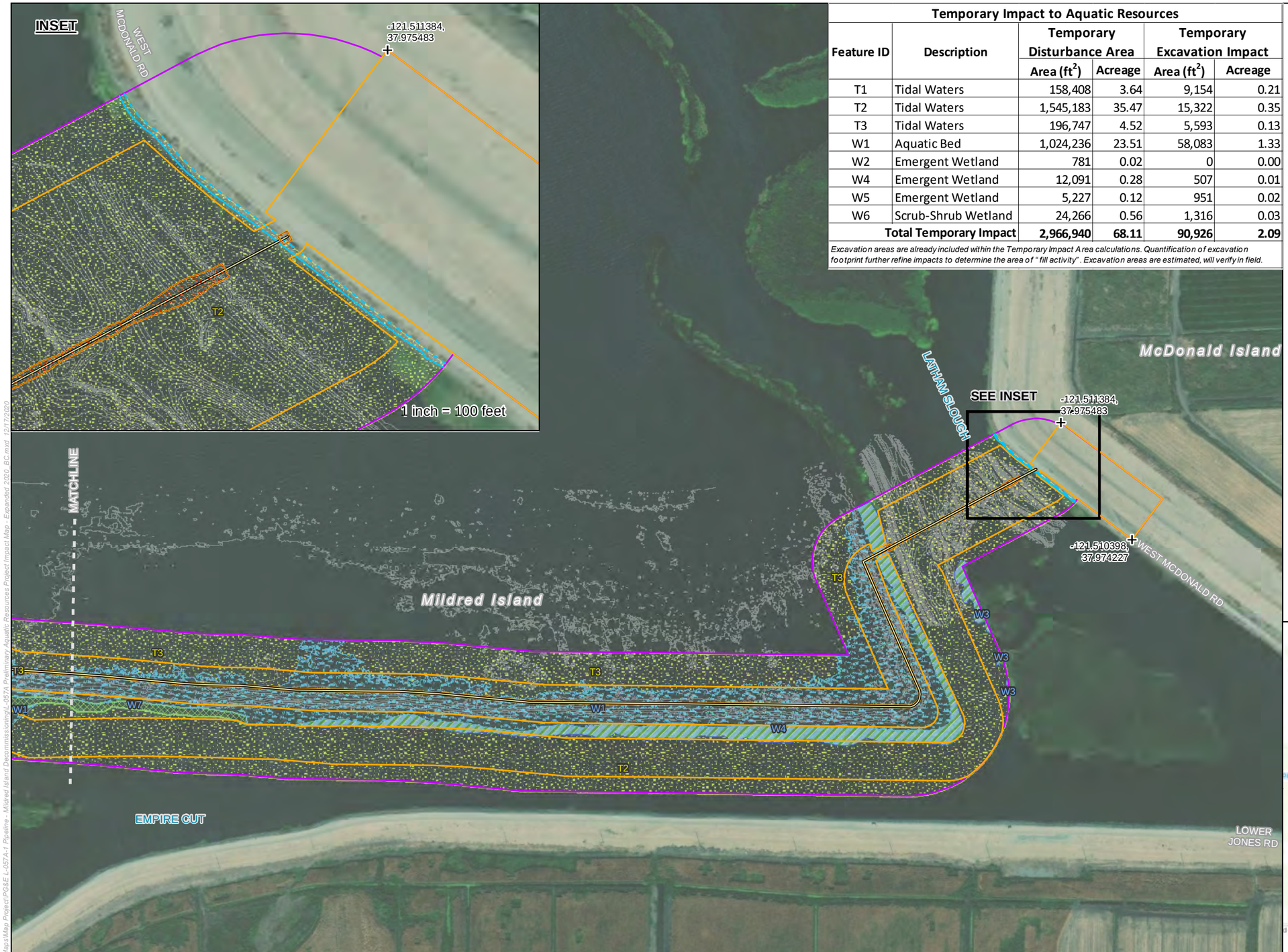
PROJECT NUMBER: 1902-4302

DATE: December 2020

PRELIMINARY AQUATIC RESOURCES PROJECT IMPACT MAP

FIGURE 4B

Z:\GIS Projects\GIS Maps\Map Project\PG&E L-057A-1 Pipeline - Mildred Island Decommissioning\L-057A Preliminary Aquatic Resources Project Impact Map - Expanded 2020_BC.mxd 12/17/2020



Temporary Impact to Aquatic Resources

Feature ID	Description	Temporary Disturbance Area		Temporary Excavation Impact	
		Area (ft^2)	Acreage	Area (ft^2)	Acreage
T1	Tidal Waters	158,408	3.64	9,154	0.21
T2	Tidal Waters	1,545,183	35.47	15,322	0.35
T3	Tidal Waters	196,747	4.52	5,593	0.13
W1	Aquatic Bed	1,024,236	23.51	58,083	1.33
W2	Emergent Wetland	781	0.02	0	0.00
W4	Emergent Wetland	12,091	0.28	507	0.01
W5	Emergent Wetland	5,227	0.12	951	0.02
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Total Temporary Impact		**2,966,940**	**68.11**	**90,926**	**2.09**

Excavation areas are already included within the Temporary Impact Area calculations. Quantification of excavation footprint further refine impacts to determine the area of "fill activity". Excavation areas are estimated, will verify in field.

LEGEND:

- Control Point
- High Tide Line (Limits of Section 404 Jurisdiction)
- Mean High Water Line (Limits of Section 10 Jurisdiction)
- PG&E L-057A-1
- Total Excavation Area (2.12 ac)
- Total Temporary Impact Area (72.32 ac)
- Study Area (126.45 ac)

Preliminary Waters of the U.S.

- Aquatic Bed
- Emergent Wetland
- Scrub-Shrub Wetland
- Tidal Waters

N

MAP EXTENT:

0 200 400
FEET
1 inch = 400 feet

Source: NAIP Imagery 2018
Coordinate System: NAD 1983 StatePlane California III FIPS 0403 Feet
Notes: This map was created for informational and display purposes only.

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: PG&E L-057A-1 MCDONALD ISLAND TO PALM TRACT PIPELINE DECOMMISSIONING PROJECT SAN JOAQUIN AND CONTRA COSTA COUNTIES, CA

PROJECT NUMBER: 1902-4302

DATE: December 2020

PRELIMINARY AQUATIC RESOURCES PROJECT IMPACT MAP

FIGURE 4C

Z:\GIS Projects\GIS Maps\Map Project\PG&E L-057A-1 Pipeline - Mildred Island Decommissioning\L-057A Preliminary Aquatic Resources Project Impact Map - Expanded 2020_BC.mxd 12/17/2020

N

LEGEND:

- Project Boundary
- Project Boundary Buffer - 5 Miles

CNDDB Occurrences

- Plant (80m)
- Plant (specific)
- Plant (non-specific)
- Plant (circular)
- Animal (80m)
- Animal (specific)
- Animal (non-specific)
- Animal (circular)
- Terrestrial Comm. (specific)
- Multiple (80m)
- Multiple (circular)

FOR INTERNAL USE ONLY; NOT FOR PUBLIC RELEASE

MAP EXTENT:

0 0.6 1.2 MILES

Sources: Esri Online Topo Basemap, CDFW CNDDB October 2020
Coordinate System: NAD 1983 StatePlane California I FIPS 0401 Feet
Notes: CDFW = California Department of Fish and Wildlife;
CNDDB = California Natural Diversity Database
This map was created for informational and display purposes only.

padre associates, inc. ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: PG&E L-057A-1 MCDONALD ISLAND TO PALM TRACT PIPELINE DECOMMISSIONING PROJECT SAN JOAQUIN AND CONTRA COSTA COUNTIES, CA

PROJECT NUMBER: 1902-4302

DATE: December 2020

SPECIAL-STATUS SPECIES OCCURRENCES

FIGURE 5

Z:\GIS Projects\GIS Maps\Map Project\PG&E L-057A-1 Pipeline - Mildred Island Decommissioning\Special-Status Species Occurrence Map - Expanded 2020.mxd 12/17/2020

Photograph A. North-Northwestern view of McDonald Island levee. Photograph taken 11/25/2019.	
Photograph B. North-northwestern view of the staging area on McDonald Island. Photograph taken 11/25/2019.	

Photograph C. West-southwest view of Latham Slough from McDonald Island levee. Photograph taken 11/25/2019.	
Photograph D. East view of Mildred Island levee at L-057A crossing location (note valve box in photo) taken from inside Mildred Island. Photograph taken 9/11/2020.	

Photograph E. South view of partially submerged Mildred Island levee taken from inside Mildred Island. Emergent wetland vegetation is dominant along this portion of the levee and submerged aquatic and floating vegetation is present along the shoreline. Photograph taken 9/11/2020.	
Photograph F. North view of breach in Mildred Island levee and entrance to the interior of submerged Mildred Island. Photograph taken 9/11/2020.	

Photograph G. South view of submerged aquatic vegetation (aquatic bed wetland) that occurs in shallow water along the Mildred Island levee. SAV is a mix of native and non-native invasive species. Photograph taken 9/11/2020.	
Photograph H. Underwater photograph of aquatic bed wetland and submerged aquatic vegetation occurring within submerged Mildred Island. Photograph taken 9/11/2020.	

Photograph I. Southwest view of Mildred Island levee from inside Mildred Island. Aquatic bed wetlands and emergent wetlands visible in this photo. Photograph taken 9/11/2020.	
Photograph J. Southern view of scrub-shrub wetland along Mildred Island levee west of the levee breach. Photo taken 9/11/2020.	

Photograph K. Eastern view of Mildred Island levee from Middle River at L-057A crossing location (note pipeline marker sign in vegetation). Photograph taken 9/11/2020.	
Photograph L. Northern view of Middle River (Bacon Island levee in left side of photo and Mildred Island levee in right side of photo). Photograph taken 9/11/2020.	

Photograph M. South-southeast view of pipeline landing on Bacon Island at Middle River crossing. Photograph taken 9/9/2020.	
Photograph N. North view of the Bacon Island staging area. Landside slope of the Bacon Island levee on Middle River is in right of photo. Photograph taken 9/9/2020.	

Photograph O. South view of the Bacon Island west levee at the Old River crossing location. Navigational safety sign visible in the distance. Photograph taken 9/9/2020.	
Photograph P. South view of Bacon Island staging area. Bacon Island levee on Old River is in right of photo. Photograph taken 9/9/2020.	

Photograph Q. Northeast view of farm road on Bacon Island at approximate location of terrestrial pipeline termination point. Photograph taken 9/9/2020.	
Photograph R. South view of Old River at L-057A crossing location. Photograph taken 9/9/2020.	

Photograph S. South view of Palm Tract levee at L-057A crossing location. Photograph taken 9/9/2020.	
Photograph T. South view of terrestrial staging area on Palm Tract. Photograph taken on 9/9/2020.	

APPENDIX A

USFWS AND NMFS SPECIES LISTS

United States Department of the Interior

FISH AND WILDLIFE SERVICE
San Francisco Bay-Delta Fish And Wildlife
650 Capitol Mall
Suite 8-300
Sacramento, CA 95814
Phone: (916) 930-5603 Fax: (916) 930-5654
http://kim_squires@fws.gov

In Reply Refer To: August 24, 2020
Consultation Code: 08FBDT00-2020-SLI-0236
Event Code: 08FBDT00-2020-E-00556
Project Name: R-1390 L-057A Decommissioning Project

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

To Whom It May Concern:

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

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the 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:

San Francisco Bay-Delta Fish And Wildlife
650 Capitol Mall
Suite 8-300
Sacramento, CA 95814
(916) 930-5603

Project Summary

Consultation Code: 08FBDT00-2020-SLI-0236

Event Code: 08FBDT00-2020-E-00556

Project Name: R-1390 L-057A Decommissioning Project

Project Type: OIL OR GAS

Project Description: PG&E is planning the decommissioning and removal of portions of the previously retired L-057A natural gas pipeline crossings at Latham Slough, Mildred Island, Middle River, and Old River in portions of San Joaquin County and Contra Costa County, California.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/37.97140077459933N121.56047694774927W

Counties: Contra Costa, CA | San Joaquin, CA

Endangered Species Act Species

There is a total of 11 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
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
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. Your location is outside the critical habitat. 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. Your location is outside the critical habitat. 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. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
San Bruno Elfin Butterfly *Callophrys mossii bayensis* There is **proposed** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3394	Endangered
Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7850	Threatened

Crustaceans

NAME	STATUS
Longhorn Fairy Shrimp *Branchinecta longiantenna* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/4294	Endangered
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is **final** critical habitat for this species. Your location is outside 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 is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2246	Endangered

Flowering Plants

NAME	STATUS
Large-flowered Fiddleneck *Amsinckia grandiflora*	Endangered

There is **final** critical habitat for this species. Your location is outside the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/5558

Critical habitats

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

NAME	STATUS
Delta Smelt *Hypomesus transpacificus*	Final

https://ecos.fws.gov/ecp/species/321#crithab

Sarah Powell

Sent:
To:
Subject:

I would like to request an Official Species List for NMFS ESA Listed Species, Critical Habitat, and EFH within the Woodward Island, California USGS 7.5-minute Topographic Quadrangle for the R-1390 L-057A Pipeline Decommissioning Project. Following is the information requested by NMFS to generate an Official Species List:

Federal Agency:
U.S. Army Corps of Engineers
Sacramento District, Regulatory Division
1325 J Street, Suite 1350
Sacramento, CA 95814-2922
Ph: (916) 557-6643

Applicant:
Chris Ellis, Principal Land Planner
Pacific Gas & Electric Company
5555 Florin Perkins Road, Room 128D
Sacramento, CA 95826
CRE3@pge.com
(916) 386-5103

Environmental Consultant:
Sarah Powell, Senior Biologist
Padre Associates, Inc.
spowell@padreinc.com
(916) 333-5920 ext. 210

Following is the copy/pasted results of the informal search of NMFS database to generate a list of species that may be present in the Woodward Island, California Quadrangle.

Quad Name
Quad Number

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) -
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -

SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) -
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat -
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -

Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH -
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds
See list at left and consult the NMFS Long Beach office 562-980-4000

MMPA Cetaceans -
MMPA Pinnipeds -

Sarah Powell
Padre Associates, Inc.
350 University Avenue, Suite 250
Sacramento, CA 95825
Ph: 916-333-5920 ext. 210
Cell: 916-996-2994

Sarah Powell

Sent:
To:
Subject:

Receipt of this message confirms that NMFS has received your email to nmfswcrca.specieslist@noaa.gov. If you are a federal agency (or representative) and have followed the steps outlined on the California Species List Tools web page (http://www.westcoast.fisheries.noaa.gov/maps_data/california_species_list_tools.html), you have generated an official Endangered Species Act species list.

Messages sent to this email address are not responded to directly. For project specific questions, please contact your local NMFS office.

Northern California/Klamath (Arcata) 707-822-7201

North-Central Coast (Santa Rosa) 707-387-0737

Southern California (Long Beach) 562-980-4000

California Central Valley (Sacramento) 916-930-3600

APPENDIX B

CNDDB QUERY RESULTS

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: BIOS selection

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.
Ardea herodias great blue heron	G5 S4	None None	CDF_S-Sensitive IUCN_LC-Least Concern	10 10	156 S:2	0	2	0	0	0	0	2	0	2	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	10 10	1989 S:1	0	0	0	0	0	1	0	1	1	0	0
Buteo swainsoni Swainson's hawk	G5 S3	None Threatened	BLM_S-Sensitive IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	-10 10	2535 S:13	1	1	0	0	0	11	0	13	13	0	0
Coastal and Valley Freshwater Marsh Coastal and Valley Freshwater Marsh	G3 S2.1	None None		3 5	60 S:5	0	1	0	0	0	4	5	0	5	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	-10 10	1396 S:8	0	4	0	0	0	4	3	5	8	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	5 5	127 S:1	0	0	1	0	0	0	0	1	1	0	0
Hibiscus lasiocarpos var. occidentalis woolly rose-mallow	G5T3 S3	None None	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_UCBG-UC Botanical Garden at Berkeley	0 5	173 S:32	0	23	6	1	0	2	9	23	32	0	0
Hypomesus transpacificus Delta smelt	G1 S1	Threatened Endangered	AFS_TH-Threatened IUCN_EN-Endangered	0 0	27 S:3	0	0	0	0	0	3	0	3	3	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.
Laterallus jamaicensis coturniculus California black rail	G3G4T1 S1	None Threatened	BLM_S-Sensitive CDFW_FP-Fully Protected IUCN_NT-Near Threatened NABCI_RWL-Red Watch List USFWS_BCC-Birds of Conservation Concern	0 10	303 S:14	1	6	1	0	0	6	6	8	14	0	0
Lathyrus jepsonii var. jepsonii Delta tule pea	G5T2 S2	None None	Rare Plant Rank - 1B.2 SB_BerrySB-Berry Seed Bank SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	0 12	133 S:10	1	3	4	1	0	1	3	7	10	0	0
Lilaeopsis masonii Mason's lilaeopsis	G2 S2	None Rare	Rare Plant Rank - 1B.1	0 5	198 S:33	0	21	6	3	0	3	10	23	33	0	0
Limosella australis Delta mudwort	G4G5 S2	None None	Rare Plant Rank - 2B.1	0 10	59 S:11	0	9	1	0	0	1	2	9	11	0	0
Linderiella occidentalis California linderiella	G2G3 S2S3	None None	IUCN_NT-Near Threatened	-5 -5	508 S:1	0	0	0	0	0	1	0	1	1	0	0
Melospiza melodia song sparrow ("Modesto" population)	G5 S3?	None None	CDFW_SSC-Species of Special Concern	0 0	92 S:11	0	0	0	0	0	11	0	11	11	0	0
Oncorhynchus mykiss irideus pop. 11 steelhead - Central Valley DPS	G5T2Q S2	Threatened None	AFS_TH-Threatened		31 S:1	0	0	0	0	0	1	0	1	1	0	0
Scutellaria galericulata marsh skullcap	G5 S2	None None	Rare Plant Rank - 2B.2	10 10	39 S:2	0	0	0	0	0	2	2	0	2	0	0
Spirinchus thaleichthys longfin smelt	G5 S1	Candidate Threatened		-10 0	46 S:6	0	0	0	0	0	6	1	5	6	0	0
Symphyotrichum lentum Suisun Marsh aster	G2 S2	None None	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_USDA-US Dept of Agriculture	0 10	175 S:12	0	0	4	6	0	2	5	7	12	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.
Thamnophis gigas	G2	Threatened	IUCN_VU-Vulnerable	5	366	0	0	0	0	0	1	1	0	1	0	0
giant gartersnake	S2	Threatened		5	S:1											

APPENDIX C

PLANT SPECIES OBSERVED AT THE PG&E L-057A-1 PROJECT SITE

Plant Species Observed in the L-057A-1 Decommissioning Project Study Area

Family / Common Name	*Scientific Name*	Growth Habit[1]	Wetland Indicator Status[2]	Native Status[3]	Sensitivity / Listing Status[4]
PINACEAE (Pine Family)					
Pine	*Pinus sp.*	T			
CERATOPHYLLACEAE (Hornwort Family)					
Hornwort	*Ceratophyllum demersum*	H	OBL	N	
AMARANTHACEAE (Amaranth Family)					
Amaranth	*Amaranthus sp.*	H			
APIACEAE (Carrot Family)					
Poison hemlock	*Conium maculatum*	H	FACW	I	
Fennel	*Foeniculum vulgare*	H	NL	I	
Tall sock-destroyer	*Torilis arvensis*	H	NL	I	
ARALIACEAE (Ginseng Family)					
Pennywort	*Hydrocotyle verticillata*	H	OBL	N	
ASTERACEAE (Sunflower Family)					
Italian thistle	*Carduus pycnocephalus ssp. pycnocephalus*	H	NL	I	
Yellow star-thistle	*Centaurea solstitialis*	H	NL	I	
Bull thistle	*Cirsium vulgare*	H	FACU	I	
Horseweed	*Erigeron canadensis*	H	FACU	N	
Common sunflower	*Helianthus annuus*	H	FACU	N	
Bristly ox-tongue	*Helminthotheca echioides*	H	FAC	I	
Telegraph weed	*Heterotheca grandiflora*	H	NL	N	
Prickly lettuce	*Lactuca serriola*	H	FACU	I	
BRASSICACEAE (Mustard Family)					
Black mustard	*Brassica nigra*	H	NL	I	
Mediterranean mustard	*Hirschfeldia incana*	H	NL	I	
Perennial pepperweed	*Lepidium latifolium*	H	FAC	I	
Radish	*Raphanus sativus*	H	NL	I	
CONVOLVULACEAE (Morning-Glory Family)					
Hedge false bindweed	*Calystegia sepium* ssp. *limnophila*	H	FAC	N	
Bindweed	*Convolvulus arvensis*	H	NL	I	
EUPHORBIACEAE (Spurge Family)					
Spotted spurge	*Euphorbia maculata*	H	UPL	I	
HALORAGACEAE (Water-Milfoil Family)					
Watermilfoil	*Myriophyllum spicatum*	H	OBL	I	
JUGLANDACEAE (Walnut Family)					
Northern California black walnut	*Juglans hindsii*	T	FAC	N	
MALVACEAE (Mallow Family)					
Bull mallow	*Malva nicaeensis*	H	NL	I	
MORACEAE (Mulberry Family)					
Edible fig	*Ficus carica*	T	FACU	I	
ONAGRACEAE (Evening Primrose Family)					
Uruguayan primrose	*Ludwigia hexapetala*	H	OBL	I	
Floating water primrose	*Ludwigia peploides*	H	OBL	I	
POLYGONACEAE (Buckwheat Family)					
Lady's thumb	*Persicaria maculosa*	H	FACW	I	

Family / Common Name	*Scientific Name*	Growth Habit[1]	Wetland Indicator Status[2]	Native Status[3]	Sensitivity / Listing Status[4]
Curly dock	*Rumex crispus*	H	FAC	I	
ROSACEAE (Rose Family)					
Himalayan blackberry	*Rubus armeniacus*	V	FAC	I	
SALICACEAE (Willow Family)					
Narrow-leaved willow	*Salix exigua*	S	FACW	N	
Gooding's black willow	*Salix goodingii*	T	FACW	N	
Red willow	*Salix laevigata*	S	FACW	N	
Arroyo willow	*Salix lasiolepis*	T	FACW	N	
URTICACEAE (Nettle Family)					
Stinging nettle	*Urtica dioica*	H	FACW	N	
ZYGOPHYLLACEAE (Caltrop Family)					
Puncture vine	*Tribulus terrestris*	H	NL	I	
ARACEAE (Arum Family)					
Duckweed	*Lemna* sp.	H		N	
Duckweed	*Lemna minor*	H	OBL	N	
CABOMBACEAE (Watershield Family)					
Carolina fanwort	*Cabomba caroliniana*	H	OBL	I	
CYPERACEAE (Sedge Family)					
Tall cyperus	*Cyperus eragrostis*	H	FACW	N	
Tule	*Schoenoplectus acutus* var. *occidentalis*	H	OBL	N	
California bulrush	*Schoenoplectus californicus*	H	OBL	N	
Brazilian waterweed	*Egera densa*	H	OBL	I	
HYDROCHARITACEAE (Waterweed Family)					
Common waterweed	*Elodia canadensis*	H	OBL	N	
POACEAE (Grass Family)					
Wild oat	*Avena fatua*	G	NL	I	
Ripgut grass	*Bromus diandrus*	G	NL	I	
Soft chess	*Bromus hordeaceus*	G	FACU	I	
Pampass grass	*Cortaderia selloana*	G	FACU	I	
Bermuda grass	*Cynodon dactylon*	G	FACU	I	
Italian rye grass	*Festuca perennis*	G	FAC	I	
Harding grass	*Phalaris aquatica*	G	FACU	I	
Little-seeded canary grass	*Phalaris minor*	G	NL	I	
Common reed	*Phragmites australis*	G	FACW	N	
Rabbitfoot grass	*Polypogon monspeliensis*	G	FACW	I	
Johnson grass	*Sorghum halepense*	G	FACU	I	
PONTEDERIACEAE (Pickerel-Weed Family)					
Water hyacinth	Eichhornia crassipes	H	OBL	I	
Curly leaf pondweed	*Potamogeton crispus*	H	OBL	I	
Long-leaved pondweed	*Potamogeton nodosus*	H	OBL	N	
Sago pondweed	*Stuckenia pectinata*	H	OBL	N	
TYPHACEAE (Cattail Family)					
Broad-leaved cattail	*Typha latifolia*	H	OBL	N	

[2]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)

Family / Common Name	*Scientific Name*	Growth Habit[1]	Wetland Indicator Status[2]	Native Status[3]	Sensitivity / Listing Status[4]
UPL = Upland species, almost never found in wetlands (<1% probability) NL = Not listed, assumed upland species	NI = No indicator has been assigned due to a lack of information to determine indicator status				
[4]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				
[1]Growth Habitat	**[3]Native Status**				
G = Grass H = Herb S = Shrub T = Tree	N = Native I = Introduced				

APPENDIX D

WILDLIFE SPECIES OBSERVED AT THE PG&E L-057A-1 PROJECT SITE

Wildlife Species Observed in the L-057A Decommissioning Project Study Area

Common Name/ Family	*Scientific Name*	Sensitivity / Listing Status[1]
FISH		
POECILIIDAE (Poeciliids)		
Western Mosquitofish	*Gambusia affinis*	
CENTRARCHIDAE (Sunfishes)		
Black Crappie	*Pomoxis nigromaculatus*	
Largemouth Bass	*Micropterus salmoides*	
MORONIDAE (Temperate Basses)		
Striped bass	*Morone saxatalis*	
EMBIOTOCIDAE (Surfperches)		
Tule perch	*Hysterocarpus traski*	
REPTILES		
PHRYNOSOMATIDAE (spiny lizards)		
Western Fence Lizard	*Sceloporus occidentalis*	
BIRDS		
ANATIDAE (Ducks, Geese, and Swans)		
Mallard	*Anas platyrhynchos*	M
ODONTOPHORIDAE (New World Quail)		
California Quail	*Callipepla californica*	
PHASIANIDAE (Partridges, Grouse, Turkeys, and Old-World Quail)		
Ring-necked Pheasant	*Phasianus colchicus*	
PODICIPEDIDAE (Grebes)		
Pied-billed Grebe	*Podilymbus podiceps*	M
COLUMBIDAE (Pigeons and Doves)		
Eurasian Collared-Dove	*Streptopelia decaocto*	M
Mourning Dove	*Zenaida macroura*	M
TROCHILIDAE (Hummingbirds)		
Anna's Hummingbird	*Calypte anna*	M
RALLIDAE (Rails, Gallinules, and Coots)		
American Coot	*Fulica americana*	M
GRUIDAE (Cranes)		
Greater sandhill crane	*Antigone canadensis tabida*	M, ST, FP, FSS
CHARADRIIDAE (Lapwings and Plovers)		
Killdeer	*Charadrius vociferus*	M
SCOLOPACIDAE (Sandpipers, Phalaropes, and Allies)		
Greater Yellowlegs	*Tringa melanoleuca*	M
LARIDAE (Gulls, Terns, and Skimmers)		
Ring-billed Gull	*Larus delawarensis*	M
California Gull	*Larus californicus*	M, WL
Herring Gull	*Larus argentatus*	M
Caspian Tern	*Hydroprogne caspia*	M, BCC
PHALACROCORACIDAE (Cormorants)		
Double-crested Cormorant	*Phalacrocorax auritus*	M, WL
PELECANIDAE (Pelicans)		
American White Pelican	*Pelecanus erythrorhynchos*	M, CSC

Common Name/ Family	*Scientific Name*	Sensitivity / Listing Status[1]
ARDEIDAE (Bitterns, Herons, and Allies)		
American Bittern	*Botaurus lentiginosus*	M
Great Blue Heron	*Ardea herodias*	M
Great Egret	*Ardea alba*	M
Snowy Egret	*Egretta thula*	M
Green Heron	*Butorides virescens*	M
Black-crowned Night-Heron	*Nycticorax nycticorax*	M
CATHARTIDAE (New World Vultures)		
Turkey Vulture	*Cathartes aura*	M
PANDIONIDAE (Ospreys)		
Osprey	*Pandion haliaetus*	M, WL
ACCIPITRIDAE (Hawks, Kites, Eagles, and Allies)		
Northern Harrier	*Circus cyaneus*	M, CSC
Swainson's Hawk	*Buteo swainsoni*	M, ST, BCC
Red-tailed Hawk	*Buteo jamaicensis*	M
ALCEDINIDAE (Kingfishers)		
Belted Kingfisher	*Megaceryle alcyon*	M
PICIDAE (Woodpeckers and Allies)		
Nuttall's Woodpecker	*Picoides nuttallii*	M
Northern Flicker	*Colaptes auratus*	M
FALCONIDAE (Caracaras and Falcons)		
American Kestrel	*Falco sparverius*	M
TYRANNIDAE (Tyrant Flycatchers)		
Black Phoebe	*Sayornis nigricans*	M
CORVIDAE (Jays and Crows)		
California Scrub-Jay	*Aphelocoma californica*	M
American Crow	*Corvus brachyrhynchos*	M
HIRUNDINIDAE (Swallows)		
Tree Swallow	*Tachycineta bicolor*	M
Cliff Swallow	*Petrochelidon pyrrhonota*	M
Barn Swallow	*Hirundo rustica*	M
AEGITHALIDAE (Bushtits)		
Bushtit	*Psaltriparus minimus*	M
TROGLODYTIDAE (Wrens)		
Marsh Wren	*Cistothorus palustris*	M
TURDIDAE (Thrushes)		
American Robin	*Turdus migratorius*	M
MIMIDAE (Mockingbirds and Thrashers)		
Northern Mockingbird	*Mimus polyglottos*	M
STURNIDAE (Starlings)		
European Starling	*Sturnus vulgaris*	
FRINGILLIDAE (Fringilline and Cardueline Finches and Allies)		
House Finch	*Haemorhous mexicanus*	M
American Goldfinch	*Spinus tristis*	M
PARULIDAE (Wood-Warblers)		
Common Yellowthroat	*Geothlypis trichas*	M
EMBERIZIDAE (Emberizids)		

Common Name/ Family	*Scientific Name*	Sensitivity / Listing Status[1]
Spotted Towhee	*Pipilo maculatus*	M
California Towhee	*Melozone crissalis*	M
Song Sparrow	*Melospiza melodia*	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		
CANIDAE (Foxes, Wolves, and Relatives)		
Coyote	*Canis latrans*	
PROCYONIDAE (Raccoons and Relatives)		
Raccoon	*Procyon lotor*	
MUSTELIDAE (Weasels, Badgers, and Relatives)		
North American River Otter	*Lontra canadensis*	
OTARIIDAE (Eared Seals)		
California Sea Lion	*Zalophus californianus*	

Sensitivity / Listing Status[1]

M = Protected under the federal Migratory Bird Treaty Act (MBTA)	FSS = Forest Service Sensitive	FP = California Fully Protected Species
FE = Federally Endangered	SE = California State Endangered	BCC = USFWS Birds of Conservation Concern
FT = Federally Threatened	ST = California State Threatened	WL = CDFW Watch List
FDL = Federally Delisted	CSC = California Species of Special Concern	