Appendix D

Biological Resources Technical Report

ESA

Final

LOMA ALTA SLOUGH WETLANDS ENHANCEMENT PROJECT

Biological Technical Report

Prepared for
City of Oceanside

May 2020

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CHAPTER 1
Introduction

This biological resources report has been prepared for the City of Oceanside's (City's) Loma Alta Slough Wetlands Enhancement Project (project) to document biological resources identified within the estuarine portion of the Loma Alta Slough and surrounding uplands, analyze potential impacts to sensitive biological resources, and discuss pertinent mitigation measures. This report is intended to support the review of project impacts to biological resources under the California Environmental Quality Act (CEQA).

1.1 Project Background and Purpose

The Loma Alta Slough, located in the City of Oceanside, California, is a locally and regionally important natural resource that provides nesting and foraging habitat for marsh and shoreline birds. The Slough was historically, and continues to be, an intermittently opening estuary, similar to many coastal wetlands in California. Watershed urbanization, sedimentation, channel engineering, degraded water quality, and wetland fill have degraded the health of the Slough. The Slough's morphology has been altered because large areas have been filled to create developed areas. In addition to impacts associated with the physical loss of wetland area, water quality issues resulting from urbanization have been ongoing since the 1960s. Currently, both Loma Alta Creek and Slough are on California's Clean Water Act 303(d) list of impaired water bodies for a variety of inhibiting constituents, most notably indicator bacteria, eutrophic conditions and benthic community impairments. Dry-weather flows from the watershed provide a continuous source of freshwater that contributes to the ponding, and contains fertilizers and other contaminants that reduce water quality by causing eutrophic conditions and the growth of algae and bacteria.

Historically, Loma Alta Creek upstream of the Slough was an ephemeral stream that flowed only during the wet season. Urbanization has resulted in persistent dry-weather flows from the watershed that provide continuous freshwater input. The altered hydrology and continuous input of urban runoff contributes to ponding and reduced water quality in the Slough by causing eutrophic conditions and the growth of algae and bacteria.

The project will provide multiple benefits by improving and restoring habitat for native species, providing a buffer from flooding and sea-level rise, improving water quality in the Slough through natural wetland processes, and enhancing recreational enjoyment of the area.

1.2 Project Description

The project consists of expanding the wetland footprint through removal of historical infill, improving the ecological and hydrological conditions of the current wetlands and integrating the project with recreational features such as trails and bike paths.

Three alternatives were considered for the project area. Alternative 1 would relocate Loma Alta Creek to create two channel meanders into the northern properties of the site, with one west of the railroad bridge and one east of the bridge (Figure 4a). The alternative would include grading of the existing marsh area north of the creek to flatten the slope at the back of the site. On the south of the creek near Buccaneer Park, the former creek would be filled to create new habitat. East of the railroad bridge and south of the creek, the area northwest of Paradise by the Sea RV Park would be graded to improve drainage to the creek. North of the creek, the site would be graded to marsh elevations with a 50-foot buffer separating the marsh from adjacent development.

In Phase 2, assuming the city could acquire the Parent Family Trust Property, the property would be graded down to marsh elevations with a 50-foot buffer on the north of the site (Figure 4b). A new channel would be cut through buffer in Phase 1 to connect the Parent Family Trust Property to the creek. This property is the last remaining privately-owned parcel in the project study area as defined in by the City's grant agreement with the California State Coastal Conservancy.

Alternative 2 would excavate perpendicular tidal channels from the creek into the existing marsh to improve drainage (Figure 4c). East of the railroad bridge and south of the creek, the area northwest of Paradise by the Sea RV Park would be graded to improve drainage to the creek. North of the creek, the site would be graded to marsh elevations with a 50-foot buffer separating the marsh from adjacent development. Perpendicular tidal channels would be excavated to encourage proper flushing of the new marsh.

In Phase 2, assuming the city could acquire the Parent Family Trust Property, the property would be graded down to marsh elevations with a 50-foot buffer on the north of the site (Figure 4d). The buffer area constructed in Phase 1 would be excavated down to marsh to increase the habitat connection between the properties.

Alternative 3 would excavate a parallel side channel from the creek into the existing marsh to improve flushing (Figure 4e). East of the railroad bridge and south of the creek, the area northwest of Paradise by the Sea RV Park would be graded to improve drainage to the creek. North of the creek, the site would be graded to marsh elevations with a 50-foot buffer separating the marsh from adjacent development. A parallel side channel would be excavated to encourage proper flushing of the new marsh. Alternative 3 would not include the Parent Family Trust Property, so there would be no Phase 2.

1.3 Survey Area Location

The Loma Alta Slough is a small coastal estuarine wetland located at the mouth of Loma Alta Creek in the City of Oceanside, California (**Figure 1**). The survey area is defined as all areas evaluated for potential restoration during the Project design phase (all project alternatives) and an additional 50-foot buffer. The survey area is located in Section 26, Township 11 South, Range 5 West of the Oceanside quadrangle U.S. Geological Survey (USGS) topographic map (**Figure 2**). The survey area is bounded by South Pacific Street and Buccaneer Beach on the west side, South Coast Highway on the east side, Buccaneer Park and Paradise By the Sea RV Resort on the south side, and the La Salina Wastewater Treatment Plant and commercial property on the north side (**Figure 3**).

CHAPTER 2
Regulatory Framework

This section provides a summary of the federal, state, and local environmental regulations that govern the biological resources applicable to the survey area. This section also provides a summary of other state and local environmental guidelines or listings that evaluate the rarity of species or the habitats they depend on. The CEQA significance criteria are also included in this section because, as noted previously, this report is intended to support the review of project impacts to biological resources under CEQA.

2.1 Federal Regulations

Federal Endangered Species Act

The United States Congress passed the Federal Endangered Species Act (FESA) in 1973 to protect those species that are endangered or threatened with extinction. FESA is intended to operate in conjunction with the National Environmental Policy Act to help protect the ecosystems upon which endangered and threatened species depend. FESA prohibits the "take" of endangered or threatened wildlife species. "Take" is defined to include harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting wildlife species or any attempt to engage in such conduct (FESA Section 3 [(3)(19)]). Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns (50 Code of Federal Regulations [CFR] Section 17.3). "Harass" is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns (50 CFR Section 17.3). Actions that result in take can result in civil or criminal penalties.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA), first enacted in 1916, prohibits any person, unless permitted by regulations, to "pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird, included in the terms of this Convention…for the protection of migratory birds…or any part, nest, or egg of any such bird" (16 U.S. Code 703).

The list of migratory birds includes nearly all bird species native to the United States. The Migratory Bird Treaty Reform Act of 2004 further defines species protected under the MBTA and excludes all non-native species. The statute was extended in 1974 to include parts of birds, as well as eggs and nests. Thus, it is illegal under the MBTA to directly kill or destroy a nest of nearly any bird species, not just endangered species. Activities, such as grading or grubbing for construction of the project site, that result in removal or destruction of an active nest (a nest with eggs or young

being attended by one or more adults) would violate the MBTA. Removal of unoccupied nests, or bird mortality resulting indirectly from a project, is not considered a violation of the MBTA.

Clean Water Act

Pursuant to Section 404 of the Clean Water Act (CWA), the U.S. Army Corps of Engineers (USACE) is authorized to regulate any activity that would result in the discharge of dredged or fill material into jurisdictional waters of the United States (U.S.), which include those waters listed in 33 CFR Part 328 (Definitions). USACE, with oversight by the U.S. Environmental Protection Agency (USEPA), has the principal authority to issue CWA Section 404 Permits. For any activity that requires authorization under Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act, USACE will need to make a determination on whether the activity would affect a Federally listed endangered or threatened species. If USACE determines that the activity would not affect a listed species, no FESA consultation is required with the USFWS and/or National Marine Fisheries Service (NMFS). If USACE determines that the activity may affect Federally listed endangered or threatened species, USACE may informally consult with USFWS and/or NMFS and obtain a letter of concurrence. If USACE determines the activity may affect and is likely to adversely affect a Federally listed endangered and/or threatened species, USACE would lead formal FESA Section 7 consultation with USFWS and/or NMFS, and USFWS and/or NMFS would issue a biological opinion regarding whether the action would violate FESA and, in cases where it would not, the biological opinion would also contain an incidental take statement.Pursuant to Section 401 of the CWA, the Regional Water Quality Control Board (RWQCB), Region 9 Wetlands and Riparian Protection Unit, certifies that any discharge into jurisdictional waters of the United States will comply with state water quality standards. The RWQCB, as delegated by USEPA, has the principal authority to issue a CWA Section 401 water quality certification or waiver.

Coastal Zone Management Act of 1972

The Coastal Zone Management Act (CZMA) creates a broad program for the management of coastal lands based on land development control. It was enacted to encourage the participation and cooperation of state, local, regional, and federal agencies and governments having programs affecting the coastal zone. The CZMA allows state involvement through the development of Coastal Zone Management Plans (CZMP) for comprehensive management at the state level. The CZMPs define permissible land and water use within the state coastal zone. This coastal zone extends 3 miles seaward and inland as far as necessary to protect the coast. The CZMA also requires federal agencies or licensees to carry out their activities in such a way that they conform to the maximum extent practicable with a state's coastal zone management program. The California Coastal Act is California's coastal zone management program under the CZMA. This program is discussed below.

2.2 State Regulations

California Fish and Game Code

The California Fish and Game Code (CFGC) regulates the taking or possession of birds, mammals, fish, amphibians, and reptiles, as well as natural resources such as wetlands and waters of the state. It includes the California Endangered Species Act (CESA) (Sections 2050–2115) and Streambed Alternation Agreement regulations (Sections 1600–1616). These sections are described further below and on the next page.

CFGC Sections 1600-1616

Pursuant to Section 1600 et seq. of the CFGC, the California Department of Fish and Wildlife (CDFW) (formerly California Department of Fish and Game) regulates activities of an applicant's project that would substantially alter the flow, bed, channel, or banks of streams or lakes, unless certain conditions outlined by CDFW are met by the applicant. The limits of CDFW jurisdiction are defined in CFGC Section 1600 et seq. as the "bed, channel, or bank of any river, stream,[1] or lake designated by CDFW in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit."[2] However, in practice, CDFW usually extends its jurisdictional limit and assertion to the top of a bank of a stream, the bank of a lake, or outer edge of the riparian vegetation, whichever is wider.

California Coastal Act of 1972

The California Coastal Act (CCA) provides for the protection of environmentally sensitive habitat identified by the CDFW from adjacent developments in the coastal zone. The CCA is California's coastal zone management program under the CZMA, discussed above. The CCA establishes the California Coastal Commission (CCC) as having jurisdiction over the coastal zone in California, as established under the CZMA. The CCA identifies environmentally sensitive habitat areas as any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments. Compliance with requirements in the CCA is ensured for specific development projects in the coastal zone through issuance of a Coastal Development Permit (CDP). In most incorporated areas within the coastal zone, compliance with the Coastal Act is regulated by local government through the implementation of a certified Local Coastal Program. The City is one such agency, and the City's LCP is discussed below. While the City of Oceanside is certified to grant Coastal Development Permits for nearly all development projects within the coastal zone, portions of the city remain subject to the permitting or appeals authority of the CCC based on criteria established in the Coastal Act. A portion of the project is located within the CCC original jurisdiction and a permit would be required from the CCC. The remaining project area is

[1] Title 14 California Code of Regulations (CCR) 1.72 defines a stream as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation."

[2] This also includes the habitat upon which they depend for continued viability (CFGC Division 5, Chapter 1, Section 45, and Division 2, Chapter 1, Section 711.2[a]).

located within the appeals jurisdiction which means that the City of Oceanside could issue a Coastal Development Permit but that the CCC has the authority to appeal that permit.

The California Coastal Act also requires that most development avoid and buffer wetland resources. Policies include:

- Section 30231, which requires the maintenance and restoration (if feasible) of the biological productivity and quality of wetlands appropriate to maintain optimum populations of marine organisms and for the protection of human health.
- Section 30233, which limits the filling of wetlands to identified high priority uses, including certain boating facilities, public recreational piers, restoration, nature study, and incidental public services (such as burying cables or pipes). Any wetland fill must be avoided unless there is no feasible less environmentally damaging alternative, and authorized fill must be fully mitigated. Although the CCA does not contain a specific definition for mitigation, the CCC recognizes the definition under CEQA and the associated CEQA guidelines, including Section 15370.

The CCC's regulations (California Code of Regulations Title 14 (14 CC)) establish a "one parameter definition" that only requires evidence of a single parameter to establish wetland conditions.

Porter-Cologne Water Quality Control Act

The State Water Resource Control Board (SWRCB) and the RWQCB regulate the discharge of waste to waters of the State via the 1969 Porter-Cologne Water Quality Control Act (Porter-Cologne) as described in the California Water Code (SWRCB 2017). Waste, according to the California Water Code, includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal. State waters that are not federal waters may be regulated under Porter-Cologne. A Report of Waste Discharge must be filed with the RWQCB for projects that result in discharge of waste into waters of the State. The RWQCB will issue Waste Discharge Requirements or a waiver for discharges to Waters of the State that are not also regulated under the Federal Clean Water Act as Waters of the United States.

2.3 Local Regulation and Programs

Multiple Habitat Conservation Program

The Project site is located within the North County Multiple Habitat Conservation Program (MHCP), a regional conservation plan established to protect sensitive species and habitats in northwestern San Diego County by the San Diego Association of Governments (SANDAG) (SANDAG 2003). Each jurisdiction that is a signatory to the MHCP implements the program through their respective subarea plan. Although the City of Oceanside's Draft MHCP Subarea Plan (2010) has not been finalized, the City uses the plan to guide development and mitigation in the city.

The Project site is located within the Coastal Zone designated by the City's Draft MHCP, but outside of hard-line or soft-line preserve areas[3], Wildlife Corridor Planning Zone, Off-site Mitigation Zone, or Pre-Approved Mitigation Area (**Figure 5**; City of Oceanside 2010).

City of Oceanside Local Coastal Program

The City's LCP is a planning document that regulates development in the City's Coastal Zone and ensures local implementation of CCA priorities. The project would occur partially within the CCC's permit jurisdiction where CCC retains permitting authority (e.g., lands below the mean high tide line) and partially within the City of Oceanside's permit jurisdiction.

[3] Hard-line areas in the MHCP refer to lands to be conserved and managed primarily for biological resources while soft-line area refer to planning areas within which hard-line preserve areas will ultimately be delineated based on further data and planning.

CHAPTER 3
Methods

3.1 Literature Review

A comprehensive records search was conducted to determine if any sensitive species have been reported in the vicinity of the survey area. The following databases were queried: CDFW's California Natural Diversity Database (CNDDB), County of San Diego SanBIOS database, USFWS Information for Planning and Conservation (IPaC), and USFWS Critical Habitat database (CDFW 2019, County of San Diego 2019, USFWS 2019a and USFWS 2019b). Past biological resource reports from ESA in 2015 and Helix Environmental Planning in 2018 were also reviewed. This information was used to identify special status species with the potential to occur onsite, based on species distribution, habitat preferences, and onsite conditions.

3.2 Field Reconnaissance

A general biological assessment of plant and animal species within a portion of the survey area was conducted by HELIX biologists on March 9, 2018. ESA biologists, Cailin Lyons and Jaclyn Catino-Davenport, conducted a verification survey of a portion of the survey area on July 1, 2019 to document if any changes in habitat conditions had occurred subsequent to the 2018 survey. On January 10, 2020, ESA biologist Julie Stout conducted a field survey and jurisdictional delineation covering portions of the survey area that were not previously surveyed by ESA or HELIX in 2018 or 2019 (where the project study area had expanded) and verifying survey results within previously surveyed areas. New portions of the survey area added in 2020 included the area surrounding the railroad bridge and southwest portion of the survey area adjacent to Buccaneer Park.

During the surveys, the survey area was surveyed on foot with the aid of binoculars. The 2018 vegetation mapping was modified to reflect the increased extent of marsh habitat within the channel, and classifications were updated based on Oberbauer et al. (2008), which are consistent with the classification system used in the MHCP and Draft Oceanside Subarea Plan. Modifiers were used to described vegetation communities or cover types with disturbance or aquatic resources.

A wildlife species inventory was compiled in the field by direct, visual observations or indirect detection by calls, burrows, tracks, or scat. Plant identifications were made in the field with the aid of field guides and/or keys (i.e., The Jepson Manual). Habitats were evaluated for their potential to support special-status species, and incidental observations of sensitive plant or animal species were recorded using GPS. The occurrence potential of special-status species was evaluated based on the following criteria:

- Present: The species or vegetation community/habitat was observed within the project area and/or immediate vicinity during surveys, or the species has been previously reported within the project area.
- High Potential: The project area and/or immediate vicinity provide high quality or ideal habitat (i.e., soils, vegetation assemblage, and topography) for a particular species and/or there are known occurrences in the general vicinity of the project area.
- Moderate Potential: The project area and/or immediate vicinity provides moderately suitable habitat for a particular species. For example, proper soils may be present, but the desired vegetation assemblage or density is less than ideal; or soils and vegetation are suitable, but the site is outside of the known elevation range of the species.
- Low Potential: The project area and/or immediate vicinity provides low quality habitat for a particular species, such as improper soils, disturbed or otherwise degraded habitat, improper assemblage of desired vegetation, and/or the site is outside of the known elevation range of the species.
- Not Expected: The project area and/or immediate vicinity does not provide suitable habitat necessary to support the species and/or the site is located outside of the known geographic range of the species. Within suitable habitat, focused protocol surveys and/or botanical surveys conducted during optimal timing (e.g. flowering period) and climatic conditions (e.g. average to above-average hydrologic year) would preclude the presence of the species.

Jurisdictional Delineation

A jurisdictional delineation was conducted by HELIX biologists on March 9, 2018, and updated by ESA in 2020 to include a larger survey area and to reflect current existing conditions. A total of ten points were sampled for the presence of wetland vegetation, soils, and hydrology by HELIX in 2018, with three additional points sampled by ESA in 2019 and 2020. Federal (USACE) wetland boundaries were determined using the three criteria established for wetland delineations (vegetation, hydrology, and soils), as described within the Wetlands Delineation Manual (Environmental Laboratory 1987) and updated in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 2008a). Non-wetland boundaries are based on the methods suggested in *A Field Guide to the Identification of the Ordinary High Water Mark in the Arid West Region of the Western United States* (USACE 2008b). State wetland boundaries (RWQCB) were revised based on the State Wetland Procedures (State Water Resources Control Board 2019). A complete jurisdictional delineation report with more detailed methodologies is presented in **Appendix A**.

CHAPTER 4
Results

4.1 Physical Characteristics

The survey area is located within the Loma Alta Creek Hydrologic Area (HA) (904.1), which is approximately 6,300 acres in area, and comprises approximately 5 percent of the Carlsbad Watershed Management Area (Mikhail Ogawa Engineering (MOE) 2018). The HA extends inland about 7.3 miles and the highest elevation within the drainage area is 460 feet above mean sea level. The primary receiving waters in the HA are Loma Alta Creek, which drains into the Loma Alta Slough and the Pacific Ocean (MOE 2018). Nearly 80 percent of the watershed is developed (21 percent is open space or undeveloped) and is comprised of the following land uses: residential (31 percent), industrial (9 percent), commercial (5 percent) and roads and railway (18 percent) (MOE 2018).

The Loma Alta Creek is included on the California 303(d) list for selenium, toxicity, and indicator bacteria; Loma Alta Slough is listed for eutrophication and indicator bacteria, and the Pacific Ocean shoreline at the creek mouth is listed for indicator bacteria (MOE 2018).

The geology within the Loma Alta Creek watershed is composed of Eocene marine sandstones overlaid by Pleistocene marine and marine terrace deposits (CWN 2010). These Pleistocene deposits contain abundant ironstone concretions. There are also some limited exposures of Tertiary marine sediments within the drainage. Recent alluvium, consisting primarily of unconsolidated stream and river channel deposits, occur along the creek bed. Twenty soil series have been identified within the watershed, the majority of which are categorized as severely erodible. Only one type, Tujunga sand, 0-5 percent slopes, has been mapped within the survey area. The Tujunga series consists of very deep, somewhat excessively drained sandy soils that formed in alluvium from granitic sources and are found on alluvial fans and floodplains, including urban areas.

The estuary has intermittent connection to the Pacific Ocean as a result of natural mouth closing and opening—the Loma Alta Slough mouth closes naturally from sand deposited by the ocean currents in the spring and remains closed until storm flows breach the sand berm during the wet weather season (September to April). The estuary receives freshwater input from the watershed, and when the mouth is closed, standing water does not circulate and exchange with the ocean. The City of Oceanside does not dredge Loma Alta Slough to keep the mouth open, but instead manages the sand berm to divert flow to the inlet for the UV treatment plant during the summer months to maintain high water quality at the beaches.

4.2 Biological Resources

4.2.1 Vegetation Communities and Flora

Vegetation communities and cover types within the survey area are summarized in **Table 1** and depicted in **Figure 6**. The Draft MHCP Subarea Plan (2010) Plan defines habitats into six habitat groups based on sensitivity. Sensitive wetland communities are classified as Habitat Group A and sensitive upland communities are classified as Habitat Groups B through D. Habitat Group E is annual (nonnative) grassland which is recognized to have some habitat value, and Habitat Group F consists of land cover types that are not considered sensitive. **Appendix B** includes a complete list of plant species encountered within these vegetation communities during the 2018 biological survey.

TABLE 1
VEGETATION COMMUNITIES AND LAND COVER TYPES WITHIN THE SURVEY AREA

Vegetation Community/Land Cover Type (Oberbauer et al. 2008)	MHCP Habitat Group[1]	Project Alternatives (acres)	50-Foot Buffer (acres)
Riparian and Wetlands[2]			
Coastal Brackish Marsh	A	0.87	0.02
Southern Coastal Salt Marsh	A	0.49	0.06
Southern Coastal Salt Marsh - Disturbed	A	0.22	0.10
Saltpan/Mudflats	A	0.30	0.00
Open water - Estuarine	A	1.18	0.12
Disturbed Habitat (floodplain)	F	0.12	0.10
Urban/Developed (concrete/riprap channel)	N/A	0.11	0.10
Uplands			
Disturbed Habitat	F	1.64	0.45
Urban/Developed	N/A	1.51	2.94
Total Acres	N/A	6.44	3.88

1 MHCP Habitat Groups: Group A = coastal wetlands, including salt marsh and salt pan; riparian habitats, including oak riparian forest, riparian forest, riparian woodland and riparian scrub; vernal pools; freshwater marsh; open water; natural flood channel; disturbed wetlands; marine habitats; and eelgrass beds. Group B = rare uplands, including beach, southern coastal bluff scrub, maritime succulent scrub, southern maritime chaparral, Engelmann oak woodland, coast live oak woodland and native grassland. Group C = coastal sage scrub, including coastal sage scrub and coastal sage/chaparral mix. Group D = chaparral, excluding southern maritime chaparral. Group E = annual (non-native) grassland. Group F = Other, including disturbed land, agricultural land, and Eucalyptus.

2 U.S. Fish and Wildlife Service definition of wetland

Coastal Brackish Marsh (52200)

Coastal brackish marsh is dominated by perennial, emergent, herbaceous monocots up to approximately six feet tall. This vegetation community usually occurs at the interior edges of coastal bays and estuaries or in coastal lagoons. Brackish marshes receive both saltwater and freshwater input and often include species characteristic of both freshwater marsh and salt marsh habitats. Cover is often complete and dense. Within the survey area, this community is

characterized by closed canopy stands of cattails (*Typha* sp.), California bulrush (*Schoenoplectus californicus*), and common reed (*Phragmites australis*).

Southern Coastal Salt Marsh (52100)

Southern coastal salt marsh occurs along Loma Alta creek in areas with irregular tidal flooding, high salinity, and permanent saturation or high water table. Characteristic species in the survey area include salt grass (*Distichlis spicata*), pickleweed (*Salicornia pacifica*), marsh jaumea (*Jaumea carnosa*), and southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*). The disturbed areas of southern coastal salt marsh in the survey area contain non-native vegetation including arundo (*Arundo donax*), Canary Island date palm (*Phoenix canariensis*), and ornamental mallow (*Malva* sp.), in addition to native southern coastal salt marsh species.

Saltpan/Mudflats (64300)

Saltpan/mudflats are coastal wetlands that form when mud is deposited by the tides or rivers and/or when saline waters pond and then evaporate, leaving a salt crust. They are commonly found in sheltered areas such as bays and estuaries. Within the survey area, small areas of saltpan/mudflat occur along Loma Alta Creek, mainly in the vicinity of the railroad bridge. These areas are generally unvegetated and are periodically exposed and inundated by the waters within the creek.

Open Water – Estuarine (64130)

Open water – estuarine consists of periodically and permanently inundated and open water portions of semi-enclosed coastal waters where tidal sea water is diluted by flowing freshwater. Salinity and depth varies dramatically (Oberbauer et al. 2008). Within the survey area, open water occurs within Loma Alta Creek, which consists of soft-bottom channel. The upstream segment of Loma Alta Creek that is concrete-lined is mapped as urban/developed (concrete/riprap channel).

Salinity data provided by the City of Oceanside indicates that this portion of Loma Alta Creek consists of a mix of freshwater and saltwater from periodic breaches of the creek to the Pacific Ocean primarily during storm events, resulting in brackish water. Salinity data have also shown seasonal density stratification of the water column in the Slough during periods of low creek flow. Dense saltwater from the ocean becomes overlain with brackish creek water during the summer months when the sand berm is closed.

Disturbed Habitat (11300)

Disturbed habitat consists of areas that have been physically altered by previous legal human activity and are no longer able to support a recognizable native or naturalized vegetation association. These areas retain a soil substrate, but are generally unvegetated or support only ruderal vegetation. Typical examples of disturbed areas include areas that have been graded, repeatedly cleared for fuel management purposes, construction staging areas, and old home sites (Oberbauer et al. 2008). Within the survey area, this cover type occurs on the north side of the channel within parcels owned by the City of Oceanside and associated with the water treatment plant, as well as privately-owned parcels. Generally, these areas exhibited evidence of past grading and mulching, and were dominated by non-native forbs such as hottentot fig (*Carpobrotus edulis*), common iceplant (*Mesymbryanthemum crystallinum*), bristly ox-tongue (*Helminthotheca echioides*), and

fennel (*Foeniculum vulgare*). Non-native trees were also scattered throughout the disturbed habitat, including Mexican fan palm (*Washingtonia robusta*) and gum tree (*Eucalyptus* sp.). These areas also contained non-native grasses such as ripgut brome (*Bromus diandrus*) and wild oat (*Avena* sp.), but are not considered non-native grassland due to the predominance of non-native forbs, evidence of past disturbance, and low habitat value due to lack of contiguous open space areas. Additional disturbed habitat occurs along the railroad bridge where shading from the bridge and human disturbance prevent the establishment of vegetation. These areas are within the Loma Alta Creek floodplain and are designated as disturbed habitat (floodplain).

Urban/Developed (12000)

Urban/developed areas have been physically altered to the point where native vegetation communities are no longer supported. This land cover type includes areas with permanent or semi-permanent structures, pavement or other hardscape, and landscaped areas that require irrigation (Oberbauer et al. 2008). Developed areas within the survey area include portions of the water treatment plant property, adjacent Buccaneer Park and RV resort properties, developed lots, and paved roads. While Buccaneer Park includes some native tree species such as California sycamore (*Platanus racemosa*), these areas were considered urban/developed because the trees were intentionally planted for ornamental purposes, they are actively irrigated and maintained, and these areas lack the native understory vegetation and conditions needed to form a native vegetation community. Developed areas also include concrete/riprap lined sections of Loma Alta Creek.

4.2.2 Wildlife

The open water channel and surrounding marsh provide habitat for a variety of waterfowl, including mallards (*Anas platyrhynchos*), great egret (*Ardea alba*), great blue heron (*Ardea Herodias*), and snowy egret (*Agretta thula*). In addition, the adjacent upland areas support common urban-adapted species, such as American crow (*Corvus brachyrhynchos*), house finch (*Haemorhous mexicanus*), house sparrow (*Passer domesticus*), Eurasian collared-dove (*Streptopelia decaocto*), rock pigeon (*Columba livia*), and California ground squirrel (*Otospermophilus beecheyi*). A complete list of wildlife species observed onsite during the 2018 biological survey is included in **Appendix C**.

4.2.3 Special-Status Resources

Sensitive Vegetation Communities

There are a number of special status vegetation communities onsite, as defined by the City's Draft Subarea Plan (City of Oceanside 2010) and CDFW (CDFW 2010). The Subarea Plan designates six habitat groups based on sensitivity. More sensitive vegetation communities require higher mitigation ratios. Within the survey area there are four Group A habitats (coastal brackish marsh, cismontane alkali marsh, cismontane alkali marsh – disturbed, and open water – estuarine), which are considered sensitive by the City's Draft Subarea Plan. Additionally, the survey area contains one Group F habitat (disturbed habitat). Group F habitats are not considered sensitive, but may be subject to a Habitat Development Fee per the Draft Subarea Plan.

Special-Status Plants

One special status plant species, southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*), was observed onsite as scattered individuals within the cismontane alkali marsh on the northern and southern edges of the channel (see Figure 6). This species is not state or federally listed under the California or federal Endangered Species Acts; however, it has a California Rare Plant Rank of 4.2, designated by the California Native Plant Society (CNPS) and which signifies that it is a species of limited distribution in California, but is not yet considered rare. No additional special-status plant species are anticipated to occur on-site. A comprehensive list of special-status plant species with potential for occurrence within the survey area based on the records search results is presented in **Appendix D**, and includes those species with potential for occurrence based on species range and habitat conditions.

Special-Status Wildlife

Two special-status wildlife species, white-tailed kite (*Elanus leucurus*) and brown pelican (*Pelicanus occidentalis*) were observed onsite during the 2019 verification survey (see Figure 6). Additionally, Cooper's hawk (*Accipiter cooperi*) has a high potential to occur on-site and California least tern (*Sternula antillarum browni*) has a moderate potential to occur on-site. A comprehensive list of special-status wildlife species with potential for occurrence within the survey area based on the records search results is presented in **Appendix E**, and includes those species with potential for occurrence based on species range and habitat conditions.

White-tailed kite. The white-tailed kite is a Fully Protected animal under CDFW Fish and Game Code 3511. While this species was observed onsite in the disturbed habitat, it is unlikely to nest in the survey area as it usually nests in trees or shrubs bordering woodland habitat, which is not present in the survey area. However, the disturbed habitat on-site provides low-quality foraging habitat for this species.

Brown pelican. The brown pelican is a Fully Protected animal under CDFW Fish and Game Code 3511 and proposed for coverage under the City's MHCP Subarea Plan. While this species was observed flying overhead of the western portion of the survey area, this species is not expected to nest in the survey area due to lack of suitable coastal island habitat for colonial nesting.

Cooper's hawk. The Cooper's hawk is proposed for coverage under the City's MHCP Subarea Plan. The species is considered a Special Animal by CDFW as a Watch List species. This raptor is urban-adapted and has high potential to nest in trees throughout the survey area.

California least tern. The California least tern is a federally and state endangered species and is a Fully Protected animal under CDFW Fish and Game Code 3511. This species has moderate potential to forage on-site due to the presence of suitable marsh and estuary habitat. However, this species is not expected to nest on-site due to lack of sandy beach or flat substrate suitable for nesting.

State and Federal Wetlands

The survey area contains state and federal wetlands and waters under the potential jurisdiction of USACE, CDFW, RWQCB, and/or CCC (**Table 2**). State and federal wetlands and waters under the jurisdiction of USACE and RWQCB are depicted in **Figure 7**. Additional wetland, riparian, and aquatic habitats under the jurisdiction of CDFW and CCC are depicted as vegetation communities in Figure 6.

Aquatic features in the survey area include Loma Alta Slough and associated wetlands directly abutting or hydrologically connected to the Slough. Federal and/or state wetland habitats include coastal brackish marsh, southern coastal salt marsh, and saltpan/mudflat. The results of the jurisdictional delineation and a full description of aquatic resources is included in **Appendix A**.

TABLE 2
STATE AND FEDERAL WETLANDS AND WATERS WITHIN THE SURVEY AREA

Vegetation Community/Land Cover Type	Project Area (acres)	50-Foot Buffer (acres)
Wetland Waters of the U.S./State (USACE/ RWQCB), CDFW streambed/riparian, and CCC wetlands		
Coastal Brackish Marsh	0.87	0.02
Southern Coastal Salt Marsh	0.49	0.06
Non-Wetland Waters of the U.S. (USACE), State Wetlands (RWQCB), CDFW streambed/riparian, and CCC wetlands		
Saltpan/Mudflat	0.30	-
Non-Wetland Waters of the U.S./State (USACE/RWQCB), CDFW streambed/riparian, and CCC wetlands/waters		
Open water – Estuarine (soft-bottom channel)	1.18	0.12
Urban/Developed (concrete/riprap channel)	0.11	0.10
Disturbed habitat (floodplain)	0.03	0.06
CDFW streambed/riparian and CCC wetlands/waters		
Southern Coastal Salt Marsh - Disturbed	0.22	0.10
Disturbed Habitat (floodplain)	0.09	0.04
Total Resources	3.29	0.50

Wildlife Corridors & Habitat Linkages

Habitat linkages are contiguous areas of open space that connect two larger habitat areas. Linkages provide for both diffusion and dispersal for a variety of species within the landscape. In addition, linkages can serve as primary habitat for some smaller species. Corridors are linear linkages between two or more habitat patches. Corridors provide for movement and dispersal, but do not necessarily include habitat capable of supporting life requirements of a species.

The survey area does not lie within an identified habitat linkage or regional wildlife movement corridor, and it lies outside of the Wildlife Corridor Planning Zone and SDG&E Electric Transmission Corridors identified in the Oceanside Subarea Plan (City of Oceanside 2010). Additionally, the survey area is not likely to provide an avenue for east-west movement, because the western end of the Loma Alta Creek channel contains permanent open water; there is little

undeveloped habitat surrounding the channel for terrestrial animal movement; and there are a number of north-south roads crossing the channel that would impede movement.

CHAPTER 5
Impact Analysis

5.1 Sensitive Vegetation Communities

Project impacts are estimated based on the extent of the project alternatives in **Table 3**. These impacts would be further assessed based on the preferred alternative and the construction methods to determine whether impacts would be considered temporary or permanent. At this time, it is anticipated that all impacts will be temporary and that mitigation would be achieved on site through project design with onsite habitat restoration and creation, to improve conditions. This would require a reduction of the mitigation ratios stipulated in the Subarea Plan, pending the review and approval of CDFW and USFWS. Reduced mitigation ratios are warranted due to the functional lift and improved habitat value that the project would provide.

TABLE 3
VEGETATION COMMUNITIES AND LAND COVER TYPES, ESTIMATED IMPACTS

Vegetation Community/Land Cover Type (Oberbauer et al. 2008)	Subarea Plan Habitat Group[1]	Alt 1, Phase 1 Impacts (acres)	Alt 1, Phase 2 Impacts (acres)	Alt 2, Phase 1 Impacts (acres)	Alt 2, Phase 2 Impacts (acres)	Alt 3 Impacts (acres)
Coastal Brackish Marsh	A	0.79	0.06	0.70	0.12	0.69
Southern Coastal Salt Marsh	A	0.46		0.34	0.03	0.28
Southern Coastal Salt Marsh - Disturbed	A	0.22		0.11		0.04
Saltpan/Mudflats	A	0.25		0.26	0.04	0.24
Open water - Estuarine	A	0.86	0.04	0.43	0.01	0.43
Disturbed Habitat (floodplain)	F	0.11		0.11		0.11
Disturbed Habitat	F	1.54	0.04	1.54		1.54
Urban/Developed (concrete/riprap channel)	N/A	0.03		0.03	0.03	0.03
Urban/Developed	N/A	0.55	0.47	0.26	0.90	0.25
Upland (created as part of the restoration)	B or E	N/A	0.16	N/A	0.29	
Total Acres		4.81	0.77	3.78	1.42	3.61

[1] MHCP Habitat Groups: **Group** A = coastal wetlands, including salt marsh and salt pan; riparian habitats, including oak riparian forest, riparian forest, riparian woodland and riparian scrub; vernal pools; freshwater marsh; open water; natural flood channel; disturbed wetlands; marine habitats; and eelgrass beds. **Group B** = rare uplands, including beach, southern coastal bluff scrub, maritime succulent scrub, southern maritime chaparral, Engelmann oak woodland, coast live oak woodland and native grassland. **Group C** = coastal sage scrub, including coastal sage scrub and coastal sage/chaparral mix. **Group D** = chaparral, excluding southern maritime chaparral. **Group E** = annual (non-native) grassland. **Group F** = Other, including disturbed land, agricultural land, and Eucalyptus.

Impacts to coastal brackish marsh, southern coastal salt marsh, and mudflat are considered significant as these vegetation communities are considered sensitive by the City's Draft MHCP Subarea Plan (City of Oceanside 2010). The following subsets of these communities are also considered to be sensitive natural communities by CDFW: coastal brackish marsh areas dominated by bulrush (but not cattails) and southern coastal saltmarsh areas where pickleweed or marsh jaumea are co-dominant with saltgrass (but not where saltgrass is the only dominant). Impacts to disturbed habitat and urban/developed land cover are not considered significant as these cover types are not considered sensitive by CDFW or the City's Draft MHCP Subarea Plan (City of Oceanside 2010). It is not expected that impacts to disturbed habitat would be subject to the habitat development fee because this fee applies to the conversion of disturbed habitats to urban uses.

5.2 Special-Status Plants

The project would result in direct impacts to one special-status plant species within the PIA: southwestern spiny rush (California Rare Plant Rank 4.2). This species is not yet considered to be rare in California, but is on a watch list to ensure that it is monitored regularly for population declines. The loss of these plants would be less than significant because adequate habitat for this species within the region is conserved by the MHCP and project impacts are not expected to substantially reduce the viability of this species. No mitigation is required.

5.3 Special-Status Wildlife

The project is not anticipated to result in direct or indirect impacts to nesting white-tailed kite, brown pelican, or California least tern due to lack of suitable nesting habitat within or adjacent to the PIA. However, direct impacts to migratory and nesting birds, such as Cooper's hawk, could result from the accidental destruction of nests through removal of vegetated habitats within the survey area, if construction were to occur during the general bird breeding season (January 15 and September 15). Direct impacts to migratory and nesting birds, including Cooper's hawk, would be considered significant. Therefore, mitigation is proposed in Chapter 6 (BIO-4) recommending nesting season avoidance or a pre-construction nesting survey.

5.4 State and Federal Wetlands

Estimated impacts and mitigation for state and federal wetlands and non-wetland waters from the alternatives are summarized in **Table 4**. Impacts to jurisdictional wetlands and non-wetland waters are considered significant. It is expected that impacts would be temporary and mitigated on-site by the functional lift provided by the Project and the creation of new wetland habitat within the project area. Final mitigation ratios would be determined in coordination with the regulatory agencies (USACE, RWQCB, CDFW, and CCV), and should ensure that no net loss of wetlands occurs.

TABLE 4
STATE AND FEDERAL WETLANDS AND WATERS IMPACTS

Vegetation Community/Land Cover Type	Alt 1, Phase 1 Impacts (acres)	Alt 1, Phase 2 Impacts (acres)	Alt 2, Phase 1 Impacts (acres)	Alt 2, Phase 2 Impacts (acres)	Alt 3 Impacts (acres)
Wetland Waters of the U.S./State (USACE/RWQCB), CDFW streambed/riparian, and CCC wetlands					
Coastal Brackish Marsh	0.79	0.06	0.70	0.12	0.69
Southern Coastal Salt Marsh	0.46		0.34	0.03	0.28
Non-Wetland Waters of the U.S. (USACE), State Wetlands (RWQCB), CDFW streambed/riparian, and CCC wetlands					
Saltpan/Mudflat	0.25		0.26	0.04	0.24
Non-Wetland Waters of the U.S. (USACE/RWQCB), CDFW streambed/riparian, and CCC wetlands/waters					
Open water – Estuarine (soft-bottom channel)	0.86	0.04	0.43	0.01	0.43
Urban/Developed (concrete/riprap channel)	0.03		0.03	0.03	0.03
Disturbed habitat (floodplain)	0.02		0.02		0.02
CDFW streambed/riparian and CCC wetlands/waters					
Southern Coastal Salt Marsh - Disturbed	0.22		0.11		0.04
Disturbed Habitat (floodplain)	0.11		0.11		0.11
Total	2.74	0.10	2.00	0.23	1.84

5.5 Wildlife Movement Corridors and Habitat Linkages

The project area is not located within an identified habitat linkage or regional wildlife movement corridor identified in the City's MHCP Subarea Plan (City of Oceanside 2010). Though it is reasonable to assume that wildlife movement may occur locally within the project impact area, the project impact area as a whole does not provide a throughway for wildlife species and, therefore, does not function as a significant habitat linkage. Thus, the project is not anticipated to interfere with wildlife movement and impacts are considered less significant; no mitigation would be required.

5.6 Local Policies, Ordinances, and Adopted Plans

Draft Subarea Plan and MHCP Policies

The proposed Project is subject to the City's MHCP Subarea Plan's habitat mitigation ratios and policies on wetland vegetation and Coastal Zone projects. Pursuant to the mitigation standards in Table 5-2 of the MHCP Subarea Plan, temporary and permanent impacts to vegetation communities would be mitigated as summarized in Table 3 of Section 5.1.

In addition, the City's MHCP Subarea Plan has a policy of no net loss of wetland vegetation communities. Impacts to these communities must be avoided and minimized to the maximum extent possible. For unavoidable permanent impacts, mitigation must include a 1:1 creation component to achieve the no net loss standard. All mitigation should occur onsite or within the affected drainage and/or watershed. These policies are consistent with the Coastal Zone policies

for wetland habitat. In addition, all wetland mitigation sites shall be designated as Preserve, protected by a Conservation Easement, and managed in perpetuity. The City will be responsible for management of habitat lands which it contributes directly to the preserve or which are conserved as mitigation for City projects. Note that onsite preservation is not eligible for mitigation credit in the Coastal Zone; however, "substantial" restoration onsite may be used to satisfy the creation component of the required mitigation (i.e., restoring functions and values that have been lost). Coastal Zone policies related to uplands apply to coastal sage scrub, chaparral, and native perennial grasslands, none of which occur within the potential impact area.

Policies Related to Jurisdictional Wetlands/Waters

In general, City's MHCP Subarea Plan policies for wetland vegetation and projects within the Coastal Zone are consistent with state and federal regulations. However, impacts to wetlands and non-wetland waters must also be reviewed and approved by federal, state, and local agencies having jurisdictions over those areas (i.e., USACE, RWQCB, CCC, and CDFW). Impacts to these resources would require permits from the appropriate regulatory agencies and would be subject to the approval and mitigation requirements of these agencies. While compensatory mitigation ratios that are different than those in the MHCP could be required by the regulatory agencies, this is not expected as mitigation requirements are typically consistent with those in the MHCP.

5.7 Cumulative Impacts

The geographic scope for cumulative impacts related to biological resources is the Cities of Carlsbad, Oceanside, and Vista. These jurisdictions are all participants in the MHCP, a Natural Communities Conservation Plan (NCCP) pursuant to the state of California Natural Community Conservation Planning Act and a Habitat Conservation Plan (HCP) pursuant to Section 10(a)(1)(b) of the Federal Endangered Species Act. The MHCP considers biological resource conservation on a sub-regional scale and therefore serves as an appropriate measure of cumulative impacts. The City's draft MHCP Subarea Plan and City of Carlsbad's Habitat Management Plan serve as the local implementation plans for the sub-regional MHCP. As such, the MHCP and its Subarea Plans provide mitigation programs to address the effects of cumulative development. If a project is determined to be consistent with the MHCP and applicable Subarea Plan, and/or provides appropriate mitigation to ensure the integrity of the plans, its cumulative effects would not be considered significant. The project is consistent with both the MHCP and the HMP, which is the applicable Subarea Plan for the project, and, therefore, no significant cumulative impacts to biological resources would result from project implementation.

CHAPTER 6
Mitigation

The following mitigation measures will reduce potential impacts to biological resources to a less than significant level. These measures are consistent with the MHCP, City's Draft MHCP Subarea Plan, and state and federal wetland regulations.

MM-BIO-1. Prior to the initiation of any construction activities, construction limits will be clearly delineated with temporary fencing, such as silt fencing or fiber rolls and orange construction fencing to ensure that construction activity remains within the defined Project limits. Additionally, best management practices to address dust, erosion, and excess sedimentation will be installed as illustrated in the construction plans. A qualified biologist will monitor fence installation, initial vegetation clearing, and construction activities adjacent to the construction limits to avoid unauthorized impacts.

MM-BIO-2. Prior to project approval, a restoration plan to ensure the successful revegetation of impacted habitats will be prepared by qualified personnel with experience in southern California ecosystems and native plant revegetation techniques. These plans will include, at minimum, the following information: (a) a schematic depicting the mitigation areas; (b) the plant species to be used, container sizes, and seeding rates; (c) the plant material's sources and lead time; (d) a planting schedule; (e) a description of installation requirements, irrigation sources and methodology, erosion control, maintenance and monitoring requirements; (f) measures to properly control exotic vegetation on site; (g) site-specific success criteria; (h) a detailed monitoring program; (i) contingency measures should the success criteria not be met; and (j) a summary of the annual reporting requirements. The City will be responsible for meeting the success criteria and providing for conservation of the mitigation site in perpetuity.

MM-BIO-3. Prior to project approval, construction plans incorporating best management practices to address dust, erosion, and excess sedimentation will be prepared. At minimum, the plans will show the locations of temporary fencing, drainage inlet protection, gravel bags, fiber rolls, temporary construction access paths, and any other procedures deemed appropriate (such as watering for dust control). Staging and stockpile areas will also be delineated on the project plans in developed/disturbed areas outside of existing wetlands and non-wetland waters. The changing of oil, refueling, and other actions that could result in a release of a hazardous substance shall be restricted to designated areas on project plans that are a minimum of 100 feet from documented special-status plant populations, sensitive habitats, or drainages, and demarcated in the field by berms, sandbags, or other artificial barriers designed to further prevent accidental spills. Accidental spills of hazardous substances shall be immediately contained, cleaned up, and properly disposed. Contractor equipment shall be checked for leaks prior to operation and repaired as necessary.

MM-BIO-4. Removal of vegetation, including but not limited to, trees, sub-shrubs, and shrubs, will be conducted outside of the bird and raptor breeding season (January 15 to September 15). If vegetation removal is unavoidable during the bird and raptor breeding season, then pre-construction surveys will be conducted within one week prior to work in suitable nesting bird habitat to document breeding activity of nesting and migratory birds within or immediately adjacent to the proposed work areas. If an active bird nest is found, the nest will be flagged and mapped on the project plans along with an appropriate buffer, which will be determined by the biologist based on the biology of the species. The buffer will be delineated by temporary fencing and will remain in effect as long as construction occurs or until the nest is vacated and the juveniles have fledged. The nest area will be demarcated in the field with flagging and stakes or construction fencing.

Note that grading within the Coastal Zone is prohibited during the rainy season (October 1–April 1); however, the October 1st grading season deadline may be extended with the approval of the City Engineer subject to implementation of special erosion control measures designed to prohibit discharge of sediments offsite during and after the grading operation (City of Oceanside 2010). If any of the responsible resource agencies prohibit grading operations during the summer grading period in order to protect endangered or rare species or sensitive environmental resources, then grading activities may be allowed during the winter by a coastal development permit or permit amendment, provided that appropriate BMPs are incorporated to limit potential adverse impacts from winter grading activities.

MM-BIO-5. Prior to initiating project activities that may impact state and federal wetlands and other jurisdictional aquatic resources, appropriate permits from the regulating resource agencies (i.e., USACE, RWQCB, CCC, and CDFW) will be obtained. Permanent loss of wetlands habitat will be offset with equal or better habitat function at ratios ranging from 1:1 to 4:1. Final mitigation ratios for specific habitat types will be determined based on the quality and quantity of resources impacted in coordination with the regulatory agencies. Temporary impacts to wetlands habitat will be offset through the restoration of temporarily impacted areas to pre-construction contours and vegetation types at a minimum 1:1 ratio. Proposed habitat types by project alternative are summarized in Table 5 and would include a net gain of wetland habitats.

TABLE 5
PROPOSED HABITAT TYPES BY ALTERNATIVE WITHIN THE SURVEY AREA

Vegetation Community/Land Cover Type	Existing Conditions (acres)	Alternative 1 (acres)	Alternative 2 (acres)	Alternative 3 (acres)
Riparian and Wetlands	**3.3**	**4.4**	**4.6**	**4.1**
Wetland[1]	1.4	3.2	3.4	3.0
Disturbed Wetland	0.3	0	0	0
Saltpan/Mudflats[2]	0.3	0.9	0.9	0.8
Open water – Estuarine[2]	1.3	0.4	0.4	0.4
Uplands	**3.1**	**1.9**	**1.8**	**2.3**
Upland	0	0.5	0.6	0.5
Transition[3]	0	0.7	0.4	0.5
Disturbed Upland	1.6	0	0	0
Urban/Developed	1.5	0.8	0.8	1.4
Total Acres	6.4	6.4	6.4	6.4

1. Includes coastal brackish marsh and southern coastal salt marsh.
2. In calculating the habitat acreages for the alternatives, mudflats and open water were defined by elevation, which varies from the field methods used to define open water and mudflat under existing conditions. As a result, the alternatives appear to increase saltpan/mudflat habitat at the expense of open water.
3. In calculating the habitat acreages for the alternatives, this was defined as areas above the jurisdictional wetland elevation (9.4 feet NAVD) and the beginning of upland habitat at 11 feet NAVD. See the Hydrology and Hydraulics Report (ESA 2020) for additional information.
4. The total acreage includes the study area within Buccaneer Park, but assumes this area remains unchanged for the alternatives.

CHAPTER 7
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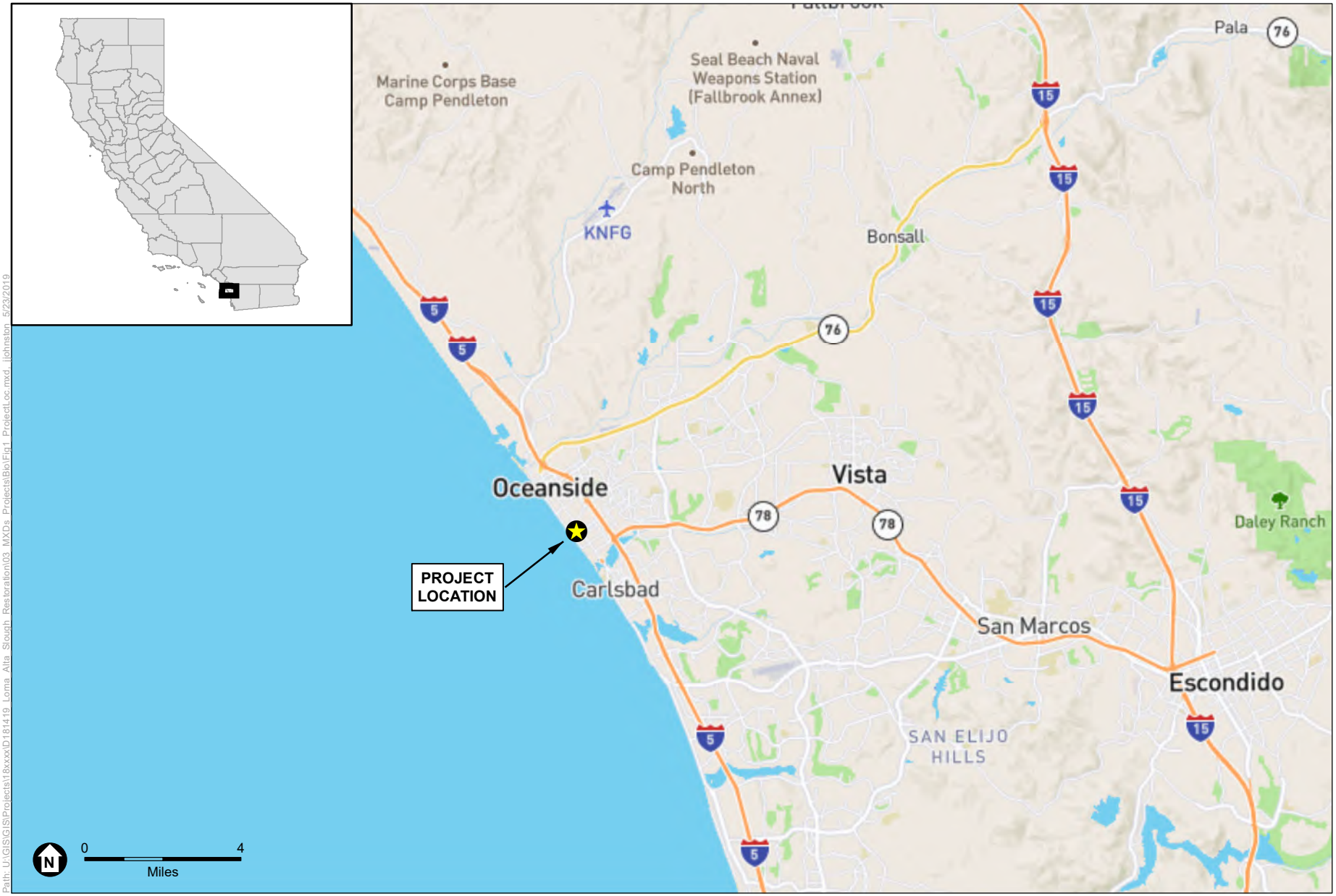


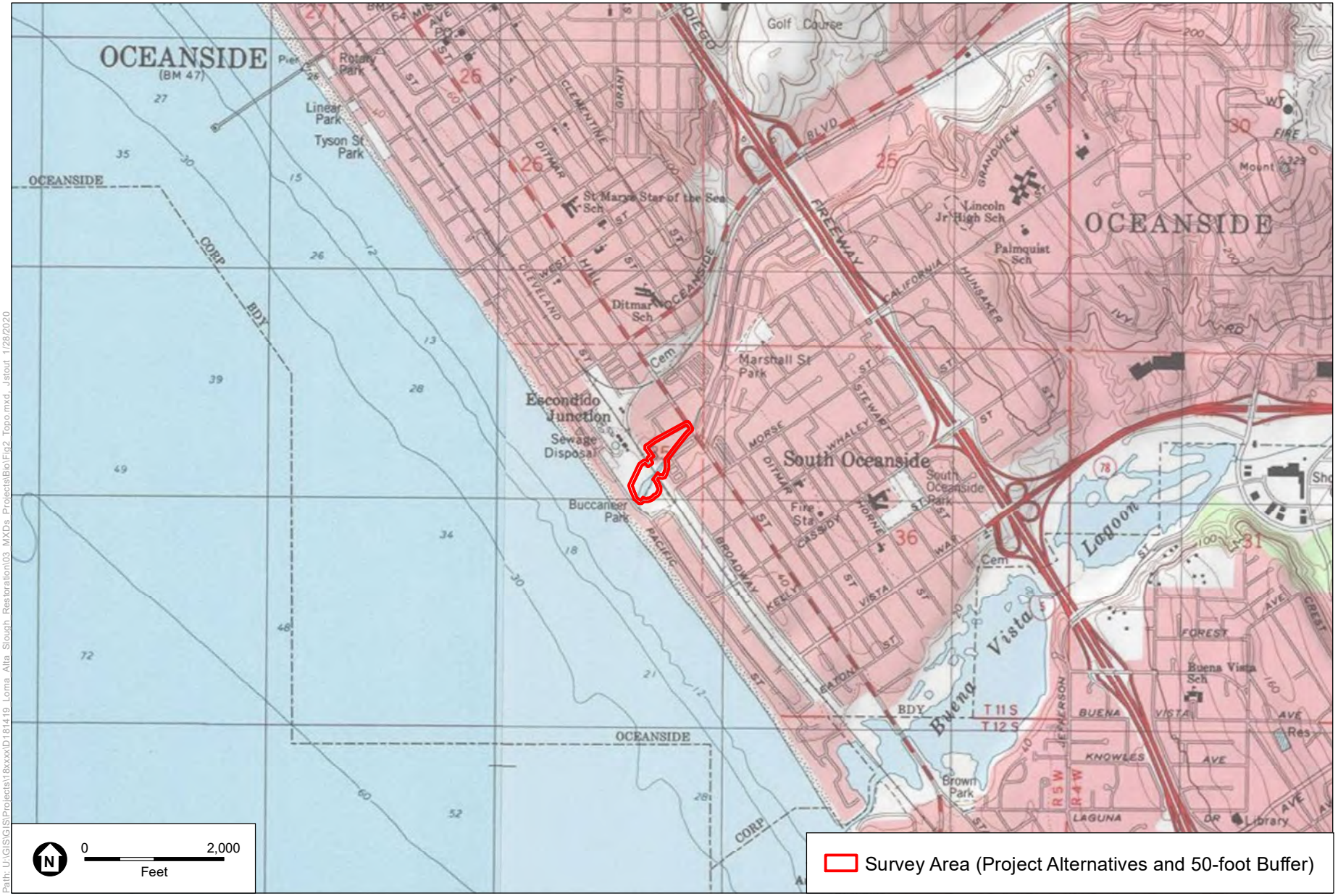
SOURCE: ESRI

Loma Alta Slough

Figure 1

Project Vicinity

ESA



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USGS 7.5' Topo Quad San Luis Rey 1975, 1978; Oceanside 1975, 1978

Loma Alta Slough

Figure 2
Vicinity Map

ESA

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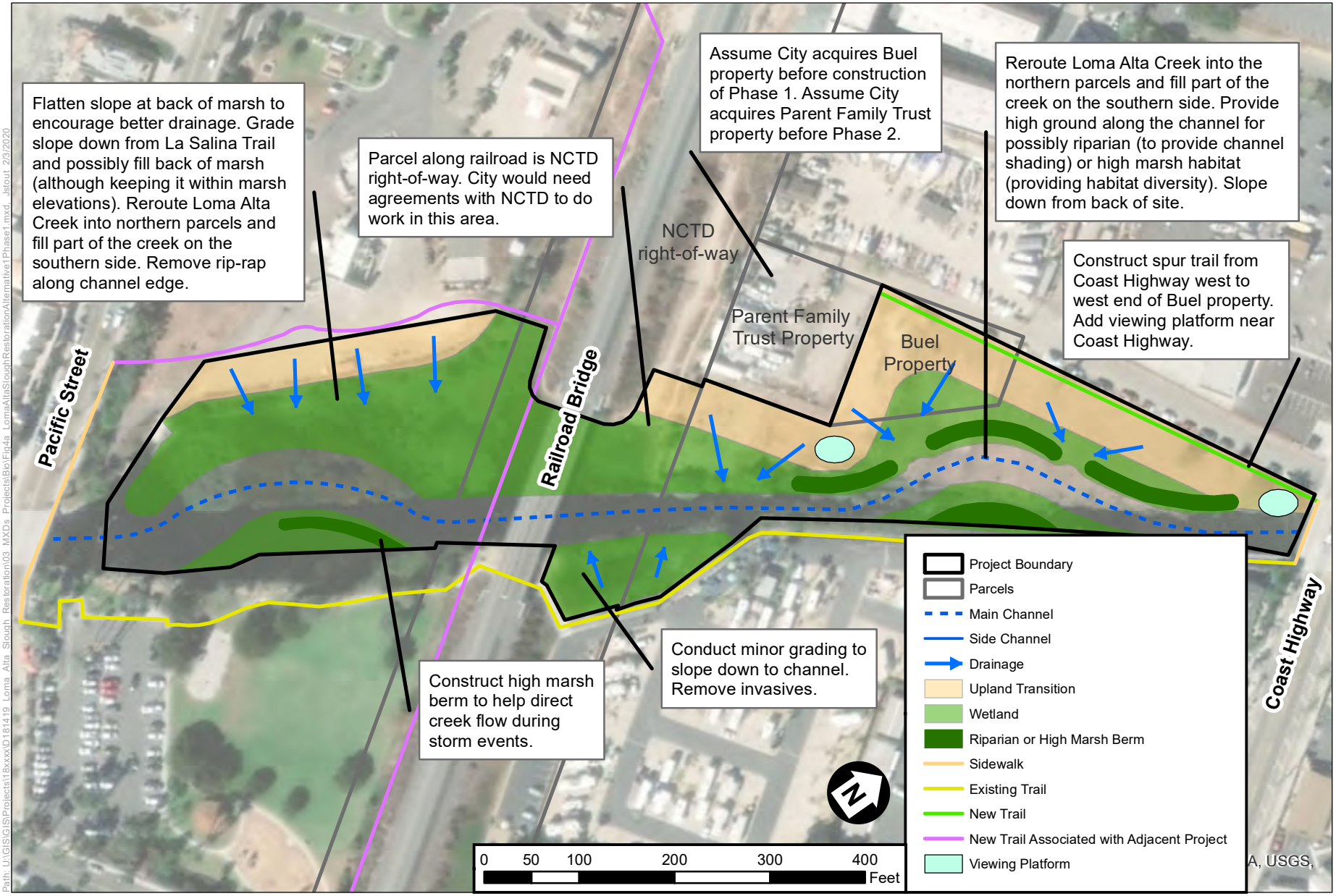
SOURCE: Mapbox

Loma Alta Slough

Figure 3
Project Location

ESA

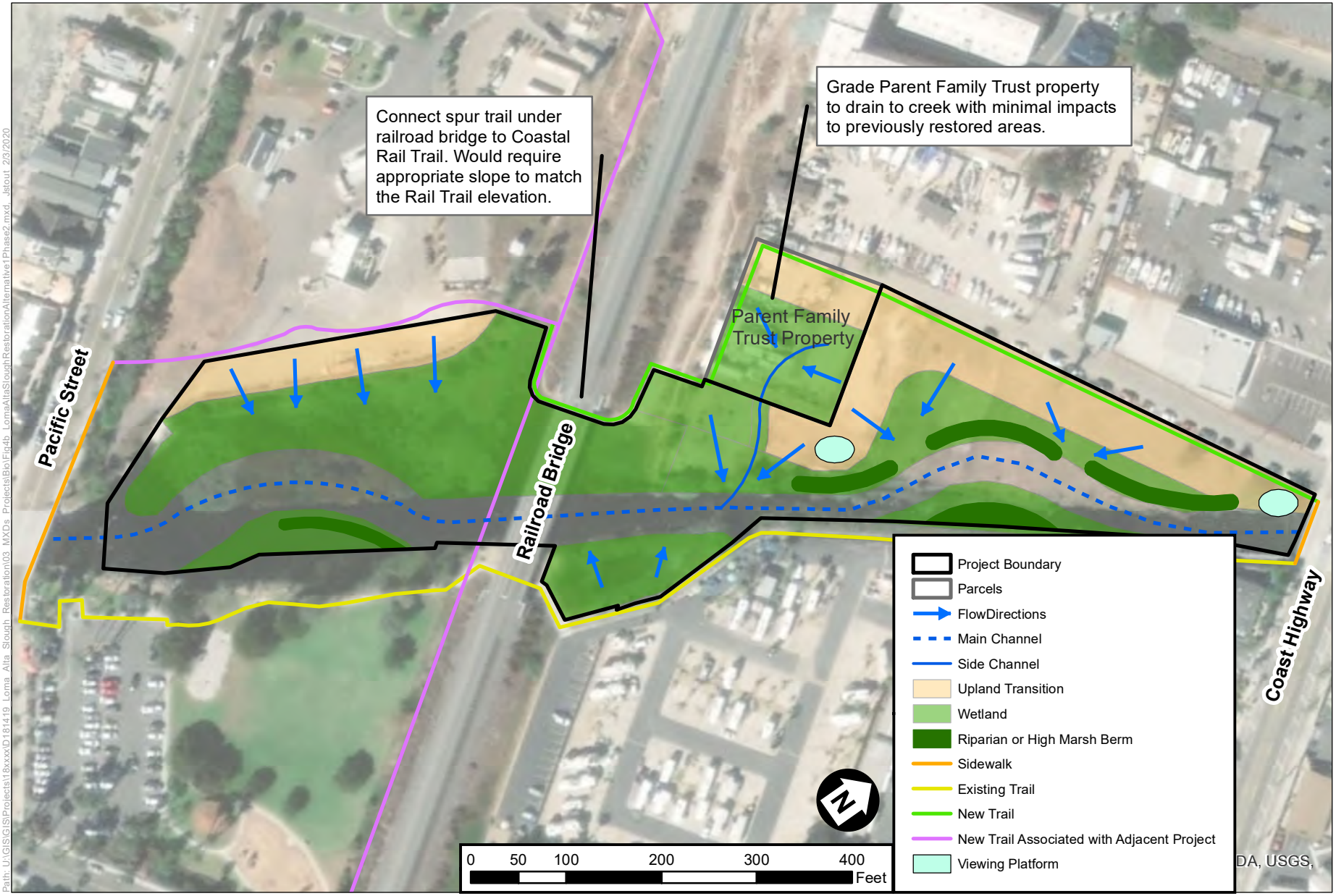


SOURCE:

Loma Alta Slough Restoration

Figure 4a
Alternative 1, Phase 1

ESA

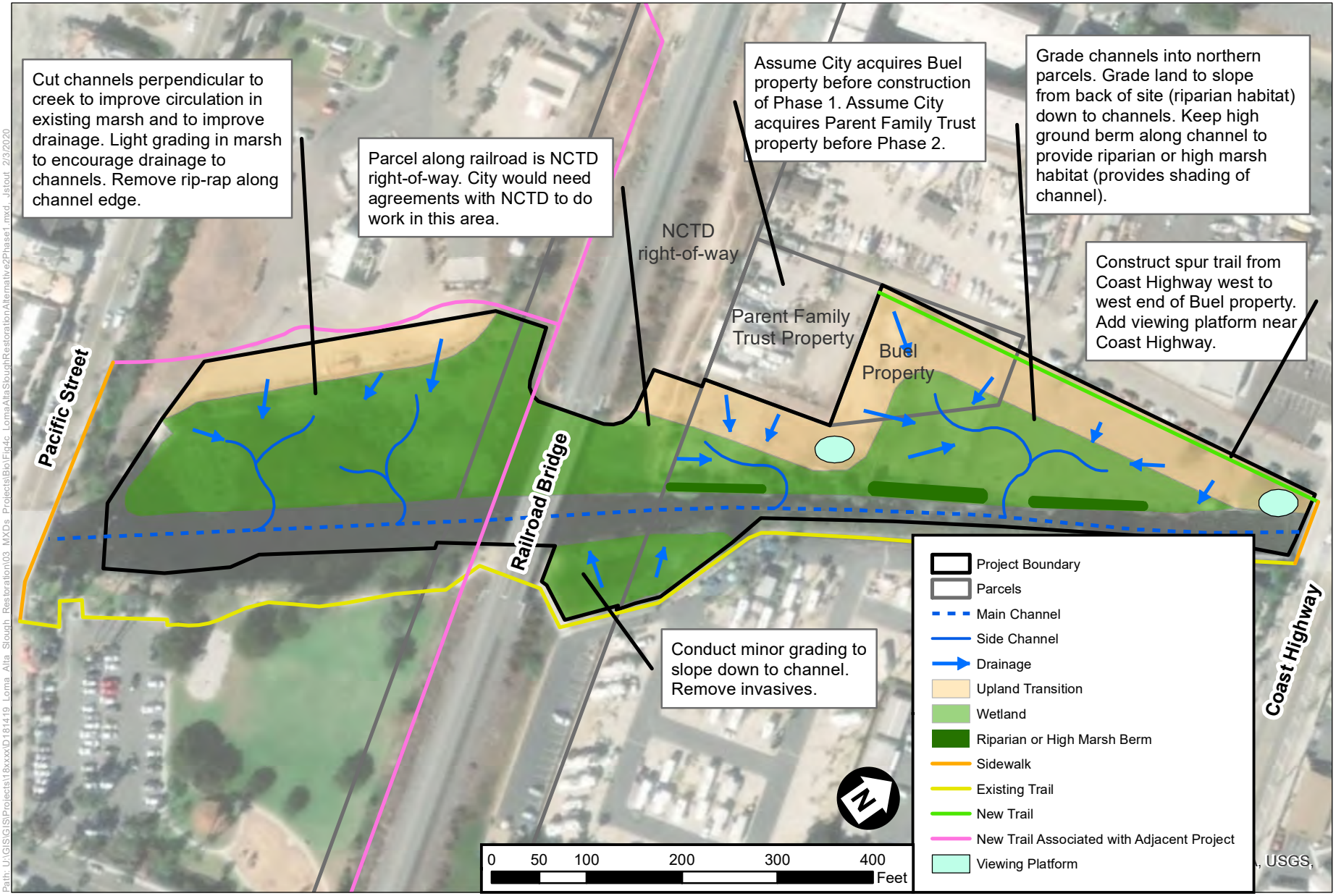


SOURCE:

Loma Alta Slough Restoration

Figure 4b
Alternative 1, Phase 2

ESA

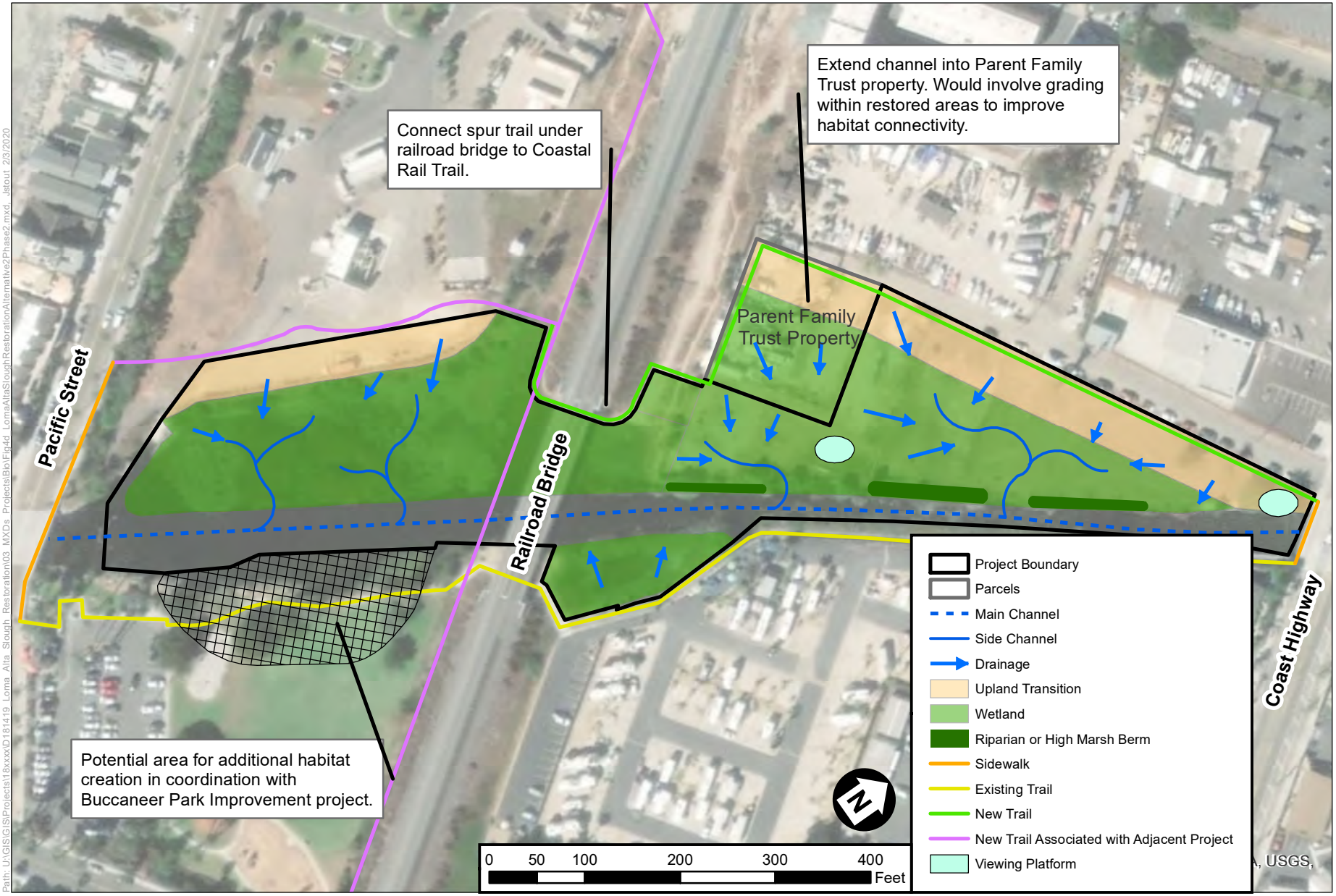


SOURCE:

Loma Alta Slough Restoration

Figure 4c
Alternative 2, Phase 1

ESA

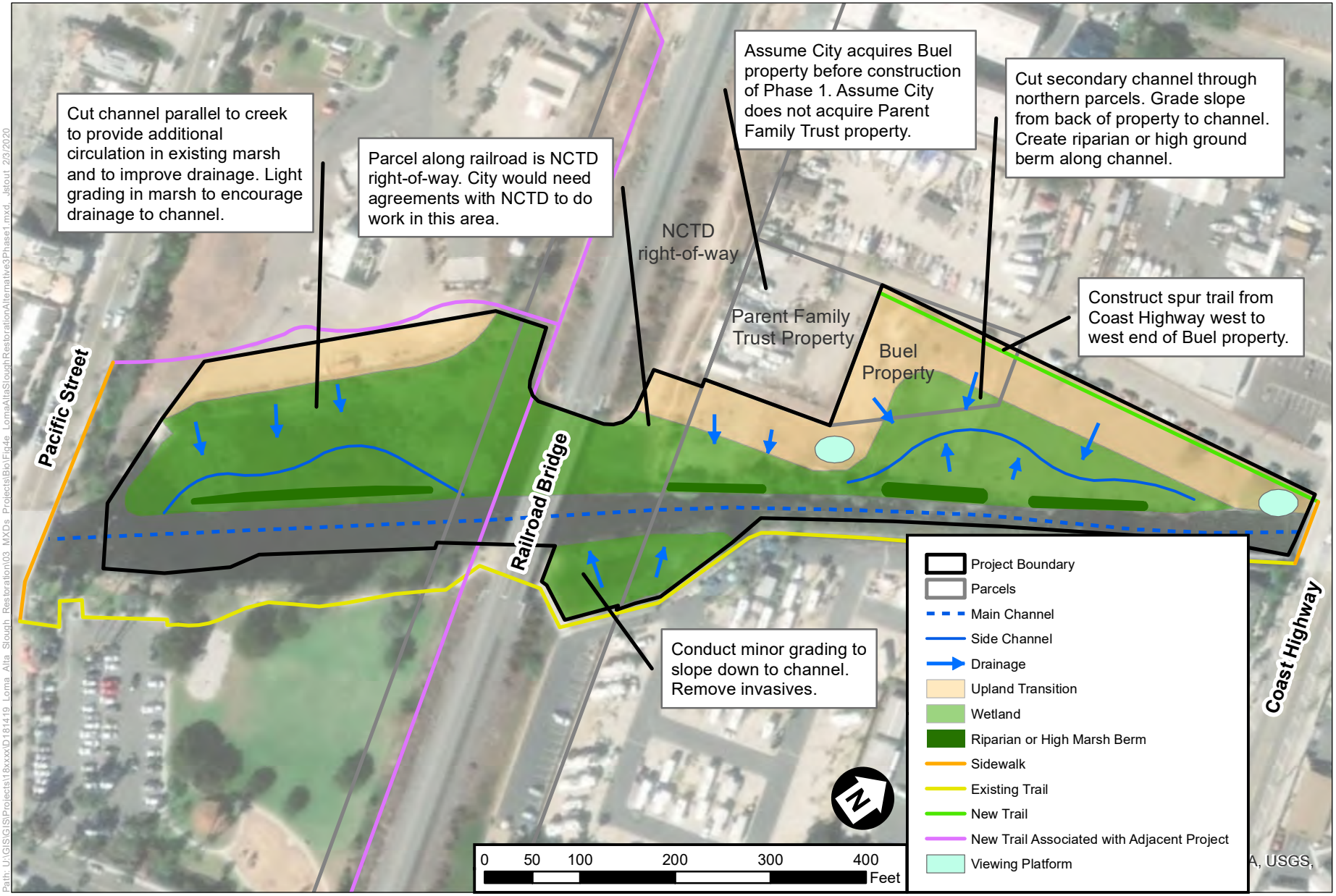


SOURCE:

Loma Alta Slough Restoration

Figure 4d
Alternative 2, Phase 2

ESA

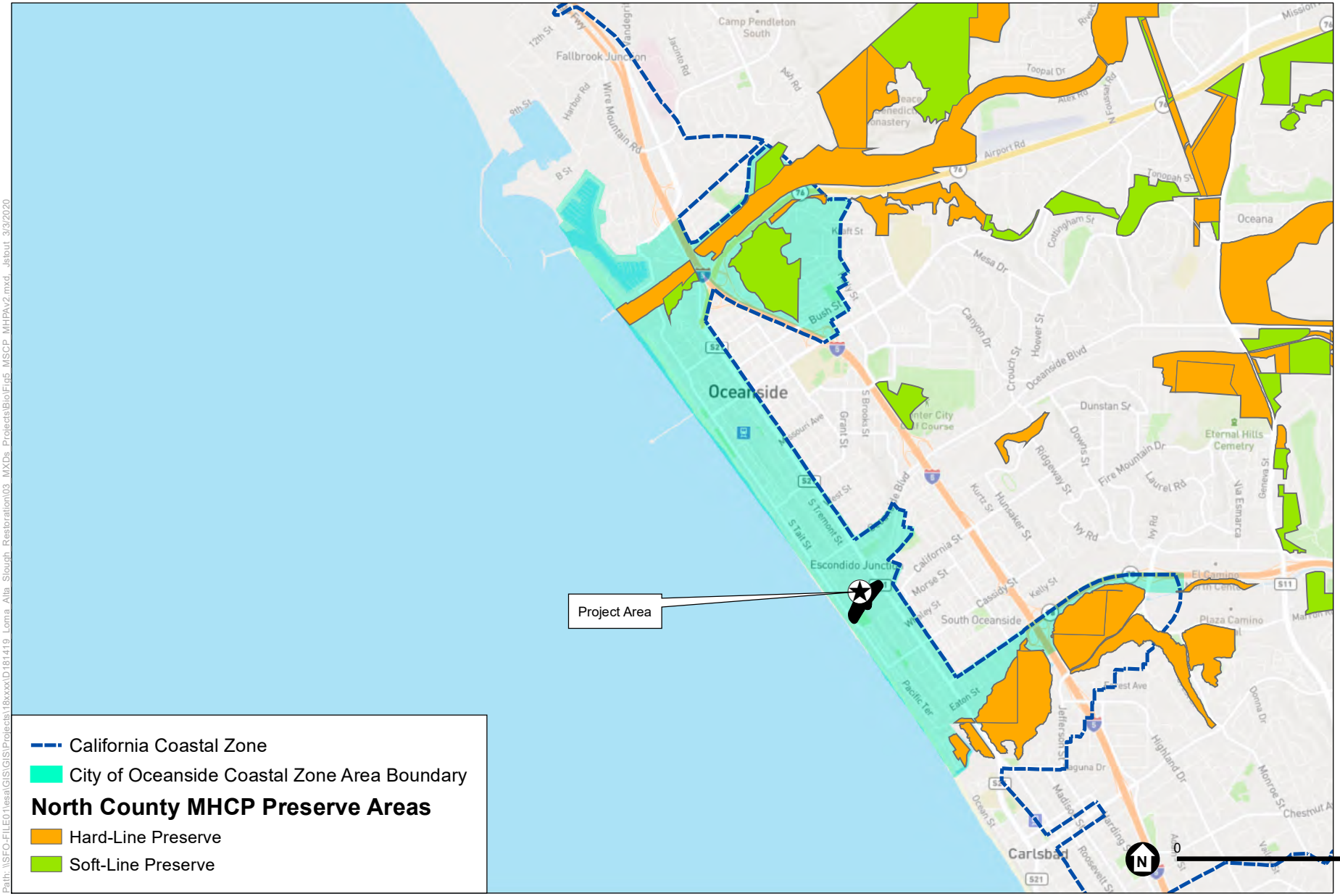


SOURCE:

Loma Alta Slough Restoration

Figure 4e
Alternative 3

ESA



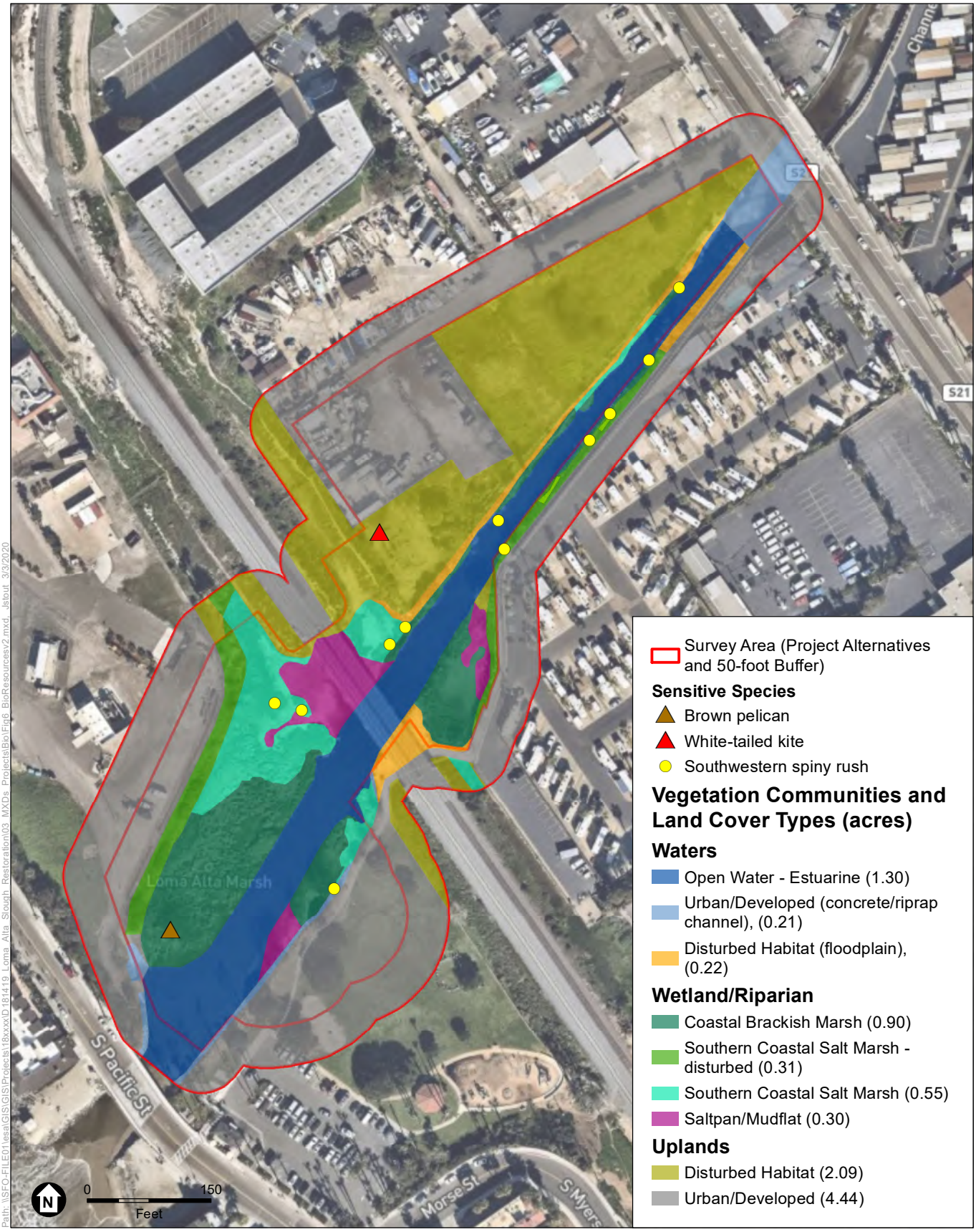
SOURCE: Mapbox; City of Oceanside 2015; SanGIS 2019

Loma Alta Slough

Figure 5

Project in Relation to MHCP Preserve Areas and Coastal Zones

ESA

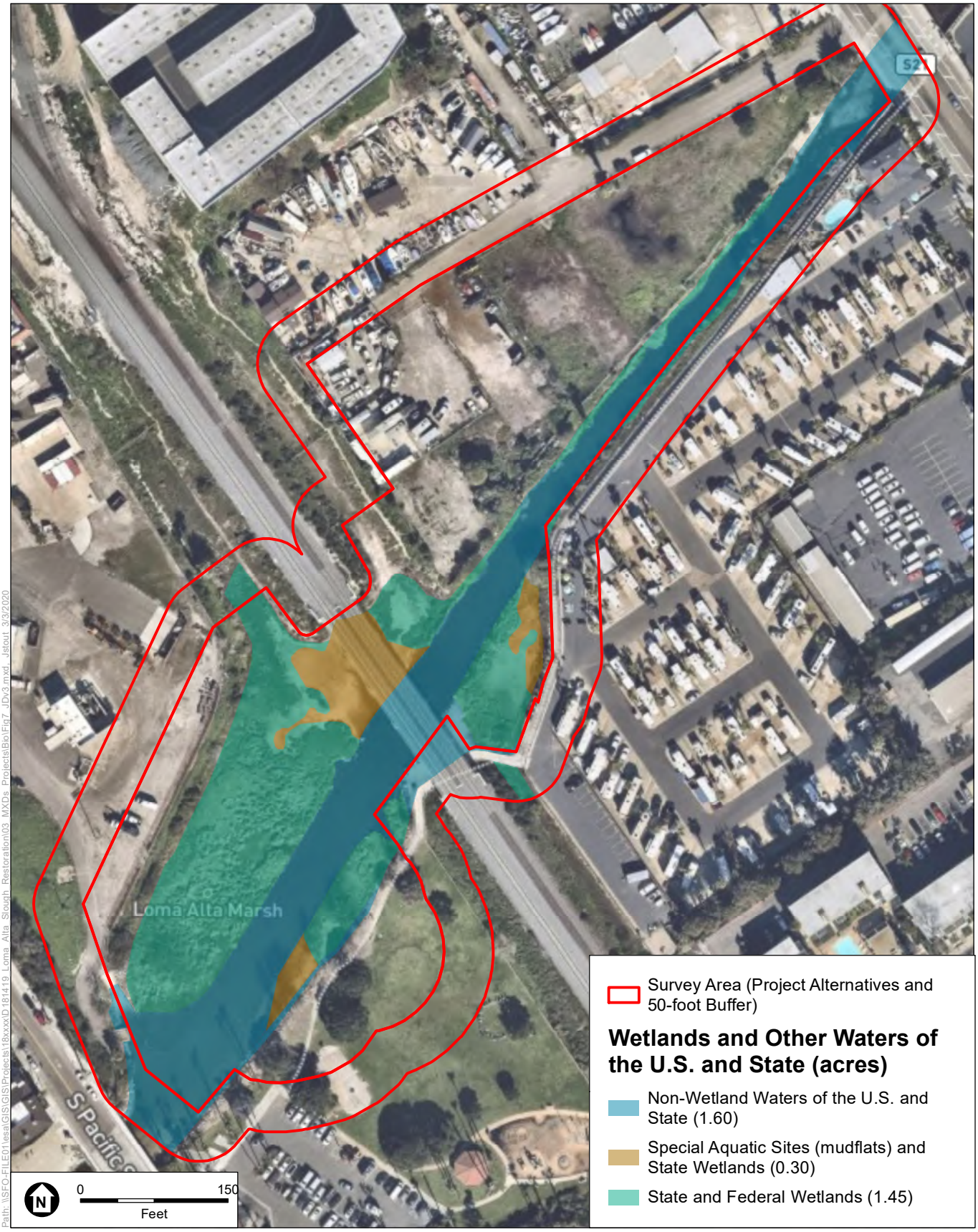


SOURCE: Mapbox 2018; Helix 2018; ESA 2019

Loma Alta Slough Wetlands Enhancement Project

Figure 6
Biological Resources

ESA



SOURCE: Mapbox 2018; Helix 2018; ESA 2020

Loma Alta Slough Wetlands Enhancement Project

Figure 7
State and Federal Wetlands and Waters

ESA

Appendix A

Jurisdictional Delineation Report for the Loma Alta Slough Wetlands Enhancement Project

Final

LOMA ALTA SLOUGH WETLANDS ENHANCEMENT PROJECT

Aquatic Resources Delineation Report

Prepared for
City of Oceanside
Water Utilities Department

May 2020

Final

LOMA ALTA SLOUGH WETLANDS ENHANCEMENT PROJECT

Aquatic Resources Delineation Report

Prepared for
City of Oceanside
Water Utilities Department

May 2020

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CHAPTER 1
Introduction

This jurisdictional delineation report has been prepared to summarize the methodology and results of aquatic resources delineations conducted on March 9, 2018, by HELIX Environmental, and on July 1, 2019 and January 10, 2020, by Environmental Science Associates (ESA), for the planning phase of the Loma Alta Slough Wetlands Enhancement Project (project). This report will also be used to comply with the California Environmental Quality Act (CEQA) and for consideration by the U.S. Environmental Protection Agency (EPA), U.S. Army Corps of Engineers (USACE, also Corps), Regional Water Quality Control Board (RWQCB), and California Department of Fish and Wildlife (CDFW) in the regulatory permitting stage of the project.

A determination of Clean Water Act (CWA) jurisdiction is required for this project to facilitate the regulatory permitting process as the project proposes construction activities within and/or near potential waters of the U.S. The determination is also necessary to identify necessary avoidance and/or mitigation measures where applicable in conformance with CEQA requirements. All aquatic resources and jurisdictional boundaries identified in this report are considered preliminary pending verification from the appropriate regulatory agencies.

1.1 Project Background and Purpose

The Loma Alta Slough, located in the City of Oceanside, California, is a small coastal estuarine wetland located at the mouth of Loma Alta Creek, and is a locally and regionally important natural resource that provides nesting and foraging habitat for marsh and shoreline birds. The Slough was historically, and continues to be, an intermittently opening estuary, similar to many coastal wetlands in California. Watershed urbanization, sedimentation, channel engineering, degraded water quality, and wetland fill have degraded the health of the Slough. The Slough's morphology has been altered because large areas have been filled to create developed areas. In addition to impacts associated with the physical loss of wetland area, water quality issues resulting from urbanization have been ongoing since the 1960s. Currently, both Loma Alta Creek and Slough are on California's Clean Water Act 303(d) list of impaired water bodies for a variety of inhibiting constituents, most notably indicator bacteria, eutrophic conditions and benthic community impairments. Dry-weather flows from the watershed provide a continuous source of freshwater that contributes to the ponding, and contains fertilizers and other contaminants that reduce water quality by causing eutrophic conditions and the growth of algae and bacteria.

Historically, Loma Alta Creek upstream of the Slough was an ephemeral stream that flowed only during the wet season. Urbanization has resulted in persistent dry-weather flows from the watershed that provide continuous freshwater input. The altered hydrology and continuous input of urban

runoff contributes to ponding and reduced water quality in the Slough by causing eutrophic conditions and the growth of algae and bacteria.

The project will provide multiple benefits by improving and restoring habitat for native species, providing a buffer from flooding and sea-level rise, improving water quality in the Slough through natural wetland processes, and enhancing recreational enjoyment of the area.

1.2 Survey Area Location

The Loma Alta Slough is a small coastal estuarine wetland located at the mouth of Loma Alta Creek in the city of Oceanside, California (**Figure 1**). The survey area is defined as all areas evaluated for potential restoration during the project design phase (all project alternatives) and an additional 50-foot buffer. The survey area is located in Section 26, Township 11 South, Range 5 West of the Oceanside quadrangle U.S. Geological Survey (USGS) topographic map (**Figure 2**). The survey area is bounded by South Pacific Street and Buccaneer Beach on the west side, South Coast Highway on the east side, Buccaneer Park and Paradise by the Sea RV Resort on the south side, and the La Salina Wastewater Treatment Plant and commercial property on the north side (**Figure 3**).

Directions to the Survey Area

The survey area is not associated with a street address. Navigate to 33.17722222, -117.36888889 as follows: From Interstate 5 in Oceanside, exit Oceanside Boulevard and head west. Turn left on South Pacific Street and left on Morse Street at the Buccaneer Park entrance. The project is directly to the north of Buccaneer Park.

1.3 Contact Information

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CHAPTER 2
Regulatory Framework

2.1 Waters of the U.S.

Clean Water Act

The USACE and the EPA have issued a set of guidance documents detailing the process for determining CWA jurisdiction over waters of the United States (waters of the U.S.) following the Supreme Court's decision in the consolidated cases of Rapanos v. United States and Carabell v. United State (referred to as "Rapanos") court decision resulting in guidance on the definition of waters of the U.S (Carabell 2004, Rapanos 2006). The EPA and USACE issued a summary memorandum of the guidance for implementing the Supreme Court's decision in Rapanos that addresses the jurisdiction over waters of the U.S. under the CWA. The complete set of guidance documents, summarized as key points below, were used to collect relevant data for evaluation by the EPA and the USACE to determine CWA jurisdiction over the project and to complete the "significant nexus test" as detailed in the guidelines.

The significant nexus test includes consideration of hydrologic and ecologic factors. For circumstances such as those described in the Rapanos Guidance Key Points Summary below, the significant nexus test would take into account physical indicators of flow (evidence of an ordinary high water mark [OHWM]), if a hydrologic connection to a Traditionally Navigable Water (TNW) exists, and if the aquatic functions of the waterbody have a significant effect (more than speculative or insubstantial) on the chemical, physical, and biological integrity of a TNW. The USACE and EPA will apply the significant nexus standard to assess the flow characteristics and functions of a potential water of the U.S. to determine if it significantly affects the chemical, physical, and biological integrity of the downstream TNW.

Wetlands (including swamps, bogs, seasonal wetlands, seeps, marshes, and similar areas) are also considered waters of the U.S. (subject to the significant nexus test), and are defined by USACE 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" (33 CFR 328.3[b]; 40 CFR 230.3[t]). Indicators of three wetland parameters (i.e., hydric soils, hydrophytic vegetation, and wetlands hydrology), as determined by field investigation, must be present for a site to be classified as a wetland by USACE (Environmental Laboratory 1987).

Rapanos Guidance Key Points Summary

The USACE and EPA will assert jurisdiction over the following waters:

- TNWs
- Wetlands adjacent to TNWs
- Non-navigable tributaries of TNWs that are relatively permanent (flows 3 months or longer)
  - Wetlands that abut such tributaries

The USACE and EPA will decide jurisdiction over the following waters based on whether they have a significant nexus with a TNW:

- Non-navigable tributaries that are not relatively permanent
- Wetlands adjacent to non-navigable tributaries that are not relatively permanent
- Wetlands adjacent to, but that do not directly abut, a relatively permanent non-navigable tributary

The USACE and EPA will not assert jurisdiction over the following waters:

- Swales or erosional features (gullies, small washes characterized by low-volume, infrequent, or short-duration flow)
- Ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water

Section 401 of the CWA gives the state authority to grant, deny, or waive certification of proposed federally licensed or permitted activities resulting in discharge to waters of the U.S. The State Water Resources Control Board (SWRCB) directly regulates multi-regional projects and supports the Section 401 certification and wetlands program statewide. The RWQCB regulates activities pursuant to Section 401(a)(1) of the federal CWA, which specifies that certification from the State is required for any applicant requesting a federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities that may result in any discharge into navigable waters. The certification shall originate from the State or appropriate interstate water pollution control agency in/where the discharge originates or will originate. Any such discharge will comply with the applicable provisions of Sections 301, 302, 303, 306, and 307 of the CWA.

Rivers and Harbors Act of 1899

Section 10 of the Rivers and Harbors Act (RHA) (33 U.S.C. §403) requires authorization from the USACE for work or structures in or affecting navigable waters of the U.S.

The term "navigable waters of the U.S." generally includes those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible to use to transport interstate or foreign commerce. A determination of navigability, once made, applies laterally over the entire surface of the waterbody, and is not extinguished by later actions or events which impede or destroy navigable capacity (33 C.F.R. §329.4).

The term "structure" includes, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other obstacle or obstruction (33 C.F.R. §322.2).

The term "work" includes, without limitation, any dredging or disposal of dredged material, excavation, filling, or other modification of a navigable water of the United States (33 C.F.R. §322.2).

The geographic and jurisdictional limits of the USACE Section 10 jurisdiction in rivers and lakes include:

> *(a) Jurisdiction over entire bed. Federal regulatory jurisdiction, and powers of improvement for navigation, extend laterally to the entire water surface and bed of a navigable waterbody, which includes all the land and waters below the ordinary high water mark. Jurisdiction thus extends to the edge (as determined above) of all such waterbodies, even though portions of the waterbody may be extremely shallow, or obstructed by shoals, vegetation or other barriers. Marshlands and similar areas are thus considered navigable in law, but only so far as the area is subject to inundation by the ordinary high waters.*
>
> *(1) The OHWM of non-tidal rivers is the line on the shore established by the fluctuations of water and indicated by physical characteristics such as a 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.*
>
> *(2) Ownership of a river or lake bed or of the lands between high and low water marks will vary according to state law; however, private ownership of the underlying lands has no bearing on the existence or extent of the dominant Federal jurisdiction over a navigable waterbody.*
>
> *(b) Upper limit of navigability. The character of a river will, at some point along its length, change from navigable to non-navigable. Very often that point will be at a major fall or rapids, or other place where there is a marked decrease in the navigable capacity of the river. The upper limit will therefore often be the same point traditionally recognized as the head of navigation, but may, under some of the tests described above, be at some point yet farther upstream.*

The geographic and jurisdictional limits of the USACE jurisdiction in oceanic and tidal waters of the U.S.:

> *(a) Ocean and coastal waters. The navigable waters of the U.S. over which Corps regulatory jurisdiction extends include all ocean and coastal waters within a zone three geographic (nautical) miles seaward from the baseline (The Territorial Seas). Wider zones are recognized for special regulatory powers exercised over the outer continental shelf. 33 C.F.R. §322.3(b).*
>
> *(1) Baseline defined. Generally, where the shore directly contacts the open sea, the line on the shore reached by the ordinary low tides comprises the*

baseline from which the distance of three geographic miles is measured. The baseline has significance for both domestic and international law and is subject to precise definitions. Special problems arise when offshore rocks, islands, or other bodies exist, and the baseline may have to be drawn seaward of such bodies.

(2) Shoreward limit of jurisdiction. Corps regulatory jurisdiction in coastal areas extends to the line on the shore reached by the plane of the mean (average) high water. Where precise determination of the actual location of the line becomes necessary, it must be established by survey with reference to the available tidal datum, preferably averaged over a period of 18.6 years. Less precise methods, such as observation of the "apparent shoreline" which is determined by reference to physical markings, lines of vegetation, or changes in type of vegetation, may be used only where an estimate is needed of the line reached by the mean high water.

(b) Bays and estuaries. Corps regulatory jurisdiction extends to the entire surface and bed of all waterbodies subject to tidal action. Jurisdiction thus extends to the edge (as determined by paragraph (a)(2) above) of all such waterbodies, even though portions of the waterbody may be extremely shallow, or obstructed by shoals, vegetation, or other barriers. Marshlands and similar areas are thus considered "navigable in law," but only so far as the area is subject to inundation by the mean high waters. The relevant test is therefore the presence of the mean high tidal waters, and not the general test described above, which generally applies to inland rivers and lakes.

Structures or work outside the limits defined above for navigable waters of the U.S. require a Department of the Army permit pursuant to Section 10 of the RHA if the structure or work affects the course, location, or condition of the waterbody in such a manner as to impact on its navigable capacity (33 C.F.R. §322.3).

Section 14 of the RHA of 1899 (33 U.S.C. §408), commonly referred to as "Section 408," authorizes the USACE to grant permission to alter, occupy, or use a USACE civil works project if the Secretary of the Army determines that the activity will not be injurious to the public interest and will not impair the usefulness of the project.

2.2 Waters of the State

The RWQCB is responsible for regulating discharges of fill and dredged material into the State's waterbodies under Section 401 of the CWA and the Porter-Cologne Water Quality Contract Act. Most projects involving waterbodies, wetlands, riparian areas and/or drainages are regulated by the SWRCB or RWQCBs, the principal state agencies overseeing water quality of the state at the local/regional level. The survey area is located within the jurisdiction of the San Diego RWQCB. Where waters of the state overlap with waters of the U.S., pending verification from the USACE, those waters would be regulated under Section 401 of the CWA, which is described in the Regulatory Framework in Section 2.1.

In the absence of waters of the U.S., waters may be regulated under the State's Porter-Cologne Water Quality Control Act if project activities, discharges, or proposed activities or discharges

could affect California's surface, coastal, or ground waters. The permit submitted by the applicant and issued by RWQCB is either a Water Quality Certification in the presence of waters of the U.S. or a Waste Discharge Requirement in the absence of waters of the U.S.

The SWRCB recently adopted a *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (State Wetland Procedures; SWRCB 2019). The procedures consist of four major elements: (1) a wetland definition; (2) a framework for determining if a feature that meets the wetland definition is a water of the state; (3) wetland delineation procedures; 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 will be effective May 28, 2020.

2.3 CDFW Resources

Pursuant to Division 2, Chapter 6, Section 1600 et seq. of the California Fish and Game Code (FGC), CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel or bank of any river, stream, or lake which supports fish or wildlife. A notification of a Lake or Streambed Alteration Agreement must be submitted to CDFW for "any activity that may substantially change the bed, channel, or bank of any river, stream, or lake." In addition, CDFW has authority under FGC over wetland and riparian habitats associated with lakes and streams. The CDFW reviews proposed actions and, if necessary, submits to the applicant a proposal that includes measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by CDFW and the applicant is the Lake or Streambed Alteration Agreement.

2.4 Coastal Wetlands and Waters

California Coastal Act of 1976

The California Coastal Act of 1976 (Coastal Act) (Pub. Res. Code §30000 et seq.) was enacted to establish policies and guidelines that provide direction for the conservation and development of the California coastline. The Coastal Act established the California Coastal Commission (CCC) and created a state and local government partnership to ensure that public concerns regarding coastal development are addressed. The goals of the Coastal Act are to:

1. *Protect, maintain, and, where feasible, enhance and restore the overall quality of the coastal zone environment and its natural and artificial resources.*
2. *Assure orderly, balanced utilization and conservation of coastal zone resources, taking into account the social and economic needs of the people of the state.*
3. *Maximize public access to and along the coast and maximize public recreational opportunities in the coastal zone consistent with sound resource conservation principles and constitutionally protected rights of private property owners.*
4. *Assure priority for coastal-dependent and coastal-related development over other development on the coast.*

> 5. *Encourage state and local initiatives and cooperation in preparing procedures to implement coordinated planning and development for mutually beneficial uses, including educational uses, in the coastal zone.*

The CCC serves as the coastal management and regulatory agency with jurisdiction over the California coastal zone (Pub. Res. Code §30103). The CCC is responsible for assisting in the preparation, review, and certification of Local Coastal Programs (LCPs), which are developed by municipalities for that portion of their jurisdiction that falls within the coastal zone. The Coastal Act provides that once an LCP is certified by the CCC, the local government assumes responsibility for issuing Coastal Development Permits for most development within its jurisdiction.

The City of Oceanside's current LCP was certified by the CCC in 1986. Portions of the city are subject to the permitting or appeals authority of the CCC based on criteria established in the Coastal Act. The CCC retains permitting authority over development occurring on tidelands, submerged lands (mean high tide line and seaward), and public trust lands, as stated in Section 30519(b) of the Coastal Act. The Appeals Jurisdiction refers to lands in which action by the City on a Coastal Development Permit may be appealed to the California Coastal Commission. A portion of the project is located within the CCC original jurisdiction and a permit would be required from the CCC. The remaining project area is located within the appeals jurisdiction which means that the City of Oceanside could issue a Coastal Development Permit but that the CCC has the authority to appeal that permit.

Coastal Wetlands

The Coastal Act requires that most development avoid and buffer wetland resources. The CCC's regulations (California Code of Regulations Title 14 (14 CCR)) establish a "one parameter definition" that only requires evidence of a single parameter to establish wetland conditions:

> *Wetland shall be defined as land where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include those types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent and drastic fluctuations of surface water levels, wave action, water flow, turbidity or high concentrations of salts or other substances in the substrate. Such wetlands can be recognized by the presence of surface water or saturated substrate at some time during each year and their location within, or adjacent to, vegetated wetlands or deep-water habitats. (14 CCR Section 13577)*

The CCC's one parameter definition is similar to the U.S. Fish and Wildlife Service (USFWS) wetlands classification system, which states that wetlands must have one or more of the following three attributes:

> *(1) at least periodically the land supports predominantly hydrophytes; (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is nonsoil and is saturated with water or covered by shallow water at some time during the growing season of each year.*

CHAPTER 3
Setting

Prior to conducting the jurisdictional delineation, Environmental Science Associates conducted a review of available background information pertaining to the survey area setting. The following resources were reviewed.

- Natural Resources Conservation Service (NRCS), Web Soil Survey, queried to determine the soils mapped in the survey area (NRCS 2019).
- USGS 7.5' topographic quadrangle maps for Oceanside (1978, 2018).
- Color aerial photography for vegetative, topographic, and hydrologic signatures (Google Earth 2020).
- San Diego County precipitation data (National Oceanic and Atmospheric Association [NOAA] 2020).
- The National Wetlands Inventory (NWI) (USFWS 2020).
- *Biological Resources Constraints Memorandum - Loma Alta Slough Restoration Area* (HELIX 2018).

3.1 Vegetation Communities and Land Cover Types

Vegetation communities were mapped in 2018 by Helix and revised in 2019 and 2020 by ESA. Vegetation communities and land cover types are based on Oberbauer et al. (2008), which are consistent with the classification system used in the North County Multiple Habitat Conservation Program (MHCP) and Draft Oceanside Subarea Plan with modified categories to indicated disturbed communities and floodplains. Vegetation communities and cover types in the survey area include coastal brackish marsh, southern coastal salt marsh, saltpan/mudflats, open water – estuarine, disturbed habitat, and urban/developed land cover (**Table 1**; **Figure 4**). Each of these communities or land cover types is described below.

TABLE 1
VEGETATION COMMUNITIES AND LAND COVER TYPES

Vegetation Community/Land Cover Type	Project Alternatives (acres)	50-Foot Buffer (acres)
Riparian and Wetlands[a]		
Coastal Brackish Marsh	0.87	0.02
Southern Coastal Salt Marsh	0.49	0.06
Southern Coastal Salt Marsh – Disturbed	0.22	0.10
Saltpan/Mudflats	0.30	0.00
Open Water – Estuarine	1.18	0.12
Disturbed Habitat (floodplain)	0.12	0.10
Urban/Developed (concrete/riprap channel)	1.51	2.94
Uplands		
Disturbed Habitat	1.64	0.45
Urban/Developed	0.11	0.10
Total	6.44	3.88

[a] U.S. Fish and Wildlife Service definition of wetland

Coastal Brackish Marsh

Coastal brackish marsh is dominated by perennial, emergent herbaceous monocots up to approximately 6 feet tall. This vegetation community usually occurs at the interior edges of coastal bays and estuaries or in coastal lagoons. Brackish marshes receive both saltwater and freshwater input and often include species characteristic of both freshwater marsh and salt marsh habitats. Cover is often complete and dense. Within the survey area, this community is characterized by closed canopy stands of cattails (*Typha* sp.; OBL[1]), bulrushes (*Schoenoplectus californicus*; OBL), and common reed (*Phragmites australis*; FACW[2]).

Southern Coastal Salt Marsh

Southern coastal salt marsh occurs along Loma Alta creek in areas with irregular tidal flooding, high salinity, and permanent saturation or high water table. Characteristic species in the survey area include salt grass (*Distichlis spicata*; FAC[3]), pickleweed (*Salicornia pacifica*; OBL), marsh jaumea (*Jaumea carnosa*; OBL), and southwestern spiny rush (*Juncus acutus* ssp. *Leopoldii*; FACW). The disturbed areas of southern coastal salt marsh in the survey area contain non-native vegetation, including arundo (*Arundo donax*; FACW), Canary Island date palm (*Phoenix canariensis*; UPL[4]), and ornamental mallow (*Malva* sp.), in addition to salt marsh species.

1 OBL – Obligate species (almost always occurs in wetlands), (Lichvar et al. 2016).

2 FACW – Facultative wetland species (usually occurs in wetlands, but may occur in non-wetlands), (Lichvar et al. 2016).

3 FAC – Facultative species (occurs in wetlands and non-wetlands), (Lichvar et al. 2016).

4 UPL – Upland species (almost never occurs in wetlands), (Lichvar et al. 2016).

Saltpan/Mudflats

Saltpan/mudflats are coastal wetlands that form when mud is deposited by the tides or rivers and/or when saline waters pond and then evaporate, leaving a salt crust. They are commonly found in sheltered areas such as bays and estuaries. Within the survey area, small areas of saltpan/mudflat occur along Loma Alta Creek, mainly in the vicinity of the railroad bridge. These areas are generally unvegetated and are periodically exposed and inundated by the waters within the creek.

Open Water – Estuarine

Open water – estuarine consists of periodically and permanently inundated and open water portions of semi-enclosed coastal waters where tidal sea water is diluted by flowing freshwater. Salinity and depth varies dramatically (Oberbauer et al. 2008). Within the survey area, open water occurs within Loma Alta Creek, which consists of soft-bottom channel. The upstream segment of Loma Alta Creek that is concrete-lined is mapped as urban/developed (concrete/riprap channel).

Salinity data provided by the City of Oceanside indicates that this portion of Loma Alta Creek consists of a mix of freshwater and saltwater from periodic breaches of the creek to the Pacific Ocean primarily during storm events, resulting in brackish water. Salinity data have also shown seasonal density stratification of the water column in the Slough during periods of low creek flow. Dense saltwater from the ocean becomes overlain with brackish creek water during the summer months when the sand berm is closed.

Disturbed Habitat

Disturbed habitat consists of areas that have been physically altered by previous legal human activity and are no longer able to support a recognizable native or naturalized vegetation association. These areas retain a soil substrate, but are generally unvegetated or support only ruderal vegetation. Typical examples of disturbed areas include areas that have been graded or repeatedly cleared for fuel management purposes, construction staging areas, and old homesites (Oberbauer et al. 2008). Within the survey area, this cover type occurs on the north side of the channel within parcels owned by the City of Oceanside and associated with the water treatment plant, as well as privately owned parcels. Generally, these areas exhibited evidence of past grading and mulching, and were dominated by non-native forbs such as hottentot fig (*Carpobrotus edulis*; UPL), common iceplant (*Mesymbryanthemum crystallinum*; UPL), bristly ox-tongue (*Helminthotheca echioides*; FAC), and fennel (*Foeniculum vulgare*; UPL). Non-native trees were also scattered throughout the disturbed habitat, including Mexican fan palm (*Washingtonia robusta*; FAC) and gum tree (*Eucalyptus* sp.). These areas also contained non-native grasses such as ripgut brome (*Bromus diandrus*; UPL) and oat (*Avena* sp.; UPL), but are not considered non-native grassland due to the predominance of non-native forbs, evidence of past disturbance, and low habitat value due to lack of contiguous open space areas. Additional disturbed habitat occurs along the railroad bridge where shading from the bridge and human disturbance prevent the establishment of vegetation. These areas are within the Loma Alta Creek floodplain and are designated as disturbed habitat (floodplain).

Urban/Developed

Urban/developed areas have been physically altered to the point where native vegetation communities are no longer supported. This land cover type includes areas with permanent or semi-permanent structures, pavement or other hardscape, and landscaped areas that require irrigation (Oberbauer et al. 2008). Developed areas within the survey area include portions of the water treatment plant property, adjacent Buccaneer Park and recreational vehicle (RV) resort properties, developed lots, and paved roads. While Buccaneer Park includes some native tree species, such as California sycamore (*Platanus racemosa*), these areas were considered urban/developed because the trees were intentionally planted for ornamental purposes, they are actively irrigated and maintained, and these areas lack the native understory vegetation and conditions needed to form a native vegetation community. Developed areas also include concrete/riprap lined sections of Loma Alta Creek.

3.2 Soils

Soils within the survey area are mapped entirely as Tujunga sand, 0 to 5 percent slopes (USDA 2020), as shown in **Figure 5**. This soil map unit typically occurs on floodplains, is somewhat excessively drained, and is not rated as a hydric soil. The typical depth to water table is more than 80 inches; however, this was not representative of the observed water table depth along Loma Alta Creek.

Soils observed at sample points included sandy soils as well as clays within the creek channel and possible fill soils at Buccaneer Park.

3.3 Hydrology

The survey area is located within the Loma Alta Creek Hydrologic Area (HA) (904.1), which is approximately 6,300 acres in area, and comprises approximately 5 percent of the Carlsbad Watershed Management Area (Mikhail Ogawa Engineering (MOE) 2018). The HA extends inland about 7.3 miles and the highest elevation within the drainage area is 460 feet above mean sea level. The primary receiving waters in the HA are Loma Alta Creek, which drains into the Loma Alta Slough and the Pacific Ocean (MOE 2018). Nearly 80 percent of the watershed is developed (21 percent is open space or undeveloped) and is comprised of the following land uses: residential (31 percent), industrial (9 percent), commercial (5 percent) and roads and railway (18 percent) (MOE 2018).

Loma Alta Creek has intermittent connection to the Pacific Ocean (a TNW) as a result of natural mouth closing and opening—the Loma Alta Slough mouth closes naturally from sand deposited by the ocean currents in the spring and remains closed until storm flows breach the sand berm during the wet-weather season (September to April). Loma Alta Creek receives hydrologic input of both freshwater upstream sources, tidal flow and groundwater seepage.

In the San Diego Basin Plan (RWQCB 2016), Loma Alta Slough is identified as occurring within Hydrologic Unit Basin 4.10. Identified beneficial uses include contact and non-contact water

recreation; estuarine habitat; wildlife habitat; rare, threatened, or endangered species habitat; and marine habitat.

3.4 Climate

The Agricultural Applied Climate Information System Wetlands climate table for Oceanside is included below (**Table 2**; NOAA 2020). Precipitation occurred 1 day prior to the January 10, 2020, survey. NOAA's quantitative precipitation estimate for the survey area for the month of January 2020 were in the range of 0.5 to 1 inch, as of January 27, 2020. While total monthly precipitation for the 3 months prior was above normal, the precipitation during the month of the survey was normal, and during the field survey, there were no signs that the water levels in the creek were unusually high (e.g. inundated upland vegetation). For these reasons, hydrologic conditions within the survey area were considered normal for the purpose of interpreting observations of wetland hydrology.

TABLE 2
PRECIPITATION DATA FOR OCEANSIDE MARINA, CA

Time Interval (2019)	Total Recorded Precip.	WETS			Within Normal Range?
		Average (1971-2019)	30% Chance Less	30% Chance More	
Annual	17.28	10.32	7.82	12.38	No (above normal)
Jan	2.88	2.22	0.83	2.59	No (above normal)
Feb	5.13	2.23	0.87	2.7	No (above normal)
Mar	1.17	1.59	0.63	1.79	Yes
Apr	0.44	0.8	0.21	0.82	Yes
May	0.58	0.29	0	0.22	No (above normal)
Jun	0.16	0.09	0	0.06	No (above normal)
Jul	0.03	0.03	0	0	No (above normal)
Aug	0	0.09	0	0	Yes
Sep	0	0.24	0	0.15	Yes
Oct	0	0.54	0.11	0.44	No (below normal)
Nov	3.09	0.9	0.44	1.01	No (above normal)
Dec	3.8	1.61	0.68	1.87	No (above normal)
Jan (2020)	0.84	2.22	0.83	2.59	Yes
Nov-Jan Total (3 months prior to survey)	**7.73**	**4.73**	**1.95**	**5.47**	**No (above normal)**

3.5 National Wetlands Inventory

The National Wetlands Inventory identifies three classes of wetlands within the survey area: Estuarine and Marine Deepwater; Estuarine and Marine Wetland; and Freshwater Emergent Wetland (**Figure 6**).

CHAPTER 4
Methodology

The delineation was conducted using a combination of field data and digital data review. Field data were collected in 2018, 2019, and 2020. Digital data included aerial imagery, elevation data, flood modeling data developed by Environmental Science Associates for the mean higher high water mark and mean high water mark, 2018 delineation mapping from HELIX Environmental, 1999 channel as-built plans, and NWI mapping. The delineation was completed digitally using a combination of these datasets and deferring to field-collected GPS data points and lines and aerial imagery where available.

Field surveys were conducted on March 9, 2018, by HELIX Environmental biologists Jason Kurnow and Talaya Rachels; on July 1, 2019, by Environmental Science Associates biologist Cailin Lyons; and on January 10, 2020, by Environmental Science Associates biologist Julie Stout. Surveys on March 9, 2018, and July 1, 2019, covered only a portion of the survey area. The subsequent survey on January 10, 2020, was conducted to verify previous survey results and survey additional areas that were not covered in the previous surveys. Final field data were collected January 10, 2020, using a sub-meter accuracy Trimble GPS unit.

4.1 Waters of the U.S.

The delineation used the "Routine Determination Method" as described in the 1987 Corps of Engineers Wetland Delineation Manual (Environmental Laboratory 1987), hereafter called the "1987 Manual." The 1987 Manual was used in conjunction with the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (USACE 2008), hereafter called the "Arid West Supplement." For areas where the 1987 Manual and the Arid West Supplement differ, the Arid West Supplement was followed. Wetlands and waters were classified using commonly accepted habitat types. The Cowardin classification (Cowardin et al., 1979) of each feature type was also determined.

4.2 Waters of the State

Waters of the state regulated under CWA Section 401 were delineated using the same methodology as waters of the U.S. Waters of the state under Porter-Cologne were considered congruent with CDFW jurisdiction.

State wetlands were delineated as congruent with federal wetlands with the exception of mudflat areas, which meet the definition of state wetlands pursuant to the State Wetland Procedures

(SWRCB 2019). The delineation was conducted in conformance with the pre-State Wetland Definition guidelines.

4.3 CDFW Resources

CDFW aquatic resources were delineated based on the presence of features that meet CDFW's broadly applied interpretation of stream and lakes, including areas that exhibit regular and natural ponding and drainage features that exhibit a bed and bank. CDFW resources were also delineated to include associated riparian areas, including floodplains, streambanks up to the top of bank (for natural channel banks), and associated wetlands and riparian vegetation, to the outer dripline.

4.4 Coastal Wetlands and Waters

CCC wetlands were delineated to include areas exhibiting hydrophytic vegetation, hydric soils, or wetland hydrology. Coastal waters included all other aquatic resources within the coastal zone, including deep-water habitats and unvegetated floodplains.

CHAPTER 5
Results

Aquatic features in the survey area include Loma Alta Slough/Creek and associated wetlands directly abutting or with direct hydrological connection to the slough. Wetland data sheets are included in **Appendix A**, with representative site photographs included in **Appendix B**. Photograph locations are depicted in Figure 3. Resources are described by jurisdictional extent in the sections below.

5.1 Waters of the U.S.

The survey area contains wetlands, special aquatic sites, and waters under the potential jurisdiction of USACE, which are summarized in **Table 3** and depicted in **Figures 7a and 7b**. Wetland features include emergent intertidal estuarine wetlands directly abutting Loma Alta Creek, a relatively permanent water. Potential non-wetland waters include Loma Alta Creek and Loma Alta Slough, a relatively permanent water that flows directly into the Pacific Ocean, which is a TNW. Other special aquatic sites include intertidal estuarine mudflats associated with Loma Alta Creek.

TABLE 3
WETLANDS AND NON-WETLAND WATERS OF THE U.S.

Waters Name[1]	Cowardin Type[2]	Acres	Linear Feet	GPS Coordinates	Vegetation/Land Cover Type	Location
Non-Wetland Waters						
NWW-01	E2RSr	0.01	-	33.177183, -117.36866	Urban/Developed – (concrete/riprap channel)	50-foot Buffer
NWW-02	E1UBx	0.08	49	33.177200, -117.368807	Open Water - Estuarine	50-foot Buffer
NWW-03	E2RSr	0.01	-	33.177273, -117.368901	Urban/Developed – (concrete/riprap channel)	50-foot Buffer
NWW-04	E2RSr	0.02	-	33.177436, -117.368419	Urban/Developed – (concrete/riprap channel)	Project Alternatives[3]
NWW-05	E2RSr	0.01	-	33.177459, -117.368947	Urban/Developed – (concrete/riprap channel)	50-foot Buffer
NWW-06	E2RSr	0.01	-	33.177482, -117.368922	Urban/Developed – (concrete/riprap channel)	Project Alternatives[3]
NWW-08	E2RSr	0.01	-	33.177667, -117.368199	Urban/Developed – (concrete/riprap channel)	Project Alternatives[3]
NWW-09	E2RSr	0.00	-	33.177767, -117.368116	Urban/Developed – (concrete/riprap channel)	Project Alternatives[3]
NWW-10	E1UBx	0.01	-	33.178036, -117.368055	Open Water - Estuarine	50-foot Buffer

Waters Name[1]	Cowardin Type[2]	Acres	Linear Feet	GPS Coordinates	Vegetation/Land Cover Type	Location
NWW-11	E2RSr	0.00	-	33.178079, -117.368001	Urban/Developed – (concrete/riprap channel)	50-foot Buffer
NWW-12	E2US	0.03	-	33.178167, -117.367936	Disturbed Habitat (floodplain)	50-foot Buffer
NWW-13	E2US	0.03	-	33.178187, -117.367851	Disturbed Habitat (floodplain)	50-foot Buffer
NWW-14	E2US	0.01	-	33.178231, -117.367759	Disturbed Habitat (floodplain)	Project Alternatives[3]
NWW-15	E2US	0.02	-	33.178259, -117.367894	Disturbed Habitat (floodplain)	Project Alternatives[3]
NWW-16	E1UBx	1.18	1,183	33.178289, -117.367971	Open Water - Estuarine	Project Alternatives[3]
NWW-19	E1UBx	0.03	-	33.179547, -117.366893	Open Water - Estuarine	50-foot Buffer
NWW-20	R4SBx	0.07	72	33.180015, -117.36653	Urban/Developed – (concrete/riprap channel)	Project Alternatives[3]
NWW-21	R4SBx	0.07	54	33.180115, -117.366416	Urban/Developed – (concrete/riprap channel)	50-foot Buffer
Total		**1.60**	**1,358**			
Special Aquatic Sites						
NWW-07	E2US3	0.04	-	33.17756, -117.368367	Saltpan/Mudflat	Project Alternatives[3]
NWW-17	E2US3	0.21	-	33.178412, -117.368178	Saltpan/Mudflat	Project Alternatives[3]
NWW-18	E2US3	0.05	-	33.178529, -117.367592	Saltpan/Mudflat	Project Alternatives[3]
Total		**0.30**	**-**			
Wetlands						
WW-01	E2EM	0.09	-	33.177773, -117.368207	Coastal Brackish Marsh	Project Alternatives[3]
WW-02	E2EM	0.55	-	33.177798, -117.368618	Coastal Brackish Marsh	Project Alternatives[3]
WW-03	E2EM	0.03	-	33.177884, -117.368082	Southern Coastal Salt Marsh	Project Alternatives[3]
WW-04	E2EM	0.02	-	33.17801, -117.368023	Southern Coastal Salt Marsh	50-foot Buffer
WW-05	E2EM	0.02	-	33.178117, -117.36763	Southern Coastal Salt Marsh	50-foot Buffer
WW-06	E2EM	0.37	-	33.178272, -117.368444	Southern Coastal Salt Marsh	Project Alternatives[3]
WW-07	E2EM	0.17	-	33.178385, -117.367696	Coastal Brackish Marsh	Project Alternatives[3]
WW-08	E2EM	0.08	-	33.178586, -117.368005	Southern Coastal Salt Marsh	Project Alternatives[3]
WW-09	E2EM	0.02	-	33.178646, -117.368551	Southern Coastal Salt Marsh	50-foot Buffer
WW-10	E2EM	0.03	-	33.178652, -117.367813	Coastal Brackish Marsh	Project Alternatives[3]
WW-11	E2EM	0.00	-	33.178839, -117.367519	Coastal Brackish Marsh	50-foot Buffer
WW-12	E2EM	0.02	-	33.179169, -117.367363	Coastal Brackish Marsh	Project Alternatives[3]
WW-13	E2EM	0.02	-	33.179339, -117.367072	Coastal Brackish Marsh	50-foot Buffer
WW-14	E2EM	0.00	-	33.179355, -117.36717	Coastal Brackish Marsh	Project Alternatives[3]
WW-15	E2EM	0.02	-	33.179493, -117.367058	Southern Coastal Salt Marsh	Project Alternatives[3]
WW-16	E2EM	0.01	-	33.179704, -117.366855	Coastal Brackish Marsh	Project Alternatives[3]
Total		**1.45**	**-**			

1 NWW-07, NWW-17 and NWW-18 are Special Aquatic Sites

2 See Cowardin et al. 1979

3 Proposed wetland restoration / enhancement area

5.2 Waters of the State

All areas mapped as USACE-jurisdictional areas fall within the CWA Section 401 authority of the RWQCB (see **Table 4** and **Figure 8**). Waters of the state subject to RWQCB jurisdiction only under Porter-Cologne do not occur within the survey area. State wetlands include those mapped as USACE-wetlands as well as mudflat areas. Mudflats within the survey area are considered special aquatic sites that are considered waters of the U.S., but are also considered state wetlands in accordance with the new State Wetland Procedures, which are anticipated to be in effect at the time of project permitting and implementation.

TABLE 4
STATE WETLANDS AND WATERS[1]

Vegetation Community/Land Cover Type	Project Area (acres)	50-Foot Buffer (acres)
State Wetlands		
Coastal Brackish Marsh	0.87	0.02
Southern Coastal Salt Marsh	0.49	0.06
Saltpan/Mudflats	0.30	-
Total	**1.66**	**0.08**
Waters of the State		
Open water - Estuarine	1.18	0.12
Disturbed Habitat (floodplain)	0.03	0.06
Urban/Developed (concrete/riprap channel)	0.11	0.10
Total	**1.32**	**0.28**
Total Wetlands and Waters of the State	**2.98**	**0.36**

[1] Subject to CWA Section 401

5.3 CDFW Resources

Areas that are subject to notification requirements to CDFW, in accordance with FGC Section 1600 et seq., include streambeds, banks, and associated riparian and wetland vegetation. All areas under potential USACE jurisdiction were also determined to be under the jurisdiction of the CDFW (see **Figure 9**). CDFW resources and coastal wetlands and waters are summarized in **Table 5** below.

TABLE 5
CDFW RESOURCES AND COASTAL WETLANDS AND WATERS

Vegetation Community/Land Cover Type	Project Alternatives (acres)	50-Foot Buffer (acres)
Coastal Wetlands		
Coastal Brackish Marsh	0.87	0.02
Southern Coastal Salt Marsh	0.49	0.06
Southern Coastal Salt Marsh – Disturbed	0.22	0.10
Saltpan/Mudflats	0.30	-
	1.88	0.18
Coastal Waters		
Open water – Estuarine	1.18	0.12
Disturbed Habitat (floodplain)	0.12	0.10
Urban/Developed (concrete/riprap channel)	0.11	0.10
Total	**1.41**	**0.32**
Total CDFW and CCC Resources	**3.29**	**0.50**

5.4 Coastal Wetlands and Waters

As summarized in Table 5 above and Figure 9, all areas mapped as CDFW resources are also within the Coastal Zone and subject to regulation by the CCC and/or the City of Oceanside, pursuant to the LCP.

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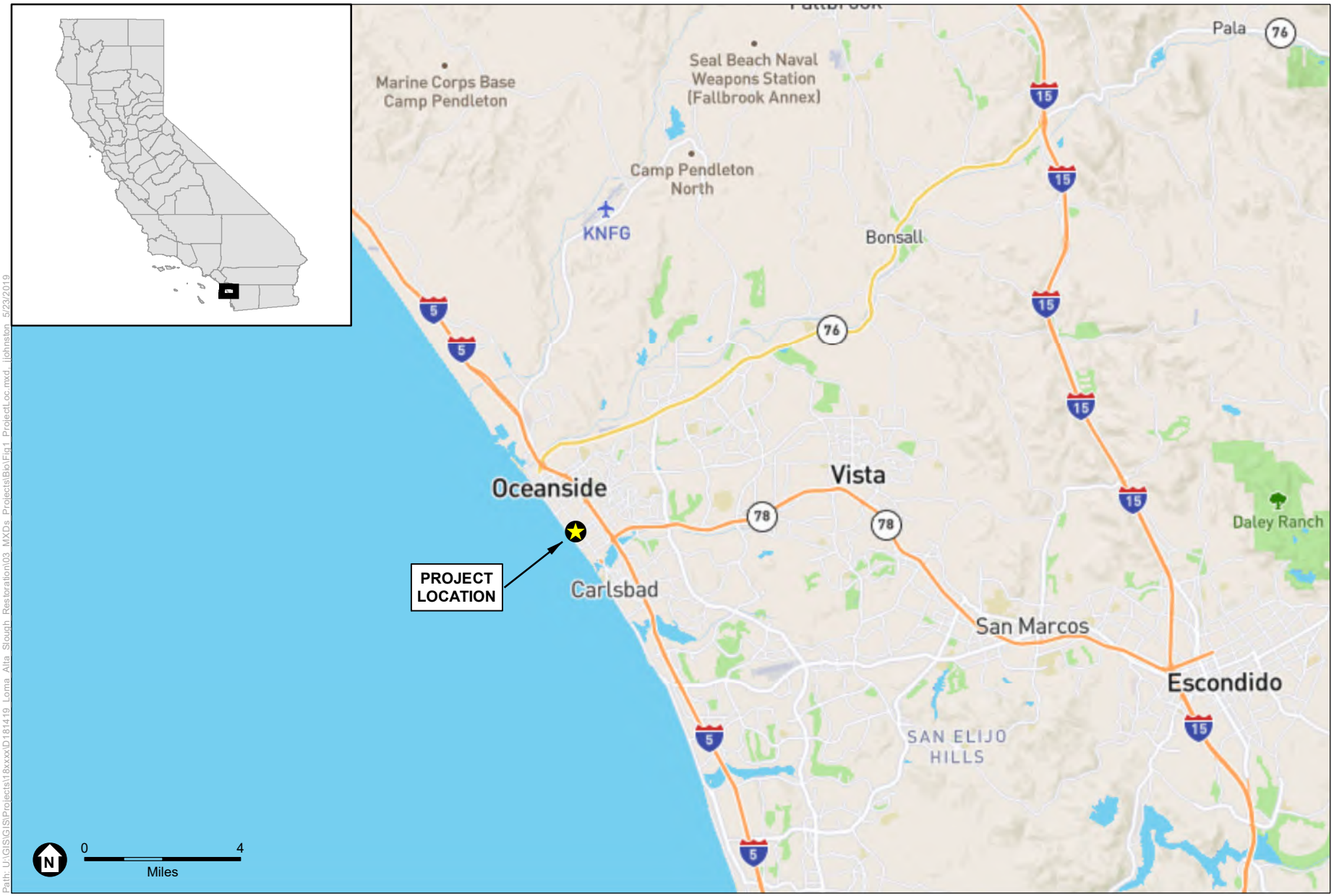

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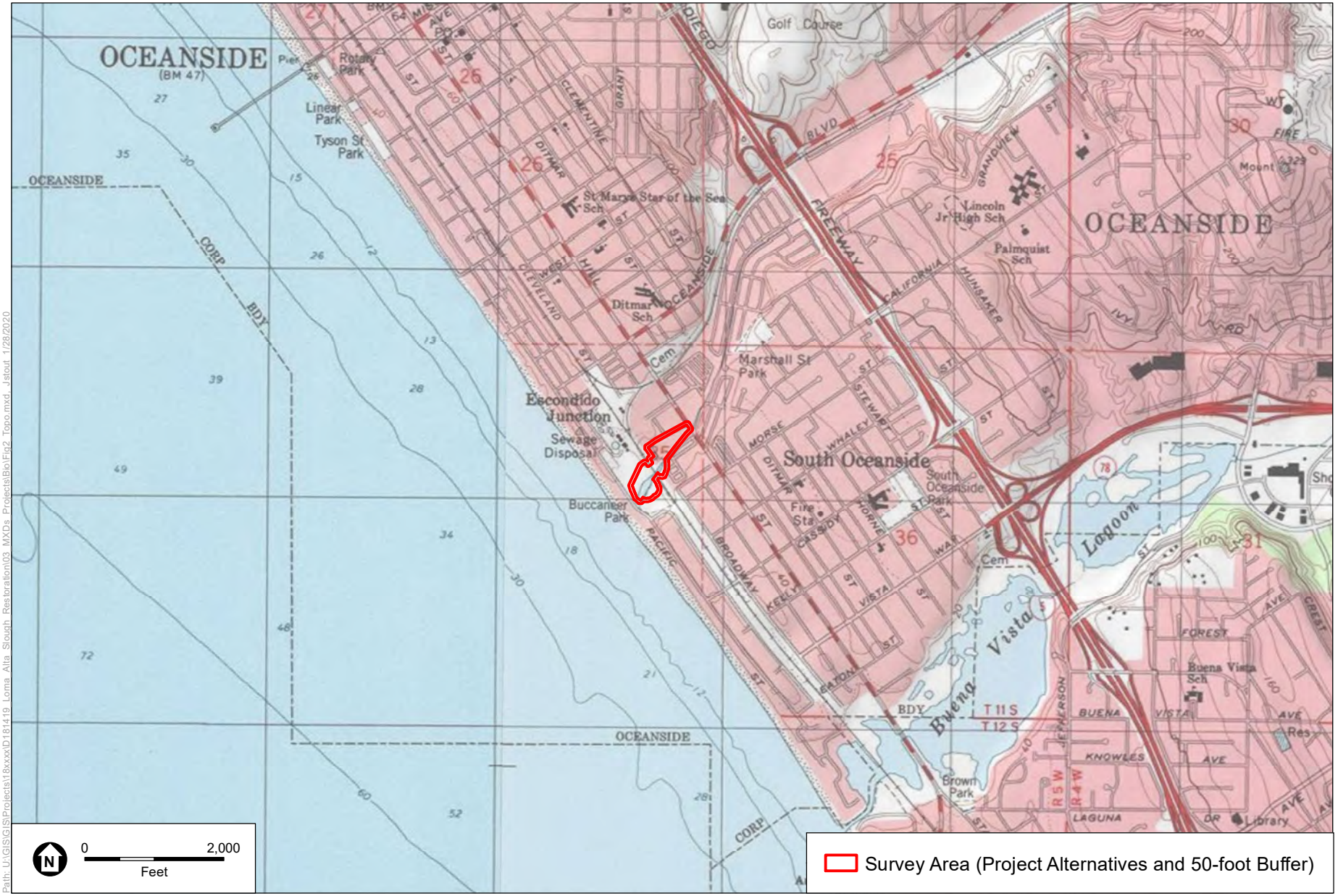
SOURCE: ESRI

Loma Alta Slough

Figure 1
Project Vicinity

ESA



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USGS 7.5' Topo Quad San Luis Rey 1975, 1978; Oceanside 1975, 1978

Loma Alta Slough

Figure 2
Vicinity Map

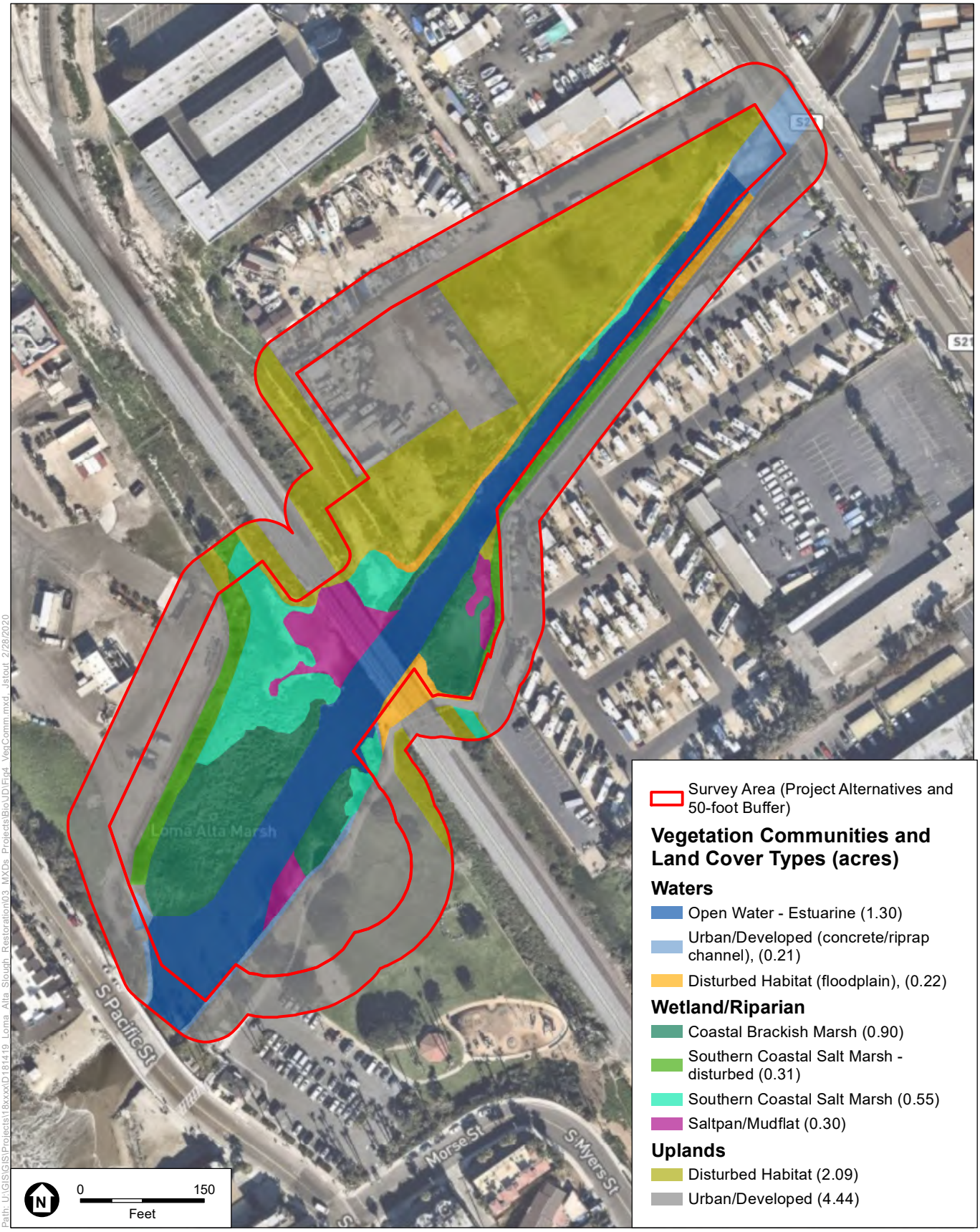
ESA

SOURCE: Mapbox 2018; ESA 2019

Loma Alta Slough Wetlands Enhancement Project

Figure 3
Survey Area Aerial

ESA

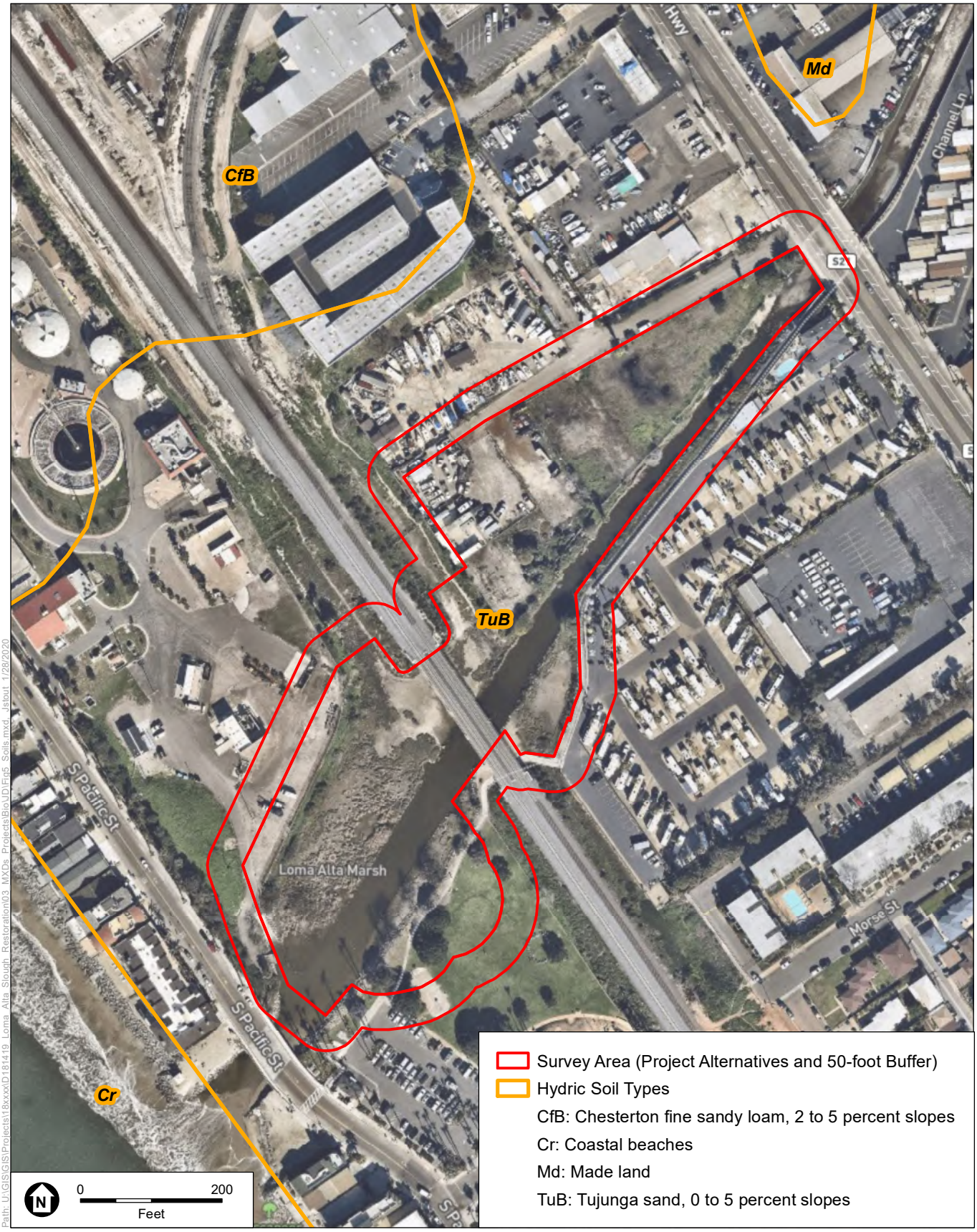


SOURCE: Mapbox 2018; Helix 2018; ESA 2019

Loma Alta Slough Wetlands Enhancement Project

Figure 4
Vegetation Communities and Land Cover Types

ESA



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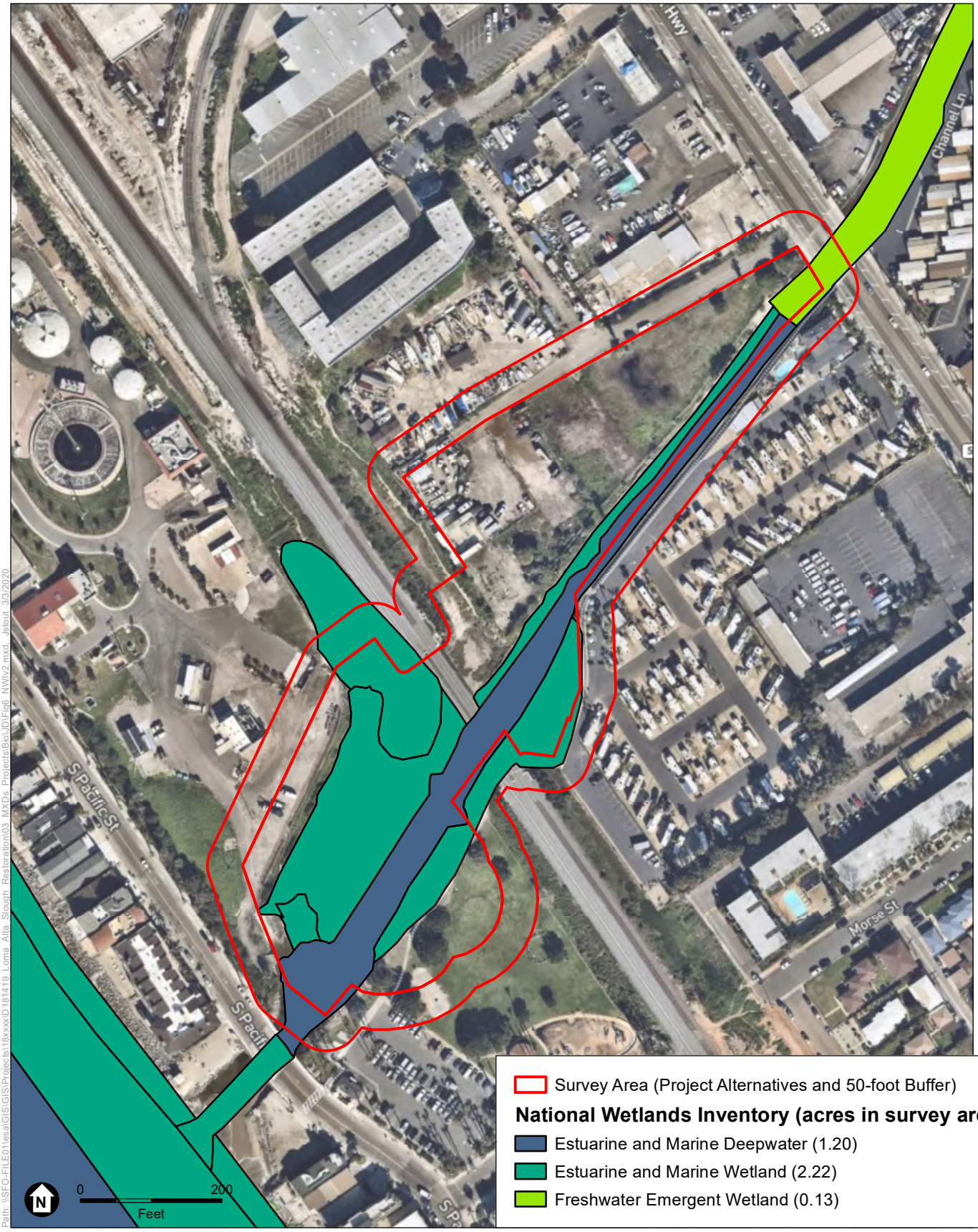
SOURCE: Mapbox 2018; Helix 2018; ESA 2019; SanGIS 2019

Loma Alta Slough Wetlands Enhancement Project

Figure 5
Soils

ESA

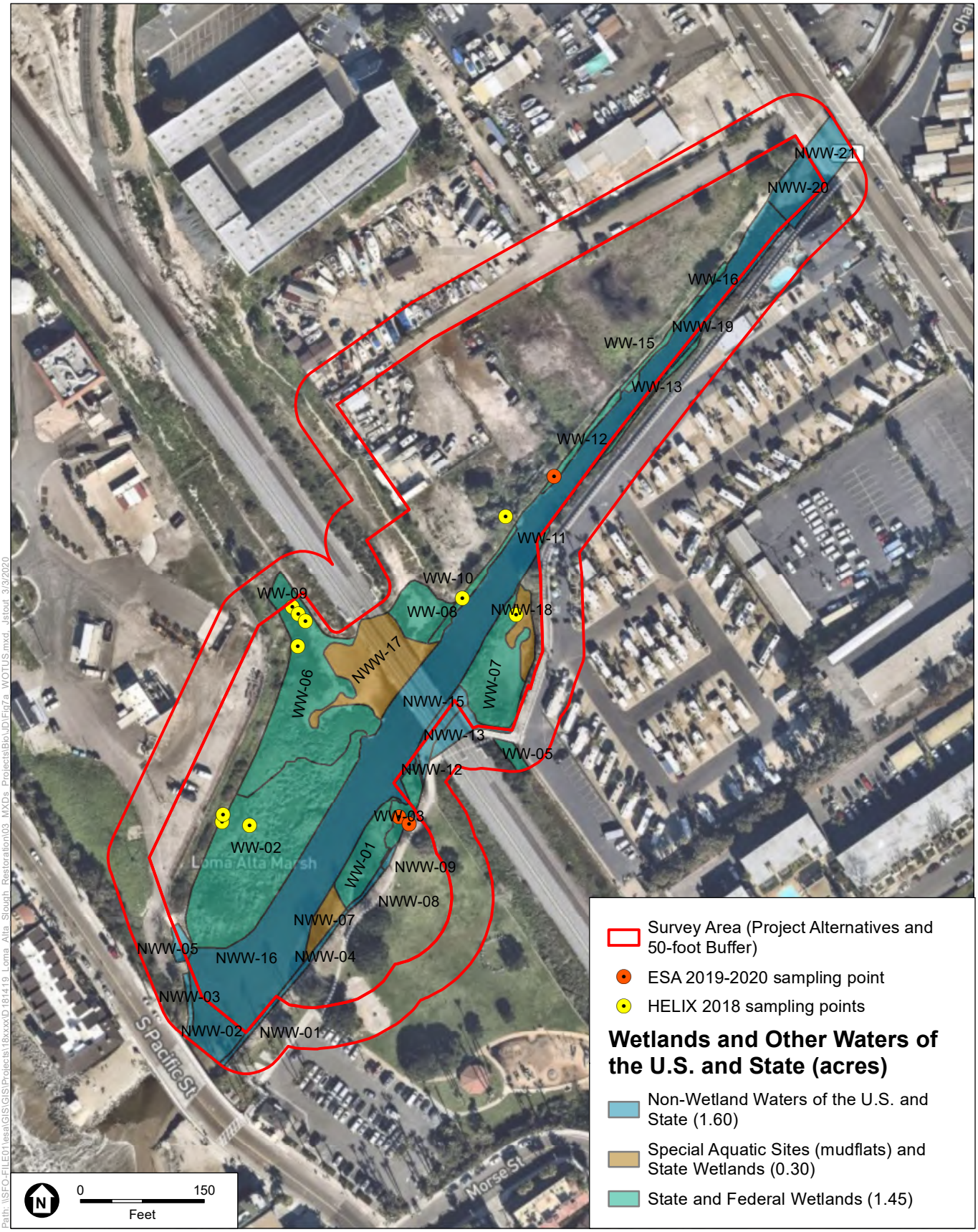


SOURCE: Mapbox 2018; Helix 2018; ESA 2019; USFWS 2019

Loma Alta Slough Wetlands Enhancement Project

Figure 6
National Wetlands Inventory Map

ESA

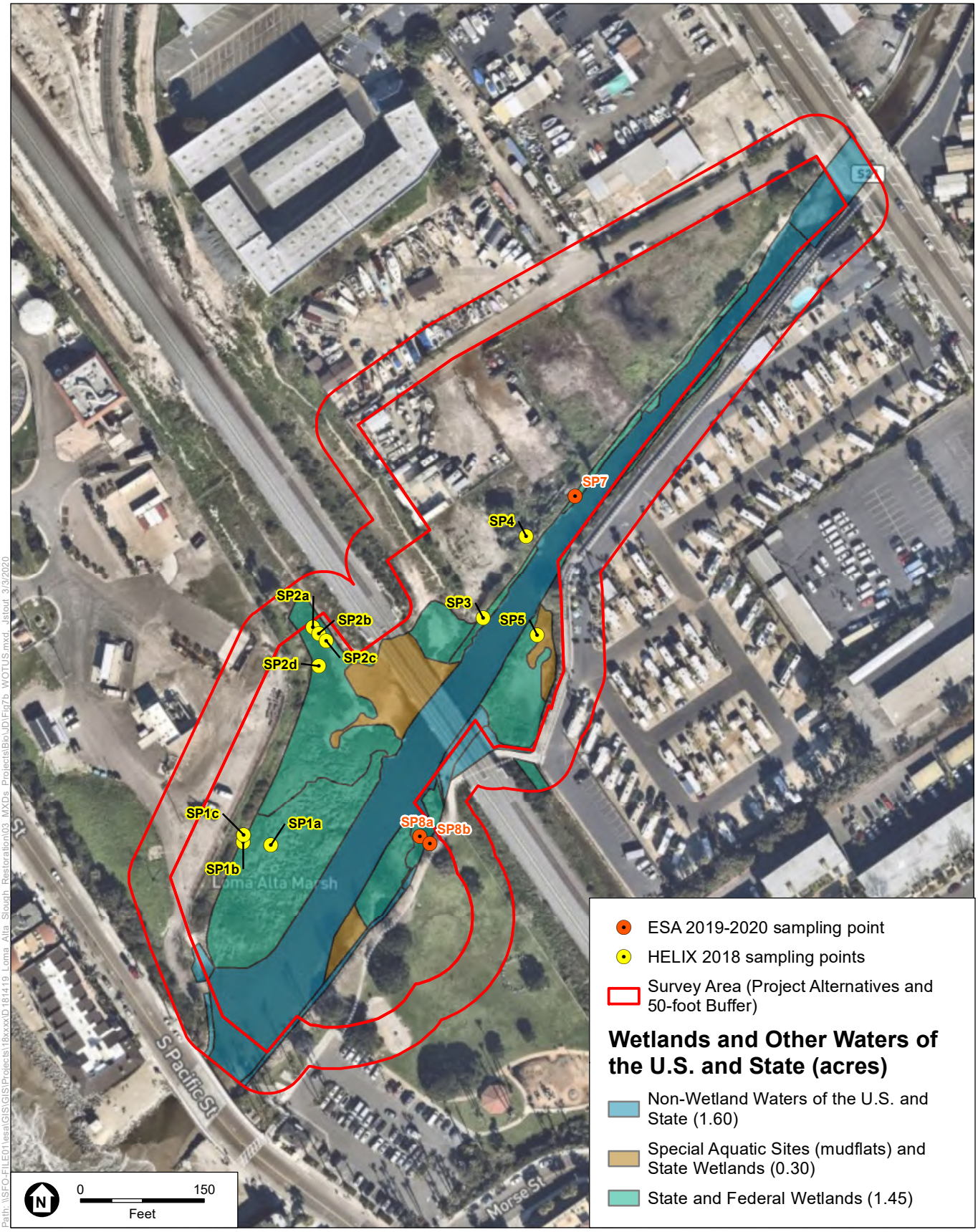


SOURCE: Mapbox 2018; Helix 2018; ESA 2020

Loma Alta Slough Wetlands Enhancement Project

Figure 7a
Potential Wetlands and Other Waters of the U.S. with Waters Name

ESA

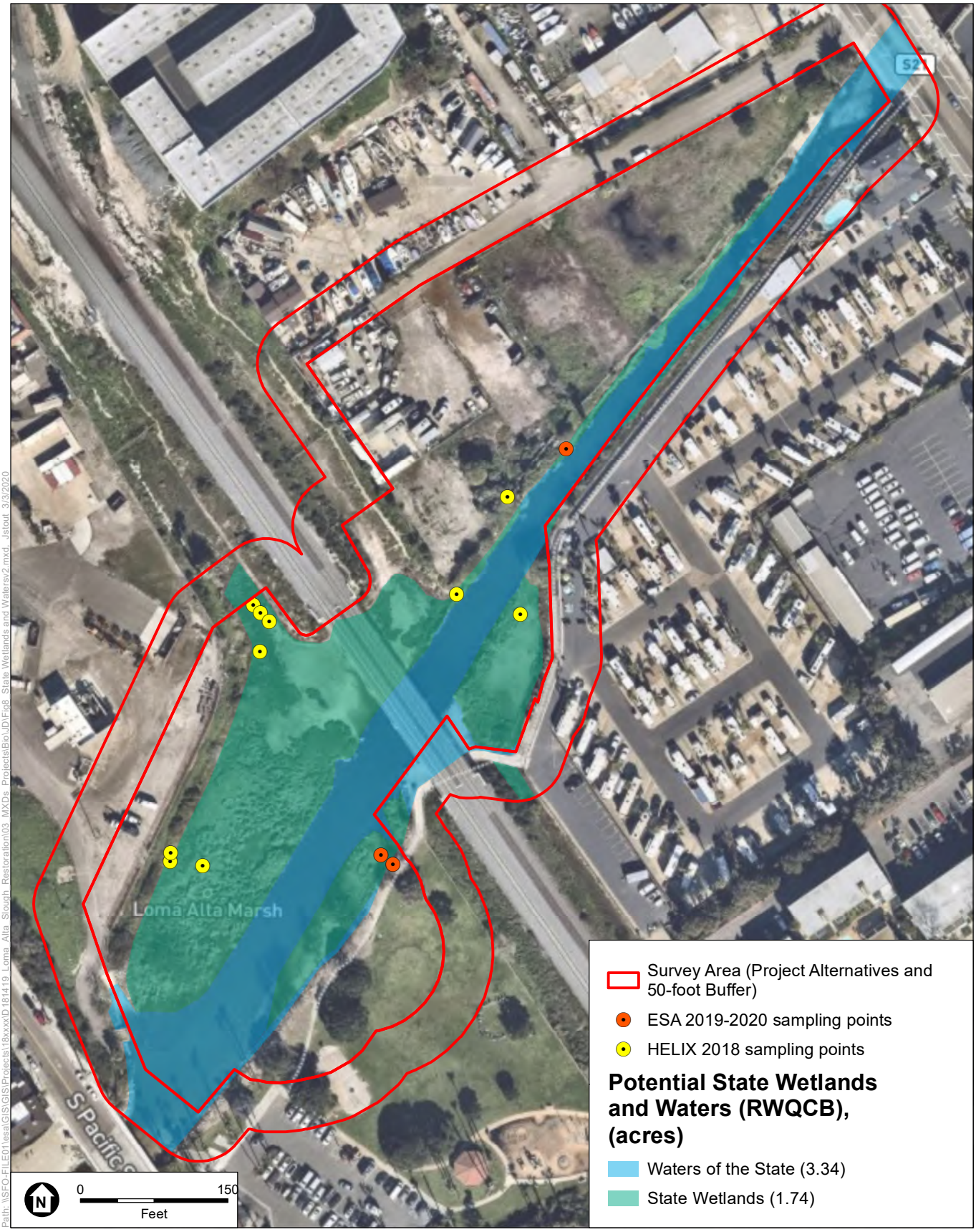


SOURCE: Mapbox 2018; Helix 2018; ESA 2020

Loma Alta Slough Wetlands Enhancement Project

Figure 7b
Potential Wetlands and Other Waters of the U.S. with Sample Points

ESA

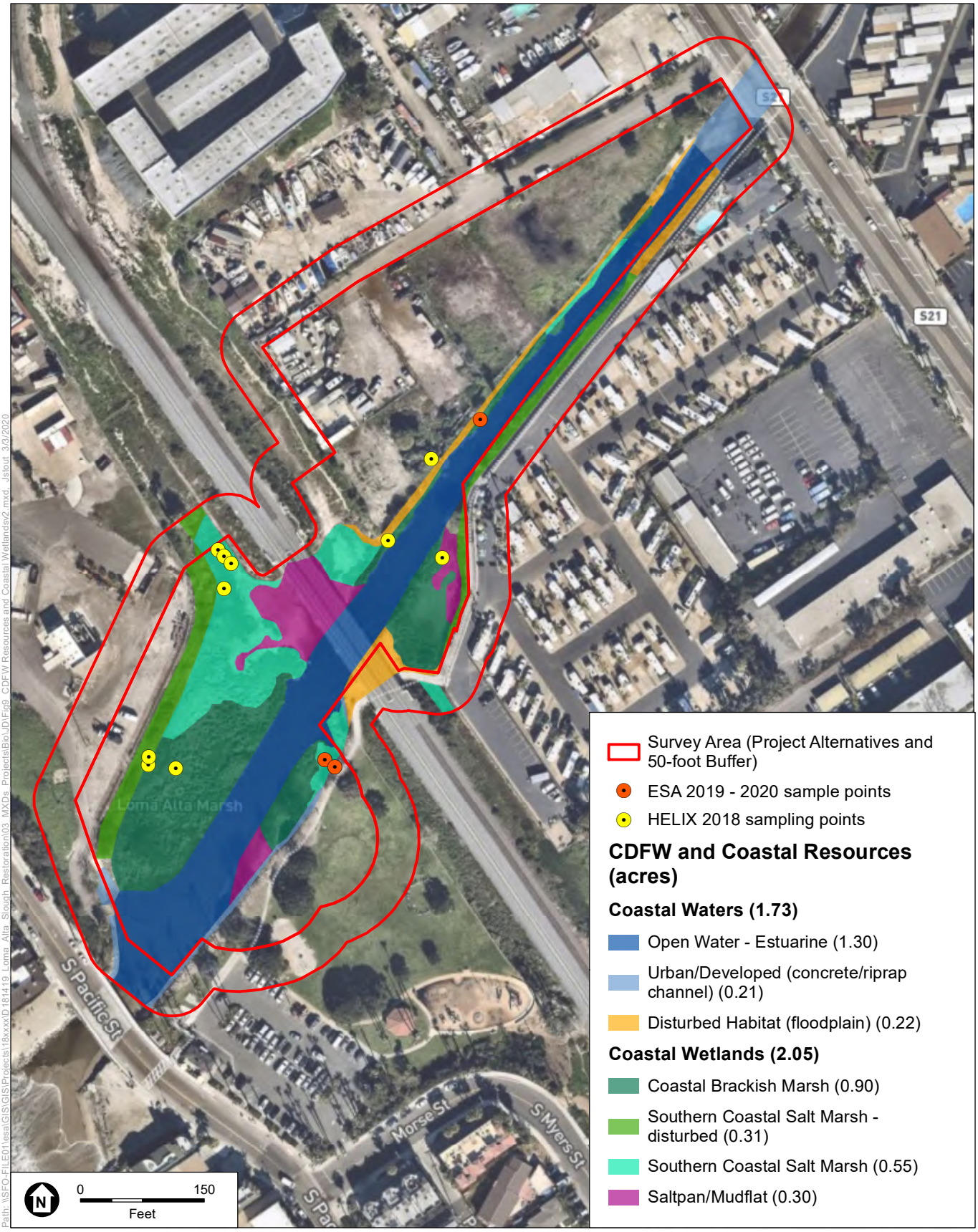


SOURCE: Mapbox 2018; Helix 2018; ESA 2020

Loma Alta Slough Wetlands Enhancement Project

Figure 8
Potential State Wetlands and Waters (RWQCB)

ESA



SOURCE: Mapbox 2018; Helix 2018; ESA 2020

Loma Alta Slough Wetlands Enhancement Project

Figure 9
CDFW Resources and Coastal Wetlands

ESA

Appendix A
Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Lower Alta Slough Restr Area City/County: Oceanside / SD Sampling Date: 3/9/18

Applicant/Owner: City WVD State: CA Sampling Point: 1a

Investigator(s): Talaya R & Jason K Section, Township, Range: 35, 11S, 5W

Landform (hillslope, terrace, etc.): slough Local relief (concave, convex, none): none Slope (%): <1%

Subregion (LRR): C Lat: 33°10' 40" N Long: 117°22'07" W Datum: NAD 83

Soil Map Unit Name: TuB NWI classification: E2EMP1

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:

vegetated slough, saturated to surface

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 40'x20')	Absolute % Cover	Dominant Species?	Indicator Status
1. Typha sp.	10	Y	OBL
2.			
3.			
4.			
	10 = Total Cover		
Sapling/Shrub Stratum (Plot size: 40'x20')			
1. Typha sp.	20	Y	OBL
2. Distichlis spicata	40	Y	FAC
3.			
4.			
5.			
	60 = Total Cover		
Herb Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 10% % Cover of Biotic Crust 30%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 3/3 = 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

This layer of crust over bare ground. Distribution patchy.

SOIL

Sampling Point: 1a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-1	10YR 3/1	100	–	–	–	–	SiLo	
1-18	5Y 3/1	100	–	–	–	–	SiClLo	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- X Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

Live roots 15" down

Hydrogen Sulfide odor in top 12" – A4

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- X Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- X Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes X No ___ Depth (inches): 8"

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 4"

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Loma Alta Slough Rest Area City/County: Oceanside / SD Sampling Date: 3/9/18

Applicant/Owner: City WUD State: CA Sampling Point: 1b

Investigator(s): Talaya R & Jason K Section, Township, Range: 35, 11S, 5W

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 1%

Subregion (LRR): C Lat: 33° 10' 40" N Long: 117° 22' 07" W Datum: NAD 83

Soil Map Unit Name: TuB NWI classification: E2EMP1

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 3'x3')			
1. Distichlis spicata	100	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1/1 = 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: 1b

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/1	100	–	–	–	–	C L Lo	high organic debris / roots
3-18	2.5YR 3/1	100	–	–	–	–	Si C L Lo	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

Although area lacks indicators it is only +/- 1 to 2 feet higher than SP 1a. Sampling point is at the toe of slope and in an alkali marsh where soil is not expected to have redox features (pH ≥ 8.3). Determination was made that hydric soil is present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 7"

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

FAC-N test: 1:0

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Loma Alta Slough Rest Area City/County: Oceanside / SD Sampling Date: 3/9/18

Applicant/Owner: City WUD State: CA Sampling Point: 1C

Investigator(s): Talaya R & Jason K Section, Township, Range: 35, 11S, 5W

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 45%

Subregion (LRR): C Lat: 33°10' 40" N Long: 117° 22' 07" W Datum: NAD 83

Soil Map Unit Name: TuB NWI classification: E2EMP1

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____ No X	
Wetland Hydrology Present?	Yes ____ No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 10x40)			
1. Rhus integrifolium	10	Y	UPL
2. Foeniculum vulgare	<1	N	UPL
3.			
4.			
5.			
	10 = Total Cover		
Herb Stratum (Plot size: 5x5)			
1. Distichlis spicata	50	Y	FAC
2. Jaumea carnosa	40	Y	OBL
3.			
4.			
5.			
6.			
7.			
8.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 2/3 - 66% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: 1c

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	7.5Y 2.5/1	100	—	—	—	—	SaLo	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

FAC-N test: 2:1

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Loma Alta Slough Rest Area City/County: Oceanside / SD Sampling Date: 3/9/18

Applicant/Owner: City WUD State: CA Sampling Point: 2a

Investigator(s): Talaya R & Jason K Section, Township, Range: 35, 11S, 5W

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1%

Subregion (LRR): C Lat: 33°10'43"N Long: 117°22'06"N Datum: NAD 83

Soil Map Unit Name: TuB NWI classification: E2EMP1

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes ____ No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 5'x5')			
1. Salicornia pacifica	5	Y	OBL
2.			
3.			
4.			
5.			
	5 = Total Cover		
Herb Stratum (Plot size: 5'x5')			
1. Distichlis spicata	30	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	30 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 2/2 = 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: 2a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
1-3	10YR 4/3	60	10YR 3/1	40	C	M	ClLo	
3-12	10YR 4/3	100	-	-	-	-	SaLo	
12-18	10YR 3/1	70	10YR 4/3	30	C	M	SaLo	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

Although area lacks indicators elevation is only a few feet above the observed water elevation at the time of the survey. Area has alkaline soils (pH 8.3). Redox features not expected. Determination was made that hydric soils are present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

FAC-N test: 2:0

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Loma Alta Slough Rest Area City/County: Oceanside / SD Sampling Date: 3/9/18

Applicant/Owner: City WVD State: CA Sampling Point: 2b

Investigator(s): Talaya R & Jason K Section, Township, Range: 35, 11S, 5W

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1%

Subregion (LRR): C Lat: 33°10' 42" N Long: 117°22' 06" W Datum: NAD 83

Soil Map Unit Name: TuB NWI classification: EZEMP1

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 10'x10')			
1. Salicornia pacifica	15	Y	OBL
2. Distichlis spicata	40	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	55 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 45 % Cover of Biotic Crust 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 2/2=100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species ____	x 1 =	____
FACW species ____	x 2 =	____
FAC species ____	x 3 =	____
FACU species ____	x 4 =	____
UPL species ____	x 5 =	____
Column Totals: ____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: 2b

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	2.5Y 4/4	90	10YR 4/4	10	C	M	SiCl Lo	
14-22	2.5Y 4/1	100	–	–	–	–	SiCl Lo	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

Although area lacks indicators elevation is only a few feet above the observed water elevation at the time of the survey. Area has alkaline soils (pH 8.3) Redox features not expected. Determination was made that hydric soils are present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- X Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- X Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): _____

Water Table Present? Yes ___ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 6"

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Loma Alta Slough Rest Area City/County: Oceanside / SD Sampling Date: 3/9/18

Applicant/Owner: City WVD State: CA Sampling Point: 2C

Investigator(s): Talaya R & Jason K Section, Township, Range: 35, 11S, 5W

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1%

Subregion (LRR): C Lat: 33°10' 42" N Long: 117°22' 06" W Datum: NAD 83

Soil Map Unit Name: TuB NWI classification: E2EMP1

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: ____)			
1. Distichlis spicata	90	Y	FAC
2. Salicornia pacifica	10	N	OBL
3.			
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 2/2=100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species ____	x 1 =	____
FACW species ____	x 2 =	____
FAC species ____	x 3 =	____
FACU species ____	x 4 =	____
UPL species ____	x 5 =	____
Column Totals: ____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: 2c

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
1-4	10YR 4/2	100	–	–	–	–	CLLo	
4-20	10YR 4/1	80	10YR 5/6	20	C	M	SaLo	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

Although area lacks indicators elevation is only a few feet above the observed water elevation at the time of the survey. Area has alkaline soils (pH 28.3) Redox features not expected. Determination was made that hydric soils are present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): _____

Water Table Present? Yes ___ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 8"

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

FAC-N : 2:0

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Loma Alta Slough Rest Area City/County: Oceanside / SD Sampling Date: 3/9/18

Applicant/Owner: City WVD State: CA Sampling Point: 2d

Investigator(s): Talaya R & Jason K Section, Township, Range: 35, 11S, 5W

Landform (hillslope, terrace, etc.): gentle slope Local relief (concave, convex, none): convex Slope (%): 2

Subregion (LRR): C Lat: 33°10'42"N Long: 117°22'6" W Datum: NAD 83

Soil Map Unit Name: TuB NWI classification: E2EMP1

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 5'x5')			
1. Distichlis spicata	100	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1/1 = 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species ____	x 1 =	____
FACW species ____	x 2 =	____
FAC species ____	x 3 =	____
FACU species ____	x 4 =	____
UPL species ____	x 5 =	____
Column Totals: ____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: 2d

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 3/1	100	-	-	-	-	Clay	organic debris high
1-15	10YR 4/1	99	7.5YR 4/6	1	C	PL	clay	oxidized rhizosphere found

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

Although area lacks indicators elevation is only a few feet above the observed water elevation at the time of the survey. Area has alkaline soils (pH 8.3) Redox features not expected. Determination was made that hydric soils are present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): _____

Water Table Present? Yes ___ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): _____

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Loma Alta Slough Rest Area City/County: Oceanside / SD Sampling Date: 3/9/18

Applicant/Owner: City WVD State: CA Sampling Point: 3

Investigator(s): Talaya R & Jason K Section, Township, Range: 35, 11S, 5W

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 5

Subregion (LRR): C Lat: 33°10'43" N Long: 117°22'04" W Datum: NAD 83

Soil Map Unit Name: TuB NWI classification: EZEMP1

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15'x4')			
1. Typha sp.	15	Y	OBL
2. Iunacea leopoldii	10	Y	FACW
3.			
4.			
5.			
	25 = Total Cover		
Herb Stratum (Plot size: 2'x2')			
1. Distichlis spicata	55	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	55 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 3/3 = 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	100	–	–	–	–	SiClLo	
4-15	10YR 4/2	100	–	–	–	–	SiClLo	
15-18	2.5Y 4/1	98	10YR 4/6	2	C	M	SiClLo	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

Although area lacks indicators elevation is only a few feet above the observed water elevation at the time of the survey. Area has alkaline soils (pH 8.3) Redox features not expected. Determination was made that hydric soils are present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- X Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): _____

Water Table Present? Yes ___ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 11

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	100	–	–	–	–	SiClLo	
4-15	10YR 4/2	100	–	–	–	–	SiClLo	
15-18	2.5Y 4/1	98	10YR 4/6	2	C	M	SiClLo	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

Although area lacks indicators elevation is only a few feet above the observed water elevation at the time of the survey. Area has alkaline soils (pH 8.3) Redox features not expected. Determination was made that hydric soils are present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- X Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): _____

Water Table Present? Yes ___ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 11

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Loma Alta Slough Rest Area City/County: Oceanside / SD Sampling Date: 3/9/18

Applicant/Owner: City WUD State: CA Sampling Point: 4

Investigator(s): Talaya R & Jason K Section, Township, Range: 35, 11S, 5W

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0%

Subregion (LRR): C Lat: 33°10'43"N Long: 117°22'03"W Datum: NAD 83

Soil Map Unit Name: TuB NWI classification: E2EMP1

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____ No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____ No X	
Wetland Hydrology Present?	Yes ____ No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 15'x15')	Absolute % Cover	Dominant Species?	Indicator Status
1. Washingtonia robusta	25	~~Y~~	FACW
2. Schinus terebinthifolius	25	Y	FACU
3.			
4.			
	50	= Total Cover	

Sapling/Shrub Stratum (Plot size: 10'x10')			
1. Schinus terebinthifolius	5	Y	FACU
2.			
3.			
4.			
5.			
	5	= Total Cover	

Herb Stratum (Plot size: 3'x3')			
1. Bermuda buttercup	5	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	5	= Total Cover	

Woody Vine Stratum (Plot size: ____)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 95 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1/4 = 25 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/4	100	—	—	—	—	Lo	
12-15	2.5Y 6/2	100	—	—	—	—	SaLo	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

FAC-N 1:3 Fail

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Loma Alta Slough Rest. Area City/County: Oceanside / SD Sampling Date: 3/9/18

Applicant/Owner: City WUD State: CA Sampling Point: 5

Investigator(s): Talaya R & Jason K Section, Township, Range: 35, 11S, 5W

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1%

Subregion (LRR): C Lat: 33°10'42" N Long: 117°22'03" W Datum: NAD 83

Soil Map Unit Name: TuB NWI classification: E2EMP1

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 2'x2')			
1. Distichlis spicata	100	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1/1 = 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

Sampling Point: 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2	100	-	-	-	-	SiCLo	saturated
4-18	10YR 5/1	95	10YR 5/6	5	C	PL/M	CLo	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

Although area lacks indicators elevation is only a few feet above the observed water elevation at the time of the survey. Area has alkaline soils (pH ≥ 8.3) Redox features not expected. Determination was made that hydric soils are present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 0"

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Loma Alta Slough Wetlands Enhancement Project City/County: Oceanside/San Diego Sampling Date: 7/1/19

Applicant/Owner: City of Oceanside State: CA Sampling Point: 7

Investigator(s): Cailin Lyons Section, Township, Range: Sec. 26, T11S, R5W, Oceanside quadrangle

Landform (hillslope, terrace, etc.): Slough Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C - Mediterranean California Lat: 33.1790431 Long: -117.3674746 Datum: NAD83

Soil Map Unit Name: Tujunga sands NWI classification: Estuarine

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (•) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (•) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (•)	
Hydric Soil Present?	Yes ( )	No (•)	**Is the Sampled Area within a Wetland?** Yes (•) No ( )
Wetland Hydrology Present?	Yes ( )	No (•)	

Remarks: Hydrology and hydrophytic vegetation indicators present, hydric soils assumed.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Typha sp.*	100	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	100 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	100	x 1 =	100
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	100 (A)		100 (B)

Prevalence Index = B/A = 1.00

Hydrophytic Vegetation Indicators:

- [x] Dominance Test is >50%
- [x] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (•) No ( )

Remarks: Hydrophytic vegetation present.

SOIL

Sampling Point: 7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
NA	NA	NA	NA	NA			NA	NA

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: Sampling point inundated with standing water, thus could not dig soil pit. Hydric soils assumed to presence of strong hydrophytic vegetation and hydrology indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☒ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ◉ No ○ Depth (inches):

Water Table Present? Yes ○ No ○ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ○ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Sampling point located in active channel of Loma Alta Creek. Standing water associated with regular creek flows present at sampling point.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Loma Alta Wetland Enhancement Project City/County: San Diego Sampling Date: 1/20/2020
Applicant/Owner: City of Oceanside State: CA Sampling Point: SP8a
Investigator(s): Julie Stout Section, Township, Range: Section 26, Township 11 South, Range 5 West
Landform (hillslope, terrace, etc.): flood bench Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): C Lat: 33.177905 Long: -117.368075 Datum: NAD 83
Soil Map Unit Name: Tujunga sand, 0 to 5 percent slopes NWI classification: E2EM1P
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ___ (If no, explain in Remarks.)
Are Vegetation ___ Soil ___ or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes **x** No ___
Are Vegetation ___ Soil ___ or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes x No ___
Hydric Soil Present? Yes x No ___ **Is the Sampled Area**
Wetland Hydrology Present? Yes x No ___ **within a Wetland?** **Yes** X **No** ___

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' R)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' R)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' R)			
1. *Distichlis spicata*	100	y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30' R)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1= 0
FACW species	x 2= 0
FAC species 100	x 3= 300
FACU species	x 4= 0
UPL species	x 5= 0
Column Totals: 100 (A)	300 (B)

Prevalence Index = B/A = 3

Hydrophytic Vegetation Indicators:

___ 1- Rapid Test For Hydrophytic Vegetation
x 2- Dominance Test is >50%
x 3- Prevalence Index is ≤3.0[1]
___ 4- Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5- Wetland Non-Vascular Plants[1]
___ 6- Problematic Hydrophytic Vegetation[1](Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **x** **No** ___

Remarks:

SOIL Sampling Point: SP8a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	5Y4/1	96	5YR3/4	4	C	M	Sandy clay	8" thatch

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- x Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be presetn, unless disturbed or problematic

Restrictive Layer (if present):

Type: rock/base or asphalt like material (bla

Depth (inches): ___

Hydric Soil Present? **Yes** x **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- x Inundation Visible on Aerial Imagery(B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No x	Depth (Inches): ___		
Water Table Present?	Yes ___	No x	Depth (Inches): ___		
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (Inches): ___	**Wetland Hydrology Present?**	**Yes** x **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Loma Alta Wetland Enhancement Project | City/County: San Diego | Sampling Date: 1/20/2020
Applicant/Owner: City of Oceanside | State: CA | Sampling Point: SP8b
Investigator(s): Julie Stout | Section, Township, Range: Section 26, Township 11 South, Range 5 West
Landform (hillslope, terrace, etc.): slope/bench | Local relief (concave, convex, none): convex | Slope (%): 1
Subregion (LRR): C | Lat: 33.177881 | Long: -117.368034 | Datum: NAD83
Soil Map Unit Name: Tujunga sand, 0 to 5 percent slopes | NWI classification: E2EM1P
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ___ (If no, explain in Remarks.)
Are Vegetation x Soil ___ or Hydrology x significantly disturbed? Are "Normal Circumstances" present? Yes ___ No X
Are Vegetation ___ Soil ___ or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes x No ___
Hydric Soil Present? Yes ___ No x
Wetland Hydrology Present? Yes ___ No x
Is the Sampled Area within a Wetland? **Yes** ___ **No** X

Remarks: Sample point is on the upper slope of the Loma Alta Creek channel in Buccaneer Park. The point is within an area where irrigation is present and vegetation is managed as part of park maintenance. The sycamore appear to be planted.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' R)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Platanus racemosa*	40	y	FAC
2.			
3.			
4.			
	40	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30' R)			
1. *Heteromeles arbutifolia*	15	y	UPL
2. *Washingtonia robusta*	20	y	FACW
3.			
4.			
5.			
	35	= Total Cover	
Herb Stratum (Plot size: 5' R)			
1. *Ambrosia psilostachya*	10	y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	10	= Total Cover	
Woody Vine Stratum (Plot size: 30' R)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ___	x 1= 0
FACW species ___	x 2= 0
FAC species ___	x 3= 0
FACU species ___	x 4= 0
UPL species ___	x 5= 0
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1- Rapid Test For Hydrophytic Vegetation
___ 2- Dominance Test is >50%
___ 3- Prevalence Index is ≤3.0[1]
___ 4- Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5- Wetland Non-Vascular Plants[1]
___ 6- Problematic Hydrophytic Vegetation[1](Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** x **No** ___

Remarks: wood chips/organic material

SOIL Sampling Point: SP8b

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR4/3	99	7.5YR4/6		C	M	Sandy loam	soil is possibly fill material related to park and developed areas

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be presetn, unless disturbed or problematic

Restrictive Layer (if present):

Type:
Depth (inches):

Hydric Soil Present? **Yes** ___ **No** **x**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery(B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No x	Depth (Inches): ___
Water Table Present?	Yes ___	No x	Depth (Inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (Inches): ___

Wetland Hydrology Present? **Yes** ___ **No** **x**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Appendix B

Representative Site Photographs

Representative Site Photographs – January 10, 2020 (Locations in Figure 3)

Photo point 1 facing northeast

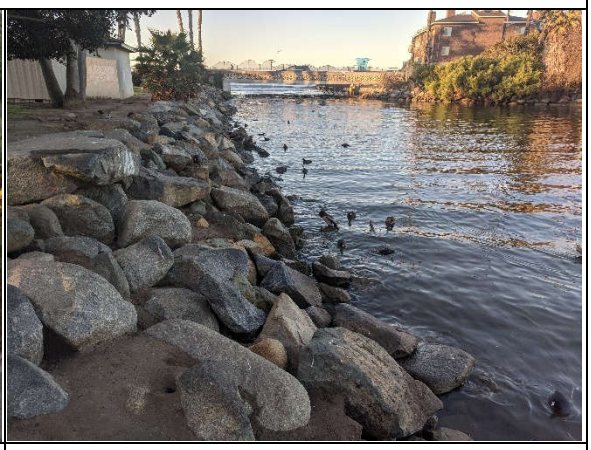


Photo point 1 facing southwest

Photo point 2 at sample point 7a (wetland) facing northwest

Photo point 3 at sample point 7b (upland) facing northwest

Photo point 4 facing southwest

Photo point 5 facing southwest

Representative Site Photographs – January 10, 2020 (Locations in Figure 3)

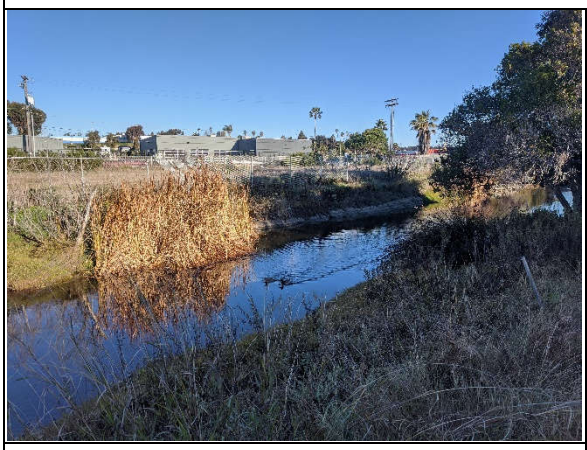


Photo point 6 facing northeast

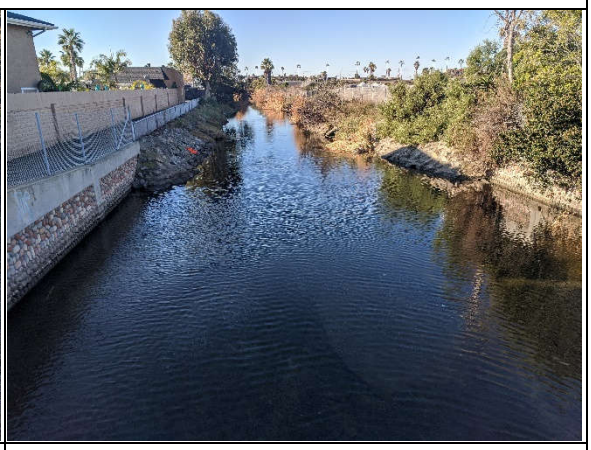


Photo point 7 facing southwest

Appendix B

Representative Site Photographs

Representative Site Photographs – January 10, 2020 (Locations in Figure 3)

Photo point 1 facing northeast

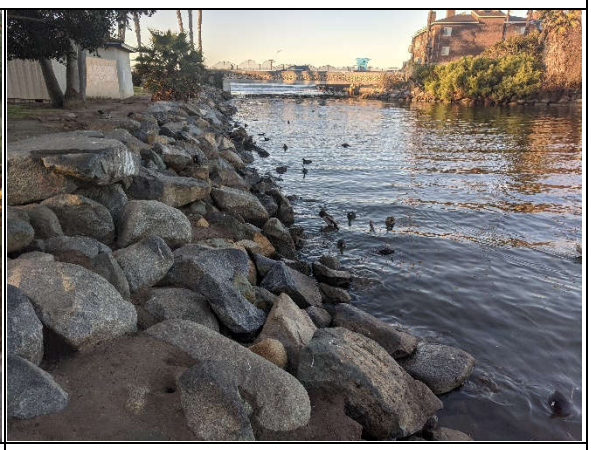


Photo point 1 facing southwest

Photo point 2 at sample point 7a (wetland) facing northwest

Photo point 3 at sample point 7b (upland) facing northwest

Photo point 4 facing southwest

Photo point 5 facing southwest

Representative Site Photographs – January 10, 2020 (Locations in Figure 3)

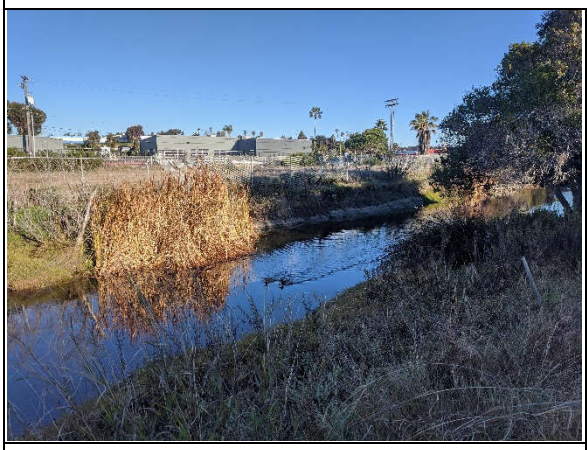


Photo point 6 facing northeast

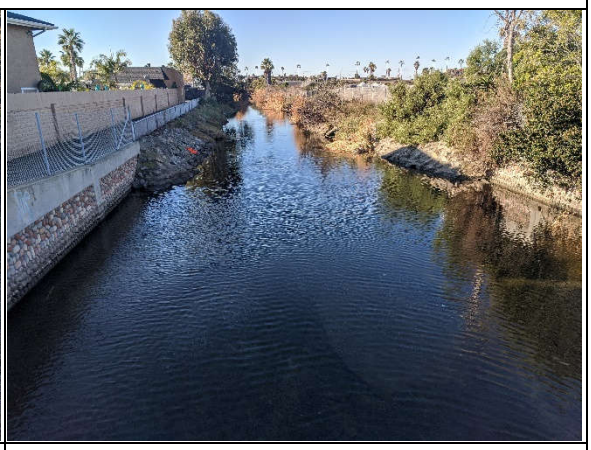


Photo point 7 facing southwest

Appendix B
Floral Compendium

APPENDIX B: FLORAL COMPENDIUM

EUDICOTS

	Scientific Name	Common Name
	Aizoaceae	**Fig-Marigold Family**
*	*Carpobrotus edulis*	hottentot fig
*	*Mesembryanthemum crystallinum*	common iceplant
	Amaranthaceae	**Amaranth Family**
*	*Amaranthus albus*	tumbling pigweed
	Anacardiaceae	**Sumac Family**
	Rhus integrifolia	lemonade sumac
*	*Schinus terebinthifolius*	Brazilian peppertree
	Apiaceae	**Carrot Family**
*	*Foeniculum vulgare*	sweet fennel
	Apocynaceae	**Dogbane Family**
*	*Nerium oleander*	oleander
	Asteraceae	**Aster Family**
	Ambrosia psilostachya	western ragweed
	Artemisia californica	California sagebrush
*	*Glebionis coronaria*	crown daisy
*	*Helminthotheca echioides*	bristly ox-tongue
	Heterotheca grandiflora	telegraphweed
	Isocoma menziesii	Menzies' goldenbush
	Jaumea carnosa	marsh jaumea
	Pseudognaphalium sp.	cudweed
*	*Sonchus oleraceus*	common sowthistle
	Boraginaceae	**Borage Family**
	Heliotropium curassavicum	salt heliotrope
	Brassicaceae	**Mustard Family**
*	*Raphanus sativus*	cultivated radish
	Chenopodiaceae	**Goosefoot Family**
*	*Bassia hyssopifolia*	fivehorn smotherweed
	Salicornia pacifica	Pacific swampfire
	Convolvulaceae	**Morning-Glory Family**
	Cressa truxillensis	spreading alkaliweed
	Crassulaceae	**Stonecrop Family**
*	*Crassula ovata*	jade plant

EUDICOTS

Scientific Name	Common Name
Euphorbiaceae	**Spurge Family**
Euphorbia sp.	spurge
* *Ricinus communis*	castor bean
Fabaceae	**Legume Family**
Acacia sp.	acacia
* *Melilotus indicus*	Indian sweetclover
Frankeniaceae	**Frankenia Family**
Frankenia salina	alkali heath
Geraniaceae	**Geranium Family**
Erodium sp.	stork's bill
Malvaceae	**Mallow Family**
* *Grewia occidentalis*	crossberry
Malva sp.	ornamental mallow
Myrtaceae	**Myrtle Family**
* *Eucalyptus sp.*	gum tree
Platanaceae	**Sycamore Family**
* *Platanus x hispanica*	London plane tree
Plumbaginaceae	**Leadwort Family**
* *Limonium sinuatum*	wavyleaf sea lavender
* *Plumbago auriculata*	blue plumbago
Rosaceae	**Rose Family**
Heteromeles arbutifolia	toyon
Pyrus sp.	pear
Salicaceae	**Willow Family**
Populus sp.	cottonwood
Salix sp.	willow
Solanaceae	**Nightshade Family**
* *Nicotiana glauca*	tree tobacco

MONOCOTYLEDONS

Scientific Name	Common Name
Arecaceae	**Palm Family**
* *Phoenix canariensis*	Canary Island date palm
* *Washingtonia robusta*	Mexican fan palm
Cyperaceae	**Sedge Family**
Schoenoplectus californicus	California bulrush
Juncaceae	**Rush Family**
Juncus acutus ssp. leopoldii	southwestern spiny rush
Poaceae	**Grass Family**
* *Arundo donax*	arundo
* *Avena* sp.	oat
* *Bromus diandrus*	ripgut brome
* *Cynodon dactylon*	Bermuda grass
* *Distichlis spicata*	salt grass
* *Festuca perennis*	Italian rye grass
* *Paspalum dilatatum*	dallis grass
* *Pennisetum setaceum*	African fountain grass
* *Polypogon monspeliensis*	annual beard grass
Strelitziaceae	**Bird of Paradise Family**
* *Strelitzia reginae*	bird of paradise
Typhaceae	**Cattail Family**
Typha domingensis	slender cattail

GYMNOSPERMS

Scientific Name	Common Name
Pinaceae	**Pine Family**
Pinus sp.	ornamental pine

Appendix C
Faunal Compendium

APPENDIX C: FAUNAL COMPENDIUM

INVERTEBRATES

Scientific Name	Common Name
Insecta (Order Lepidoptera)	**Butterflies and Moths**
Nymphalis antiopa	mourning cloak
Insecta (Order Odonata)	**Damselflies and Dragonflies**
Tramea onusta	red saddlebags

BIRDS

Scientific Name	Common Name
Anatidae	**Waterfowl**
Anas platyrhynchos	mallard
Podicipedidae	**Grebes**
Podilymbus podiceps	pied-billed grebe
Pelecanidae	**Pelicans**
Pelecanus occidentalis	brown pelican
Ardeidae	**Herons**
Ardea alba	great egret
Ardea herodias	great blue heron
Egretta thula	snowy egret
Recurvirostridae	**Stilts and Avocets**
Himantopus mexicanus	black-necked stilt
Laridae	**Gulls and Terns**
Larus occidentalis	western gull
Columbidae	**Pigeons and Doves**
* *Columba livia*	rock pigeon
* *Streptopelia decaocto*	Eurasian collared-dove
Trochilidae	**Hummingbirds**
Hummingbird sp.	hummingbird
Picidae	**Woodpeckers**
Dryobates nuttallii	Nuttall's woodpecker

BIRDS

	Scientific Name	Common Name
	Tyrannidae	**Tyrant Flycatchers**
	Sayornis nigricans	black phoebe
	Corvidae	**Jays and Crows**
	Corvus brachyrhynchos	American crow
	Hirundinidae	**Swallows**
	Hirundo rustica	barn swallow
	Petrochelidon pyrrhonota	cliff swallow
	Sturnidae	**Starlings**
*	*Sturnus vulgaris*	European starling
	Fringillidae	**Finches**
	Haemorhous mexicanus	house finch
	Passerellidae	**New World Sparrows**
	Melospiza melodia	song sparrow
	Parulidae	**Wood Warblers**
	Geothlypis trichas	common yellowthroat
	Passeridae	**Old World Sparrows**
*	*Passer domesticus*	house sparrow

MAMMALS

Scientific Name	Common Name
Sciuridae	**Squirrels and Chipmunks**
Otospermophilus beecheyi	California ground squirrel
Felidae	**Cats**
Felis catus	domestic cat

Appendix D

Special-Status Plant Species with Potential to Occur

APPENDIX D: SPECIAL-STATUS PLANT SPECIES WITH POTENTIAL TO OCCUR

Scientific Name	Common Name	Flowering Period	Federal	State	Local (CRPR/ Other)	Preferred Habitat	Distribution	Potential to Occur
ANGIOSPERMS (DICOTYLEDONS)								
Apiaceae	**Carrot Family**							
Eryngium aristulatum var. *parishii*	San Diego button-celery	Apr.-Jun.	FE	CE	1B.1 MHCP NE	Coastal scrub, valley and foothill grassland, vernal pools; grows within San Diego mesa hardpan, claypan vernal pools, southern interior basalt flow vernal pools. 20-620 meters.	San Diego and Riverside.	**Not Expected** The survey area lacks suitable hardpan or claypan soils to support adequate ponding for this species. Additionally, no desiccated leaves, stems, or stalks for this species were observed at the time of the 2019 survey. This species has been reported within one mile of the survey area (CDFW 2019).
Asteraceae	**Sunflower Family**							
Ambrosia pumila	San Diego ambrosia	Apr.-Oct.	None	None	1B.1 MHCP NE	Chaparral, coastal scrub, valley and foothill grassland, and vernal pools. Sandy loam and clay. 20-415 meters.	Riverside, San Diego, and Baja California.	**Not Expected** The survey area lacks suitable chaparral, coastal scrub, valley and foothill grassland, and vernal pool habitat for this species. Additionally, this species is a perennial herb that would have been in flower and apparent at the time the 2019 survey was conducted.

Scientific Name	Common Name	Flowering Period	Federal	State	Local (CRPR/ Other)	Preferred Habitat	Distribution	Potential to Occur
Baccharis vanessae	Encinitas baccharis	Aug.-Nov.	FT	CE	1B.1 MHCP NE	Maritime chaparral, cismontane woodland; sandstone. 60-720 meters.	San Diego.	**Not Expected** The survey area lacks suitable maritime chaparral and cismontane woodland habitat. Species is also a conspicuous perennial that would likely have been observed at the time of the survey if present.
Centromadia pungens ssp. *laevis*	smooth tarplant	Apr.-Sep.	None	None	1B.1	Valley and foothill grasslands with poorly drained alkaline soil conditions at low elevations. 0-640 meters.	Riverside, San Bernardino, San Diego.	**Not Expected** This species is not expected to occur as the survey area lacks suitable valley and foothill grassland and 2019 survey was conducted at an appropriate time of year to detect vegetative and flowering individuals. This species has been reported within one mile of the survey area (CDFW 2019).
Chaenactis glabriuscula var. *orcuttiana*	Orcutt's pincushion	Jan.-Aug.	None	None	1B.1	Coastal bluff scrub (sandy), coastal dunes. 0-100 meters	Los Angeles, San Diego, Ventura, possibly Orange.	**Not Expected** The survey area lacks suitable coastal bluff scrub or coastal dune habitat to support this species. Additionally, the 2018 and 2019 surveys were conducted at an appropriate time of year to detect flowering individuals. This species has been reported within one mile of the survey area (CDFW 2019).
Corethrogyne filaginifolia var. *linifolia*	Del Mar Mesa sand aster	May, Jul.-Sept.	None	None	1B.1 MHCP NE	Coastal bluff scrub, chaparral (maritime, openings), coastal scrub. Sandy soils. 15-150 meters	San Diego	**Not Expected** The survey area lacks suitable coastal bluff scrub, chaparral or coastal scrub habitat to support this species. Additionally, the 2019 survey was conducted at an appropriate time of year to detect flowering individuals.
Hazardia orcuttii	Orcutt's hazardia	Aug.-Oct.	None	CT	1B.1 MHCP NE	Chaparral (maritime), coastal scrub/often clay. 80-85 meters	San Diego, Baja California.	**Not Expected** The survey area lacks suitable chaparral or coastal scrub habitat to support this species. Additionally, this species is a conspicuous perennial shrub that would likely have been observed at the time of the 2018 and 2019 surveys if present.

Scientific Name	Common Name	Flowering Period	Federal	State	Local (CRPR/ Other)	Preferred Habitat	Distribution	Potential to Occur
Crassulaceae	**Stonecrop Family**							
Dudleya blochmaniae ssp. *blochmaniae*	Blochman's dudleya	Apr.-Jun.	None	None	1B.1 MHCP	Coastal bluff scrub, coastal scrub, valley and foothill grassland/often clay. 5-450 meters.	Los Angeles, Orange, Santa Barbara, Ventura.	**Not Expected** The survey area lacks suitable coastal bluff scrub, coastal scrub, and valley and foothill grassland with clay soils to support this species. Additionally, no desiccated leaves, stems, or stalks for this species were observed at the time of the survey. This species has been reported within one mile of the survey area (CDFW 2019).
Dudleya brevifolia [=*Dudleya blochmaniae* spp. *brevifolia*]	short-leaved dudleya	Apr.-May	None	SE	1B.1 MHCP NE	Chaparral, coastal scrub. Torrey sandstone. 30-250 meters	San Diego	**Not Expected** The survey area lacks suitable chaparral and coastal scrub on Torrey sandstone soils.
Dudleya variegata	variegated dudleya	Apr.-Jun.	None	None	1B.2 MHCP NE	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland, and vernal pools. Clay soils. 3-580 meters.	San Diego and Baja California.	**Not Expected** The survey area lacks suitable chaparral, cismontane woodland, coastal scrub, valley and foothill grassland, and vernal pool habitats with clay soils to support this species. Additionally, no desiccated leaves, stems, or stalks for this species were observed at the time of the survey
Euphorbiaceae	**Spurge Family**							
Euphorbia misera	cliff spurge	Dec.-Oct.	None	None	2B.2	Coastal bluff scrub, coastal scrub, or Mojavean desert scrub areas, usually rocky. 10-500 meters.	Los Angeles, Orange, Riverside, San Diego.	**Not Expected** The survey area lacks suitable coastal bluff scrub, coastal scrub, and Mojavean desert scrub to support this species. Additionally, this species is a conspicuous perennial that would have been observed at the time of the 2018 and 2019 surveys if present. This species has been reported within one mile of the survey area (CDFW 2019).

Scientific Name	Common Name	Flowering Period	Federal	State	Local (CRPR/ Other)	Preferred Habitat	Distribution	Potential to Occur
Ericaceae	**Heather Family**							
Arctostaphylos glandulosa ssp. *crassifolia*	Del Mar manzanita	Dec.-Jun.	FE	None	1B.2 MHCP NE	Chaparral (maritime, sandy). 0-365 meters	San Diego and Baja California.	**Not Expected** The survey area lacks suitable chaparral habitat and species is a conspicuous perennial shrub that would likely have been observed at the time of the 2018 and 2019 surveys if present.
Fabaceae	**Pea Family**							
Acmispon prostratus [=*Lotus nuttalianus*]	Nuttall's acmispon	Mar.-Jul.	None	None	1B.1 MHCP NE	Coastal dunes, coastal scrub (sandy). 0-10 meters	San Diego and Baja California	**Not Expected** The survey area lacks suitable coastal dune or coastal scrub habitat to support this species. Additionally, the 2019 survey was conducted at an appropriate time of year to detect flowering individuals.
Lamiaceae	**Mint Family**							
Acanthomintha ilicifolia	San Diego thorn-mint	Apr.-Jun.	FT	CE	1B.1 MHCP NE	Chaparral, coastal scrub, valley and foothill grassland, and vernal pools. Clay openings. 520-1370 meters.	San Diego and Baja California.	**Not Expected** This species is not expected to occur on-site as site lacks suitable friable clay lens soils necessary to support this species. Additionally, no desiccated leaves, stems, or stalks for this species were observed at the time of the 2019 survey. This species has been reported within one mile of the survey area (CDFW 2019).

Scientific Name	Common Name	Flowering Period	Federal	State	Local (CRPR/ Other)	Preferred Habitat	Distribution	Potential to Occur
Malvaceae	**Mallow Family**							
Sidalcea neomexicana	salt spring checkerbloom	Mar.-Jun.	None	None	2B.2	Chaparral, coastal scrub, lower montane coniferous forest, Mojavean desert scrub, playas; alkaline and mesic soils. 15-1530 meters	Kern, Orange, Riverside, Ventura, San Bernardino, San Diego, possibly Los Angeles.	**Not Expected** The survey area lacks suitable chaparral, coastal scrub, coniferous forest, desert scrub, and playa habitat to support this species. Additionally, the 2018 survey was conducted at an appropriate time of year to detect flowering individuals, and no desiccated seeds, stems or stalks were observed during the 2019 survey. This species has been reported within one mile of the survey area (CDFW 2019).
Polemoniaceae	**Phlox Family**							
Navarretia fossalis	spreading navarretia	Apr.-Jun.	FT	None	1B.1 MHCP NE	Vernal pools and swales. 30-655 meters	Los Angeles, Riverside, San Diego, San Luis Obispo.	**Not Expected** The survey area lacks suitable vernal pool habitat or areas with sufficient ponding (e.g. swales).
Polygonaceae	**Buckwheat Family**							
Chorizanthe orcuttiana	Orcutt's spineflower	Mar.-May	FC	SE	1B.1 MHCP NE	Closed-cone coniferous forest, chaparral (maritime), coastal scrub. Sandy openings. 3-125 meters	San Diego	**Not Expected** The survey area lacks suitable chaparral, coastal scrub, or coniferous forest habitat to support this species. Additionally, the 2018 survey was conducted at an appropriate time of year to detect flowering individuals, and no desiccated seeds, stems or stalks were observed during the 2019 survey.
Nemacaulis denudata var. *denudata*	coast woolly-heads	Apr.-Sep.	None	None	1B.2	Coastal dunes. 0 - 100 meters	Los Angeles, Orange, San Diego.	**Not Expected** The survey area lacks suitable coastal dune habitat to support this species. Additionally, the 2019 survey was conducted at an appropriate time of year to detect flowering individuals. This species has been reported within one mile of the survey area (CDFW 2019).

Scientific Name	Common Name	Flowering Period	Federal	State	Local (CRPR/ Other)	Preferred Habitat	Distribution	Potential to Occur
Ranunculaceae	**Buttercup Family**							
Myosurus minimus ssp. *apus*	Little mousetail	Mar.-Jun.	None	None	3.1 MSHCP(d)	Associated with vernal pools and inundated grassland habitats. 20 - 640 meters	Alameda, Riverside, San Bernardino, San Diego.	**Not Expected** The survey area lacks suitable vernal pool habitat or areas with sufficient ponding (e.g. swales) to support this species.
ANGIOSPERMS (MONOCOTYLEDONS)								
Juncaceae	**Rush Family**							
Juncus acutus ssp. *leopoldii*	southwestern spiny rush	Mar.-Jun.	None	None	4.2	Mesic soils in coastal dunes; alkaline seeps in meadows; coastal salt marshes and swamps. 3 - 900 meters	Los Angele, Orange, San Diego, Ventura.	**Observed** This species was observed within cismontane alkali marsh habitat within the survey area.
Poaceae	**True Grass Family**							
Orcuttia californica	California Orcutt grass	Apr.-Aug.	FE	SE	1B.1 MHCP NE	Vernal pools. 15 - 660 meters	Los Angeles, Riverside, San Diego, Ventura.	**Not Expected** The survey area lacks suitable vernal pool habitat or areas with sufficient ponding (e.g. swales). Additionally, the 2019 survey was conducted at an appropriate time of year to detect flowering individuals.
Themidaceae	**Butcher's-Broom Family**							
Bloomeria clevelandii [=*Muilla clevelandii*]	San Diego goldenstar	Apr.-May	None	None	1B.1 MHCP NE	Chaparral, coastal scrub, valley and foothill grassland, vernal pools. Clay soils. 50-465 meters.	San Diego, Riverside, Baja California.	**Not Expected** This species is not expected to occur as the survey area lacks suitable friable clay soils necessary to support this species.

Scientific Name	Common Name	Flowering Period	Federal	State	Local (CRPR/ Other)	Preferred Habitat	Distribution	Potential to Occur
Brodiaea filifolia	Thread-leaved brodiaea	Mar.-Jun.	FT	CE	1B.1	Clay soils in coastal scrub, valley and foothill grassland, cismontane woodland, and vernal pools. 25 - 1120 meters.	Los Angeles, Orange, Riverside, San Diego, San Bernardino.	**Not Expected** This species is not expected to occur as the survey area lacks suitable clay soils necessary to support this species. Additionally, the 2018 survey was conducted at an appropriate time of year to detect flowering individuals.

Key to Species Listing Status Codes

FE	*Federally Endangered*	SE	*State Listed as Endangered*
FT	*Federally Threatened*	ST	*State Listed as Threatened*
MHCP	*City of Oceanside Subarea Habitat Conservation Plan (MHCP) covered species*		
NE	*MHCP narrow endemic species*		

Appendix E

Special-Status Wildlife Species with Potential to Occur

APPENDIX E: SPECIAL-STATUS WILDLIFE SPECIES WITH POTENTIAL TO OCCUR

Scientific Name	Common Name	Federal	State	MHCP	Preferred Habitat	Potential to Occur
INVERTEBRATES						
Crustacea/Branchipoda	**Fairy Shrimp**					
Branchinecta lynchi	vernal pool fairy shrimp	FT	NONE	MHCP NE	Valley and foothill grassland, vernal pool, wetland.	**Not Expected** The survey area lacks suitable vernal pool habitat or areas with sufficient ponding (e.g. swales).
Streptocephalus woottoni	Riverside fairy shrimp	FE	NONE	MHCP NE	Coastal scrub, valley and foothill grassland, vernal pool, wetland.	**Not Expected** The survey area lacks suitable vernal pool habitat or areas with sufficient ponding (e.g. swales).
Insecta/Carabidae						
Cicindela latesignata obliviosa	Oblivious tiger beetle	NONE	NONE	MHCP NE	Mud flats. Critical populations in Agua Hedionda, Batiquitos, Buena Vista, and San Elijo Lagoons.	**Low Potential** No suitable mud flat habitat was observed during the 2018 biological survey. However, an isolated patch of mud flat was documented within the survey area in 2015. Mud flats may be present within the survey area at times when freshwater and/or saltwater inputs are low, but is unlikely to support significant populations of this species due to the ephemeral and restricted nature of potential habitat. The survey area does not support a critical population of this species as identified by the MHCP.

Scientific Name	Common Name	Federal	State	MHCP	Preferred Habitat	Potential to Occur
Insecta/Hymenoptera	**Bees, Wasps, Ants**					
Bombus crotchii	crotch bumble bee	None	SCE	None	Open grassland and scrub habitats, primarily in the Mediterranean region, Pacific Coast, Western Desert, Great Valley, and adjacent foothills of southwestern California. Forages on open flowers with short corollas; most commonly associated with plant species in the Fabaceae, Apocynaceae, Asteraceae, Lamiaceae, and Boraginaceae families.	**Not Expected** The survey area lacks open grassland and scrub habitat. Additionally, vegetated areas in the survey area are highly fragmented and surrounded by development. This species has been reported within one mile of the survey area (CDFW 2019).
Insecta/Lepidoptera	**Butterflies and Moths**					
Euphyes vestis harbisoni	Harbison's dun skipper	None	None	MHCP NE	Chaparral, riparian, and oak woodlands with narrow canyons and drainages containing host plant, San Diego sedge (*Carex spissa*).	**Not Expected** The survey area lacks suitable chaparral, riparian, and oak woodland habitat with species' host plant.
Gobiidae	**Goby Family**					
Eucyclogobius newberryi	tidewater goby	FE	None	None	Brackish water habitats along the Calif coast from Agua Hedionda Lagoon, San Diego Co. to the mouth of the Smith River; prefer shallow lagoons and lower stream reaches within still, but not stagnant, waters; require high oxygen levels.	**Low Potential** This species has been reported within one mile of the survey area (CDFW 2019); however, the species hasn't been collected since 2000 at the Santa Margarita River and not since the 1950's at the San Luis Rey River or Buena Vista Lagoon[1]. The species is not known to occur in Loma Alta Slough currently or historically. Focused surveys conducted by Brenton Spies (pers. comm.) since 2015 were negative. Additionally, focused surveys for this species conducted in 2016 in Loma Alta Slough using environmental DNA were negative[2].

1 U.S. Fish and Wildlife Service 2005. Recovery Plan for the Tidewater Goby. December 7. Accessed at https://www.fws.gov/pacific/ecoservices/endangered/recovery/documents/TidewaterGobyfinalRecoveryPlan.pdf

2 Sutter, M. and A.P. Kinziger. 2018. Rangewide Tidewater Goby Occupancy Survey Using Environmental DNA. Department of Fisheries Biology Humboldt State University. August. Accessed at https://dot.ca.gov/-/media/dot-media/programs/research-innovation-system-information/documents/final-reports/ca18-2724-finalreport-a11y.pdf

Scientific Name	Common Name	Federal	State	MHCP	Preferred Habitat	Potential to Occur
BIRDS						
Accipitridae	**Hawks, Kites, Harriers and Eagle Family**					
Elanus leucurus	white-tailed kite	NONE	SFP	None	Open shrubland, grasslands, agricultural areas, wetlands, and woodlands.	**Observed** This species was observed in the disturbed habitat within the survey area. Though the disturbed habitat may provide low-quality foraging habitat for this species, this species is not expected to nest onsite due to lack of **trees or shrubs bordering woodland habitat.**
Accipiter cooperi	Cooper's hawk	NONE	NONE	MHCP	Fairly common winter visitor in California, but breeding populations have declined due to loss of habitat and human disturbance. Nests primarily in fairly dense oak and riparian woodlands and forages over open lands.	**High Potential** This species is urban adapted and the survey area contains suitable gum trees and other large ornamentals for nesting.
Rallidae	**Rails and Gallinules**					
Rallus longirostris levipes	light-footed Ridgway's rail	FE	SE	None	Southern California coastal salt marshes, lagoons. Nests in the lower littoral zone of coastal salt marshes where dense stands of cordgrass are present.	**Low Potential** The marsh habitat on-site is limited and highly fragmented, and does not support cordgrass. No potential for nesting. This species has been reported within one mile of the survey area (CDFW 2019, USFWS 2019b, and County of San Diego 2019).
Charadriidae	**Plovers**					
Charadrius alexandrinus nivosus	western snowy plover	FT	SSC	None	Nests on beaches, dunes and salt flats	**Low Potential** Limited sandy banks but in close proximity to a sandy beach where dispersing individuals may occur. No potential for nesting due to lack of dunes and salt flats. This species has been reported within one mile of the survey area (CDFW 2019).
Laridae	**Gulls and Terns**					
Sternula antillarum browni	California least tern	FE	SE, SFP	None	Alkali playa, wetland. Nests along the coast from San Francisco Bay south to northern Baja California. Colonial breeder on bare or	**Moderate Potential** Moderate potential for foraging individuals in the survey area because the species is known to forage in

Scientific Name	Common Name	Federal	State	MHCP	Preferred Habitat	Potential to Occur
					sparsely vegetated, flat substrates: sand beaches, alkali flats, landfills, or paved areas.	lagoons, tidal marshes, and estuaries. Lack sandy beach or flat substrate to support a nesting colony.
Pelicanidae	**Pelicans**					
Pelecanus occidentalis	brown pelican	DELISTED	DELISTED, SFP	MHCP	Colonial nester on coastal islands just outside the surf line. Nests on coastal islands of small to moderate size which afford immunity from attack by ground-dwelling predators. Roosts communally.	**Observed** This species was observed flying overhead in the western portion of the survey area. However, this species is not expected to nest on-site due to lack of suitable coastal island habitat for colonial nesting.
Troglodytidae	**Wren Family**					
Campylorhynchus brunneicapillus cousei	Coastal cactus wren	None	SSC	MHCP NE	Coastal sage scrub and maritime succulent scrub. Nests almost exclusively in *Opuntia* and *Cylindropuntia.*	**Not Expected** The survey area lacks suitable coastal sage or maritime succulent scrub habitat with cactus for nesting.
Emberizidae	**Sparrow Family**					
Passerculus sandwichensis beldingi	Belding's savannah sparrow	None	SE	None	Marshes and swamps, wetlands. Nests in *Salicornia* on and about margins of tidal flats.	**Low Potential** The survey area provides marginal suitable habitat which consists of tidal wetlands greater than 10 m however, the preferred nesting substrate, *Salicornia*, is extremely limited on-site. Song sparrows are also prevalent on-site which outcompete this species. This species has been reported within one mile of the survey area (CDFW 2019).
Vireonidae	**Vireos**					
Vireo bellii pusillus	least Bell's vireo	FE	SE	None	Found especially in willow and mesquite thickets near water.	**Not Expected** The survey area lacks suitable willow or mesquite thickets. This species has been reported within one mile of the survey area (USFWS 2019b).

Scientific Name	Common Name	Federal	State	MHCP	Preferred Habitat	Potential to Occur
Hirundinidae	**Swallows**					
Riparia riparia	bank swallow	None	ST	None	Nests in colonies within riparian and other lowland habitat. Requires steep, vertical cliffs or banks with fine sandy soil near water to build nest.	**Not Expected** Nesting colonies have been extirpated from Southern California. However, species may fly through the survey area during migration. This species has been reported within one mile of the survey area (CDFW 2019).
Sylviidae	**Old World Warblers, Gnatcatchers**					
Polioptila californica californica	Coastal California gnatcatcher	FT	SSC	None	Coastal sage scrub vegetation below 2,500 feet elevation in Southern California; generally avoids steep slopes and dense vegetation for nesting.	**Not Expected** The survey area lacks suitable coastal sage habitat. This species has been reported within one mile of the survey area (CDFW 2019, USFWS 2019b, and County of San Diego 2019).
REPTILES						
Anniellidae	**Legless Lizard Family**					
Anniella pulchra pulchra	silvery legless lizard	NONE	SSC	None	Sparse vegetation in beaches, chaparral, and pine-oak woodland habitats as well as sycamores, cottonwoods, and oaks growing adjacent to streams. Needs loose soil for burrowing, moisture, warmth, and plant cover. Requires moisture.	**Not Expected** The survey area lacks suitable beach, chaparral, and woodland habitat. This species has been reported within one mile of the survey area (CDFW 2019).
Colubridae	**Colubrid Snakes**					
Arizona elegans occidentalis	California glossy snake	NONE	SSC	None	Arid scrub, rocky washes, grasslands, chaparral. Appears to prefer microhabitats of open areas and areas with soil loose enough for easy burrowing.	**Not Expected** The survey area lacks suitable scrub, rocky washes, grasslands and chaparral. Disturbed habitat onsite has evidence of past grading and lacks suitable soils for burrowing. This species has been reported within one mile of the survey area (CDFW 2019).

Scientific Name	Common Name	Federal	State	MHCP	Preferred Habitat	Potential to Occur
MAMMALS						
Heteromyidae	**Pocket Mice and Kangaroo Rat Family**					
Perognathus longimembris pacificus	Pacific pocket mouse	FE	SSC	MHCP NE	Found in the coastal plains from the Mexican border north to El Segundo, Los Angeles County. Commonly associated with coastal sage scrub. Also found on coastal strand, coastal dunes, and ruderal vegetation on river alluvium, within open, sparsely vegetated areas. Associated with loose sandy or gravelly soils.	**Low Potential** The survey area lacks suitable coastal sage scrub, coastal strand, and coastal dune habitats. Though the disturbed habitat within the survey area support ruderal vegetation, this area contains heavily compacted soils with evidence of past disturbance, dense non-native vegetation, and lacked evidence of suitable burrows for this species.
Molossidae	**Free-tailed Bats**					
Nyctinomops femorosaccus	pocketed free-tailed bat	None	SSC	None	Joshua tree woodland; pinyon and juniper woodland; desert scrub, palm oasis, desert wash, and desert riparian; Sonoran desert scrub. Typically roost in caves and rocky outcrops; prefers cliffs in order to obtain flight speed. Feeds on insects flying, over bodies of water or arid desert habitats to capture prey.	**Not Expected** The survey area lacks suitable desert and woodland habitats, as well as suitable caves and rocky outcrops for roosting. This species has been reported within one mile of the survey area (CDFW 2019).
Vespertilionidae	**Evening Bats**					
Lasiurus xanthinus	western yellow bat	None	SSC	None	Desert wash. Known to occur in palm oases.	**Not Expected** The survey area lacks suitable desert wash and palm oases habitat. This species has been reported within one mile of the survey area (CDFW 2019).

Scientific Name	Common Name	Federal	State	MHCP	Preferred Habitat	Potential to Occur
Leporidae	**Hares and Rabbit Family**					
Lepus californicus bennettii	San Diego black-tailed jackrabbit	None	SSC	None	Open brushlands and scrub habitats between sea level and 4,000 feet elevation.	**Not Expected** The survey area lacks suitable brushland and scrub habitat. Habitat on-site is highly fragmented. This species has been reported within one mile of the survey area (CDFW 2019).

Key to Species Listing Status Codes

FE	*Federally Endangered*	SE	*State Listed as Endangered*
FT	*Federally Threatened*	ST	*State Listed as Threatened*
		SCE	*State Candidate for Endangered*
		SF	*State Fully Protected*
		SSC	*California Species of Special Concern*
MHCP NE	*City of Oceanside Subarea Habitat Conservation Plan (MHCP) narrow endemic species*		