SWEETWATER PARK - URBAN GREENING GRANT PROJECT

BIOLOGICAL IMPACT ANALYSIS REPORT

March 18, 2019

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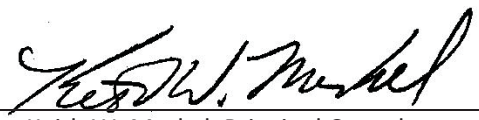

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GLOSSARY OF TERMS AND ACRONYMS

BS Beaufort scale
BSA Biological Study Area
Cal-IPC California Invasive Plant Council
CCA California Coastal Act
CCC California Coastal Commission
CDFW California Department of Fish and Wildlife
CEQA California Environmental Quality Act
CESA California Endangered Species Act
CNDDB California Natural Diversity Database
CNPS California Native Plant Society
CVB Chula Vista Bayfront
CVBMP Chula Vista Bayfront Master Plan
CWA Clean Water Act
CDP Coastal Development Permit
District (or Port) San Diego Unified Port District
ESA (Federal) Endangered Species Act
ESRI Environmental Systems Research Institute
°F degrees Fahrenheit
FAC Facultative Plants
FACU Facultative Upland Plants
FACW Facultative Wetland Plants
FEIR Final Environmental Impact Report
FGS Fish and Game Code
GIS Geographical Information System
GPS Global Positioning System
HDPE High Density Polyethylene
LCP Local Coastal Program
M&A Merkel & Associates, Inc.
MBTA Migratory Bird Treaty Act
HMP (long-term) Habitat Management Plan
MLLW Mean Lower Low Water
MMRP Mitigation and Monitoring Program
MPH Miles per Hour
NAVD88 North American Vertical Datum of 1988
NWW Non-wetland Waters of the U.S.
OBL Obligate Wetland Plants
OHWM Ordinary High Water Mark
Port (or District) San Diego Unified Port District
RWQCB Regional Water Quality Control Board
SWRCB State Water Resources Control Board
TNW Traditional Navigable Waters
USACOE U.S. Army Corps of Engineers
USEPA U.S. Environmental Protection Agency
USFWS U.S. Fish and Wildlife Service
USGS U.S. Geological Survey
WoUS Waters of the U.S.

1.0 INTRODUCTION

1.1. Purpose of the Report

Merkel & Associates, Inc. (M&A) has prepared this biological impact analysis report for the proposed Sweetwater Park - Urban Greening Grant Project. The purpose of this report is to document the existing biological conditions within the biological study area (BSA); identify potential impacts to biological resources that could result from implementation of the proposed project; and recommend measures to avoid, minimize, and/or mitigate significant impacts consistent with applicable federal, state, and local regulations including the California Environmental Quality Act (CEQA) and the Final Environmental Impact Report (FEIR) for the Chula Vista Bayfront Master Plan (CVBMP) (Dudek 2010).

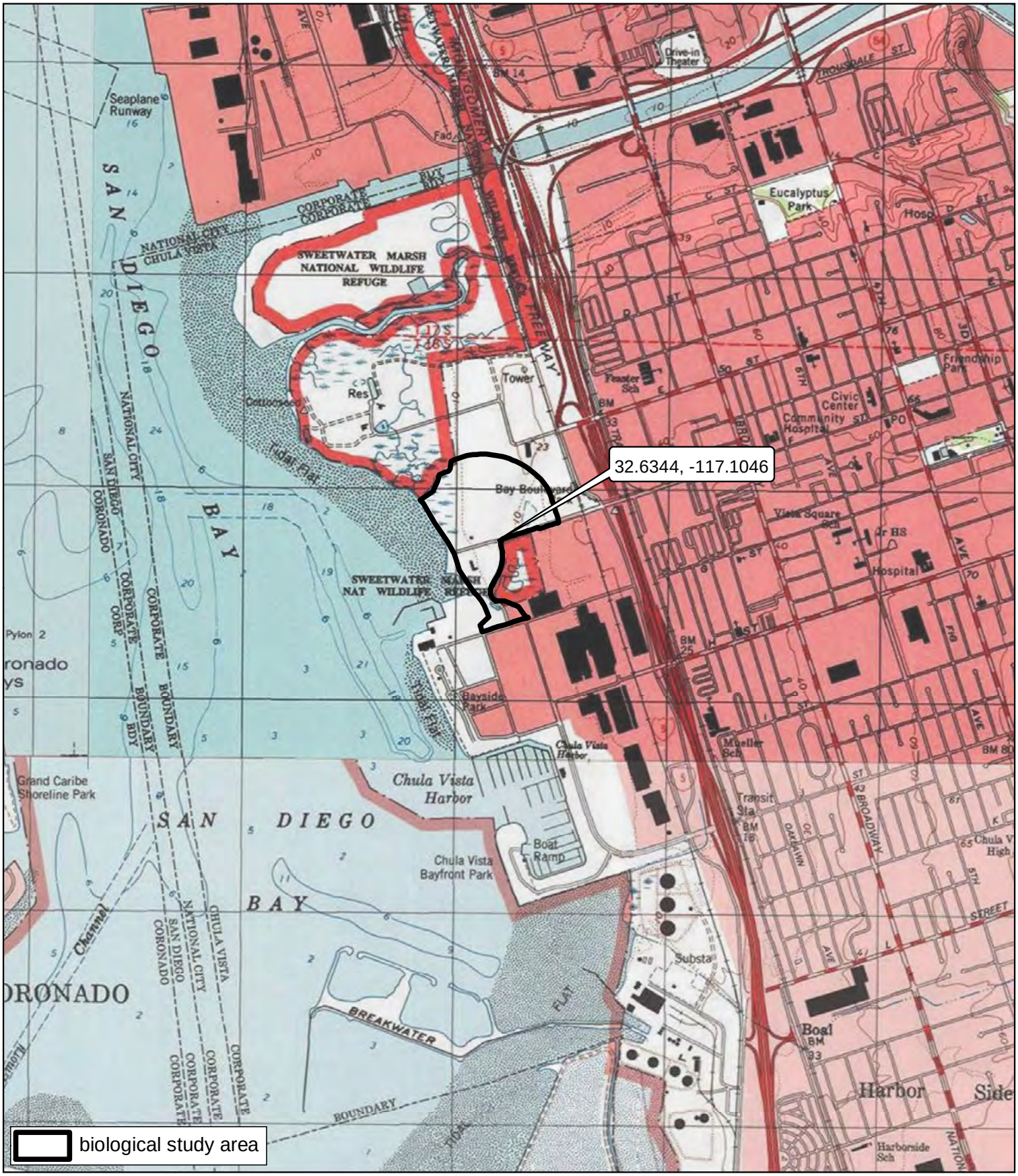
1.2. Project Location

The project site is located within the boundary of the CVBMP in the City of Chula Vista, California. It lies within unsectioned lands, Township 18 South, Range 2 West of the San Bernardino Base and Meridian, U.S. Geological Survey 7.5' National City, California Quadrangle (Latitude 32.6344, Longitude -117.1046 decimal degrees for central portion of the site, WGS84 datum) (Figure 1).

The project site occurs between the open waters of San Diego Bay and Bay Boulevard, and spans from Gunpowder Point Drive to the north, southward to G Street (Figure 2). The BSA includes portions of Assessor Parcel Numbers 567-011-05, 567-010-18, and 567-010-28.

1.3. Project Description

The proposed project is a park, consisting of a parking lot, a Class I Bike Path, and pedestrian walkway bordered by permanent landscaping. A Class I Bike Path provides a completely separated right-of-way for the exclusive use of bicycles and pedestrians with cross-flow minimized. The parking lot and Class I Bike Path would be paved while the pedestrian walkway would be comprised of decomposed granite. The proposed landscaping would include a variety of native and non-native trees, shrubs, and ground cover, all of which would be permanently irrigated and maintained as part of the park system. No invasive plant species [e.g., species identified by the California Invasive Plant Council (Cal-IPC)] are proposed. As part of the park system, the path would convert to a span bridge over the inlet to the F&G Street Marsh (also referred to as connector channel) and require slope layback/grading necessary to support the bridge as well as a designated area for a future water quality basin required in support of the future roadway improvements. The project also includes channel enhancement in the southeastern portion of the inlet channel via pulling the existing slope back from the channel edge to shallow the grade of the slopes, and to shorten the existing storm drain (Outfall No. CV1-2) such that the discharge point is not directly into the channel bed (as it currently is) but rather flows along a new proposed side swale prior to connecting to the main channel. This pull back provides for enhancement of this section of the inlet channel (e.g., reduction of scour in the channel bed, removal of storm drain outfall from channel, creation of habitat, etc.) and accommodates future completion of the connector channel restoration to improve circulation conditions and address scour and flow considerations associated with sea level rise and addition of tidal prism associated with restoration of offsite features. As part of the current enhancement activities, the slopes would be laid back, the existing storm drain and associated



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Project Vicinity Map

Sweetwater Park – Urban Greening Grant

Source: USGS 7.5' National City, CA Quadrangle

Figure 1

Regional Setting Map

Sweetwater Park – Urban Greening Grant

Aerial Source: ESRI 2016

Created On: 8/24/2018

Figure 2

riprap would be removed from the channel bed and bank and shortened in disturbed upland habitat, and grading would be completed to create the new side swale. The span bridge, area necessary for future infrastructure improvements, and channel enhancements in the southeastern portion of the site have been evaluated in the *Draft Chula Vista Bayfront Urban Greening Grant Promenade Bridge over the F&G Street Marsh Inlet – Early Action Analysis* (KTUA 2018) (Appendix 1). Included within this Early Action Analysis is an evaluation of biological resources and delineation of jurisdictional resources (M&A 2018a) (Appendix 2). In addition, the northern portion of the project has been evaluated in support of the FEIR with impact and mitigation requirements documented in the *Vegetation Map, Impact and Mitigation Update for the Costa Vista RV Park* (M&A 2018b) (Appendix 3). Although evaluated in prior documents, impacts and required mitigation for the current project have been included in this document.

The proposed project supports linkage of the existing regional Bayshore Bikeway, located to the northeast of the project site, and ultimately connecting southward along to existing waterfront amenities (e.g., Bayside Park) and future development sites on the Chula Vista Bayfront.

1.4. Survey Methodologies

1.4.1. Literature and Data Review

Historical and currently available biological literature and data pertaining to the project area were reviewed prior to initiation of the field investigations. This review included examination of: 1) aerial photography for the project site (Google Earth Pro, M&A 2016, M&A 2018c); 2) previously mapped vegetation data for the project vicinity (Dudek 2010, Dudek 2015, and M&A 2018a); 3) soil types mapped on the project site (SanGIS 2002); 4) digital elevation model (DEM) and topographic data (M&A 2016); 5) federally designated critical habitat for the project vicinity (USFWS 2017a); 6) CDFW California Natural Diversity Database (CNDDB) and USFWS special status species records for the project vicinity (CDFW 2017a and USFWS 2017b, respectively); and 7) previous biological reports/data for the project site and local vicinity including: *Final Environmental Impact for the Chula Vista Bayfront Master Plan* (Dudek 2010), *Biological Resources Survey Report for the E Street Realignment in Chula Vista, Chula Vista Bayfront Master Plan* (Dudek 2015), *Final Report Restoration and Enhancement Alternatives for the Chula Vista Bayfront* (M&A 2017), *Habitat Mitigation for the Costa Vista RV Park* (M&A 2018d), *Vegetation Map, Impact and Mitigation Update for the Costa Vista RV Park* (M&A 2018b), and *Biological Impact Analysis Report for the Chula Vista Bayfront Sweetwater Urban Greening Grant Early Action Project* (M&A 2018a).

1.4.2. Field Survey(s) Conducted

1.4.2.1. Vegetation Mapping

M&A biologists conducted a ground-truthing survey of vegetation communities previously conducted for the Chula Vista Bayfront (Dudek 2010 and Dudek 2015) within the BSA (Table 1). At the request of the San Diego Unified Port District (Port/District), this effort was expanded to the full extent of the Sweetwater District and included a 100-foot mapping buffer. The survey effort included in-office review of 2018 aerial imagery (M&A 2018c), followed by ground-truthing field efforts. The field surveys were conducted on-foot and existing vegetation types were delineated on a 1" = 100' scale, color aerial photograph of the project site (M&A 2018c). Where needed, the limits of vegetation resources and/or incidental detections of sensitive plant or animal species were

identified in the field using a Trimble® GeoExplorer Global Positioning System (GPS) unit with submeter accuracy. Data collected from the survey were digitized in Environmental Systems Research Institute (ESRI) Geographic Information Systems (GIS) software, using ArcGIS for Desktop. To be consistent with FEIR, a minimum mapping unit of 0.01-acre was used for vegetation mapping, where applicable.

A general botanical/wildlife survey and ground-truthing survey for jurisdictional resources previously conducted for the BSA (Dudek 2010, Dudek 2015, M&A 2018a) was performed concurrent with the vegetation mapping effort. A list of detectable flora species was recorded in a field notebook. Plant identifications were either resolved in the field or later determined through verification of voucher specimens. The scientific and common names utilized for the floral and faunal resources were noted according to the following nomenclature: flora, Baldwin (2011); and birds, American Ornithologists' Union (1998 and 2017).

1.4.3. Survey Dates, Times, and Conditions

Table 1 summarizes the 2018 survey dates, times, and conditions.

Table 1. Survey Date(s), Time(s), Conditions

Survey	Date	Time	Conditions (start to end) [1]	Biologist
Vegetation Mapping	2018 Jul 16	1321-1736	Weather: 100%-80% cc Wind: 3-2 BS Temperature: 72°-70° F	Amanda K. Gonzales Kyle L. Ince
Vegetation Mapping	2018 Jul 19	1107-1505	Weather: 5%-5% cc Wind: 2 BS Temperature: 75°-75° F	Amanda K. Gonzales Kyle L. Ince

[1] cc = cloud cover; BS = Beaufort scale [BS 2 = 4-7 miles per hour (mph); BS 3 = 8-12 mph]; °F = degrees Fahrenheit

1.4.4. Survey Limitations

Biological inventories are generally subject to various survey limitations. Depending on the season and time of day during which field surveys are conducted, some species may not be detected due to temporal species variability in presence or detectability. Two surveys were conducted in the summer season with the scope limited to ground-truthing efforts. While some species (plants and wildlife) may have been limited, biological literature and data reviews were performed to assess presence and/or potential presence of habitats and species within the project area.

Based on the biological literature and data review performed, as well as knowledge of species-specific habitat requirements, it is anticipated that any additional species potentially present on the project site can be fairly accurately predicted, and that the surveys conducted were sufficient in obtaining a thorough review of the biological resources present within the project site.

1.5. Applicable Regulations

A variety of federal, state, and local regulations may apply to the proposed project. These regulations are listed herein with a brief description.

1.5.1. Federal Regulations and Standards

1.5.1.1. Federal Endangered Species Act (ESA)

The federal ESA (16 U.S.C. 1513-1543) was enacted in 1973 to provide protection to threatened and endangered species and their associated ecosystems. "Take" of a listed species is prohibited except when authorization has been granted through a permit under Sections 4(d), 7, or 10(a) of the act. Take is defined as harassing, harming, shooting, wounding, killing, trapping, capturing, or collecting, or attempting to engage in any of these activities without a permit.

1.5.1.2. Migratory Bird Treaty Act (MBTA)

The Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703-712) was enacted in 1918. Its purpose is to prohibit the kill or transport of native migratory birds, or any part, nest, or egg of any such bird unless allowed by another regulation adopted in accordance with the MBTA. Under the MBTA of 1918 (16 U.S.C. section 703-712; Ch. 128; July 3, 1918; 40 Stat. 755; as amended 1936, 1956, 1960, 1968, 1969, 1974, 1978, 1986 and 1998), it is unlawful, except as permitted by the USFWS, to "take, possess, transport, sell, purchase, barter, import, or export all species of birds protected by the MBTA, as well as their feathers, parts, nests, or eggs (USFWS 2003). Take means to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect (50 CFR 10.12). Birds protected by the MBTA include all birds covered by the treaties for the protection of migratory birds between the United States and Great Britain (on behalf of Canada, 1916), Mexico (1936), Japan (1972), and Russia (1976), and subsequent amendments."

It is important to note that since the MBTA addresses migratory birds by family rather than at a lower taxonomic level, most bird species are protected by the MBTA because most taxonomic families include migratory members. In addition, "take" as defined under the federal MBTA is not synonymous with "take" as defined under the federal ESA. The MBTA definition of "take" lacks a "harm and harassment" clause comparable to "take" under the ESA, thus, the MBTA authority does not extend to activities beyond the nests, eggs, feathers, or specific bird parts (i.e., activities or habitat modification in the vicinity of nesting birds that do not result in "take" as defined under the MBTA are not prohibited). Further, "a permit is not required to dislodge or destroy migratory bird nests that are not occupied by juveniles or eggs; however, any such destruction that results in take of any migratory bird is a violation of the MBTA (i.e., where juveniles still depend on the nest for survival) (USFWS 2003)."

1.5.1.3. Federal Water Pollution Control Act (Clean Water Act), 1972

In 1948, Congress first passed the Federal Water Pollution Control Act. This act was amended in 1972 and became known as the CWA (33 U.S.C. 1251). The act regulates the discharge of pollutants into waters of the U.S. Under Section 404, permits need to be obtained from the USACOE for discharge of dredge or fill material into waters of the U.S. Under Section 401 of the CWA, Water

Quality Certification from the RWQCB would need to be obtained if there are to be any impacts to waters of the U.S.

1.5.2. State Regulations and Standards

1.5.2.1. California Environmental Quality Act (CEQA)

CEQA requires that biological resources be considered when assessing the environmental impacts resulting from proposed actions. CEQA does not specifically define what constitutes an "adverse effect" on a biological resource. Instead, lead agencies are charged with determining what specifically should be considered an impact.

1.5.2.2. California Fish and Game Code (FGC)

The California Fish and Game Code (FGC) regulates the taking or possession of birds, mammals, fish, amphibian 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 Alteration Agreement regulations (Section 1600-1616), as well as provisions for legal hunting and fishing, and tribal agreements for activities involving take of native wildlife.

In addition, Sections 3503, 3503.5, and 3513 of the FGC prohibit the "take, possession, or destruction of bird nests or eggs." Section 3503 states: "It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto." Section 3503.5 provides a refined and greater protection for birds-of-prey and states: "It is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." The distinctions made for birds-of-prey are the inclusion of such birds themselves to the protections and the elimination of the term "needlessly" from the language of §3503. Section 3513 states: "It is unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Bird Treaty Act."

The definition of "take" under the FGC is not distinct from the definition of "take" under CESA, which is defined as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill" (FGC Code §86); however, it is important to note that the state definition of "take" again does not include a "harm and harassment" clause, and thus, activities or habitat modification in the vicinity of nesting birds that do not result in "take" as defined under the FGC/CESA are not prohibited.

1.5.2.3. Porter-Cologne Water Quality Control Act

This act is substantively the California version of the Federal CWA. It provides for statewide coordination of water quality regulations through the establishment of the State Water Resources Control Board (SWRCB) and nine separate Regional Water Quality Control Boards (RWQCBs) that oversee water quality regulation on a day-to-day basis at the regional watershed basin level.

1.5.2.4. California Coastal Act (CCA)

Under the California Coastal Act (CCA) of 1976, the California Coastal Commission (CCC) regulates activities that would affect wetlands occurring in the California coastal zone through the CCA. The District has a certified Local Coastal Program (LCP) (Amended 2013), which covers the BSA and enables authorization of projects by the District under the CCA via issuance of a Coastal Development Permit (CDP). As part of the regulatory process, the CCC must review all applications for a CDP.

1.5.3. Local Regulations and Standards

The site is primarily located within the Sweetwater District of the CVBMP. The southern portion of the project site does extend into the Harbor District. The primary controlling documents for the CVBMP include: 1) the *Mitigation Monitoring and Reporting Program* (MMRP) developed as part of the CEQA environmental review process (FEIR, Dudek 2010); 2) the Settlement Agreement (SDUPD 2010) entered into between the District, the City of Chula Vista and the Redevelopment Agency of the City of Chula Vista; and 3) the Chula Vista Bayfront Development Policies (SDUPD 2012), which bring together all conditions and policies that will guide development along the Chula Vista Bayfront. The Settlement Agreement further refines restoration and enhancement objectives for areas classified as Wildlife Habitat Areas (WHAs) within the Chula Vista Bayfront Project area, provides for management and protection of natural habitats through development of a Natural Resources Management Plan (NRMP) (Port and City 2016), and identifies priorities for habitat restoration. The environmental protections identified in the Settlement Agreement go above and beyond those required by federal, state, and local laws and regulations and, as detailed in the MMRP. Design of the proposed project has been evaluated to be consistent with the above-listed controlling documents and as applicable the Port Master Plan (SDUPD 2015).

2.0 SURVEY RESULTS

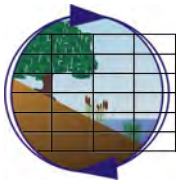
2.1. Environmental Setting

The majority of the BSA is located within the Sweetwater District of the CVBMP. The exception to this is the southern portion of the BSA, which extends in the Harbor District by approximately 123 feet.

The elevation within the BSA ranges from approximately +2 feet NAVD88 in the channel bottom (i.e., inlet to the F&G Street Marsh) to +20 feet NAVD88 at the top of a manmade soil stockpile berm in the central portion of the BSA. From north to south, soils are mapped as Huerhuero loam (2-9% slopes), Tidal flats, and Made land.

Locally, the Sweetwater District can be characterized by predominantly flat land dominated by disturbed habitat and bordered to the west by San Diego Bay and to the east by commercial development (Figure 3). Disturbed habitat has been classified for areas dominated by non-native species (not ornamental or landscaping), and/or areas comprised of bare ground intermixed with non-native species. Where vegetation is present, the community is comprised of areas dominated by a single or few species, as well as areas dominated by a mixture of species. Garland (*Glebionis coronaria*), a non-native annual herb forms a large monotypic canopy in the central portion of the District. Other non-native species present throughout the disturbed habitat, and forming relatively tall/moderate canopies included pampas grass (*Cortaderia selloana*), giant reed (*Arundo donax*), and *Eucalyptus*, in addition to patches dominated by summer field mustard (*Hirschfeldia incana*) and Russian thistle (*Salsola tragus*). Individual and/or small groupings of Mexican fan palm (*Washingtonia robusta*) and Canary Island palm (*Phoenix canariensis*) also occur throughout the community. Areas are also comprised of a mixture of non-native species including stinkwort (*Dittrichia graveolens*), prickly lettuce (*Lactuca serriola*), cheeseweed (*Malva parviflora*), sprawling saltbush (*Atriplex suberecta*), and five hook bassia (*Bassia hyssopifolia*), intermixed with patches of fennel (*Foeniculum vulgare*) and tree tobacco (*Nicotiana glauca*). Non-native grasses are sporadically found in portions of the disturbed habitat but their density and/or coverage is very low with the area expected to function as an extension of the surrounding disturbed habitat and not as non-native grassland. In addition, individual and/or small groups of native species are present throughout the disturbed habitat; however in most cases, not in sufficient quantities to comprise a native vegetation type (e.g., Diegan coastal sage scrub). Native species present sporadically throughout the disturbed habitat generally consist of opportunistic species, most notably broom baccharis (*Baccharis sarothroides*).

A large patch of non-native grassland was previously identified along the western portion of the Sweetwater District boundary (Dudek 2015). Prior to the 2015 report, the FEIR classified a portion of the same area as disturbed wetland with the dominant plant being listed as pineapple weed (*Matricaria discoidea*) [facultative upland plant (FACU), USACOE 2008 and 2016] (Dudek 2010). This area currently supports non-native species consistent with the adjacent disturbed habitat, including Australian saltbush (*Atriplex semibaccata*), Lindley's saltbush (*Atriplex lindleyi*), London rocket (*Sisymbrium irio*), crystalline iceplant (*Mesembryanthemum crystallinum*), five hook bassia, tocalote (*Centaurea melitensis*), sourclover (*Melilotus indicus*), and Russian thistle (*Salsola tragus*).



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Local Setting Map - Sweetwater District

Sweetwater Park – Urban Greening Grant

Aerial Source: Merkel 2018

Created On: 8/24/2018

Figure 3

Non-native grass cover in this area is limited to sporadically occurring hare barley (*Hordeum murinum* ssp. *leporinum*) and red brome (*Bromus madritensis* ssp. *rubens*). As such, the presence of non-native grasses is not sufficient enough to classify the community as non-native grassland. Similarly, the presence of wetland associated plants [i.e., limited to Australian saltbush, classified as a facultative plant (FAC)] is not sufficient to meet federal or state wetland parameter requirements. Thus, the area has been classified as disturbed habitat, consistent with the surrounding land.

Diegan coastal sage scrub is present in the Sweetwater District; however, much of the community is disturbed in nature. The disturbed classification is associated with areas supporting a high amount of non-native species (e.g., mustard, fennel, etc.) as well as areas dominated by broom baccharis, Menzies's goldenbush (*Isocoma menziesii var. menziesii*), and big saltbush (*Atriplex lentiformis*). The FEIR previously classified all coastal sage scrub onsite as disturbed Diegan coastal sage scrub. In addition to the presence of invasive species, isolation of the sage scrub from other native habitat was a factor in the FEIR classification. Although the onsite coastal sage scrub is isolated from other native upland habitat, M&A has distinguished between disturbed and non-disturbed based on the presence of non-native invasive species. The below paragraphs provide a short description of each sub-community.

Areas dominated by broom baccharis and goldenbush are typically associated with disturbed sites (e.g., previously brushed or graded) and/or nutrient poor soils. Both species can be characterized as opportunistic, due to their ability to quickly thrive in undesirable conditions. Within the BSA, broom baccharis dominated areas comprise dense moderately tall (four to six feet) shrub cover. Goldenbush dominated areas form sparse, low growing cover (one to two feet) intermixed with bare ground and other low growing native species typical of disturbed areas [e.g., deerweed (*Acmispon glaber* var. *glaber*)]. Areas dominated by big saltbush also occur throughout the Sweetwater District. Big saltbush is an opportunistic native shrub that commonly occurs in saline soils along the immediate coast of San Diego County. It generally occurs in coastal sage scrub vegetation but will also occur at lower elevations within moist soils of coastal salt marsh or brackish marsh habitats. As such, it is a species that can occur in both upland and wetland plant communities. Within the BSA, this plant is present at higher elevations, co-occurring with a predominance of upland plant species. The largest patches of big saltbush are situated along Lagoon Drive, in an area previously identified as disturbed habitat (Dudek 2010) and subsequently mapped as disturbed Diegan coastal sage scrub (Dudek 2015).

Patches of higher quality Diegan coastal sage scrub are present within the Sweetwater District and include the northern limit of the Sweetwater District as well as the southern limit of the District, just north of the inlet to the F&G Street Marsh. The coastal sage scrub that occurs in the northern portion of the Sweetwater District transitions offsite to the north via a relatively steep slope into the adjacent Wildlife Refuge. Here (within the Sweetwater District), this habitat is generally dominated by California encelia (*Encelia californica*) with taller lemonade berry (*Rhus integrifolia*) occurring offsite to the north. Within the southern portion of the Sweetwater District, this community is dominated by California sagebrush (*Artemisia californica*), coastal California buckwheat (*Eriogonum fasciculatum* var. *fasciculatum*), and decumbent goldenbush (*Isocoma menziesii* var. *decumbens*). The taller broom baccharis occurs occasionally in this area. A man-made berm is also located within the central portion of the Sweetwater District. This berm was constructed in approximately 1988 from surplus soil generated from the Sweetwater River

channelization project and SR-54 construction. The soil was imported for future development of the Chula Vista Bayfront and stabilized for erosion control using a native sage scrub seed mix dominated by California encelia (K. Merkel, pers. obs.). Today, much of the berm is dominated by a relatively narrow, linear strip of California encelia.

The Sweetwater District is located on the Bayfront; thus, as applicable, land on the western portion of the District has been classified as open water, beach, or southern coastal salt marsh. The inlet channel to the F&G Street Marsh is located in the southern portion of the Sweetwater District. This is a fully tidal channel that connects the F&G Street Marsh to San Diego Bay through two, approximate 36-inch high density polyethylene (HDPE) corrugated pipe culverts under Marina Parkway. Near the proposed bridge, the channel bed is narrow (i.e., approximately eight to ten feet wide) with vertical and eroding banks. At their maximum, banks are near eight feet in height. The channel bed has been classified as open water, with portions of the eroding bank classified as bare ground. Within the bed are notable amounts of concrete rubble and other debris intermixed with the soil. A small area of riprap and bare ground has also been identified at the outlet of Outfall No. CV1-2. Southern coastal salt marsh occurs on the shallow banks of the bench, prior to transitioning to upland habitat as well as benches that have established following erosion. Along the shoreline, the salt marsh community is generally sporadic and linear in nature, comprised of typical salt marsh plants including alkali heath (*Frankenia salina*), pacific pickleweed (*Sarcocornia pacifica*), with inclusions of salty Susan (*Jaumea carnosa*), saltwort (*Batis maritima*), estuary seablite (*Suaeda esteroa*), shoregrass (*Distichlis littoralis*), Parish's pickleweed (*Arthrocnemum subterminale*), western marsh-rosemary (*Limonium californicum*), and alkali weed (*Cressa truxillensis*). Additional species present along the transitional boundary to higher elevations include saltgrass (*Distichlis spicata*), woolly sea blite (*Suaeda taxifolia*), big saltbush (*Atriplex lentiformis*), decumbent goldenbush, Australian saltbush, and Russian thistle.

Ornamental vegetation occurs along the eastern portion of the Sweetwater District and has been identified for areas that are expected to serve as landscaping and/or barriers between the adjacent development. Urban development has been classified for paved roadways, parking lots, and any permanent structures present within the District boundary.

2.2. Regional Context

Regionally, the project site is located in the southern coast ecoregion of San Diego County. The project site is located at the Bayfront, within the Lower Sweetwater Hydrologic Area (Basin No. 9.10) of the Sweetwater Hydrologic Unit/Watershed (Basin No. 9.00). San Diego Bay is recognized under section 303(d) of the CWA as an impaired waterbody for Polychlorinated biphenyls (PCBs) (SWRCB 2010). The southern portion of the project boundary (e.g., inlet to the F&G Street Marsh and southward) occurs within the Federal Emergency Management Agency 100-year floodplain and 500-year floodplain (SanGIS 2012).

The project site is not located within federally designated critical habitat.

2.3. Biological Resources

2.3.1. Botanical Resources – Vegetation and Flora

Seven vegetation types were identified within the BSA during the biological survey (Table 2; Figure 4). The below paragraphs provide a short description of each vegetation community. A list of the floral species observed within the BSA during the biological surveys has been included with this report in Appendix 4.

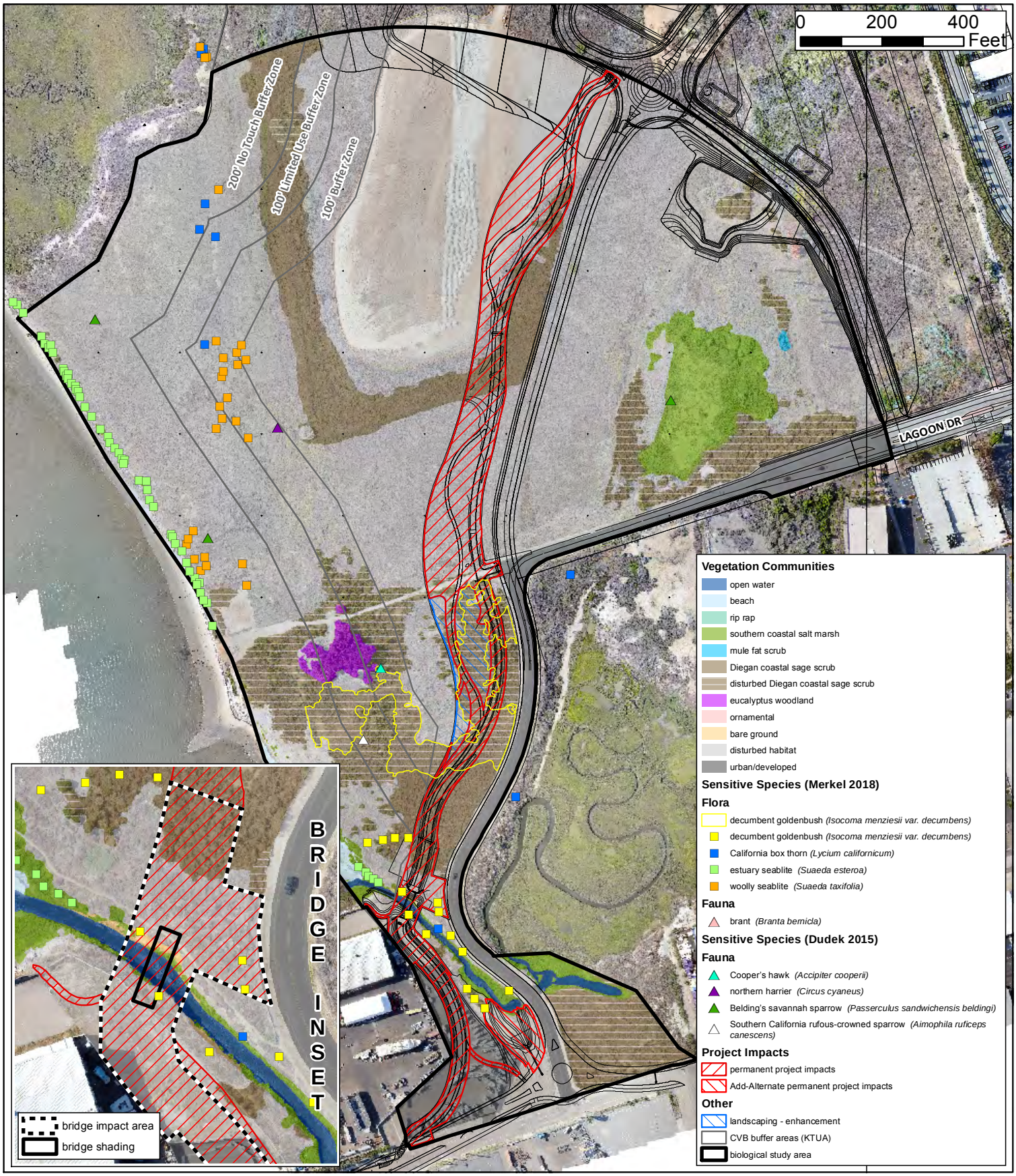
Table 2. Habitats/Vegetation Communities within the Biological Study Area

Vegetation Community	Holland/ Oberbauer Code	General Habitat Group Classification	Existing (acres)
Open water	64100	Wetland	0.33
Beach	64400	Wetland	0.47
Mule fat scrub	63310	Wetland	0.03
Southern coastal salt marsh	52120	Wetland	2.44
Diegan coastal sage scrub	32500	Upland	4.91
Disturbed Diegan coastal sage scrub	32500	Upland	7.88
Eucalyptus woodland	79100	Upland	0.38
Bare ground	NA	Upland	0.02
Disturbed Habitat	11300	Upland	43.89
Ornamental	NA	Upland	0.04
Urban/developed	12000	Upland	3.68
Urban/developed – riprap	12000	Upland	<0.01
		Total:	**64.07**

The proposed project is a linear, north-south path extending through disturbed habitat, various forms of Diegan coastal sage scrub, over the inlet to the F&G Street Marsh, and through urban developed land, ultimately connecting to G Street.

As described in detail in the Environmental Setting of this report, disturbed habitat has been classified for areas dominated by non-native species and/or upland areas comprised of bare ground intermixed with non-native species. Within the BSA, garland, a non-native annual herb dominates much of the community. Other areas support a mixture of bare ground, intermixed with non-native species. Regionally, disturbed habitat is not classified as a sensitive vegetation community; the CVBMP MMRP is consistent with regional standards.

Diegan coastal sage scrub occurs throughout the BSA, most of which is disturbed in nature. The disturbed classification is associated with areas supporting a high amount of non-native species (e.g., mustard, fennel, etc.) as well as areas dominated by broom baccharis, Menzies's goldenbush, and big saltbush. Diegan coastal sage scrub typical of higher quality habitat is present north of the inlet channel to the F&G Street marsh. Here, the community is dominated by a mixture of California sagebrush, coastal California buckwheat, and decumbent goldenbush with an inclusion of



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Biological Impact Map

Sweetwater Park – Urban Greening Grant

Aerial Source: Merkel & Associates 2018

Modified On: 03/18/2019

Figure 4

broom baccharis. A manmade berm, dominated by California encelia is also present in the BSA. Regionally, Diegan coastal sage scrub and disturbed Diegan coastal sage scrub is classified as a sensitive vegetation community; the CVBMP MMRP is consistent with regional standards.

Within the BSA, the inlet channel to the F&G Street Marsh is narrow, averaging approximately eight to ten feet wide near the proposed bridge with vertical and eroding banks. The channel bed has been classified as open water, with portions of the eroding bank classified as bare ground and riprap. Southern coastal salt marsh occurs on the benches that have established following erosion, prior to transitioning to upland habitat. The salt marsh community is generally sporadic and linear in nature, comprised of typical salt marsh plants including alkali heath, pacific pickleweed, with inclusions of salty Susan, saltwort, estuary seablite, shoregrass, Parish's pickleweed, western marsh-rosemary, and alkali weed. Southern coastal salt marsh is also present just north of Lagoon Drive, in an area referred to as the "seasonal wetlands". Regionally, southern coastal salt marsh is classified as a sensitive vegetation community; the CVBMP MMRP is consistent with regional standards.

2.3.2. Zoological Resources – Fauna

Few wildlife species were noted onsite during the current 2018 biological survey; those detected were all avian species. However, additional wildlife species are expected to occur throughout the area, most of which are expected to be species commonly found in native and naturalized habitats throughout San Diego County including urban adapted species. The avian species detected onsite were limited to Anna's hummingbird (*Calypte anna*), song sparrow (*Melospiza melodia*), and California towhee (*Melozone crissalis*).

Due to the proximity to the Bay and presence of vegetation communities and shrubs, there is a potential for various urban associated and marsh associated species to forage, nest, and/or disperse through the BSA including species such as the song sparrow and Anna's hummingbird.

2.3.3. Rare, Threatened, Endangered, Endemic and/or Sensitive Species

2.3.3.1. Sensitive Species Present within the BSA

Four sensitive species were identified within the BSA during the biological survey; they are depicted in Figure 4 and discussed below. In some instances, sensitive status is limited to populations or life stages of a species. Where this is the case, the limited applicability is indicated in parentheses.

State CEQA Guidelines §15380 (Title 14, Chapter 3, Article 20) define "endangered, rare or threatened species" as "species or subspecies of animal or plant or variety of plant" listed under the Code of Federal Regulations, Title 50, Part 17.11 or 17.12 (Volume 1, Chapter I) or California Code of Regulations, Title 14, Sections 670.2 or 670.5 (Division 1, Subdivision 3, Chapter 3), or a species not included in the above listings but that can be shown to be "endangered" meaning "when its survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors" or "rare" meaning "although not presently threatened with extinction, the species is existing in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens or the species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered 'threatened' as that term is used in the Federal Endangered Species Act". State CEQA guidelines Appendix G,

Section IV generally refers to species that fall under the above criteria as "special status species". To be consistent with the terminology within the CVBMP FEIR, the term "sensitive species" will be used throughout this report.

Thus, for the purposes of this report, sensitive species are: 1) federally and state listed species (CDFW 2018a and 2017b); 2) CDFW Species of Special Concern (SSC) and Fully Protected (FP) species (CDFW 2018b and 2017c); 3) species designated as California Rare Plant Rank of 1 or 2 by the California Native Plant Society (CNPS); and 4) species identified as special status in the CVBMP EIR (Dudek 2010).

The following species were detected within the BSA and discussed below:

- California box thorn (*Lycium californicum*), a CNPS California Rare Plant Rank List 4.2 [Plants of limited distribution (a watch list), Fairly threatened in California (moderate degree/immediacy of threat];
- Estuary seablite (*Suaeda esteroa*), a CNPS California Rare Plant Rank List 1B.2 (Plant rare or endangered in California and elsewhere, Moderately threatened in California with a moderate degree and immediacy of threat);
- Woolly sea-blite (*Suaeda taxifolia*), a CDFW CNDDB Special Plant and California Rare Plant Rank List 4.2; and
- Decumbent goldenbush (*Isocoma menziesii* var. *decumbens*), a CNPS California Rare Plant Rank List 1B.2 (Plant rare or endangered in California and elsewhere, Moderately threatened in California with a moderate degree and immediacy of threat).

<u>California box thorn</u>

California box thorn is present along the northern edge of the inlet channel to the F&G Street Marsh as well as the western portion of the BSA. All of the plants near the inlet channel are located outside the channel limits at the top of the eroding bank. The plants are small, low growing and classified as part of the surrounding habitat (i.e., disturbed habitat). The plants present in the western portion of the BSA are mature and occur as individuals, classified as part of the surrounding habitat (i.e., disturbed habitat). California box thorn is a perennial shrub, commonly found in San Diego coastal bluff scrub and/or coastal sage scrub communities at elevations between approximately 16 and 492 feet.

<u>Estuary seablite</u>

Estuary seablite was detected along the northern bank of the inlet channel and along the western boundary of the BSA. Most plants were relatively large and classified as southern coastal salt marsh. It should be noted that the plants along the western boundary of the BSA were originally classified in the 2010 EIR as woolly seablite. They were reclassified as estuary seablite in the 2015 report. As part of the present survey, M&A retained the classification for those species along the western boundary of the BSA estuary seablite; however, identification between the estuary seablite and woolly seablite is difficult. Estuary seablite is a perennial herb found in coastal bluff scrub, coastal dunes, marshes and swamps on the margins of coastal salt marsh at elevations ranging from approximately 0 to 164 feet.

Woolly seablite

Numerous woolly seablite were detected on the western portion of the Sweetwater District. Woolly seablite generally occurs at slightly higher elevations than estuary seablite; however, as mentioned above, identification between estuary seablite and woolly seablite can be difficult. Woolly seablite is a perennial evergreen shrub found in coastal bluff scrub, coastal dunes, marshes and swamps on the margins of coastal salt marsh at elevations ranging from approximately 0 to 164 feet.

Decumbent Goldenbush

Decumbent goldenbush was detected throughout the upland habitat in disturbed habitat and coastal sage scrub. Plants were observed individually as well as in small groups; approximately 107 plants detected. A patch of disturbed Diegan coastal sage scrub is dominated by decumbent goldenbush, with potential hybrids between decumbent goldenbush and Menzies's goldenbush. Within this area, it is estimated that approximately 405 plants are present throughout the community. Only those plants with a predominance of distinctive decumbent goldenbush features are included in the above estimation. This species is a small shrub commonly found in chaparral and coastal sage scrub (sand often in disturbed areas), and occasionally in wetland-riparian areas. Decumbent goldenbush is documented to occur in sage scrub and disturbed communities throughout coastal San Diego County as well as in the local South Bay region (Calflora 2018).

Other Avian Species

The project site has a potential to be utilized by other regionally common migratory birds that are not designated as special status species under CEQA, but are protected under the federal MBTA and FGC Code Sections 3503 and 3513. No avian nests were observed within the project area during the biological survey; however, birds protected by the above-referenced regulations that have a potential to nest within the BSA could occur onsite and include urban tolerant species such as Anna's hummingbird.

2.3.3.2. Occurrence Potential for Sensitive Species within the BSA

An evaluation of the potential for sensitive animal species to occur within the BSA was conducted. This included ground-truthing as part of the current biological investigation and review of previous biological reports/data for the project area and local vicinity including: 1) the Final EIR for the CVBMP (Dudek 2010), 2) *Biological Resources Survey Report for the E Street Realignment in Chula Vista, Chula Vista Bayfront Master Plan* (Dudek 2015), 3) *Biological Impact Analysis Report for the Chula Vista Bayfront Sweetwater Urban Greening Grant Early Action Project* (M&A 2018a), and *San Diego Bay Avian Species Surveys 2016-2017* (Tierra Data Inc. 2018). Point Count Station 17 of the San Diego Bay 2016-2017 avian survey occurs near the inlet channel to F&G Street Marsh. Avian species observed (e.g., fly over, along shoreline, etc.) as part of the avian survey were recorded as occurring within up to 500-meter radius around the point count station.

Dudek's 2010 and 2015 reports evaluated the potential presence of the following sensitive avian species: Belding's savannah sparrow (*Passerculus sandwichensis beldingi*), brown pelican (*Pelecanus occidentalis*), burrowing owl (*Athene cunicularia*), California horned lark (*Eremophila alpestris actia*), Cooper's hawk (Accipiter cooperii), Double-crested cormorant (*Phalacrocorax auritus*), Osprey (*Pandion haliaetus*), Northern harrier (*Circus cyaneus*), and southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*). Of the above-listed species, the only federally or

state list species is Belding's savannah sparrow, which is state listed endangered. As documented in the 2015 report, three pairs of Belding's savannah sparrow were detected in the Sweetwater District. Two pairs were located along the western portion of the BSA along the Bayfront, presumably in the fragmented patches of *Suaeda* with the third pair located in the coastal salt marsh habitat associated within the seasonal pond, just north of Lagoon Drive. The presence of Belding's savannah sparrow along the Bayfront is consistent with the results of the *San Diego Bay Avian Species Surveys 2016-2017 (*i.e., two Belding's savannah sparrow detected at Point Count Station 17 during one of 12 months evaluated). Implementation of the current, proposed project would avoid impacts to suitable nesting habitat for the Belding's savannah sparrow, with the exception of the span bridge over the inlet channel. The coastal salt marsh along the inlet channel is sparse and limited in its capacity to support nests due to the erosive nature of the channel banks. Further, higher quality habitat is present to the east in the F&G Street Marsh. As a result, the potential for Belding's savannah sparrow to nest onsite is low. The 2015 report identified a Northern harrier throughout the Sweetwater District; however, it was only documented to forage throughout the area, with no nesting detected. Northern harrier were not documented at Point Count Station 17 during the 2016-2017 San Diego Bay avian species survey. The 2015 report also identified one southern California rufous-crowned sparrow in the Sweetwater District. Southern California rufous-crowned sparrow was not documented at Point Count Station 17 during the 2016-2017 San Diego Bay avian species survey. These species is typically a sedentary year-round resident that occurs on moderate to steep, dry rocky slopes vegetated with sparse, mixed chaparral and sage scrub habitats with patches of grasses and rock outcrops. Per the CNDDB, the closest record for this species is approximately six miles east of the BSA in Otay Mesa (record date of 2002). Although coastal sage scrub is present within the BSA, the community does not support features typical of this species. Thus, there is a low potential for the southern California rufous-crowned sparrow to nest onsite. The Dudek 2015 report identified one osprey nest, just outside of the BSA on a utility pole at the intersection of G Street and Sandpiper Way. Up to two osprey were detected during a single survey (over four out of 12 surveys) at Point Count Station 17 during the 2016-2017 San Diego Bay avian species survey. Osprey were not detected during the current investigation and there are no known nesting locations or preferred food sources (i.e., live fish) within the BSA. There is no suitable nesting habitat onsite, for the remaining above-listed species.

Based on the results from the *San Diego Bay Avian Species Surveys 2016-2017*, the following additional sensitive species were detected at Point Count Station 17 (status in some cases is limited to nesting colony, etc.): brant (*Branta bernicla*) (wintering & staging), California least tern (*Sternula antillarum browni*) (nesting colony), snowy egret (*Egretta thula*) (nesting colony), great egret (*Ardea alba*) (nesting colony), long-billed curlew (*Numenius americanus*) (nesting colony), California brown pelican (*Pelecanus occidentalis californicus*) (nesting colony & communal roosts), American white pelican (*Pelecanus erythrorhynchos*), California gull (*Larus californicus*) (nesting colony), Caspian tern (*Hydroprogne caspia*) (nesting colony), redhead (*Aythya americana*) (nesting),and great blue heron (*Ardea herodias*) (nesting colony). Implementation of the project would not impact any of the above-listed species since suitable nesting, roosting, and/or wintering habitat is not present onsite.

The light-footed Ridgway's rail (*Rallus obsoletus levipes*), formerly known as light-footed clapper rail, a federally and state listed endangered species, has a low potential to utilize the southern coastal salt marsh habitat within the project site (i.e., inlet channel) as foraging habitat only; no

suitable nesting habitat present onsite. This species is a year-round resident of the tidal salt marshes and typically nests in marsh habitat dominated by tall, dense California cordgrass (*Spartina foliosa*) and occasionally in pickleweed. Per a CNDDB record from 2007, three pairs of rails were documented in marsh habitat (no exact location) extending from the mouth of the Sweetwater River (offsite) southward to the F&G Street Marsh. M&A did not detect rails onsite nor were they detected at Point Count Station 17 (Tierra Data Inc 2018) or detected onsite as part of the 2010 or 2015 previous reports.

The 2015 report also evaluated the potential presence for the senile tiger beetle (*Cicindela senilis frosti*), a CDFW CNDDB Special Animal. The senile tiger beetle occurs in coastal salt marsh, fresh and brackish lagoons, open patches of pickleweed, dried salt pans, and muddy alkali areas with no historic records in the CVBMP area. Due to the erosive nature of the channel and small area of coastal salt marsh habitat present within the BSA, the potential for senile tiger beetle to occur onsite is expected to be low.

2.3.4. Wetland and Jurisdictional Waters

Based on existing literature and data review, as well as ground-truthing survey efforts, jurisdictional resources (i.e., wetland and waters of the U.S.) are present along the Bay shoreline, the inlet to the F&G Street Marsh, and just north of Lagoon Drive in a depression referred to as the "seasonal wetlands". Most of the jurisdictional resources present within the BSA were recently evaluated in the *Biological Impact Analysis Report for the Chula Vista Bayfront Sweetwater Urban Greening Grant Early Action Project* (M&A 2018a).

As detailed in the *Biological Impact Analysis Report for the Chula Vista Bayfront Sweetwater Urban Greening Grant Early Action Project* (M&A 2018a), San Diego Bay, a tidally influenced body of water, is defined as a jurisdictional, traditionally navigable WoUS. As a result, waters of the Bay are regulated as navigable waters under Section 10 of the R&HA to the mean high water line, which in the project area is located at an elevation of +4.20 feet NAVD88 (+4.89 feet MLLW). In addition, for tidal traditionally navigable WoUS, the regulatory limits in absence of the presence of wetlands extends to the high tide line. In tidal waters such as San Diego Bay, this boundary is defined as the annual highest high tide omitting storm surge; within the Bay at the project site, this boundary is defined as +7.10 feet NAVD88 (+7.79 ft MLLW). This area (i.e., annual highest high tide) is regulated by the USACOE under Section 404 of the CWA and RWQCB under Section 401 of the CWA.

The inlet channel of the F&G Street Marsh channel bed is narrow, averaging approximately eight to ten feet wide with vertical eroding banks, narrow benches, and a maximum depth of approximately eight feet. Due to the erosive nature of the channel, there is generally a clear line of where the Section 10 and Section 404 boundary occur. Southern coastal salt marsh that occurs within these boundaries has been classified as USACOE wetland. No other vegetation communities are classified as USACOE wetland. Patches of southern coastal salt marsh do occur above the annual highest high tide.

The seasonal wetland is a low-lying depression, dominated by sparse pacific pickleweed and bordered to the east by Olney's threesquare bulrush (*Schoenoplectus americanus*) with an inclusion of individual big saltbush and mule fat, all of which has been classified as southern coastal salt marsh. The area likely receives urban runoff from Bay Boulevard via swale-like contours (no

defined bed and bank within the BSA) as well as seasonal input from the F&G Street Marsh, via a culvert under Lagoon Drive. A small group of mule fat is present just east of the salt marsh community and has been classified as mule fat scrub. The remaining habitat surrounding the seasonal wetland has been classified as upland. A relatively large grouping of big saltbush (FAC species) is present along Lagoon Drive; however, as described in the Botanical Resources section of this report, the community has been classified as disturbed Diegan coastal sage scrub and sits at a higher elevation than the salt marsh community.

2.3.4.1.1. Functions and Values

The functions and values of the habitats within the BSA are low. The inlet channel to the F&G Street Marsh is eroding and as a result, the marsh habitat is sparse and not well developed. The adjacent uplands within the BSA are disturbed in nature, dominated by non-native upland species, most notably garland. From the biological functions standpoint, the marine habitats within the BSA are also not expected to provide substantial breeding or foraging habitat.

2.3.5. Wildlife Movement and Nursery Sites

Many species of wildlife move through the landscape during their daily and/or seasonal activities. Many resident and sedentary species move only short distances within their home ranges or territories. Others, such as migratory birds, may move great distances during the year. Larger mammalian predators often traverse extensive areas of the landscape over the course of their activities. Because predation is a key process in maintaining biodiversity, it is important to maintain connectivity between large core areas of preserved habitat (Soulé and Terborgh 1999). Corridors are often defined as linear habitats that differ from the extensive surrounding landscape in which they are embedded. But Soulé and Terborgh (1999) point out that this definition is vague and has multiple meanings. The key concept in regional conservation efforts is landscape connectivity. Core areas need to be connected. The more fragmented and isolated a patch of habitat becomes, the less value it has for regional conservation efforts.

The San Diego Bay is an important landscape for migratory avian species which forage in the shallow open waters of the Bay. Within the BSA, the erosive nature of the channel banks and limited native marsh habitats reduce the potential for the site to serve as a nursery site. The channel area provides limited continuity between the Bayfront and the F&G Street Marsh, however, the proposed work along this hydraulic connection is intended to strengthen the overall habitat connectivity functions of this strained connection.

3.0 BIOLOGICAL IMPACT ANALYSIS

State CEQA Guidelines §15065 (a) (Title 14, Chapter 3, Article 5) states, "A project may have a significant effect on the environment" if:

- "The project has the potential to substantially degrade the quality of the environment; substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; substantially reduce the number or restrict the range of an endangered, rare or threatened species; or eliminate important examples of the major periods of California history or prehistory."
- "The project has possible environmental effects, which are individually limited but cumulatively considerable."

The following analysis identifies potential impacts to biological resources that could result from implementation of the proposed project, and addresses the significance of these impacts pursuant to CEQA, in accordance with the Issues listed under CEQA Guidelines Appendix G, Section IV.

3.1. Impact Definitions

Project impacts are categorized pursuant to CEQA as direct, indirect, or cumulative impacts.

- CEQA Guidelines §15358 (a) (1) and (b) (Title 14, Chapter 3, Article 20) defines a "direct impact or primary effect" as "effects, which are caused by the project and occur at the same time and place" and relate to a "physical change" in the environment.
- CEQA Guidelines §15358 (a) (2) and (b) (Title 14, Chapter 3, Article 20) defines an "indirect impact or secondary effect" as "effects, which are caused by the project and are later in time or farther removed in distance, but are still reasonably foreseeable" and relate to a "physical change" in the environment.
- CEQA Guidelines §15355 (Title 14, Chapter 3, Article 20) defines "cumulative impacts" as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts."

Direct, indirect, and cumulative impacts can be described as either permanent or temporary. Permanent impacts are generally defined as effects that would result in an irreversible loss of biological resources; temporary impacts can be defined as effects that could be restored, thus providing habitat and wildlife functions and values effectively equal to the functions and values that existed before the area was impacted.

3.2. Mitigation Definitions

CEQA Guidelines §15370 (Title 14, Chapter 3, Article 20) defines "mitigation" as:

- "Avoiding the impact altogether by not taking a certain action or parts of an action."
- "Minimizing impacts by limiting the degree or magnitude of the action and its implementation."
- "Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment."

- "Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action."
- "Compensating for the impact by replacing or providing substitute resources or environments."

3.3. Project Impacts, Significance, and Recommended Mitigation

Potential project impacts were evaluated based on examination of the proposed project within the context of the biological resources documented during the field survey and those biological resources assessed as having a likely potential to occur in the project area. Direct impacts were determined by overlaying the project plans on to the mapped vegetation communities/habitats in GIS ESRI software platforms. Indirect impacts were determined based on the design, intended use, and location of the proposed project elements relative to biological resources.

As described in the Project Description section of this report, the span bridge over the F&G Street Marsh, area necessary for future infrastructure improvements, and channel enhancements in the southeastern portion of the inlet channel have been evaluated in the *Draft Chula Vista Bayfront Urban Greening Grant Promenade Bridge over the F&G Street Marsh Inlet – Early Action Analysis* (KTUA 2018). Included within this Early Action Analysis is an evaluation of impacts to biological resources. In addition, the northern portion of the park system was evaluated in the *Habitat Mitigation for the Costa Vista RV Park* (M&A 2018b). Although evaluated in prior documents, impacts and required mitigation for these project elements have been included in this document.

3.3.1. Habitats/Vegetation Communities

Implementation of the proposed project as detailed in the Project Description section document would result in permanent, direct impacts to jurisdictional resources and upland habitat (Table 3; Figure 4). Specifically, implementation of the park system would permanently impact areas as a result of grading and/or conversion of land to paved urban uses (e.g., parking), permanent trail pathways, and permanent landscaping. Implementation of the span bridge would result in shading and require grading of the slopes with potential access (temporary) into the open water to layback the vertical slopes to prevent against future erosion. All impacts associated with the bridge footprint have been classified as a permanent impact with future compensatory mitigation not required, should authorized maintenance within the footprint be required. Implementation of the designated area for a future water quality basin and channel enhancements in the southeastern portion of the inlet channel would also permanently convert habitat and be considered to be part of the developed infrastructure requiring as-needed maintenance; thus, impacts are classified as permanent. However, portions of the new side swale to be created in the southeastern portion of the site as part of the channel enhancements would be revegetated with native wetland and upland species, as appropriate and serve as compensatory mitigation (refer to Section 4). The proposed channel enhancements in the southeastern portion of the inlet channel have been identified as an Add-Alternate element to the proposed project. Permanent impacts to Diegan coastal sage scrub (all forms) are significant per the CVBMP MMRP and would require mitigation at a 3:1 ratio.

Implementation of habitat-based mitigation in accordance with Table 3 and as bulleted below would be required to reduce impacts to a level below significance and ensure consistency with the CVBMP MMRP. Mitigation ratios listed in Table 3 are defined by the controlling documents discussed within Section 1.5.3 of this report. Impacts to disturbed habitat would be considered less

than significant since these habitats are not regionally considered to have high conservation value requiring mitigation. This is consistent with guidance provided by the CVBMP MMRP. To offset habitat impacts, mitigation by habitat replacement is to be completed in accordance with Biological Mitigation Measure 1 (BIO-1). With the implementation of mitigation measure BIO-1 impacts to sensitive habitats would be mitigated to a less than significant level.

As depicted in Figure 4, a portion of the permanent landscape has been classified as an "enhancement" and not an impact. Within these areas, the existing conditions consist of disturbed Diegan coastal sage scrub and disturbed habitat. Grading is not proposed in these areas and the landscape palette would only consist of native sage scrub species, including (but not limited to): California sagebrush, California encelia, flat-top Buckwheat, and California box thorn.

Table 3. Habitats/Vegetation Communities, Impacts, and Mitigation

Vegetation Community	Project Impacts (acre)[1]					Mitigation Ratio (Perm.)	Mitigation Required				
	Proposed Project	RV Park	Bridge	Add-Alternate	Total		Proposed Project	RV Park	Bridge	Add-Alternate	Total
Open Water (ACOE water)	0.00	0.00	0.03	0.003	0.033	1:1	0.00	0.00	0.03	0.003	0.033
Open Water (CCC only)	0.00	0.00	<0.001	0.00	<0.001	1:1	0.00	0.00	<0.001	0.00	<0.001
Southern coastal salt marsh (ACOE wetland)	0.00	0.00	0.005	0.003	0.008	4:1	0.00	0.00	0.02	0.012	0.032
Southern coastal salt marsh (CCC only)	0.00	0.00	0.002[2]	0.002	0.004	4:1 & 2:1[2]	0.00	0.00	0.006	0.008	0.014
Bare ground (ACOE water)	0.00	0.00	0.004	0.004	0.008	1:1	0.00	0.00	0.004	0.004	0.008
Disturbed habitat (ACOE water)	0.00	0.00	<0.001	<0.001	<0.001	1:1	0.00	0.00	<0.001	<0.001	<0.001
Urban/developed – riprap (ACOE water)	0.00	0.00	0.00	0.001	0.001	1:1	0.00	0.00	0.00	0.001	0.001
Jurisdictional Resources Subtotal:	**0.00**	**0.00**	**0.04**	**0.013**	**0.054**		**0.00**	**0.00**	**0.06**	**0.028**	**0.088**
Diegan coastal sage scrub	0.64	0.00	0.10	0.00	0.74	3:1	1.92	0.00	0.30	0.00	2.22
Disturbed Diegan coastal sage scrub	0.69	0.00	<0.01	<0.01	0.69	3:1	2.07	0.00	<0.01	0.01	2.08
Bare ground	0.00	0.00	<0.01	<0.01	<0.01	None	0.00	0.00	0.00	0.00	0.00
Disturbed habitat	2.56	0.22	0.47	0.31	3.56	None	0.00	0.00	0.00	0.00	0.00

Vegetation Community	Project Impacts (acre)[1]					Mitigation Ratio (Perm.)	Mitigation Required				
	Proposed Project	RV Park	Bridge	Add-Alternate	Total		Proposed Project	RV Park	Bridge	Add-Alternate	Total
Urban/developed	0.04	0.00	0.45	0.00	0.49	None	0.00	0.00	0.00	0.00	0.00
Upland Subtotal:	**3.93**	**0.22**	**1.02**	**0.31**	**5.48**		**3.99**	**0.00**	**0.30**	**0.01**	**4.30**
Grand Total:	**3.93**	**0.22**	**1.06**	**0.323**	**5.534**		**3.99**	**0.00**	**0.36**	**0.038**	**4.388**

[1] Project acreages have been separated for elements that have been evaluated under separate documents (i.e., Costa Vista RV Park M&A 2018b and Bridge, Sweetwater Urban Greening Grant Early Action Project M&A 2018a). Reference to the "proposed project" consists of the remaining elements. Note that "landscaping enhancements – no an impact" total: 1) Diegan coastal sage scrub (DCSS) 0.0000 acre, 2) disturbed DCSS 0.46 acre, and 3) disturbed habitat 0.11 acre.

[2] Of the total impact to southern coastal salt marsh CCC only wetland, 0.0008 acres of impact would result from bridge shading. Per CVBMP MMRP Mitigation Measure 4.8-14, the mitigation ratio for impacts to CCC wetland as a result of bridge shading would be 2:1. The mitigation required (total of 0.006 acres) is reflected of the applicable mitigation ratios.

BIO-1: Corresponds to CVBMP MM#4.8-10, 4.8-12, 4.8-14, 4.8-21, and Development Policy 2.5: Mitigation of impacts to regionally and local sensitive habitats within the proposed project site includes compensatory mitigation of Diegan coastal sage scrub habitat at increased area-based ratios (Table 3). The mitigation ratios presented in Table 3 are defined by the controlling documents for the CVBMP but subject to review by the resource and regulatory agencies and mitigation needs are to be determined by ratio based scaling from the actual project impacts based on final design and engineering. Mitigation for impacts are proposed to occur via establishment of maritime succulent scrub to compensate for impacts to Diegan coastal sage scrub (all forms). Mitigation would require preparation of a conceptual compensatory mitigation and monitoring plan (also referred to as a restoration plan in the FEIR).

Refer to Section 4.0 of this report for the conceptual mitigation plan governing habitat mitigation.

BIO-2: Corresponds to CVBMP MM4.8-6:
During construction, impacts to regionally sensitive habitats adjacent to the project limit of work may occur if not effectively controlled through project design and construction monitoring and management actions. To mitigate impacts to adjacent habitats, the following construction-period impact control measures are recommended:

A) Lighting: Construction lighting will be controlled to minimize Wildlife Habitat Area impacts.

B) Invasive: Best Management Practices (BMPs) proposed for the project should not include plants listed on the California Invasive Plant Council (Cal-IPC) List of Exotic Pest Plants of Greatest Ecological Concern in California (Appendix 4.8-7 of the FEIR), the California Invasive Plant Inventory Database or any related updates.

C) Toxic Substances and Drainage: Prior to the issuance of a grading, excavation, dredge/fill, or building permit for any parcel, the applicant shall submit a Spill Prevention/Contingency Plan for approval by the Port.

D) *Temporary Fencing: Prior to issuance of any clearing and grubbing or grading permits, temporary orange fencing shall be installed around sensitive biological resources on the project site that will not be impacted by the Proposed Project. In addition, the applicant must retain a qualified biologist to monitor the installation and ongoing maintenance of this temporary fencing adjacent to all sensitive habitats. This fencing shall be shown on both grading and landscape plans, and installation and maintenance of the fencing shall be verified by the Port's Mitigation Monitor, as appropriate.*

E) *Training: Pursuant to permitting requirements, pre-construction meetings will take place with all personnel involved with the project, to include training about the sensitive resources in the area.*

Indirect impacts were determined based on the design, intended use, and location of the proposed project elements relative to biological resources. The project proposes to allow passive recreational use along the park system, which if not limited to the designated pathway could result in unauthorized encroachment into the adjacent habitats. The project includes barriers to prevent unauthorized encroachment into the adjacent habitats and the project proposes erosion control over areas graded but not permanently converted to urban use (refer to Section 4 for erosion

control planting palette). Thus, project construction is not expected to result in additional indirect impacts to vegetation communities beyond those addressed under the initial CVBMP FEIR.

3.3.2. Sensitive Species

Construction activities associated with installation of the park would result in permanent, direct impacts to decumbent goldenbush. Approximately seven plants would be permanently impacted as a result of the span bridge and the associated grading. In addition, approximately 86 plants would be impacted from the trail system, inclusive of permanent landscaping. An additional 80 plants are estimated to occur within the landscape enhancement zone. As feasible, placement of landscape container plants within this zone would be spaced to avoid decumbent goldenbush; however, full avoidance of this species may not feasible. Records for decumbent goldenbush occur along the coastal habitats of San Diego County (Calflora 2018). The permanent loss of at minimum 93 decumbent goldenbush is not expected to adversely affect the local population. However, as part of the onsite mitigation program, decumbent goldenbush species would be included in the planting palette.

No other sensitive species are expected to have a moderate or high potential to occur onsite.

Indirect impacts were determined based on the design, intended use, and location of the proposed project elements relative to biological resources. The project is not proposing permanent lighting. The proposed landscaping would include a variety of native and non-native trees, shrubs, and ground cover, all of which would be permanently irrigated and maintained as part of the park system. No invasive plant species (e.g., species identified by Cal-IPC) are proposed. Trees are proposed as part of the landscape; however, they are not included in areas designated as landscape enhancement. In addition, the project site is not located within a Wildlife Habitat Area (WHA) and is set outside of the No-Touch Buffer as well as the Limited Use and Transitional Use Buffers. Thus, the use of trees outside and away from WHAs would be consistent with controlling documents for the FEIR, including Condition 6.1.d if the Development Policy.

The project landscaping will consist of native and non-native species (none of which are classified as invasive), intermixed with trees, which could be utilized as perching posts for raptors. However, as-feasible, the placement of the trees have been designed such that they would be placed at lower elevations, away from WHA's, and/or against existing urban buildings to serve as a screening feature. Further, the trees would be part of the park system and thus, maintained as necessary. The bridge itself could be utilized by raptors (albeit low potential); however, the intended use of the bridge is primarily for pedestrian/bicycle traffic; thus, if perched, the recreational use of the bridge would deter prolonged perch use. Thus, project construction is not expected to result in indirect impacts to sensitive species.

3.3.3. Jurisdictional Resources

Implementation of the project would result in impacts to jurisdictional resources as a result of the span bridge over the inlet to the F&G Street Marsh as well as the add-alternate channel enhancements in the southeastern portion of the inlet channel (Table 3; refer to Section 3.3.1 for a detailed discussion of the project elements). No other jurisdictional resources would be impacted from implementation of this project. A full evaluation of biological resources associated with this portion of the project was completed under a separate document titled, *Biological Impact Analysis*

Report for the Chula Vista Bayfront Sweetwater Urban Greening Grant Early Action Project (M&A 2018a). Refer to this separate report for full jurisdictional survey methods, completed data forms and photo points, and detailed discussion.

Impacts to jurisdictional resources are significant and would require implementation of the mitigation measure discussed in the above section and Mitigation Measure BIO-1 and BIO-2, as well as fulfilling the requirements of Mitigation Measure BIO-3 confirming federal and state approvals. With the implementation of mitigation measures BIO-1, BIO-2, and BIO-3, potential impacts to jurisdictional resources would be mitigated to a less than significant level.

BIO-3: Corresponds to CVBMP MM4.8-21A and MM4.8-12C:

Impacts to jurisdictional resources listed in Table 3 require acquisition of the following permits and approvals:

A) A R&HA Section 10 for work in traditionally navigable waters of the U.S.,
B) A CWA Section 404 for discharge of dredged or fill material within waters of the U.S.,
C) A CWA Section 401 state water quality certification for an action that may result in degradation of waters of the State, and
D) A CDP issued by the District.

3.3.4. Wildlife Movement and Nursery Sites

Implementation of the project is not expected to interfere with connectivity to offsite habitat (F&G Street Marsh or San Diego Bay) or adversely affect the local long-term survival of resident or migratory wildlife species.

3.3.5. Policies and Ordinances

The following federal/state laws/regulations and local ordinances are applicable to the proposed project, and are evaluated below for consistency purposes.

3.3.5.1. Federal Migratory Bird Treaty Act and California Fish and Game Code

Nesting birds may be present within the project footprint during construction and could include such species as Anna's hummingbird. Impacts to active migratory bird nests, if present at the time of construction are prohibited under the federal MBTA and California FGC §3503 and §3513. Since avian species could potentially nest in the onsite habitats, the proposed project could result in impacts to active bird and/or raptor nests, if present at the time of construction under the federal MBTA and California FGC §3503 and §3513; therefore, the project Mitigation Measure BIO-4 listed below is required. With the implementation of mitigation measure BIO-4, potential impacts to nesting birds would be mitigated to a less than significant level.

BIO-4: Corresponds to CVBMP MMRP 4.8-3:

If grading or construction occurs during the breeding season for migratory birds (January 15 through August 31), the project developer(s) should retain a qualified biologist, approved by the Port, to conduct a pre-construction survey for nesting migratory birds. The pre-construction survey must be conducted no more than 10 calendar days prior to the start of construction, the results of which must be submitted to the Port, for review and approval. If active nests are present, the Port would coordinate with USFWS and CDFW to determine the appropriate construction setback distance. Construction setbacks should be implemented

until the young are completely independent of the nest or relocated with the approval of the USFWS and CDFW. A bio-monitor should be present on-site during initial grubbing and clearing of vegetation to ensure that perimeter construction fencing is properly installed and maintained and they should perform periodic inspections of the construction site during all major grading to ensure that impacts to sensitive plants and wildlife are minimized (refer to BIO-2). The bio-monitor should send a monthly monitoring letter report to the Port detailing observations made during field inspections. The bio-monitor should also notify the Port immediately if clearing is done outside of the permitted project footprint.

The proposed work area is adjacent to the Marine Group Boatyard and nearby Rohr industrial area that generate considerable noise from adjacent upland environments. However, portions of the work are near existing coastal salt marsh habitats that support intermittent to permanent use by noise sensitive wildlife species that may be affected by elevated levels of construction noise. In following the standards of the CVBMP MMRP, Mitigation Measure BIO-5 should be adopted to minimize potential noise impacts to sensitive species. With the implementation of mitigation measure BIO-5, impacts of noise on wildlife would be mitigated to a level below significance.

BIO-5: Corresponds to CVBMP MMRP 4.8-6:

A. Construction-related noise. Construction-related noise should be limited adjacent to the Sweetwater Marsh and South San Diego Bay Units of the San Diego Bay National Wildlife Refuge, F&G Street Marsh, the mudflats west of the Sweetwater District, and the J Street Marsh during the general avian breeding season of January 15 to August 31. During the avian breeding season, noise levels from construction activities must not exceed 60 dB(A) Leq., or ambient noise levels if higher than 60 dB(A). The project developer(s) should prepare and submit to the Port for review and approval an acoustical analysis and nesting bird survey to demonstrate that the 60 dB(A) Leq. noise level is maintained at the location of any active nest within the marsh. If noise attenuation measures or modifications to construction activities are unable to reduce the noise level below 60 dB(A), either the developer(s) must immediately consult with the USFWS to develop a noise attenuation plan or construction in the affected areas must cease until the end of the breeding season. Because potential construction noise levels above 60 dB(A) Leq have been identified at the F&G Street Marsh, specific noise attenuation measures have been identified and are addressed in Section 4.7 of the EIR.

3.3.5.2. Chula Vista Bayfront Master Plan, Mitigation Monitoring and Reporting Program

Implementation of the mitigation measures listed within the above sections would ensure consistency with the CVBMP MMRP. The below tables have been prepared to ensure that the results of the current biological investigation and impact analysis comply with all applicable development policies identified in the CVB Development Policies and MMRP, respectively.

Table 4. Consistency Evaluation with the Chula Vista Bayfront Development Policies

Policy Number	Policy Text	Consistency
2.1	The biological productivity and the quality of wetlands shall be protected and, where feasible, restored.	Consistent – The project includes channel enhancement in support of the span bridge. This includes slope layback near the span bridge and revegetation with native wetland species to prevent against future erosion. As detailed further in Policy 3.2, the bridge has been designed as a span bridge with deep support footings set back from the existing edge of the creek bank, as much as feasible without having to include a center bridge support/footing. The existing banks at the bridge crossing would be laid back and revegetated with native wetland associated species with the intent to help reduce and protect against future erosion. All of the above bridge design features have been included as part of this project to create a stable bridge crossing, avoid placement of fill within jurisdictional resources, and avoid placement of a riprap apron or similar structural engineered hardscape within jurisdictional resources. The project also includes channel enhancements in the eastern portion of the inlet channel (referred to as Add-Alternate in Table 3 of this document). A detailed discussion is included below in Policy 3.2.
2.2	Wetlands shall be defined and delineated consistent with the Coastal Act and the Coastal Commission Regulations, and shall include, but not be limited to, lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens. Any unmapped areas that meet these criteria are wetlands and shall be accorded all of the protections provided for wetlands in the	Consistent – The wetland delineation conducted in support of the project complies; refer to Section 1.4.2 of this report for survey methods and Section 2.3.4 for survey results. As noted throughout the report, implementation

Policy Number	Policy Text	Consistency
	PMP. Wetlands shall be further 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.	of the span bridge and channel enhancements in the eastern portion of the inlet channel would result in impacts to jurisdictional resources. The full survey methodology and results (e.g., data forms and photo points) is documented in the *Biological Impact Analysis Report for the Chula Vista Bayfront Sweetwater Urban Greening Grant Early Action Project* (M&A 2018a).
2.3	Where the required initial site inventory indicates the presence or potential for wetland species or other wetland indicators, the District shall require the submittal of a detailed biological study of the site, with the addition of a delineation of all wetland areas on the project site. Wetland delineations shall be based on the definitions contained in Section 13577(b) of Title 14 of the California Code of Regulations.	Consistent – This report is in compliance with the policy; refer to Section 1.4.2 of this report for survey methods and Section 2.3.4 for survey results. As noted throughout the report, implementation of the span bridge and channel enhancements in the eastern portion of the inlet channel would result in impacts to jurisdictional resources. The full survey methodology and results (e.g., data forms and photo points) is documented in the *Biological Impact Analysis Report for the Chula Vista Bayfront Sweetwater Urban Greening Grant Early Action Project* (M&A 2018a).
2.4	a) The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this Plan, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following: (1) New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities. (2) Maintaining existing, or restoring previously dredged, depths in existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps. (3) In open coastal waters, other than wetlands, including streams, estuaries, and	Consistent -The project would result in filling and excavation of coastal waters of the U.S., USACOE wetlands, and CCC wetlands as a result of the span bridge and onsite compensatory mitigation.

Policy Number	Policy Text	Consistency
	lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities. (4) Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines. (5) Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas. (6) Restoration purposes. (7) Nature study, aquaculture, or similar resource dependent activities.	
2.5	Where wetland fill or development impacts are permitted in wetlands in accordance with the Coastal Act and any applicable PMP policies, mitigation measures shall include creation of wetlands of the same type lost. Adverse impacts will be mitigated at a ratio of 4:1 for all types of wetland, and 3:1 for non-wetland riparian areas. Replacement of wetlands on-site or adjacent to the project site, within the same wetland system, shall be given preference over replacement off-site or within a different system. Areas subjected to temporary wetland impacts shall be restored to the pre-project condition at a 1:1 ratio. Temporary impacts are disturbances that last less than 12 months and do not result in the physical disruption of the ground surface, death of significant vegetation within the development footprint, or negative alterations to wetland hydrology.	Consistent – All impacts to southern coastal salt marsh are classified as permanent and a 4:1 mitigation ratio has been applied. Impacts to other remaining jurisdictional resources consisting of waters of the U.S. are habitat enhancement impacts and will be mitigated at a no-net loss standard of a 1:1 ratio.
2.6	Wherever wetlands are identified, a buffer of at least 100 feet in width from the upland edge of wetlands and at least 50 feet in width from the upland edge of riparian habitat shall be established. In some unusual cases, smaller buffers may be appropriate, when conditions of the site as demonstrated in a site specific biological survey, the nature of the proposed development, etc. show that a smaller buffer would provide adequate protection. In such cases, the California Department of Fish and Game (CDFG) must be consulted and agree that a reduced buffer is appropriate and the District, or Commission on appeal, must find that the development could not be feasibly constructed without a reduced buffer. However, in no case shall the buffer be less than 50 feet.	Not applicable
3.2	Development shall consider the potential changes in functionality of Wildlife Habitat Area due to rising sea levels and coordinate management with the District and City Climate Mitigation and Adaptation Plans. Siting and design of new shoreline development shall take into account predicted future changes in sea level. In	The proposed project includes grading adjacent to the span bridge to ensure bridge stabilization and prevent future erosion from added tidal prism from sea level rise and opening the

Policy Number	Policy Text	Consistency
	particular, an acceleration of the historic rate of sea level rise shall be considered and based upon up-to-date scientific papers and studies, agency guidance (such as the 2010 Sea Level Guidance from the California Ocean Protection Council), and reports by national and international groups such as the National Research Council and the Intergovernmental Panel on Climate Change. Consistent with all provisions of the PMP, new structures shall be set back a sufficient distance landward or other sea level rise adaptation strategies incorporated to eliminate or minimize, to the maximum extent feasible, hazards associated with anticipated sea level rise over the expected economic life of the structure.	aperture dimensions via a new wildlife and hydraulic culvert beneath Lagoon Drive to accommodate future enhancement of the Seasonal Ponds by the Port/City, USFWS expansion of wetlands at F&G Street Marsh, and sea level rise (SLR) expanded tidal prism. The wetlands to be restored within the channel area as mitigation also include wetland habitat within current tidal ranges as well as some capacity for wetland transgression under SLR scenarios. The bridge has been designed as a span bridge with deep support footings set back from the existing edge of the creek bank, as much as feasible without having to include a center bridge support/footing. As described above, the existing banks at the bridge crossing would be laid back and revegetated with native wetland associated species with the intent to help reduce and protect against future erosion. The bridge design features have been included as part of this project to create a stable bridge crossing, avoid placement of fill within jurisdictional resources, and avoid placement of a riprap apron or similar structural engineered hardscape within jurisdictional resources. The project also includes channel enhancements in the eastern portion of the inlet channel (referred to as Add-Alternate in Table 3 of this document). Here, the project is proposing to pull the existing slope back from the channel edge to shallow the grade of the slopes, and to shorten the existing storm drain outfall (Outfall

Policy Number	Policy Text	Consistency
		No. CV1-2) such that the discharge point is not directly into the channel (as it currently is) but rather flows along a new proposed side swale prior to connecting to the inlet channel. This pull back provides for enhancement of the inlet to the F&G Street Marsh and accommodates future completion of the inlet channel restoration to improve circulation conditions and address scour and flow considerations associated with sea level rise and addition of tidal prism associated with restoration of offsite features including the Seasonal Pond by the Port/City and upper F&G Street Marsh by the USFWS. The entirety of the channel improvements contemplated in prior documents are not being performed at this time due to budgetary limitations; however, those that would be difficult to complete after CVBMP roadway and the current trail infrastructure are completed, are proposed to be performed under this Urban Greening Grant project work effort. The channel enhancements proposed as part of this project would result in minor jurisdictional impacts (referred to as Add-Alternate in Table 3 above) associated with meeting channel grades and these impacts are fully mitigated onsite within this project. Because the project team is aware that the existing storm drain will be replaced by an upsized drain at an invert elevation of +2.5, the side channel design is proposed to be configured in a manner that does not require regarding of the restoration areas to accommodate the upsized drain. The storm drain replacement would be constructed in an

Policy Number	Policy Text	Consistency
		upland area with the restoration grading extending to the drain. All energy dissipation and accommodation of any future maintenance area as required under Development Policy 13 would be constructed within an area that is presently upland but which would be lowered to an elevation to accommodate drainage and would be tidally influenced when completed. All stormwater treatment would happen prior to discharge as required under Policy 13. The construction of this drain is not part of the current Urban Greening Grant Project, although grading to restore the side channel and expand wetlands is part of this Urban Greening Grant work. The construction of the drain, like all other drain outlets within the North Harbor Improvements of the CVBMP would require a CDP and USACOE permit, but it would not result in impacts to jurisdictional resources. The drain headwall and energy dissipation must occur concurrent with or preceding the grading activities associated with the restoration work proposed as part of this project in order to minimize risk of impacts to wetlands that will ultimately develop rapidly if work is not completed to replace the existing drain in a timely fashion.
5.2	Prohibit active recreation, construction of any road (whether paved or not), within No Touch Buffer Areas and "Transition Buffer Areas" as that term is defined and described in Exhibit 2, with the exception of existing or necessary access points for required maintenance.	Consistent – the proposed bridge is located outside the established buffers.
5.3	Protect the No Touch Buffer Areas from the impacts of the Chula Vista Bayfront project including, without limitation, fencing necessary to protect the Sweetwater Marsh and the Sweetwater parcel tidal flats, the J Street Marsh next to the San Diego	Not Applicable

Policy Number	Policy Text	Consistency
	Bay National Wildlife Refuge, and the north side of Parcel H-3.	
5.4	Include additional controls and strategies restricting movement of humans and Predators into sensitive areas beyond the boundaries of the designated Buffer Areas.	Consistent – the proposed bridge includes open fencing to prevent unauthorized access by path users into the adjacent habitats while still allow wildlife movement. In addition, an open fence would be installed on the western boundary of the pathway to prevent unauthorized access by path users into the adjacent habitats while still allow wildlife movement. Design of the permanent fencing is consistent with MM 4.8-6 of the FEIR, which states "Prior to approval of landscape plans, a conceptual site plan or fencing plan shall be submitted to the Port for review and approval to ensure areas designated as sensitive habitat are not impacted. Fencing shall be provided within the buffer area only, and not in sensitive habitat areas." Submittal of such a plan is included as part of the current project.
5.9	"Environmentally sensitive habitat area" (ESHA) means 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. The following areas shall be considered ESHA, unless there is compelling site-specific evidence to the contrary: • Any habitat area that is rare or especially valuable from a local, regional, or statewide basis. • Areas that contribute to the viability of plant or animal species designated as rare, threatened, or endangered under State or Federal law. • Areas that contribute to the viability of species designated as Fully Protected or Species of Special Concern under State law or regulations. • Areas that contribute to the viability of plant species for which there is compelling evidence of rarity, for example, those designated by the California Native Plant Society (CNPS) as 1b (Rare or endangered in California and elsewhere), such as Nuttall's scrub oak or "2" (rare, threatened or endangered in California but more common	Consistent – the southern coastal salt marsh communities have been classified as sensitive vegetation communities and are considered to be ESHA. The Diegan coastal sage scrub present onsite has been considered for its potential ESHA status, but is not considered to be ESHA due to its fragmented nature, absence of adequate continuity to contribute to the viability of plant and animal populations considered to be rare, threatened or endangered and the lack of support for species designated as fully protected. Future restored buffer habitats in the Bayfront are anticipated to expand the upland habitat function and may result in development of future upland scrub habitat ESHA.

Policy Number	Policy Text	Consistency
	elsewhere), such as wart-stemmed Ceanothus.	
5.10	New development shall be sited and designed to avoid impacts to ESHA. ESHA shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas. Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas. These uses include enhancement/restoration work, passive recreational parks and public access or recreational facilities such as trails and bike paths integrated into the natural environment and sited and designed to preserve, and be compatible with, native habitat.	Consistent – the proposed bridge has been designed to avoid/span the ESHA. However, grading activities associated with the bridge crossing are required to support the bridge and to prevent against future erosion and thus do result in direct impacts to ESHA. These impacts are necessarily located in areas of ESHA as the grading seeks to support the bridge abutments and prevent against future erosion. Similarly, channel enhancements in the eastern portion of the inlet channel would require laying the existing slopes back from the channel edge to shallow the grade of the slopes, and to shorten the existing storm drain outfall from the existing creek bed . As detailed in Development Policy 3.2, this provides for enhancement of the inlet channel and accommodates future completion of the inlet channel restoration to improve circulation conditions and address scour and flow considerations associated with sea level rise and addition of tidal prism associated with restoration of offsite features including the Seasonal Pond by the Port/City and upper F&G Street Marsh by the USFWS. The activities contemplated within the project are consistent with adjacency to ESHA resources.
5.12	In the 1-g parcel area, a pedestrian bridge is proposed to create a linkage over a tidal inlet associated with the F & G Street Marsh. Tidal habitats should be treated as ESHA and the bridge crossing must be designed to enhance the habitat values present and reduce erosion. This bridge span must be extended and the existing incised channel slope should be cut back, reducing the slope and then creating additional salt marsh habitat on the created floodplain. Site-specific studies to assess the extent and quality of natural resources at the site will be required at the time development is proposed.	Consistent – the tidal habitats are classified as jurisdictional resources and the project includes channel grading to reduce erosion; all graded areas not used as mitigation or permanently converted to landscape would be protected for erosion control purposes. This report serves as the site specific study. The bridge crossing is of a

Policy Number	Policy Text	Consistency
		free-span design with abutments outside of ESHA; refer to Policy 3.2 for additional information on span bridge. All work in the wetlands is considered compatible with ESHA.
5.13	If located in or adjacent to ESHA, new development shall include an inventory conducted by a qualified biologist of the plant and animal species present on the project site. If the initial inventory indicates the presence or potential for sensitive species or habitat on the project site, a detailed biological study shall be required. Sensitive species are those listed in any of three categories: federally listed, state listed or designated species of special concern or fully protected species, and CNPS categories 1B and 2.	Consistent –This report serves as a detailed biological study. It is supported by the *Biological Impact Analysis Report for the Chula Vista Bayfront Sweetwater Urban Greening Grant Early Action Project* (M&A 2018a).
5.14	Development adjacent to ESHAs shall minimize impacts to habitat values or sensitive species to the maximum extent feasible. Native vegetation buffer areas shall be provided around ESHAs to serve as transitional habitat and provide distance and physical barriers to human intrusion. Buffers shall be of a sufficient size to ensure the biological integrity and preservation of the ESHA they are designed to protect	Consistent – the bridge has been designed to avoid fill and/or placement of dredged material into jurisdictional resources. Slopes and upland restoration planting will further buffer ESHA from disturbance.
5.15	All buffers around (non-wetland) ESHA shall be a minimum of 100 feet in width, or a lesser width may be approved by the District if findings are made that a lesser buffer would adequately protect the resource. However, in no case can the buffer size be reduced to less than 50 feet.	Consistent – there are no designated non-wetland ESHA resources (similar to Policy 5.2).
5.16	Public access-ways and trails are considered resource dependent uses. New access-ways and trails located within or adjacent to ESHA shall be sited to minimize impacts to ESHA to the maximum extent feasible. Measures including, but not limited to, signage, placement of boardwalks, and limited fencing shall be implemented as necessary to protect ESHA.	Consistent – open fencing is proposed as part of the bridge to prevent users from leaving the path. In addition, open fencing is proposed on the western boundary of the project limit of work to prevent users from leaving the park system. Upland habitat mitigation is also to be developed through final design to integrate additional buffer planting characteristics to assist in controlling off-trail activities within buffers or ESHA environments.
5.17	Modifications to required development standards that are not related to ESHA protection (street setbacks, height limits, etc.) shall be permitted where necessary to	Not applicable.

Policy Number	Policy Text	Consistency
	avoid or minimize impacts to ESHA.	
5.18	Protection of ESHA and public access shall take priority over other development standards and where there is any conflict between general development standards and ESHA and/or public access protection, the standards that are most protective of ESHA and public access shall have precedence.	Not Applicable
5.19	Impacts to native habitat that does not constitute ESHA that cannot be avoided through the implementation of siting and design alternatives shall be fully mitigated, with priority given to on-site mitigation. Off-site mitigation measures shall only be approved when it is not feasible to fully mitigate impacts on-site or where off-site mitigation is more protective. Mitigation for impacts to native habitat shall be provided at a 3:1 ratio.	Consistent – the project would mitigate non-ESHA sage scrub habitat at a 3:1 ratio.
11.1	Walkways, paths, and overlooks near Wildlife Habitat Areas outside of the No Touch Buffer Areas will be designed in accordance with the following: a) Alignment, design, and general construction plans of walkways and overlooks will be developed to minimize potential impacts to Wildlife Habitat Areas. b) Path routes will be sited with appropriate setbacks from Wildlife Habitat Areas. c) Paths running parallel to shore or marsh areas that will cause or contribute to birdflushing will be minimized throughout the Chula Vista Bayfront. d) Walkways and overlooks will be designed to minimize and eliminate, where possible, perching opportunities for raptors and shelter for skunks, opossums or other Predators. e) Walkways and overlooks that approach sensitive areas must be blinded, raised, or otherwise screened so that birds are not flushed or frightened. In general, walkway and overlook designs will minimize visual impacts on the Wildlife Habitat Areas of people on the walkways.	Consistent – impacts associated with the bridge have been minimized to the maximum extent practicable (only impact would result from shading). The bridge is expected to be high enough over the channel bottom to prevent establishment of urban adapted predators and the bridge is expected to be set back enough from the open water of the Bay (where most shore birds and waterfowl would forage) to avoid regular nuisance to resting and/or foraging wildlife.
20.3	Create a meandering pedestrian trail constructed of natural material that is easily maintained and intenwoven throughout the Signature Park. Create, as part of the E Street Extension, a pedestrian pathway/bridge to provide a safe route for pedestrians to walk and to transition from the Sweetwater District to the Harbor Park Shoreline Promenade and park in the Harbor District.	Consistent – the proposed pathway and bridge fulfill the policy requirement. The pedestrian pathway will be stabilized decomposed granite. Relocation of the bridge away from E Street Extension (Marina Parkway) reduces the required scale of impact to ESHA by locating the bridge over a portion of deeply incised channel that supports little marsh habitat (approximately

Policy Number	Policy Text	Consistency
		64 square feet) compared to the initially analyzed roadway adjacent bridge trail that would extend salt marsh impacts along the roadside margin for a length of approximately 260 linear feet with a variable width of impact.

Table 5. Consistency Evaluation with the Chula Vista Bayfront MMRP

MM Number	Summary of Significant Impact	MM Text	Consistency
4.8	*Terrestrial Biological Resources*		
4.8-1	Impacts to nesting raptors	Not Applicable	Not Applicable - No potential for raptors to nest within the project area. Discussed in Sections 2.3.3.2 and 2.3.3.1 of this report.
4.8-2	Impacts to western burrowing owl	Not Applicable	Not Applicable - No potential for burrowing owl to occur within the project area. Discussed in Section 2.3.3.2 of this report.
4.8-3	Impacts to nesting birds protected by the MBTA	If grading or construction occurs during the breeding season for migratory birds (January 15 through August 31), the project developer(s) shall retain a qualified biologist, approved by the Port/City (depending on the jurisdiction), to conduct a pre-construction survey for nesting migratory birds. The pre-construction survey must be conducted no more than 10 calendar days prior to the start of construction, the results of which must be submitted to the Port or City, as appropriate, for review and approval. If active nests are present, the Port will consult with USFWS and CDFG to determine the appropriate construction setback distance. Construction setbacks shall be implemented until the young	Consistent – Implementation of BIO-4, as included in this report would ensure consistency with MM 4.8-3.

MM Number	Summary of Significant Impact	MM Text	Consistency
		are completely independent of the nest, or, relocated with the approval of the USFWS and CDFG. A bio-monitor shall be present on site during initial grubbing and clearing of vegetation to ensure that perimeter construction fencing is being maintained. A bio-monitor shall also perform periodic inspections of the construction site during all major grading to ensure that impacts to sensitive plants and wildlife are minimized. Depending on the sensitivity of the resources, the City and/or Port shall define the frequency of field inspections. The bio-monitor shall send a monthly monitoring letter report to the City and/or Port detailing observations made during field inspections. The bio-monitor shall also notify the City and/or Port immediately if clearing is done outside of the permitted project footprint.	
4.8-4	Impacts to the light-footed clapper rail and loss of raptor foraging habitat at the inlet of the F&G Street Marsh as a result of the construction of the extension of E Street and development of Sweetwater Park.	Prior to construction or grading in any areas of suitable nesting or foraging habitat for light-footed and, regardless of the time of year, the project developer(s) shall retain a qualified biologist who shall be approved by the Port or City, as appropriate, and shall be present during removal of southern coastal salt marsh vegetation within the inlet to the F & G Street Marsh to ensure that there are no direct impacts to foraging light-footed clapper rails. If a light-footed clapper rail is encountered, construction will be temporarily halted until the bird leaves the area of construction. A bio-monitor shall be present on site during initial grubbing and clearing of vegetation to ensure that perimeter construction fencing is being maintained. A bio-monitor shall	Consistent – Implementation of BIO-2 and BIO-4, as included in this report would ensure consistency with MM 4.8-4.

MM Number	Summary of Significant Impact	MM Text	Consistency
		also perform periodic inspections of the construction site during all major grading to ensure that impacts to sensitive plants and wildlife are minimized. Depending on the sensitivity of the resources, the City and/or Port shall define the frequency of field inspections. The bio-monitor shall send a monthly monitoring letter report to the City and/or Port detailing observations made during field inspections. The bio-monitor shall also notify the City and/or Port immediately if clearing is done outside of the permitted project footprint. The project developer(s) shall consult with the U.S. Fish and Wildlife Service prior to impacting any areas of suitable nesting or foraging habitat for light-footed clapper rail so as not to prevent any unauthorized take of the light-footed clapper rail. Any take must be authorized by U.S. Fish and Wildlife Service.	
4.8-5	Impact to MSCP-covered species within the City's jurisdiction	Not Applicable	Not Applicable
4.8-6	Potential impact to sensitive species present in the F&G Street Marsh and Sweetwater Marsh National Wildlife Refuge as a result of construction adjacent to these locations.	A. Construction-related noise (full measure not included) B. Perching of raptors (NA) C. Raptor management and monitoring (NA) D. Lighting (full measure not included) E. Noise (same as 4.8-6A. Construction-related Noise) F. Invasives (full measure not included) G. Toxic Substances and Drainage (full measure not included) H. Public Access (NA) I. Boating Impacts (NA)	Consistent – Implementation of BIO-5, as included in this report would ensure consistency with MM 4.8-6 construction related noise. BIO-2 is included in this report to offset potential impacts to natural resources located adjacent to the project area and is consistent, as applicable with MM 4.8-6. Specifically, lighting is not proposed; however, in the event temporary lighting is necessary during construction, implementation of BIO-2A, as included in this report would ensure consistency with MM 4.8-6 lighting requirements. Implementation of BIO-

MM Number	Summary of Significant Impact	MM Text	Consistency
			2B, as included in this report would ensure consistency with MM 4.8-6 construction-period invasive species requirements (e.g., prohibit use of invasive species). Implementation of BIO-2C, as included in this report would ensure consistency with MM 4.8-6 BMPs (e.g., reduce the potential for impact as a result of release of toxins, chemicals, etc.) that might harm the natural environment. Access areas outside the project footprint are prohibited. Implementation of BIO-2D, as included in this report would ensure consistency with MM 4.8-6 public access (e.g., requirements to install and maintain fencing, oversight by a biologist, and pre-construction training for construction personnel). The project does not propose to install light posts or buildings. Section 4 of this report is included to offset significant impacts to jurisdictional and upland habitats via onsite establishment and rehabilitation. The planting palette does not include invasive species or trees. Section 4 also includes a planting palette for erosion control (i.e., areas graded but not converted to permanent urban use, landscape, etc.).
4.8-7	No significant impact identified; measure provided as further mitigation to reduce potential indirect impacts to biological resources.	Natural Resources Management Plan (full measure not included)	Consistent – The project has been designed to be consistent with the NRMP and Settlement Agreement; consistency is detailed below (the below headings are consistent with those in the Settlement Agreement). No-touch Buffer: Consistent – The bridge and associated trail system have been designed to

MM Number	Summary of Significant Impact	MM Text	Consistency
			avoid the No-touch buffer. This includes placement of the trail outside of the buffer limits and includes fencing to prevent unauthorized access by path users into the adjacent habitats while still allowing for wildlife movement. Walkway and Path Design: Consistent - The bridge and associated trail system has been placed outside the No-touch buffer and set back enough from the open water of the Bay (where most shore birds and waterfowl would forage) to avoid regular nuisance to resting and/or foraging wildlife. Predator Management: Consistent – The bridge is expected to be high enough over the channel bottom to prevent establishment of urban adapted predators. Additional Habitat Management and Protection: Not Applicable Bird Strikes and Bird Disorientation: Not Applicable Storm Water and Urban Runoff Quality: Not Applicable Landscaping and Vegetation: Consistent – Implementation of the conceptual mitigation plan, included in Section 4 of this report would ensure consistency with landscape and vegetation requirements. The conceptual mitigation plan does not include invasive

MM Number	Summary of Significant Impact	MM Text	Consistency
			species. Lighting and Illumination: Consistent – Not Applicable, no permanent lighting proposed. Noise: Consistent – Implementation of BIO-5, as included in this report would ensure consistency with construction-related noise. Education: Not Applicable Boating Impacts: Not Applicable Restoration Priorities: Consistent – The proposed project includes grading associated with the span bridge to prevent future erosion. Sweetwater and Otay District Public Park Requirements: Consistent – The proposed project includes a trail system and a span bridge to serve as an over water connection for the Sweetwater Park Path. Phase I Signature Park Improvements: Not Applicable Hazardous Waste Removal Standards: Implementation of BIO-2C, as included in this report would ensure consistency with BMP requirements (e.g., reduce the potential for impact as a result of release of toxins, chemicals, etc.) to prevent harm to the natural environment.

MM Number	Summary of Significant Impact	MM Text	Consistency
			H-3 Densities: Not Applicable Creation of the South Bay Wildlife Advisory Group: Not Applicable Dispute Resolution: Not Applicable Bayfront Cultural and Design Committee for Project Located in Port District Lands: Not Applicable Port Master Plan Amendment: Not Applicable Energy: Not Applicable Housing Impacts: Not Applicable The Coalition's Undertakings: Not Applicable Identification of Grants: Not Applicable No Limitation on the District's, City's or RDA's Discretion: Not Applicable The District's, City's and RDA's Undertakings: Not Applicable Reservation of Discretion: Not Applicable Job Quality: Not Applicable Miscellaneous: Not Applicable
4.8-8	Construction of H Street Pier	Not Applicable	Not Applicable
4.8-9	Impacts associated with reconfiguration of the marinas or	Not Applicable	Not Applicable

MM Number	Summary of Significant Impact	MM Text	Consistency
	for dredging and filling of the navigation channels.		
4.8-10	Impacts to disturbed coastal sage scrub, non-native grassland, mulefat scrub/riparian scrub, southern coastal salt marsh, disturbed riparian, and disturbed seasonal pond as a result of grading for project-level and program level elements within the Port's jurisdiction.	Port: A. Prior to the commencement of grading for development in each phase that impacts riparian habitat or sensitive vegetation communities, the Port or Port tenants, as appropriate, shall prepare and initiate implementation of a restoration plan for impacts to riparian habitat and sensitive vegetation communities in accordance with the mitigation requirements presented in Table 4.8-6. Prior to the commencement of Phase I grading that impacts riparian habitat or sensitive vegetation communities, the Port shall coordinate with the wildlife agencies for the preparation and approval of a detailed restoration plan within the Port's jurisdiction. The restoration plan shall be prepared by a qualified biologist, and the plan shall be approved by the Port. The guidelines for this plan will be developed in consultation with the regulatory agencies. The plan shall summarize the approach taken to avoid and minimize impacts to sensitive habitats, detail the target functions and values, and address the approach to restoring those functions and values. Typically, the restoration plan shall detail the site selection process; shall propose site preparation techniques, planting palettes, implementation procedures, monitoring and maintenance practices; shall establish performance criteria for each mitigation site. Typical success criteria may include percent canopy cover, percent of plant survival, and percent of native/non-native canopy cover. A minimum 5-year maintenance and	Consistent – This report serves as a project-level assessment of potential impacts. It is supported by the *Biological Impact Analysis Report for the Chula Vista Bayfront Sweetwater Urban Greening Grant Early Action Project* (M&A 2018a). BIO-1 included in the report, quantifies project impacts and associated mitigation, as well as requires preparation of a conceptual mitigation plan to offset significant impacts. A 3:1 mitigation ratio has been applied for permanent impacts to Diegan coastal sage scrub, not 1.5:1 as presented in the Final EIR Table 4.8-6. A 3:1 ratio would ensure consistency with Development Policy 5.19. All impacts to southern coastal salt marsh are classified as permanent and a 4:1 mitigation ratio has been applied. Impacts to other the remaining jurisdictional resources consisting of waters of the U.S. are habitat enhancement impacts and will be mitigated at a no-net loss standard of a 1:1 ratio within the widened and deepened channel. These ratios are consistent with MMRP 4.8-10 and Development Policy 2.5. Section 4 of this report serves as the conceptual mitigation plan. As stated in the first paragraph of Section 4, this conceptual mitigation plan will be refined during final design. In addition, the mitigation plan will be required and reviewed as part of the regulatory approval process (BIO-3).

MM Number	Summary of Significant Impact	MM Text	Consistency
		monitoring period would be implemented following installation to ensure each area is successful. The restoration plan shall address monitoring requirements and specify when annual reports are to be prepared and what they shall entail. Qualitative and quantitative assessments of the site conditions shall be included. If the mitigation standards have not been met in a particular year, contingency measures shall be identified in the annual report and remediation will occur within 3 months or start of the growing season. The Port shall be responsible for ensuring that all of the success criteria are met to the satisfaction of the Port in consultation with the regulatory agencies. B. Prior to initiating any construction activities in each phase that would affect riparian habitat or sensitive vegetation communities, including clearing and grubbing associated with program level phases, an updated project- level assessment of potential impacts shall be made based on a specific project design. The Port or project developer(s), as appropriate, shall retain a qualified, Port-approved biologist to update appropriate surveys, identify the existing conditions, quantify impacts, and provide adequate mitigation measures to reduce impacts to below a level of significance. This updated assessment shall be submitted to the Port for review and approval.	
4.8-11	Impacts to non-native grassland, southern coastal salt marsh, and mulefat scrub/riparian scrub in	Not Applicable	Not Applicable

MM Number	Summary of Significant Impact	MM Text	Consistency
	the City's jurisdiction.		
4.8-12	Impacts to USACOE wetlands and non-wetland waters as a result of program-level development within the Port's jurisdiction. Impacts to USACOE wetlands and non-wetland waters as a result of establishment of ecological buffer on OP-2A, reconfiguration of the harbor and marine, and bridges on HP-5.	Port: A. The Port or Port tenants, as appropriate, shall mitigate for permanent and temporary impacts to USACE jurisdictional waters at the following ratios: 1:1 for permanent impacts to non-wetland waters of the U.S.; 4:1 for impacts to wetlands; and 1:1 for all temporary impacts. A minimum of 1:1 mitigation must be created in order to achieve the no-net-loss requirement of the CWA. Table 4.8-8 provides a breakdown of the required mitigation acreages for all USACE impacts within the Port's jurisdiction, which totals 2.12 acres. Mitigation for impacts from the Bay and Marina components of the proposed project will be established through USACE regulations once final designs for this work in Phases II through IV are finalized. Prior to the commencement of grading activities for any projects that impact USACE jurisdictional waters, the Port or Port tenants, as appropriate, shall prepare and initiate implementation of a restoration plan detailing the measures needed to achieve the necessary mitigation. The guidelines for this plan will be developed in consultation with the regulatory agencies. The plan shall summarize the approach taken to avoid and minimize impacts to sensitive habitats, detail the target functions and values, and address the approach to restoring those functions and values. Typically, the restoration plan shall detail the site selection process; shall propose site preparation techniques, planting palettes, implementation procedures, monitoring and maintenance practices; shall establish performance criteria for	Consistent – This report serves as a project-level assessment of potential impacts. It is supported by the *Biological Impact Analysis Report for the Chula Vista Bayfront Sweetwater Urban Greening Grant Early Action Project* (M&A 2018a). BIO-1 included in the report, quantifies project impacts and associated mitigation, as well as requires preparation of a conceptual mitigation plan to offset significant impacts. All impacts to USACOE wetlands are classified as permanent and a 4:1 mitigation ratio has been applied. Impacts to waters of the U.S. are habitat enhancement impacts and will be mitigated at a no-net loss standard of a 1:1 ratio within the widened channel. These ratios are consistent with MMRP 4.8-10, 4.8-12, and Development Policy 2.5. Section 4 of this report serves as the conceptual mitigation plan. As stated in the first paragraph of Section 4, this conceptual mitigation plan will be refined during final design. In addition, the mitigation plan will be required and reviewed as part of the regulatory approval process (BIO-3). Implementation of BIO-3, as included in this report would ensure consistency with MM 4.8-12C.

MM Number	Summary of Significant Impact	MM Text	Consistency
		each mitigation site. Typical success criteria may include percent canopy cover, percent of plant survival, and percent of native/non-native canopy cover. A minimum 5-year maintenance and monitoring period would be implemented following installation to ensure each area is successful. The restoration plan shall address monitoring requirements and specify when annual reports are to be prepared and what they shall entail. Qualitative and quantitative assessments of the site conditions shall be included. If the mitigation standards have not been met in a particular year, contingency measures shall be identified in the annual report and remediation will occur within 3 months or the start of the growing season. The Port shall be responsible for ensuring that all of the success criteria are met to the satisfaction of the Port in consultation with the regulatory agencies. Port/City: C. Prior to issuance of the first clearing and grubbing or grading permit, for activities that impacts USACE jurisdictional waters, the Port or Port tenants, as appropriate, and project developer(s) within the City's jurisdiction shall obtain a Section 404 permit from USACE. The permit application process would also entail approval of the restoration plan from the USACE as described above, with regards to areas that fall under the jurisdiction of USACE.	
4.8-13	Impacts to CDFW streambed and associated riparian.	Not Applicable	Not Applicable
4.8-14	Impacts to CCC wetland as a result of: E Street improvements, S-1 adjacent to the roadway at	Port. A. Mitigation for permanent direct and indirect (from bridge shading) impacts would be at a 2:1 ratio as detailed in Table 4.8-8.	Consistent – The proposed project would result in impacts to CCC wetlands from bridge shading. Footnote 2 in Table 3 of this report

MM Number	Summary of Significant Impact	MM Text	Consistency
	Bay Boulevard and E Street, bridge on E Street over the inlet to the F&G Street Marsh as part of the circulation element, and bridge to cross the HP-5 drainage ditch in the Harbor District.	Prior to the commencement of grading activities for projects that impact CCC jurisdictional areas, the Port or Port tenants, as appropriate, shall prepare a restoration plan detailing the measures needed to create/restore CCC wetlands. The guidelines for this plan will be developed in consultation with the regulatory agencies. The plan shall summarize the approach taken to avoid and minimize impacts to sensitive habitats, detail the target functions and values, and address the approach to restoring those functions and values. Typically, the restoration plan shall detail the site selection process; shall propose site preparation techniques, planting palettes, implementation procedures, monitoring and maintenance practices; and shall establish performance criteria for each mitigation site. Typical success criteria may include percent canopy cover, percent of plant survival, and percent of native/non-native canopy cover. A minimum 5-year maintenance and monitoring period would be implemented following installation to ensure each area is successful. The restoration plan shall address monitoring requirements and specify when annual reports are to be prepared and what they shall entail. Qualitative and quantitative assessments of the site conditions shall be included. If the mitigation standards have not been met in a particular year, contingency measures shall be identified in the annual report and remediation will occur within 3 months or the start of the growing season. The Port shall be responsible for ensuring that all of the success criteria are met to the satisfaction of the Port in	acknowledges the mitigation ratio of 2:1. BIO-1 included in the report, quantifies project impacts and associated mitigation, as well as requires preparation of a conceptual mitigation plan to offset significant impacts. Thus, implementation of BIO-1, as included in the report would ensure consistency with 4.8-14. Section 4 of this report serves as the conceptual mitigation plan.

MM Number	Summary of Significant Impact	MM Text	Consistency
		consultation with the regulatory agencies, including the CCC.	
4.8-15	Impacts to CCC wetland as a result of two addition bridges in the Otay District; riprap removal and bulkhead placement as a component to the Chula Vista Marina improvements (HW-1, HW-3, H-12) within the Harbor District; and re-channelization of Telegraph Canyon Channel in Otay District.	NA	NA
4.8-16	Impacts to CCC wetland as a result of establishment of the ecological buffer on OP-2A.	Not Applicable	Not Applicable
4.8-17	Impacts to CCC wetland as a result of additional road extensions in the Otay District	Not Applicable	Not Applicable
4.8-18	Impacts to CCC wetland on HP-13B.	Not Applicable	Not Applicable
4.8-19	Impacts to CCC wetland as a result of park development on OP-1B.	Not Applicable	Not Applicable
4.8-20	Impacts to CCC wetland as a result of development on O-4.	Not Applicable	Not Applicable
4.8-21	Impacts to waters under the jurisdiction of RWQCB.	Port: A. Prior to the commencement of grading activities for project components impacting RWQCB jurisdictional waters, the Port or Port tenants, as appropriate, shall prepare and implement a restoration plan detailing the measures needed to create/restore RWQCB jurisdictional waters in accordance with the acreage identified in Table 4.8-8.	Consistent – This report serves as a project-level assessment of potential impacts. It is supported by the *Biological Impact Analysis Report for the Chula Vista Bayfront Sweetwater Urban Greening Grant Early Action Project* (M&A 2018a). BIO-1 included in the report, quantifies project

MM Number	Summary of Significant Impact	MM Text	Consistency
		Port/City: C. Prior to the commencement of grading activities for project components impacting RWQCB jurisdictional waters, the Port or Port tenants, as appropriate, and applicants within the City's jurisdiction shall obtain permits from RWQCB. The permit application process would also entail approval of the restoration plan as described above. Pursuant to the CWA, the Port and other applicants are required to obtain a Section 401 Water Quality Certification permit from RWQCB. Port/City: D. Prior to the commencement of grading activities for project components impacting RWQCB jurisdictional waters, including clearing and grubbing, the Port or Port tenants, as appropriate, and the project developer(s) within the City's jurisdiction shall consult with the RWQCB to determine if Waste Discharge Requirements from the RWQCB shall be required for impacts to isolated waters of the State.	impacts and associated mitigation, as well as requires preparation of a conceptual mitigation plan to offset significant impacts. All impacts to USACOE wetlands (also classified as RWQCB water) are classified as permanent and a 4:1 mitigation ratio has been applied. Impacts to waters of the U.S. (also classified as RWQCB water) are habitat enhancement impacts and will be mitigated at a no-net loss standard of a 1:1 ratio within the widened channel. These ratios are consistent with MMRP 4.8-10, 4.8-12, 4.8-21, and Development Policy 2.5. Section 4 of this report serves as the conceptual mitigation plan. Implementation of BIO-3, as included in this report would ensure consistency with 4.8-21C. The project does not support isolated waters of the State and thus would not require waste discharge requirement.
4.8-22	Impacts to southern coastal salt marsh, mulefat/riparian scrub as a result of: bridge proposed across HP-5 drainage ditch, improvement to the existing E Street in the Sweetwater District, and development within the road easement on SP-4.	Not Applicable	Not Applicable
4.8-23	Impacts to avian flight patterns and habitat use as a result of: RCC on H-3, residential on H-13, hotel on H-23, buildings on H-15, and	Not Applicable	Not Applicable

MM Number	Summary of Significant Impact	MM Text	Consistency
	buildings between 100 and 200 feet high along the project frontage.		
4.9	*Marine Biological Resources*		
4.9-1 through 4.9-8	Impacts associated with marinas, harbors, navigation channel, H Street Pier, and bulkhead replacement on HW-3	Not Applicable	Not Applicable

3.3.6. Cumulative Impacts

Implementation of the project mitigation and permitting requirements to mitigate for direct impacts to jurisdictional resources and Diegan coastal sage scrub would reduce impacts to less than cumulatively considerable. Onsite mitigation will be focused on establishment of southern coastal salt marsh and maritime succulent scrub to offset impacts to jurisdictional resources and Diegan coastal sage scrub. Mitigation will be governed by both a site specific restoration plan and a broader comprehensive framework plan for integration of habitat connectivity and sea level rise adaptation throughout the Chula Vista Bayfront (M&A 2017).

4.0 CONCEPTUAL COMPENSATORY MITIGATION PLAN

This conceptual compensatory mitigation section has been prepared to support environmental review and as a framework plan guiding further habitat mitigation planning through final design and engineering stages of the proposed work. The mitigation areas are identified to confirm capacity to mitigate impacts on site within available project areas considering proposed trail infrastructure, grading limits, and other constraints. Additionally, mitigation is scaled to achieve mitigation needs based on impacts identified during preliminary design. Impacts may be reduced from those identified as the project details are refined. During final design and engineering, mitigation areas will be refined and as applicable reduced commensurate with impact reduction, following the mitigation ratios in Table 3.

As stated in the Project Description section of this report, impacts and mitigation associated with the span bridge, area necessary for future infrastructure improvements, and inlet channel enhancements have been evaluated in the *Draft Chula Vista Bayfront Urban Greening Grant Promenade Bridge over the F&G Street Marsh Inlet – Early Action Analysis* (KTUA 2018). Included within this Early Action Analysis is an evaluation of biological resources and necessary mitigation (M&A 2018a). While the previous document included mitigation, it also focused on channel enhancement over a larger area.

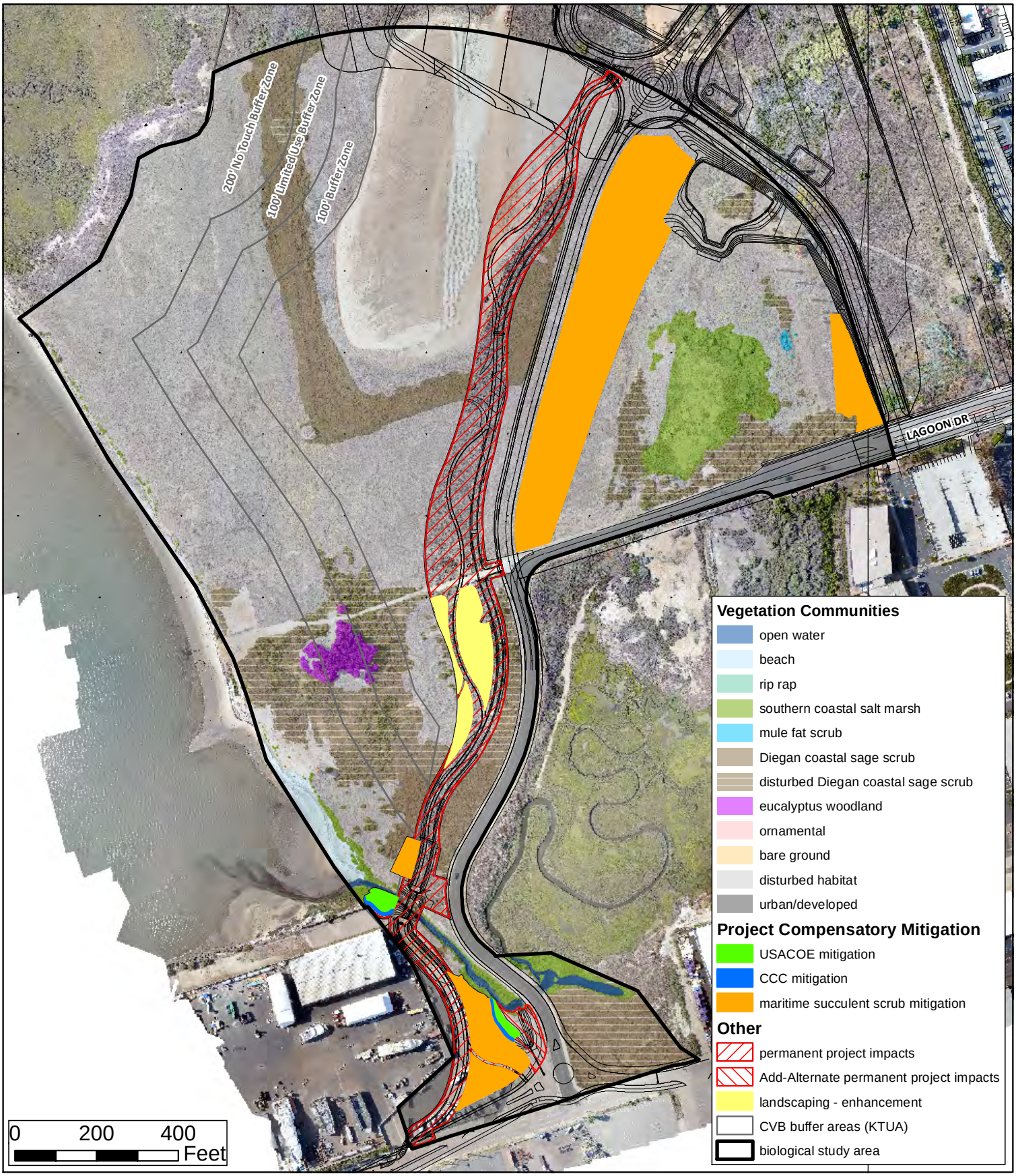
4.1. Goals of the Compensatory Mitigation

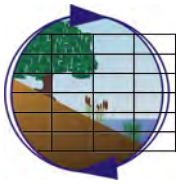
The project proponent is proposing to mitigate impacts to jurisdictional resources and upland Diegan coastal sage scrub through onsite mitigation (Figure 5). In addition, mitigation habitat configurations may be modified further during final design and engineering to conform with the public access trail project, buffering, and channel enhancement considerations of the site. Finally, as part of the final design and engineering, the mitigation areas may be configured to work with grading and restoration needs for future buffer enhancement, the future Sweetwater Signature Park planning, and Marina Parkway road raising, drainage, and wildlife connection bridging activities.

4.2. Types of Habitats to be Established and Restored

This conceptual plan focuses on increasing the biological value of the southern coastal salt marsh resource along the F&G Street Marsh connector channel via expanding salt marsh on one bench developed along the widened channel, creating salt marsh in a new side channel, and restoring uplands with maritime succulent scrub vegetation to offset impacts to Diegan coastal sage scrub communities. Rubble and debris removal from the tidal channel floor and channel deepening will be undertaken as part of the project (but will be limited to the current project footprint) to enhance tidal circulation and particularly drainage of the tidal channels in the F&G Street Marsh. Additional future rubble removal from the channel floor will likely occur to further enhance the channel functioning in association with hydrologic enhancements not included with the present project.

Restoration work would include excavation and disposal of approximately 1,200 cubic yards of soil with excavations of a much as five feet of fill and native soil. Soil testing is to be completed within the excavation areas for the project in order to determine the ultimate fate for soil disposal based on chemical and physical properties. None of the excavated soil is planned for replacement into aquatic environments.





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Compensatory Mitigation Map

Sweetwater Park – Urban Greening Grant

Aerial Source: Merkel & Associates 2018

Created On: 03/18/2019

Figure 5

As indicated in Table 3, the maximum mitigation of wetland/non-wetland water habitats required is 0.088 acre. Proposed restoration of jurisdictional resources, as depicted in Figure 5 would total approximately 0.13 acres. Of this amount, 0.08 acre would be established on the side bench near the span bridge, consisting of approximately 0.01 acre open water and southern coastal salt marsh wetland rehabilitation (i.e., existing habitat required to be graded to reduce erosion and achieve plantable slopes), 0.07 acre southern coastal salt marsh wetland establishment, and 0.001 acre southern coastal salt marsh CCC only establishment. Additionally, mitigation for jurisdictional resources would also occur in the new side channel and total approximately 0.05 acre, consisting of approximately 0.04 acres of southern coastal salt marsh wetland establishment and 0.01 acre of southern coastal salt marsh CCC only establishment. Uplands required to mitigate Diegan coastal sage scrub require 4.30 acre of scrub habitat replacement. The project is proposing to achieve the minimum mitigation requirement via establishment of maritime succulent scrub. Based on Table 3 and suitable lands present onsite, the jurisdictional and upland mitigation requirement can be fully mitigated onsite via establishment and restoration activities.

4.2.1. Establishment

On the side bench near the span bridge, establishment (i.e., creation of new habitat) would focus on laying back a small portion of the overly steepened banks of the incised channel in order to reduce present erosion and accommodate future channel enhancement as detailed in Section 4 of the *Biological Impact Analysis Report for the Chula Vista Bayfront Sweetwater Urban Greening Grant Early Action Project* (M&A 2018a). The proposed grading would target optimized bank configuration for stable and plantable slopes, optimizing the capacity to support marsh habitat. Upper channel banks would be planted with maritime succulent scrub habitat. The channel slope is illustrated in the preliminary plan as a 3:1 slope, however variable slopes will ultimately be designed during final design and engineering to accommodate more realistic and functional tidal channel configurations.

Establishment of the new side channel would focus on pulling the existing slope back from the channel edge to shallow the grade of the slopes and create a new side channel. This would require shortening of the existing storm drain (Outfall No. CV1-2) such that the discharge point is not directly into the channel bed (as it currently is) but rather flows along the new proposed side swale prior to connecting to the main channel. This pull back provides for habitat enhancement of this section of the inlet channel (e.g., reduction of scour in the channel bed, creation of habitat, etc.) and accommodates proposed and future completion of the connector channel restoration to improve circulation conditions and address scour and flow considerations associated with sea level rise and addition of tidal prism associated with restoration of offsite features. Southern coastal salt marsh would be established between the proposed four-foot and seven-foot elevation point. ACOE wetland establishment would specifically occur between the proposed four-foot and six-foot elevation contours, with CCC only wetland being established between approximately the six-foot and seven-foot contours. Compensatory mitigation is limited to the western bank and would not encroach into the long-term maintenance zone necessary for the permanent storm drain infrastructure.

Rehabilitation of the existing channel would occur via removal and disposal of any concrete rubble/debris, as encountered during grading associated with the onsite mitigation. The present channel is armored by debris that has fallen from eroding fill slope to the floor of the channel. This

has restricted downward cutting in the channel and thus expanded lateral spread of the channel and erosion. The removal of rubble/debris would allow more natural channel depths to be achieved based on the tidal wetland drainage complex existing within the F&G Street Marsh and will be compatible with the proposed mitigation discussed in Section 4 of the *Biological Impact Analysis Report for the Chula Vista Bayfront Sweetwater Urban Greening Grant Early Action Project* (M&A 2018a). Excavation of the channel floor would include removal of approximately 60 cubic yards of sediment and would be to an approximate elevation of 0 feet MLLW with the primary intent to remove the armoring rubble in order to allow the channel to reach a natural geometry and allow for additional bed cutting as the channel tidal prism increases with future restoration within the F&G Street Marsh and Seasonal Marsh and in response to sea level rise. As the channel bottom generally occurs below mean sea level, it does not support marsh vegetation nor will it in the future.

4.2.2. Time Lapse Between Impacts and Expected Compensatory Mitigation Success

Implementation of the compensatory mitigation is expected to begin concurrent with or immediately following implementation of the project. Thus, the time lapse between impacts to jurisdictional wetlands (as well as sensitive upland resources) and expected mitigation success would be approximately five to six years.

4.3. Estimated Cost

The estimated costs for implementation, maintenance, and monitoring of the compensatory mitigation will be provided in a subsequent version of this plan, following greater plan development section.

4.4. Description of the Proposed Compensatory Mitigation Site

The draft conceptual areas are illustrated in Figure 5 and may be reconfigured during final design and engineering.

4.5. Implementation Plan for the Compensatory Mitigation Site

The compensatory mitigation site will expand on the existing channel by contouring sections of the eroding banks to allow for establishment of salt marsh habitat and maritime succulent scrub habitat. Because the mitigation site is to be located along an existing, tidally influenced channel system, it will contribute to the present system rather than exist as a stand-alone mitigation site.

4.5.1. Responsible Parties

The Port and City of Chula Vista would be responsible for the implementation of this plan. They are also responsible for the long-term management of all lands within the mitigation site.

4.5.1.1. Restoration Specialist

The restoration shall be guided by a habitat restoration specialist. The restoration specialist shall have at least five years' experience in native habitat restoration in Southern California coastal environments including both wetland and upland vegetation types. Due to the specific requirements, the restoration specialist can be comprised of a qualified team of biologists with a designated project manager. The restoration specialist will be responsible for monitoring all aspects of the restoration effort, including evaluation, acceptance, and remediation of soil conditions, planting layout and installation, and scheduling of irrigation and maintenance activities. Once planted, the restoration specialist shall be responsible for monitoring the establishment of the

restoration and for preparing interim and annual reports documenting the status of the project. The Restoration Specialist shall assist the Port and City of Chula Vista with any decisions regarding the need for specific remedial actions during the monitoring period, as well as long-term maintenance activities.

4.5.1.2. Revegetation Contractor

The revegetation contractor shall have experience in native habitat restoration, having completed a minimum of five similar native habitat restoration projects. Projects must include the successful restoration of coastal salt marsh and sage scrub habitats. The revegetation contractor must possess a C-27 contractor's license issued by the State of California and must hold a Pesticide Applicator's License from the State's Department of Pesticide Regulation. The revegetation contractor shall be responsible for installation and maintenance of this plan with oversight by the Restoration Specialist and Port and City of Chula Vista. This could include site preparation, clearing, grubbing, and grading. The revegetation contractor shall also be responsible for installation of irrigation and plant materials including native seed mixes, and any necessary maintenance activities or remedial actions required during installation and the minimum five-year maintenance and monitoring period.

4.5.1.3. Seed Sources

Seed shall be purchased from a reputable seed company that has procured all seed from local plant populations occurring in the local San Diego County region or as determined appropriate by the Restoration Specialist. All seed shall be free of weeds and meet the purity/germination requirements specified in this report.

4.6. Implementation Schedule

Implementation of this plan would occur as follows. First, all areas would be surveyed and staked to designate the limits of work. The establishment and rehabilitation sites would then be cleared and grubbed in preparation for grading. Following site grading and any soil preparation needs, an irrigation system may be installed within portions of the establishment areas (e.g., no irrigation with the channel). The necessity for installation of irrigation has not yet been determined and is consideration of final design and engineering. Container plants would be installed. After planting of container plants, the site would be hydroseeded and evaluated and maintained during a 180-day plant establishment period. Following the 180-day plant establishment period, a minimum five-year maintenance and monitoring schedule would be initiated.

The optimal time to install native plants would be late fall/early winter to take advantage of seasonal conditions. Seed and container plants should be purchased from a reputable native plant company that has procured all seed and container plants from local plant populations occurring in the local coastal San Diego County region or as determined appropriate by the restoration specialist.

4.7. Irrigation and Planting Specifications

4.7.1. Irrigation Plan

The determination of irrigation methodology and whether or not an irrigation system will be installed has not been made at this time and will be a consideration during final design for the project.

4.7.2. Planting Plan

All proposed mitigation areas would be actively planted. Plantings will be spotted by the restoration specialist within template areas and expanded over the designated areas by the revegetation contractor. Any required modifications to the planting layout or plant materials based on the site conditions revealed after final grading would be made during implementation at the recommendation of the restoration specialist.

Plants typical of southern coastal salt marsh (Table 6) would be planted throughout the establishment and rehabilitation areas that would transition gradually to a maritime succulent scrub community (Table 7). Specifically, OBL and FACW species such as saltwort and shoregrass would be planted within the lower elevations of the marsh community (e.g., between about the 4-foot and 6-foot elevations). FACW and FAC species including woolly sea blite and alkali heath would be planted at the higher elevations of the tidal range (e.g., between about 6-foot and 7-foot elevations) where marsh plant materials would transition to upland wetland fringe species such as box thorn (e.g., above 7-foot elevation). The buffer would be planted with maritime succulent scrub species dominated by California sagebrush and jojoba (*Simmondsia chinensis*).

Table 6. Southern Coastal Salt Marsh Plant Palette

Species	Common Name	Unit Size	Density	Percent Cover
Batis martima	Saltwort	4-inch	3-foot centers	15
Distichlis littoralis	Shore Grass	4-inch	3-foot centers	5
Frankenia salina	Alkali Heath	4-inch	4-foot centers	15
Suaeda taxifolia	Woolly sea blite	4-inch	4-foot centers	15

The standard procedure for planting container stock shall be to dig a hole, which is equal to the depth and approximately 1.5 times the width of the rootball. The hole shall be filled with water and allowed to drain. The plant shall then be positioned so that the surface of the rootball is at ground level. The hole shall then be backfilled with the native soil. An earthen watering basin shall be created in a two-foot diameter around each rootball. The plant shall then be watered in by hand or irrigated immediately after planting (fresh water not salt water).

Table 7. Maritime Succulent Scrub Plant Palette

Species	Common Name	Unit Size	Density	Percent Cover
Artemisia californica	Coastal Sagebrush	1-gallon	4-foot centers	35
Encelia californica	California Encelia	1-gallon	4-foot centers	7
Isocoma menziesii var. decumbens	Decumbent Goldenbush	1-gallon or 4-inch	4-foot centers	6
Isomeris arborea	Bladderpod	1-gallon	4-foot centers	2
Eriogonum fasciculatum var. fasciculatum	Flat-top Buckwheat	1-gallon	4-foot centers	3
Lycium californicum	California Desert Thorn/California Box Thorn	1-gallon	4-foot centers	6

Species	Common Name	Unit Size	Density	Percent Cover
Lycium brevipes v. brevipes	Common Desert Thorn	1-gallon	5-foot centers	6
Simmondsia chinensis	Jojoba	1-gallon	4-foot centers	15
Bahiopsis laciniata	San Diego Sunflower	1-gallon	4-foot centers	6
Rhus integrifolia	Lemonade Berry	1-gallon	6-foot centers	5
Bergerocactus emoryi	Velvet Cactus	1-gallon	4-foot centers	3
Yucca schidigera	Mohave Yucca	1-gallon	4-foot centers	3
Atriplex lentiformis	Big Saltbush	1-gallon	6-foot centers	2
Euphorbia misera	Cliff Spurge	1-gallon	6-foot centers	1

Following planting of container plants, a hydroseed mix consisting of a native seed mix (Table 8) and slurry will be sprayed over all maritime succulent scrub areas. This seed mix will provide soil stabilization and understory vegetation that is non-competitive with the container plants and contributes diversity and nurse crop benefits.

Table 8. Maritime Succulent Scrub Hydroseed Mix Palette

Species	Common Name	Lbs/Acre	Minimum P/G[1]
Camissoniopsis cheiranthifolia	Beach Sun Cup	1.0	95/90
Camissoniopsis bistorta	California Sun Cup	0.5	90/80
Lasthenia californica	Goldfields	1.0	90/75
Layia platyglossa	Tidy-tips	0.5	80/75
Eriophyllum confertiflorum	Golden Yarrow	1	60/60
Lupinus succulentus	Arroyo Lupine	4	98/85
Eschscholzia californica	California Poppy	3	98/85
Deinandra fasciculatum	Fasciculated Tarplant	3	45/80
Mimulus aurianticus ssp. puniceus	Coast Monkey Flower	0.5	5/70
Plantago erecta	Dot-seed Plantain	10	97/89
Atriplex pacifica	South Coast Saltscale	1	90/80
Leptosyne californica	Sea Dahlia	2	75/60
	Total	**27.5**	
Hydroseed slurry materials			
Wood fiber mulch		2,000	
SuperTack binder or equivalent		160	
	Total:	**2,160**	

[1] P/G = Purity/Germination

The hydroseed slurry will include fiber mulch, humate, gypsum, and soil stabilizer additives based on soil conditions and slopes determined during final design.

4.7.2.1. Non-Compensatory Areas

Areas graded as part of the project and not converted to permanent urban use (e.g., trail system or landscape) and/or not utilized as mitigation (e.g., portions of the side swale), must be protected for

erosion control purposes per BIO-2 of this report. The below tables provide a suggested erosion control planting palette for the areas immediately adjacent to the span bridge, within the side swale, as well as upland areas. Plants may not establish under the bridge due to shading and/or subject to regular inundation. As needed, these areas can be protected using appropriate erosion control blanket or similar, as approved by the revegetation contractor and Port. The erosion control areas are not subject to mitigation protection, establishment and monitoring requirements discussed in this section of the report. Plants typical of southern coastal salt marsh (Table 9 and 11) would be planted throughout the tidally influenced areas that would transition gradually to upland (Table 7 and 10). Specifically, OBL and FACW species such as saltwort and shoregrass would be planted within the lower elevations of the new side channel/marsh community (e.g., between about the 4-foot and 6-foot elevations) and FACW and FAC species including woolly sea blite, alkali heath, and saltgrass would be planted at the higher elevations of the tidal range (e.g., between about 6-foot and 7-foot elevations) where marsh plant materials would transition to upland wetland fringe species such as Menzies' goldenbush. It should be noted that the project has identified a permanent infrastructure maintenance area around the relocated storm drain (CV1-2) as well as under the span bridge. For erosion control purposes, this document includes a planting plan (Table 11 and 9, respectively); however, some low level infrastructure maintenance is expected to occur within the designated zones in support of the permanent infrastructure. This is expected to be inspection, cleaning, and maintenance access, and access for any future replacement needs.

Table 9. Erosion Control – Vicinity of the Span Bridge

Species	Common Name	Unit Size	Density	Percent Cover
Distichlis littoralis	Shore Grass	4-inch	3-foot centers	10
Distichlis spicata	Saltgrass	4-inch	3-foot centers	25
Batis martima	Saltwort	4-inch	3-foot centers	15
Frankenia salina	Alkali Heath	4-inch	4-foot centers	25
Isocoma menziesii var. *menziesii*	Menzies' goldenbush	1-gallon	4-foot centers	25

Table 10. Erosion Control – Upland and Vicinity of the Span Bridge[1]

Species	Common Name	Lbs/Acre	Min %[2]
Bromus carinatus	Cucamonga brome	20	85
Festuca microstachys	Small fescue	8	85
	Total:	28	
Hydroseed Slurry Materials			
Wood fiber mulch		2,000	
SuperTack binder or equivalent		160	
	Total:	2,160	

[1] Within the "Vicinity of the Span Bridge", hydroseed to be placed at approximately the seven foot elevation and higher.

[2] Min % PLS (Pure live seed) = Seed purity x germination rate

Table 11. Southern Coastal Salt Marsh Plant Palette – Non-compensatory

Species	Common Name	Unit Size	Density	Percent Cover
Batis martima	Saltwort	1-gallon or 4-inch	3-foot centers	15
Distichlis littoralis	Shore Grass	1-gallon or 4-inch	3-foot centers	5
Frankenia salina	Alkali Heath	1-gallon or 4-inch	4-foot centers	20
Suaeda taxifolia	Woolly sea blite	1-gallon or 4-inch	4-foot centers	15

4.8. Maintenance Activities During the Monitoring Period

4.8.1. Maintenance Activities

Maintenance of the compensatory mitigation areas would occur throughout the 180-day plant establishment period (PEP) and the subsequent minimum five-year maintenance and monitoring period under the direction of the restoration specialist. Table 12 provides a maintenance schedule while the below sections provide a description for each maintenance activity.

Table 12. Minimum Five-Year Maintenance and Monitoring Schedule

Tasks [1]	Pre-Con	180-Day PEP	Year 1	Year 2	Year 3	Year 4	Year 5
Maintenance Activities [2]	---	Monthly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly
Qualitative Monitoring	---	Monthly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly
Quantitative Surveys							
Vegetation Monitoring	---	---	Spring	Spring	Spring	Spring	Spring
Photo Documentation	Spring	Spring	Spring	Spring	Spring	Spring	Spring
Soil Monitoring	---	---	Spring	---	Spring	---	Spring
Surface Hydrology Monitoring		---	Spring	---	Spring	---	Spring
Reporting Frequency	Within 30 days	Within 30 days of completing PEP	Yearly				

[1] For purposes of this plan, the growing season (i.e., spring) would fall between March – September, when growing conditions are optimal.

[2] Maintenance activities would be directed by the restoration specialist who will conduct qualitative monitoring inspections. Maintenance activities could include (but not limited to): site protection (fencing/signage), trash and debris removal, weed control, horticultural treatments, erosion control, irrigation maintenance, and pest management. Replacement plantings would occur in accordance with established success milestones and criteria (to be provided).

4.9. Site Protection - Fencing/Signage

Public access is not proposed and would be restricted.

4.10. Trash and Debris Removal

The compensatory mitigation area would remain trash and debris free throughout the life of the project. All trash and debris will be removed and disposed of properly at a landfill site. Care will be taken to remove any debris that may impact native vegetation. In these situations, removal will be at the discretion and supervision of the restoration specialist.

4.11. Weed Control

Weed abatement of annual and invasive weeds would occur throughout the compensatory mitigation area on an as-needed basis. Weed abatement will be performed to control particularly noxious or competitive species that may inhibit the growth of desirable native vegetation. Hand weeding will be performed as needed throughout the maintenance period. Other weedy plants that invade the mitigation site in prohibitive numbers shall be removed if they pose a significant threat to the growth or survival of target vegetation. All seed heads shall be cut, removed and bagged prior to complete removal of the species. All weed propagules will be disposed of at an approved landfill site.

All weeds in wetland areas shall be removed by hand or treated with an aquatic-safe registered herbicide (e.g. Rodeo or Aquamaster). Round-Up or other registered glyphosate-based herbicides shall be used in upland areas located away from wetlands. Application of herbicide shall only be used if approved by the restoration specialist. Any herbicide treatment must be applied under the supervision of a licensed pest-control applicator. Herbicides used in all wetland areas must be EPA-registered for application in such environments to prevent deleterious effects of herbicides on aquatic resources.

Per MM 4.8-6 of the CVBMP MMRP, invasive plants (i.e., Cal-IPC List of Exotic Pest Plants of Greatest Ecological Concern in California, the California Invasive Plant Inventory Database, or any related updates) are prohibited from the mitigation area. Any such invasive plant species that establishes itself will be removed immediately to the maximum extent feasible and in a manner adequate to prevent further distribution into WHAs of the CVBMP.

4.12. Horticultural Treatments

The purpose of the mitigation effort is to establish native wetland and upland buffer habitats. Horticultural treatments (*e.g.,* pruning, fertilizing, staking) are typically not conducive to establishment of native habitats. The restoration specialist must approve any special treatments.

4.13. Erosion Control

Surface soils would be held in place by hydroseed mix and container plantings. The specified hydroseed mix will include a binder to promote quick erosion control. A silt fence or other comparable erosion control devices would be installed during the site preparation phase of this plan to protect the adjacent resources from construction operations and would be maintained throughout the maintenance and monitoring program until no longer necessary. No additional erosion control measures are anticipated at this time. However, if erosion poses a threat to the existing drainage or the habitat establishment program, measures shall be taken to contain surface

soils. Erosion control activities may include application of a bio-fiber matrix or straw mulch and/or installation of straw wattles.

4.14. Replacement Plantings

4.14.1. Planting

Plants would be replaced per the specifications identified in the project's success milestones (to be established as part of the regulatory review). Dead plants will be replaced with container grown plants of similar type and size (based on original installation). Where micro-habitat conditions are more favorable for growth of a different native species of similar character (i.e., tree, shrub), plant substitutions, as directed by the restoration specialist, may be made for onsite planting.

4.14.2. Hydroseed

All bare areas greater than 1,000 square feet (or as determined necessary by the restoration specialist) will be re-hydroseeded and/or hand seeded six weeks subsequent to the original hydroseed application. The restoration specialist may extend this period due to environmental conditions (*i.e.,* soil temperature) that would preclude the germination of the hydroseed.

4.14.3. Irrigation Maintenance

If an irrigation system is installed, the system will be maintained in a fully operable condition throughout the duration of the plant establishment and minimum five-year maintenance and monitoring periods. The restoration specialist shall determine irrigation schedules during qualitative site visits made during the establishment period. Irrigation schedules will vary to correspond to seasonal weather, changing site conditions, and plant growth. At the direction of the restoration specialist, irrigation will be shut off after year three or for at minimum of two years prior to request for sign-off by the regulatory agencies; the purpose is to promote plant acclimation to native hydrological conditions. Inspections will be conducted routinely and all necessary repairs will occur promptly to ensure establishment of the target vegetation.

4.14.4. Pest Management

Native species are resistant to most pests (including insects and fungi) associated with typical ornamental landscaping. Pest management of native habitats is typically limited to controlling herbivory from native wildlife including rabbits, ground squirrels, and gophers. If needed, the restoration specialist will provide all necessary recommendations regarding pest management.

4.15. Monitoring Plan for the Compensatory Mitigation Site

Monitoring will include both qualitative and quantitative surveys. The purpose of the qualitative surveys is to ensure that the proper maintenance and establishment procedures are followed. The purpose of the quantitative surveys is to measure the establishment of the site to determine its compliance with the success milestones.

4.15.1. Qualitative Surveys

Qualitative surveys, consisting of a general site walkover and habitat characterization will completed during each monitoring visit as listed within Table 12. Surveys will be conducted by the restoration specialist who shall be accompanied by the revegetation contractor. General observations such as fitness and health of the planted species, pest problems, weed establishment, irrigation performance, mortality and drought stress will be noted in each site walkover. The

restoration specialist will determine remedial measures necessary to facilitate compliance with performance standards. A written memorandum will be prepared after each monitoring visit, listing problems and recommended remedial measures and native plant health and seed germination. These memoranda will be provided to the Port/City and the revegetation contractor.

4.15.2. Quantitative Surveys

4.15.2.1. California Rapid Assessment Method (CRAM)

California Rapid Assessment Method (CRAM) is part of a comprehensive program plan to monitor the health of wetlands and riparian habitats throughout California. The U.S. Environmental Protection Agency (USEPA) has developed a three-tiered framework for comprehensive assessment and monitoring of surface waters to develop information about the conditions of California wetlands. Level 1 consists of a general landscape assessment including Geographic Information System (GIS) map-based inventories and landscape profiles of wetlands and related habitats. Level 2 consists of rapid assessment methods using visible field diagnostics and existing data to assess conditions at wetland and riparian sites in relation to the broadest suite possible of ecological and social services and beneficial uses, such as flood control, groundwater recharge, pollution control, and wildlife support (e.g., CRAM). Level 3 consists of standardized protocols for an intensive-quantitative site assessment to calibrate and validate Level 1 and 2 methods and results.

CRAM is intended to be a rapid assessment method that requires collecting Level 2 data for monitoring wetlands by two or more trained practitioners using visual indicators in the field. It is designed for assessing ambient conditions within watersheds, regions, and throughout the State. It can also be used to assess the performance of compensatory mitigation projects and restoration projects. CRAM has been practiced and calibrated throughout California and in various wetland types over the past several years and is proposed to be the functional assessment method for this MMP.

CRAM identifies six major wetland classes (or types), four of which have sub-types: 1) riverine wetland (confined and non-confined); 2) depressional wetlands (artificial depressional wetlands, vernal pool wetlands, vernal pool systems, and other depressional systems); 3) playas wetlands; 4) estuarine wetlands (perennial saline, perennial non-saline, and bar-built); 5) lacustrine wetlands; and 6) slope wetlands (seeps and springs, wet meadows, and forested slopes) (CWMW 2013b).

Assessment Areas (AAs) are established within each CRAM wetland class separately and can represent a portion or encompass the entire wetland community. Each wetland class has a particular set of narrative descriptions that are used to assist in scoring an established AA. Visual indicators are used to choose the best-fit description of habitat condition for a variety of metrics/submetrics within four universal attributes: Buffer and Landscape Context, Hydrology, Physical Structure, and Biotic Structure.

Letter scores ranging from A to D are assigned to each metric/submetric to reflect alternative states of function. For each metric/submetric, the letter score is converted into the corresponding numeric score: A=12, B=9, C=6, and D=3. The metric/submetric scores are combined to calculate an attribute score, and the attribute scores are combined to calculate an overall AA score. The attribute scores and overall AA scores have a maximum value of 100 and a minimum value of 25.

The scores are intended to represent the condition of an AA relative to its best possible condition. CRAM also provides guidelines for identifying the stressors that might account for any low site scores.

CRAM is supported by a website that provides access to an electronic version of the entire manual and training materials (http://www.cramwetlands.org). The website also contains downloadable CRAM software and access to the CRAM database, which can be used to upload, view, and retrieve statewide CRAM results.

CRAM surveys would be conducted in accordance with Table 12, unless otherwise required by the regulatory agencies. Based on existing conditions within the compensatory mitigation sites for southern coastal salt marsh, the type of wetland class evaluated as part of the monitoring program for this plan will be estuarine wetlands and only one AA would be established. Table 13 includes the CRAM attributes, metrics, and a column for the success criteria for Year 1, Year 3, and Year 5. While the success criteria scores will be projected following the baseline monitoring in the spring season prior to its execution and initiation of fills authorized under the resource and regulatory permits, these values could be modified if needed during the Year 0 plant establishment survey. Any changes to the success criteria would be documented within the 180-day plant establishment report.

Table 13. CRAM Riverine Attributes and Metrics – Success Criteria for Riverine

CRAM Attributes	Metrics		Baseline Score [1]				Success Criteria for proposed AAs – Projected Scores		
			Impact Site	Reference Site[2]	Pre-construction at Proposed AA	180-Day Plant Establishment within proposed AAs	Year 1	Year 3	Year 5
Buffer and Landscape Context	Landscape Connectivity								
	Buffer Sub-metrics:								
	- Percent of Assessment Area with Buffer								
	- Average Buffer Width								
	- Buffer Condition								
	Attribute Score (Raw/Final):								
Hydrology	Water Source								
	Hydroperiod or Channel Stability								
	Hydrologic Connectivity								
	Attribute Score (Raw/Final):								
Physical Structure	Physical	Structural Patch Richness							
		Topographic Complexity							
	Attribute Score (Raw/Final):								
	Biotic	Plant Community Sub-metrics:							
		- Number of Plant Layers Present							
		- Number of Co-dominant Species							
		- Percent Invasion							
		Horizontal Interspersion and Zonation							
		Vertical Biotic Structure							
	Attribute Score (Raw/Final):								
Overall AA Score:									

[1] Baseline data to be gather prior to construction. See Table 12. As feasible, data should be gathered in the spring, when growing conditions are optimal, between March and September.

[2] As feasible, the reference site would be the marsh habitat in the western portion of the inlet channel to the F&G Street Marsh.

4.15.2.2. Vegetation Monitoring

The monitoring program for this plan incorporates Level 3 data collection for hydrophytic vegetation presence within the compensatory mitigation area. The presence of hydrophytic vegetation associated with a stream is an indicator of adjacent riparian habitat. At minimum, two fixed transects of approximately 15 meters each would be established within each habitat type to determine total vegetative cover utilizing the point intercept method. Cover would be measured along each transect by recording each plant (or bare ground, leaf litter, and biological debris) that intercepted the measuring tape at one-meter intervals occurring above and below the tape. From these point intercepts, total plant cover, percent cover of each species, and percent cover of bare ground, leaf litter, and biological debris would be calculated for each transect; results could be extrapolated to the entire site. This method would take into account species overlap (i.e., absolute cover); thus percent cover could exceed 100 percent. Percent cover without overlap (i.e., relative cover) would also be extrapolated from the data; at sampling points where more than one native species occurred, only one of these species (the one providing the most cover) would be accounted for in the overall native cover evaluation. Also, container plants shall be counted in order to calculate percent survivorship. In addition to transect and container plant counts, a general overview of the site will be made in order to assess the overall compliance with success criteria, species richness and average height of the shrubs, and areas requiring special modifications to the maintenance program.

Progress milestones have been established to track the project's status and to facilitate a successful compensatory mitigation project (Table 14); however, they are subject to change by the regulatory agencies as part of the regulatory permit process. Monitoring will be completed for a minimum of five years (for jurisdictional resources) or until success criteria are met or until alternative compensatory mitigation is agreed upon by the permitted and regulatory agencies.

4.15.2.3. Photo Documentation

Permanent photo point location and directions will be established at each of the fixed vegetation transects and at ideal vantage points to photo-document year to year changes. Datasheets with the date, photographer, photo transect and vantage point number, direct, and general description. The datasheets and a graphic showing the mapped photo and transect locations will be included as part of the annual monitoring reports.

4.15.2.4. Soil Monitoring

Soil hydrology monitoring, a Level 3 data collection, would be performed for assessment of hydric soils presence within the compensatory mitigation area. The presence of hydric soils is one of three parameters to define an area as a USACOE wetland; thus, this would be performed in USACOE wetland establishment areas only when the area is below the annual highest high tide, defined at +7.10 feet NAVD88 (+7.79 feet MLLW). Hydric soils are defined as "a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part" (USACOE 2008, Section 3). Most hydric soils exhibit characteristic morphologies that result from repeated periods of saturation or inundation for more than a few days. This saturation or inundation, when combined with microbal activity in the soil, causes the depletion of oxygen, which promotes various processes including the accumulation of organic matter and the reduction, translocation, or accumulation of iron and other reducible

elements. Ultimately, these processes result in distinctive characteristics that persist in the soil during both wet and dry periods, allowing for the identification of hydric soils in the field. Hydric soil indicators as described in the ACOE Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACOE 2008) and National Technical Committee for Hydric Soils (NTCHS) Field Indicators of Hydric Soils in the United States (USDA 2010) would be used to assess the presence of hydric soils.

Soil test pits would be dug during Year 1 monitoring, while the temporary irrigation (if installed) is still providing supplemental irrigation to the site and again in Years 3 and 5 to determine whether hydric soils have developed or persisted after termination irrigation (refer to Table 11). The test pits would be dug to a minimum depth of 12 inches or as needed to document the soil chroma index using the Munsell® Soil Color Charts (Munsell® Color 2000), as well as additional hydric soil indicators. The soil would be determined to be hydric if one or more hydric soil indicators as listed within the USACOE Arid West Supplement were present. Indicators for problematic hydic soils may include moderately to very strong alkaline soils (7.9 or higher) for which samples would need to be collected and analyzed by an approved laboratory. Hydric soils will be required prior to final sign-off of the USACOE wetland compensatory mitigation site unless the USACOE project manager determines that strong evidence of hydrophytic vegetation and wetland hydrology are present and that wetland design is not the cause of the absence of hydric soil indicators. The surface wetland hydrology indicators and/or hydrophytic vegetation data may serve as evidence that the USACOE can use to determine that the site is functioning as a wetland, as the hydric soils continue to develop.

4.15.2.5. Surface Hydrology Monitoring

Surface wetland hydrology monitoring, a Level 3 data collection, would be performed for assessment of wetland hydrology presence within the compensatory mitigation area. The presence of wetland hydrology is one of three parameters to define an area as a USACOE wetland; thus, this would be performed in USACOE wetland establishment areas only when the area is below the annual highest high tide, defined at +7.10 feet NAVD88 (+7.79 feet MLLW). Wetland hydrology is indicated by the presence of surficial or sub-surficial hydrologic characteristics long enough during the growing season to show that the presence of water has an overriding influence on the characteristics of vegetation and soils due to anaerobic and reducing conditions, respectively; thus, for an area to be defined as a wetland, periodic inundation or saturation of soils during the growing season must be determined to be present (USACOE 2008, Section 4).

For the purposes of this plan, the wetland hydrology indicators described in the USACOE *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACOE 2008) would be used to assess the presence of wetland hydrology. Surface hydrology monitoring would initially be assessed at Year 1 and again in Years 3 and 5 to determine whether wetland hydrology indicators are present (refer to Table 12). Specifically, surface wetland hydrology would be determined to be present if one or more primary indicators or two or more secondary indicators were observed.

If necessary, surface hydrology indicators could be evaluated using the Corps of Engineers Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States (USACOE 2008). The OHWM is a defining element for identifying the

lateral limits of non-wetland waters; Tables 5 and 6 within the 2008 guide list potential OHWM indicators typically found below, at, or above the ordinary high water boundary. The list includes both geomorphic and vegetation indicators; however, not all indicators will be present onsite.

4.16. Monitoring Schedule

The compensatory mitigation maintenance and monitoring would follow the schedule in Table 12. These activities will be completed over the next five years (at minimum) to ensure the success of the Project.

4.17. Performance Standards for Target Dates and Success Criteria

Performance criteria will be based on quantitative surveys including CRAM, vegetation transects, hydric soil monitoring, and surface hydrology monitoring. The success criteria and target dates are provided below in Table 14 but are subject to change by the regulatory agencies as part of the regulatory permit process. These performance criteria will be utilized to assess the annual progress of the mitigation areas and are regarded as interim project objectives designed to achieve the final goals. Fulfillment of these criteria will indicate that the compensatory mitigation project is progressing toward the habitat types and functions that constitute the long-term goals of this plan. If mitigation efforts fail to meet the performance standards in any one year, the restoration specialist will recommend remedial actions to be implemented the following year that will enhance the vegetation to a level in conformance with the original standards.

Table 14. Habitat Success Milestones

Milestone	Assessment Criteria	Maintenance Action
180-Day Plant Establishment/ 0 Month	• Post-implementation baseline information; no aerial coverage criteria; all planting densities achieved. 100% survival of all container plant material.	Plant densities brought up to meet requirements.
12 Months	• 100% survival overall of all container plant materials, unless function and value has been replaced by natural recruitment. • Maritime succulent scrub - Target native vegetative cover 30%, and non-native cover no more than 20% (with no more than 5% invasives) (transects would be established during Year 1.) • Southern coastal salt marsh - Target native vegetative cover 30%, and non-native cover no more than 20% (with no more than 5% invasives) (transects would be established during Year 1.)	If cover or survival criteria fail to achieve minimum standards, plant densities will be brought up to 100% of the original planting density, unless function and value has been replaced by natural recruitment.
24 Months	• 90% survival overall of all container plant materials, unless function and value has been replaced by natural recruitment. • Maritime succulent scrub - Target native vegetative cover 40%, and non-native cover no more than 15% (with no more than 5% invasives).	If cover criteria is not met, additional planting will be performed to bring all areas up to initial planting densities.

Milestone	Assessment Criteria	Maintenance Action
	• Southern coastal salt marsh - Target native vegetative cover 40%, and non-native cover no more than 15% (with no more than 5% invasives).	
36 Months	• Survival of individual units dropped as criteria. Natural recruitment of target vegetation exhibited along transects. • Maritime succulent scrub - Target native vegetative cover 50%, and non-native cover no more than 15% (with no invasives detected). • Southern coastal salt marsh - Target native vegetative cover 60%, and non-native cover no more than 10% (with no invasives detected). • Natural recruitment of target species noted onsite. • Supplemental irrigation must be shut off by year-end.	If cover criteria is not met, additional planting will be performed to bring all areas up to initial planting densities.
48 Months	• Maritime succulent scrub - Target native vegetative cover 60%, and non-native cover no more than 10% (with no invasives detected). • Southern coastal salt marsh - Target native vegetative cover 70%, and non-native cover no more than 10% (with no invasives detected) • Natural recruitment of target species noted on transects. • Survival without irrigation.	If cover criteria is not met, additional planting will be performed to bring all areas up to initial planting densities.
60 Months	• Maritime succulent scrub - Target vegetative cover totals 70% and non-native cover no more than 10% (with no invasives detected). • Southern coastal salt marsh - Target vegetative cover totals 80% and non-native cover no more than 10% (with no invasives detected). Evidence of hydric soils and surface wetland hydrology present in USACOE areas. • Natural recruitment of target species noted onsite. • Above ground components of irrigation system removed.	If parts of the revegetation fail to achieve the outline goals, an analysis will be made by the regulatory agencies to determine reasonable alternatives, which could be exercised to satisfy mitigation requirements.

4.18. Completion of Compensatory Mitigation

Upon achievement of the fifth year success standards and completion of the five-year maintenance period, the restoration specialist will prepare a Final Monitoring and Notice of Completion Report. The report will be submitted to the regulatory permitting agencies for evaluation of the success of the revegetation effort and final acceptance. The Final Monitoring and Notice of Completion Report will make a determination whether the requirements of the mitigation plan have been met.

4.19. Contingency Measures

4.19.1. Initiating Procedures

If an annual monitoring event identifies failure to attain the prescribed milestone, the restoration specialist shall analyze the cause(s) of failure and propose remedial action for approval.

4.19.2. Alternative Locations for Contingency Compensatory Mitigation

The proposed mitigation site represents an optimal circumstance for mitigation of impacts to wetland and maritime succulent scrub resources and no alternative locations are proposed at this time.

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APPENDIX 1. CHULA VISTA BAYFRONT - DRAFT URBAN GREENING GRANT PROMENADE BRIDGE OVER THE F&G STREET MARSH INLET - EARLY ACTION ANALYSIS (KTUA 2018)

DRAFT

PORT of SAN DIEGO
Waterfront of Opportunity

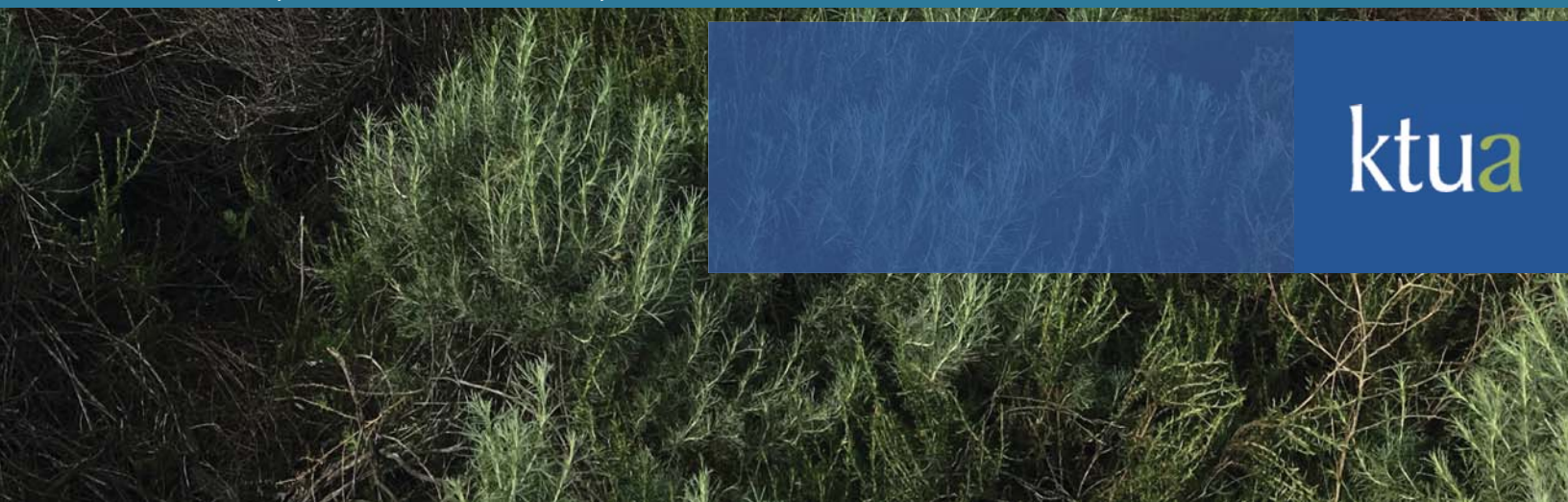
Chula Vista Bayfront

Urban Greening Grant

Promenade Bridge over the F&G Street Marsh Inlet

- Early Action Analysis

May 2018



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ACKNOWLEDGMENTS

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GLOSSARY OF TERMS AND ACRONYMS

AJD	Approved Jurisdictional Determination
BS	Beaufort scale
BSA	Biological Study Area
CCA	California Coastal Act
CCC	California Coastal Commission
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CNDDB	California Natural Diversity Database
CVB	Chula Vista Bayfront
CVBMP	Chula Vista Bayfront Master Plan
CWA	Clean Water Act
CDP	Coastal Development Permit
ESA	(Federal) Endangered Species Act
ESRI	Environmental Systems Research Institute
°F	degrees Fahrenheit
FAC	Facultative Plants
FACU	Facultative Upland Plants
FACW	Facultative Wetland Plants
FEIR	Final Environmental Impact Report
FGS	Fish and Game Code
GIS	Geographical Information System
HMP	(long-term) Habitat Management Plan
GPS	Global Positioning System
MLLW	Mean Lower Low Water
M&A	Merkel & Associates, Inc.
MBTA	Migratory Bird Treaty Act
MLLW	Mean Lower Low Water
MMRP	Mitigation and Monitoring Program
MPH	Miles per Hour
NWW	Non-wetland Waters of the U.S.
OBL	Obligate Wetland Plants
OHWM	Ordinary High Water Mark
PJD	Preliminary Jurisdictional Determination
RWQCB	Regional Water Quality Control Board
SWANCC	Solid Waste Agency of Northern Cook County
SWRCB	State Water Resources Control Board
TNW	Traditional Navigable Waters
USACOE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WoUS	Waters of the U.S.

CHAPTER 1

INTRODUCTION

1.1 PROJECT DESCRIPTION

The Port of San Diego received a 2017 Urban Greening Grant to facilitate design and construction of the Sweetwater Park Promenade that consists of a 16' to 22' wide multi-use path for bikes, pedestrians, and electric carts. This promenade requires a bridge over the F&G Street Marsh inlet. The pedestrian/bicycle bridge channel crossing for the Sweetwater Park path will be non-contiguous to Marina Parkway (E Street). This path is intended for use by cyclists and pedestrians that originate from parking lots on the bayfront, from the RV campground, from bayfront development or from users of the Bayshore Bike Trail or origins at the trolley station or neighborhoods to the east of the freeway. The promenade will also accommodate Neighborhood Electric Vehicle (NEV) carts or Electric Assist bikes and scooters as well as an occasional light weight maintenance vehicle. A 16-foot clear width across the top of the bridge will provide more than adequate access for bicyclists and pedestrians crossing from both directions. A concrete path surface installed on a galvanized steel frame will provide durability in the harsh waterfront environment of San Diego Bay. The bridge will be supported by two concrete abutments at either end of the bridge which will provide a clear span across the channel and avoid the need for any center supports. These abutments will be pulled back from the channel banks to reduce impacts on the channel itself. The bridge channel crossing will allow bicyclists and pedestrians to enjoy the Sweetwater Park Promenade with minimal impact to the surrounding Bayfront they are there to enjoy. This report has identified site impacts associated with the bridge during construction or common use after construction.

This report also identifies hydrologic studies and recommendations to improve the existing inlet channel, as well as identifying a future inlet to be constructed under E Street to improve flow in and out of the F&G Street Marsh. The new inlet channel is not included in the Urban Greening Grant but has been included here as an associated project that has design and engineering challenges that need to be reviewed in conjunction with the Promenade project. In order to comprehensively plan for the hydrological changes in this area and to take advantage of the associated supplemental environmental review process offered by this project, the two projects are reviewed together as part of this report.

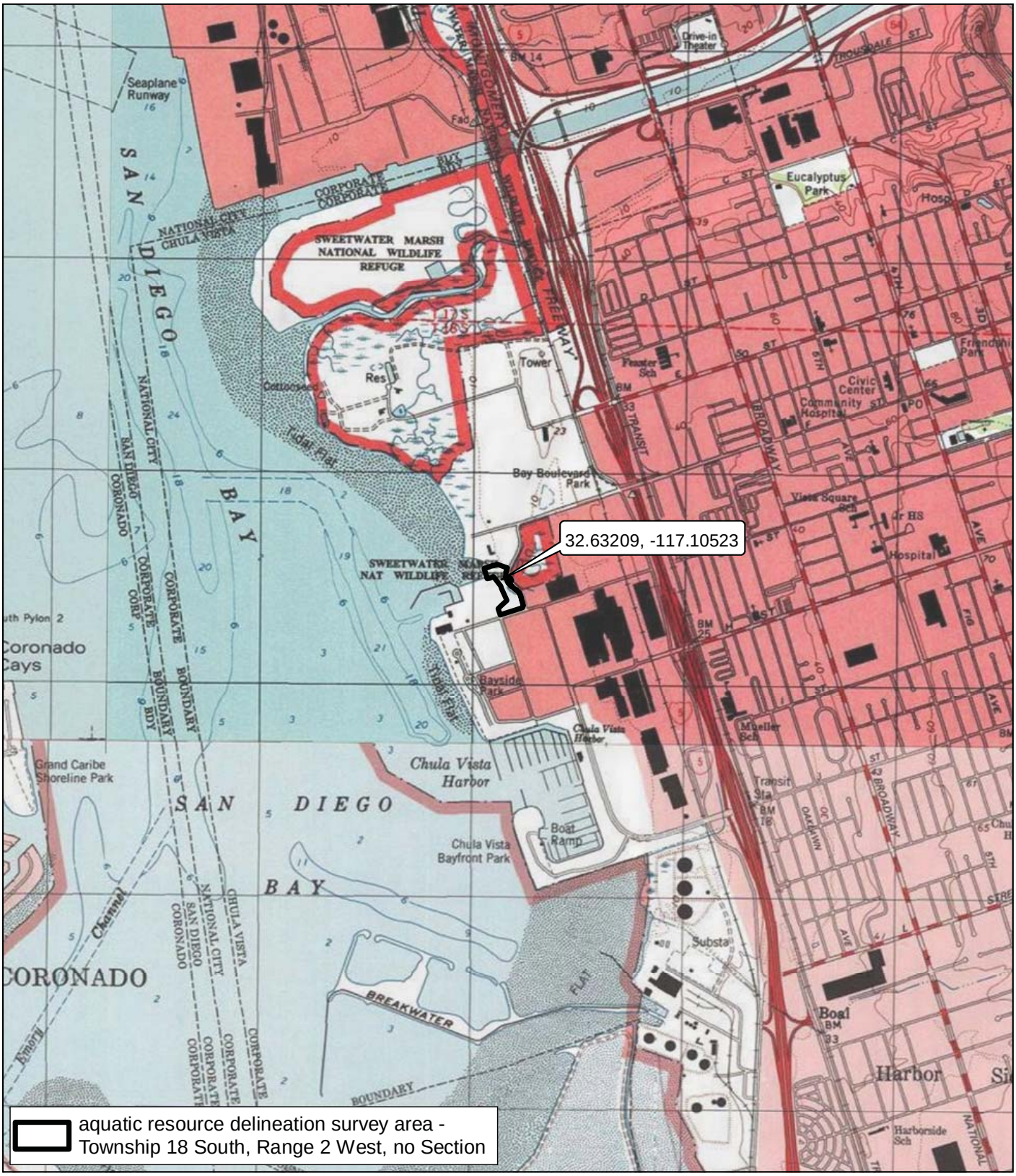
1.2 PROJECT REPORT PURPOSE

The primary need for this analysis is to provide a project description and extent of changes so that a supplemental environmental review under CEQA can be prepared by the Port. The original CEQA review of the entire Chula Vista Bayfront was prepared in 2010 and assummed a promenade bridge that was attached to the proposed roadway bridge associated with E Street improvements. However, based on Coastal Commission input, the roadway bridge was dropped, leaving the need for a stand alone bridge for the Promenade. This stand alone bridge needs supplemental CEQA review. The purpose of this study is to provide a detailed project description of the Promenade Bridge and the associated grading and hydrological adjustments to accommodate the bridge. This study also provides a more detailed analysis and suggested impacts and mitigations for any biological impacts associated with the bridge project. The report also looks to improve habitat that does not currently exist in the channel, there by creating additional net habitat even after the mitigation requirements have been satisfied.

1.3 PROJECT LOCATION

The project site is located within the boundary of the Chula Vista Bayfront Master Plan (CVBMP) in the City of Chula Vista, California. It lies within unsectioned lands, Township 18 South, Range 2 West of the San Bernardino Base and Meridian, U.S. Geological Survey 7.5' National City, California Quadrangle (Latitude 32.63209, Longitude -117.10523 decimal degrees for central portion of the site, WGS84 datum) (Figure 1-1). The project site occurs between the open waters of San Diego Bay and Marina Parkway, between Lagoon Drive and G Street west of the F&G Street Marsh (Figure 1-2). The site includes portions of Assessor Parcel Numbers 567-010-28 and 760-048-00

M&A #15-016-02



Project Vicinity Map

Chula Vista Bayfront Urban Greening Grant Project

Source: USGS 7.5' National City, CA Quadrangle

Merkel & Associates, Inc.

Figure 1-1: Project Vicinity Map

M&A #15-016-02

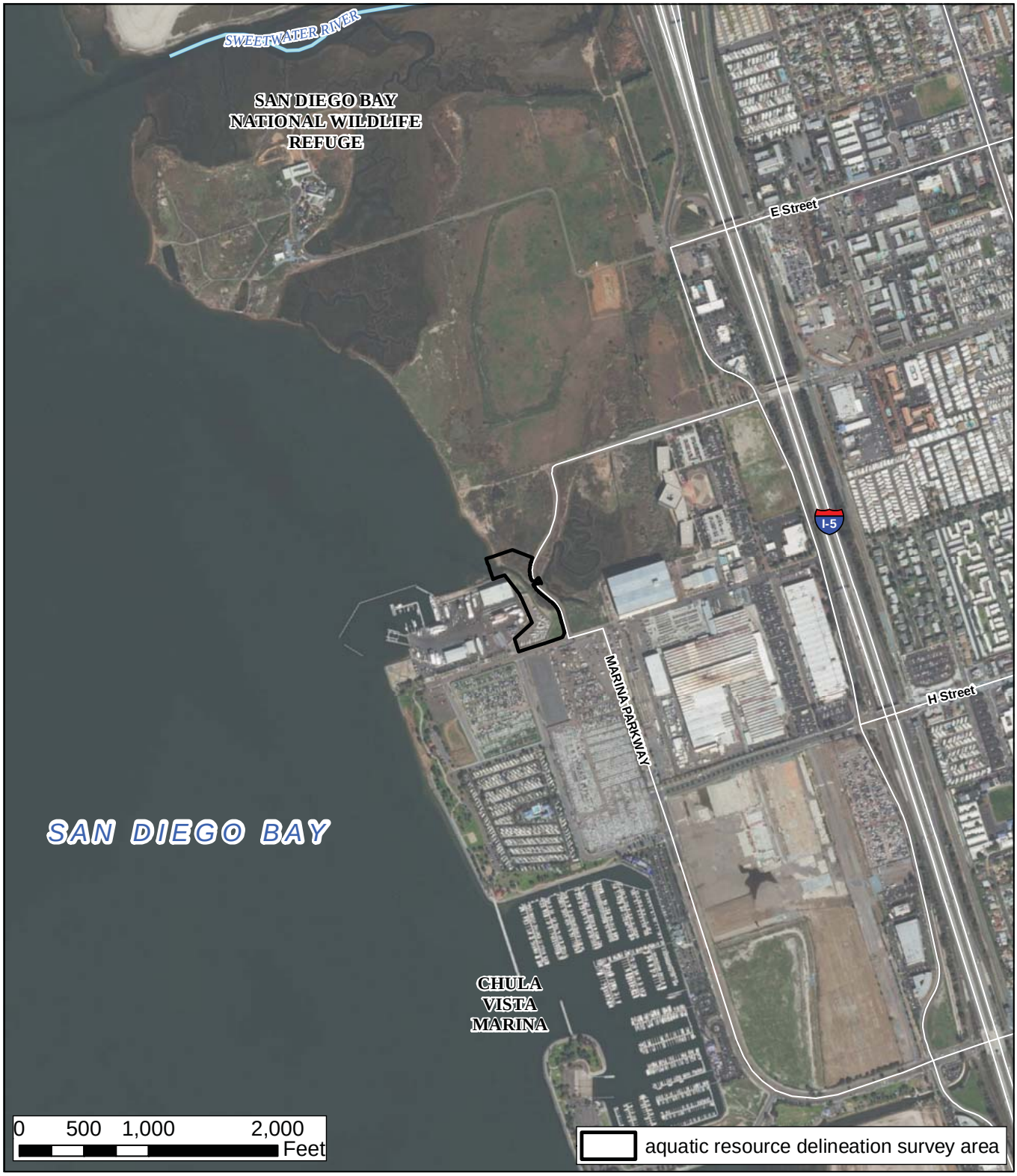


Figure 1-2: Local Setting Map

1.4 BIOLOGICAL APPROACH

Merkel & Associates, Inc. (M&A) has prepared this biological impact analysis report, inclusive of a jurisdictional delineation for the proposed Chula Vista Bayfront (CVB) Sweetwater Urban Greening Grant Early Action Project. The purpose of this report is to document the existing biological conditions within the project biological study area (BSA); identify potential impacts to biological resources that could result from implementation of the proposed project; and recommend measures to avoid, minimize, and/or mitigate significant impacts consistent with applicable federal, state, and local regulations including the California Environmental Quality Act (CEQA) and the Final Environmental Impact Report (FEIR) for the Bayfront Master Plan (CVBMP) (Dudek 2010).

This report will also serve as documentation of a Jurisdictional Determination (JD) to support the U.S. Army Corps of Engineers' (USACOE) consideration of issuance of a permit under Section 404 of the Clean Water Act (CWA) and a permit for work in traditionally navigable waters of the U.S. (WoUS) under Section 10 of the Rivers & Harbors Act (R&HA). This report also supports authorization by other state and local agencies consisting of California Regional Water Quality Control Board (RWQCB) for a Water Quality Certification under Section 401 of the CWA and San Diego Unified Port District (District or Port) for issuance of the Coastal Development Permit (CDP). The marine waters within the project are not subject to California Department of Fish & Wildlife (CDFW) regulation under section 1600 of the California Fish & Game Code.

1.5 HYDROLOGIC APPROACH

This report describes a conceptual-level basis of the design used to develop proposed channel dimensions for a planned, expanded entrance channel to the F & G Street Marsh. These dimensions are needed in order to inform the proposed design of the pedestrian bridge over the channel. This conceptual-level design will be used for the CEQA environmental review process, and further design of the bridge and channel will be conducted before the project is implemented.

The channel design includes the projected future channel dimensions (sized to accommodate tidal flows from the restoration planned for F &G Street Marsh, stormwater flows, and considering projected sea-level rise through 2100) plus a marsh bench. The marsh bench is included to provide mitigation credits for impacts from the bridge and other components of the Bayfront project.

Figure 1-3: Photos of Existing Channel

CHAPTER 2

PROJECT DESCRIPTION

2.1 PROJECT DESCRIPTION

A detailed project description is needed for the supplemental CEQA review that must be completed prior to permit issuance and construction. The following sections describe the design and functional intent of the project as well as details on the material types and site adjustments needed to accommodate the project.

2.1.1 Proposed Bridge Description

A non-contiguous pedestrian/ bicycle path bridge will be designed and constructed to provide access over the existing F&G Street Marsh inlet channel. The bridge will be a single span, steel truss pedestrian bridge with a concrete deck. See Figure 2-1 for Bridge Concept Section. The bridge elevation is intended to be set at approximately 15' North American Vertical Datum (NAVD) to allow for viewing opportunities to the shoreline just west of the new bridge and to allow for protection from storm surges associated with changing climate and sea level rise. Channel improvements will stabilize and improve the channel banks and provide better movement of water. Grading along the channel banks will enable the project to create new habitat, allowing the project to mitigate all biological impacts on site. The project includes slope layback to prevent further erosion along the length of the channel and to accommodate habitat continuity and sea level rise adaptation objectives. As part of the slope layback, the existing banks would be contoured to promote establishment of native marsh habitats and existing rubble/debris would be excavated from the channel bottom to remove impediments to channel deepening and improvements of tidal drainage. See Figure 2-2 for Site Plan and Limits of Disturbance.

The bridge will be a single span, steel truss pedestrian bridge with a concrete deck. Appropriate finishes will be selected to protect the steel in the marine environment. It will be approximately 16 feet wide to allow for safe and adequate access for all uses, as well as off traffic flow pedestrian standing room. It would be supported by two concrete abutments at either end of the bridge which would provide for the span across the channel and avoid the need for any center supports. Deepened concrete abutments will be placed approximately 15' back from the current top of channel to allow for channel grading and improvements and to reduce impacts on the channel itself. The bridge will most likely be installed in two pieces with a connection near mid-span and will be put into place using a crane from a temporary upland staging area. All site impacts related to construction activities, including access, grading of park path up to the bridge elevation, channel improvements, and habitat establishment and rehabilitation are included as part of the project design. The bridge would primarily serve park users; however, it would also be designed to accommodate light maintenance vehicles, neighborhood electric vehicles (golf carts), and other electric bike and scooter assisted vehicles. No lighting is proposed in association with the bridge and no nighttime work is proposed. The bridge would also serve as the terminus of future buffer protection fencing at the tidal channel.

Geothechnical borings will be conducted to determine soil composition and inform design and engineering for bridge abutments. Site access for Geotechnical investigations and construction of the bridge and grading of the channel will be from Marina Parkway on the north side of the channel and through the Port of San Diego's existing Vessel Impound Yard on the south side of the channel. Implementation of the proposed project is expected to occur following acquisition of all applicable permits/authorizations. Construction of the project is expected to occur over an approximate four month period.

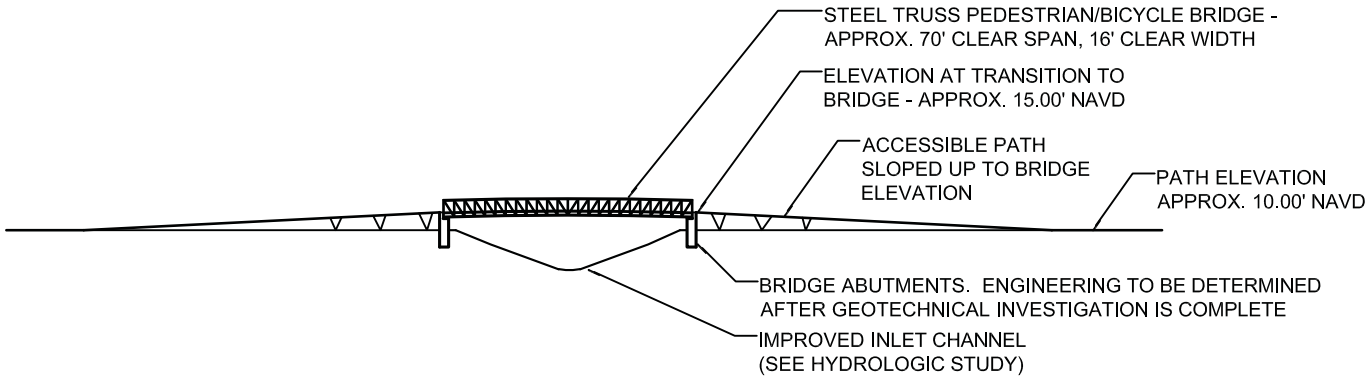
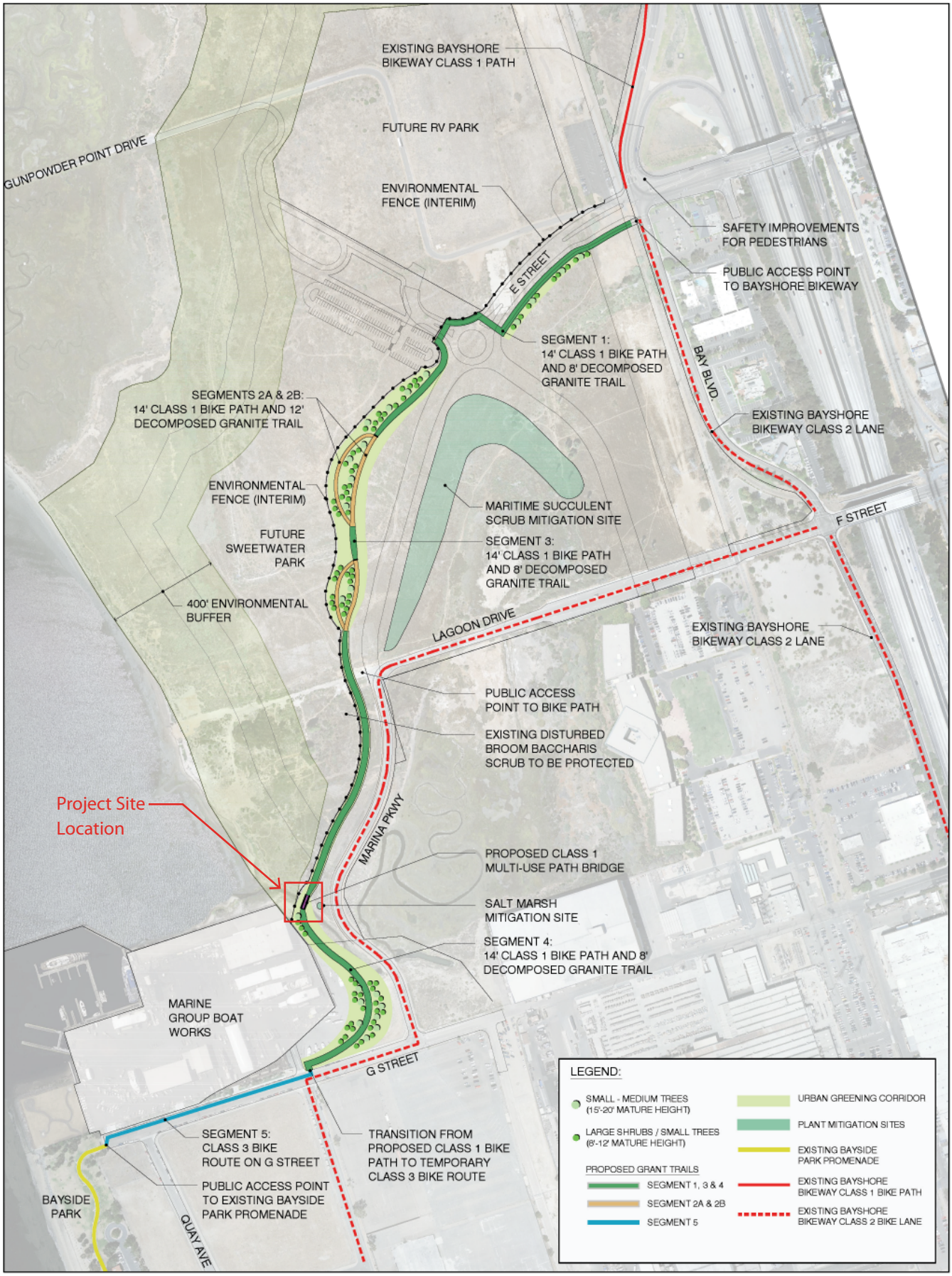


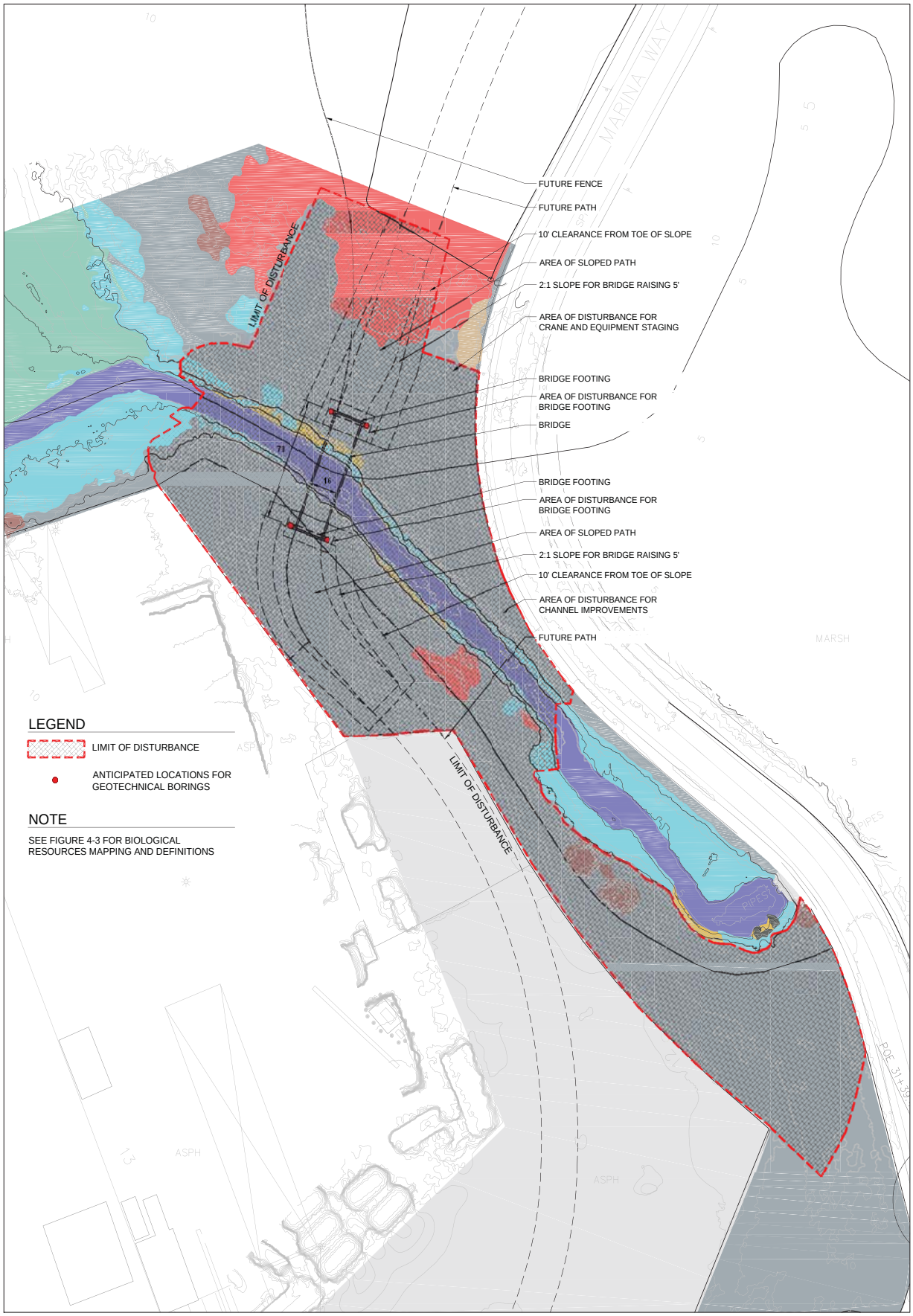
Figure 2-1: Bridge Concept Section



SITE PLAN

SWEETWATER BICYCLE PATH AND PEDESTRIAN PROMENADE - URBAN GREENING STRATEGY

Figure 2-2: Site Plan - Urban Greening Grant Concept



SITE PLAN

CHULA VISTA BAYFRONT PARK
URBAN GREENING GRANT - EARLY ACTION

Figure 2-3: Site Plan - Limits of Disturbance

2.1.2 Grading

A conceptual grading plan has been developed to indicate modifications to the channel to improve flow, mitigate erosion, and create new habitat areas that do not currently exist. A new inlet channel and culvert are shown under the roadway connecting the F&G Street Marsh. This will be a future improvement that is being shown for reference and is not included in the Urban Greening Grant project. In addition to grading and contouring the existing channel to facilitate construction of the bridge and habitat improvements, removal of concrete rubble from the channel will also help to improve flow and possibly allow the channel to deepen naturally. It is estimated that 180 double dump (or 360 single) truck loads would be needed to move the excavated soil. See Figure 2-5 for Conceptual Grading Plan and Earthwork Quantities.

Figure 2-4: Bridge Examples

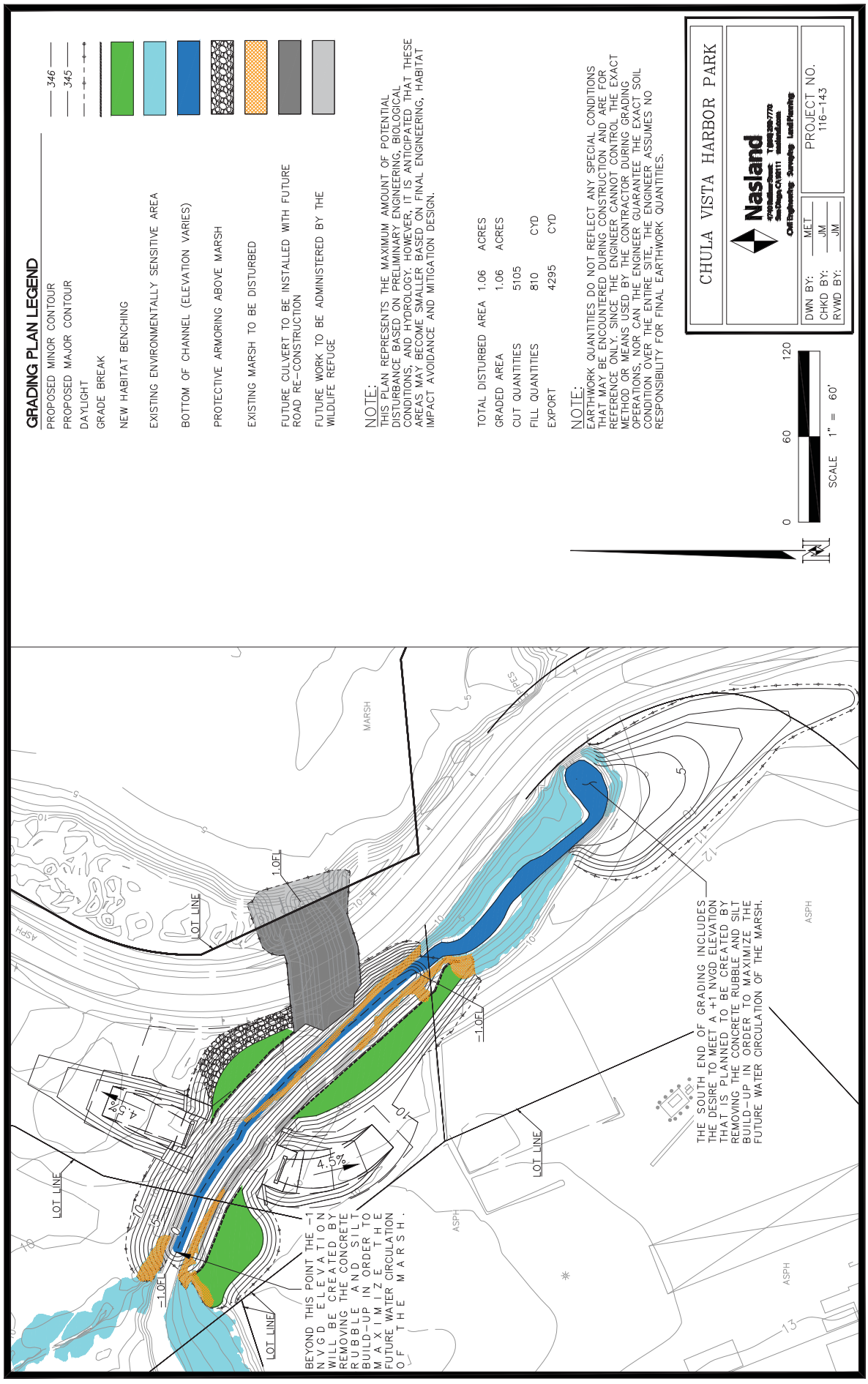


Figure 2-5: Conceptual Grading Plan

CHAPTER 3

BIOLOGICAL IMPACT ANALYSIS INTRODUCTION

3.1 SURVEY METHODOLOGIES

3.1.1 Literature and Data Review

Historical and currently available biological literature and data pertaining to the project area were reviewed prior to initiation of the field investigations. This review included examination of: 1) aerial photography for the project site (Google Earth Pro and M&A 2016); 2) previously mapped vegetation data for the project vicinity (Dudek 2015); 3) soil types mapped on the project site (SanGIS 2002); 4) digital elevation model (DEM) and topographic data (M&A 2016, Port of San Diego 2018); 5) federally designated critical habitat for the project vicinity (USFWS 2017a); 6) CDFW California Natural Diversity Database (CNDDB) and USFWS special status species records for the project vicinity (CDFW 2017a and USFWS 2017b, respectively); and 7) previous biological reports/data for the project site and local vicinity including: Final Environmental Impact for the Chula Vista Bayfront Master Plan (Dudek 2010), Biological Resources Survey Report for the E Street Realignment in Chula Vista, Chula Vista Bayfront Master Plan (Dudek 2015) and Final Report Restoration and Enhancement Alternatives for the Chula Vista Bayfront (M&A 2017).

3.1.2 Field Survey(s) Conducted

Jurisdictional Delineation

M&A biologists conducted a jurisdictional wetland delineation in March 2018 using the routine onsite determination methods noted in the USACOE Wetland Delineation Manual (Environmental Laboratory 1987) and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACOE 2008a) (Table 3-1). In addition, the delineation was expanded to provide a full review of jurisdiction over wetlands and non-wetland WoUS/state to define the physical boundaries of regulation by various federal, state, and local agencies. This included defining the physical boundaries of navigable waters at the mean high water (+4.20 feet NAVD88 (+4.89 feet MLLW)) and tidal WoUS, defined as the mean annual highest high tide [+7.10 feet NAVD88 (+7.79 feet mean lower low water (MLLW))].

Prior to conducting the delineation, the BSA was evaluated to identify potential jurisdictional wetlands and/or waterways, and their connection to offsite hydrological resources. In addition, the overall landforms, slopes, soils, and climatic/hydrological conditions present within the BSA were assessed. This included review of the Biological Resources Survey Report for the E Street Realignment in Chula Vista, Chula Vista Bayfront Master Plan (Dudek 2015) and preparation of a topographic map.

Evidence supporting the jurisdictional delineation was recorded on wetland determination field data forms and depicted in photographs of the data points. Data points were taken in areas that were visually determined to best represent the characteristics of each potential wetland community type and/or jurisdictional resource identified within the BSA, as well as in areas where the presence of a wetland and/or jurisdictional resource was uncertain.

The USACOE routine onsite determination methods require the presence of three parameters to define an area as a wetland (i.e., hydrophytic vegetation, hydric soils, and wetland hydrology); however, procedural deviations are required and allowed for under the delineation methods where normal circumstances do not exist [i.e., some wetland indicators of one or more of the parameters can be periodically lacking due to normal seasonal or annual variations in environmental conditions (i.e., problem areas) or effects of recent human activities or natural events (i.e., atypical situations)]. At each data point location, the area was first assessed to determine if normal environmental conditions were present. Each data point was then evaluated for indicators of each of the wetland parameters (as described below).

Wetland habitats and jurisdictional waterways were delineated using a Trimble® GeoExplorer Global Positioning System (GPS) unit with submeter accuracy and plotted onto 1" = 100' scale, spatially correct color aerial photograph (M&A 2016) of the BSA. Data collected from the survey were digitized in Environmental Systems Research Institute (ESRI) Geographic Information Systems (GIS) software, using ArcGIS for Desktop.

Information on the overall delineation process and regulatory jurisdictions may be found in the USACOE Wetland Delineation Manual (Environmental Laboratory 1987) and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACOE 2008a), as well as federal and state, or through guidance provided by judicial interpretation, solicitors opinions, and regulatory guidance issued to jurisdictional agencies.

Wetland Parameters

Hydrophytic Vegetation

Hydrophytic vegetation is defined as "the community of macrophytes that occurs in areas where inundation and soil saturation is either permanent, or of sufficient frequency and duration to exert a controlling influence on the plant species present" (USACOE 2008a, Section 2). For the purposes of this delineation, five levels of wetland indicator status were used to assess the presence of hydrophytic vegetation, based on the most current National Wetland Plant List for the Arid West (USACOE 2016a): species classified as 1) obligate wetland plants (OBL) [plants that occur almost always (estimated probability >99%) in wetlands under natural conditions, but which may also occur rarely (estimated probability <1%) in non-wetlands]; 2) facultative wetland plants (FACW) [plants that occur usually (estimated probability >67% to 99%) in wetlands, but also occur (estimated probability 1% to 33%) in non-wetlands]; 3) facultative plants (FAC) [plants with a similar likelihood (estimated probability 33% to 67%) of occurring in both wetlands and non-wetlands]; 4) facultative upland plants (FACU) [plants that occur sometimes (estimated probability 1% to <33%) in wetlands, but occur more often (estimated probability >67% to 99%) in non-wetlands]; and 5) obligate upland plants (UPL) [plants that occur rarely (estimated probability <1%) in wetlands, but occur almost always (estimated probability >99%) in non-wetlands under natural conditions] (Environmental Laboratory 1987, Table 3-1). Hydrophytic vegetation was determined to be present if any one of the following three indicator tests were satisfied: 1) the Dominance Test (Indicator 1), where "more than 50% of the dominant plant species across all strata were rated OBL, FACW, or FAC"; 2) the Prevalence Test (Indicator 2), where there were indicators of hydric soils and wetland hydrology, and the prevalence index was 3.0 or less, which is a weighted-average wetland indicator status of all plant species by abundance (percent cover); and/or 3) the Plant Morphological Adaptations Test (Indicator 3), where there were indicators of hydric soils and wetland hydrology present, and either the Dominance Test (Indicator 1) or Prevalence Test (Indicator 2) were satisfied after reconsideration of the indicator status of certain plant species that exhibited morphological adaptations for life in wetlands.

Hydric Soils

Hydric soils are defined as "a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part" (USACOE 2008a, Section 3). For the purposes of this delineation, the hydric soil indicators described in the USACOE Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACOE 2008a) and National Technical Committee for Hydric Soils (NTCHS) Field Indicators of Hydric Soils in the United States (USDA NRCS 2016) were used to assess the presence of hydric soils. Soil test pits were dug to the depth needed to document the soil chroma index using the Munsell® Soil Color Charts (Munsell® Color 2000), as well as additional hydric soil indicators. The soil was determined to be hydric if one or more hydric soil indicators were present.

Wetland Hydrology

Wetland hydrology is indicated by the presence of surficial or sub-surficial hydrologic characteristics long enough during the growing season to show that the presence of water has an overriding influence on the characteristics of vegetation and soils due to anaerobic and reducing conditions, respectively; thus, for an area to be defined as a wetland, periodic inundation or saturation of soils during the growing season must be determined to be present (USACOE 2008a, Section 4). For the purposes of this delineation, the wetland hydrology indicators described in the USACOE Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACOE 2008a) were used to assess the presence of wetland hydrology. Wetland hydrology was determined to be present if one or more primary indicators, or two or more secondary indicators were observed.

Jurisdiction of Wetlands and Waterways

U.S. Army Corps of Engineers

The USACOE has regulatory authority to issue permits for 1) the discharge of dredged or fill material in "waters of the U.S." under Section 404 of the CWA (33 U.S.C. 1344), and 2) work and placement of structures in "navigable waters of the U.S." under Sections 9 and 10 of the R&HA (33 U.S.C. 401).

The term "navigable waters of the U.S." is defined in 33 CFR Part 329.4 as "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 for use to transport interstate or foreign commerce."

The term "waters of the U.S." is defined in 33 CFR Part 328.3(a) as:
(1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters subject to the ebb and flow of the tide; (2) All interstate waters and wetlands; (3) All other waters such as intrastate lakes, rivers, streams, (including intermittent streams), mudflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters: (i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or (ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or (iii) Which are used or could be used for industrial purpose by industries in interstate commerce; (4) All impoundments of waters otherwise defined as waters of the U.S. under the definition; (5) Tributaries of waters identified in (a) (1) through (4) of this section; (6) The territorial seas; (7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) (1) through (6) of this section; and (8) Waters of the U.S. do not include prior converted cropland.

"Wetlands" are defined in 33 CFR 328.3(b) as "those areas that are inundated or saturated by surface or ground water 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." Thus, all three parameters (i.e., hydrophytic vegetation, hydric soils, and wetland hydrology) must be present to classify an area as a Corps jurisdictional wetland under normal circumstances.

The limits of CWA jurisdiction in tidal WoUS [33 CFR 328.4(b)] extend to the high tide line or to the limits of adjacent non-tidal WoUS. The limits of jurisdiction in non-tidal waters of the U.S. [33 CFR 328.4(c)] extend to the limits of the wetlands or adjacent wetlands. Non-tidal waters of the U.S. that lack one or two of the wetland parameters may still be jurisdictional under the USACOE as non-wetland waters of the U.S. (NWW). In the absence of wetlands or adjacent wetlands, the limits of jurisdiction in non-tidal waters of the U.S. extend to the ordinary high water mark (OHWM), which is defined in 33 CFR 328.3(e) as, "that line on the shore established by the fluctuation of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas." The method for identification of lateral limits for potential NWWs are detailed in the USACOE A Delineation Manual, A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States (USACOE 2008c, Revised 2010).

The regulatory purview of the USACOE under Section 404 of the CWA has been restricted by rulings of the U.S. Supreme Court. These have included principal rulings under Solid Waste Agency of Northern Cook County (SWANCC) v. U.S. Army Corps of Engineers et al. (2001) and the 2006 ruling in Rapanos v. U.S. and Carabell v. U.S. (hereafter referred to as Rapanos). Under the 2006 court ruling in Rapanos addressing the jurisdictional scope of "waters of the U.S.", no single opinion commanding a majority of the Court was issued. As a consequence, the U.S. Environmental Protection Agency (USEPA) and USACOE subsequently issued a joint memorandum (2008) addressing guidance on determining jurisdiction of "waters of the U.S.".

The memorandum, intended to address rulings in SWANCC and Rapanos, states that the agencies will assert jurisdiction over the following waters:

- Traditional navigable waters;
- Wetlands adjacent to traditional navigable waters;
- Non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months); and
- Wetlands that directly abut such tributaries.

The agencies will decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with a traditional navigable water:

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

The agencies generally will not assert jurisdiction over the following features:

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

The agencies will apply the significant nexus standard as follows:

- A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical and biological integrity of downstream traditional navigable waters (TNWs); and
- Significant nexus includes consideration of hydrologic and ecologic factors.

Key to the application of this guidance is a formalized oversight process involving both the USACOE and the USEPA in the adoption of an Approved Jurisdictional Determination (AJD). The intent of this formal process is to ensure consistency in the manner in which the agencies interpret the rulings and guidance at all levels. To institute the program by which jurisdictional determinations are made, the USACOE issued RGL 08-02, now superseded by RGL 16-01 on the subject of Jurisdictional Determinations (USACOE 2008b and 2016b, respectively). Of importance in this guidance is the distinction between an applicant's request for a Preliminary Jurisdictional Determination (PJD) or an AJD. If a PJD is requested from the USACOE, the determination will be inclusive of all features that have historically been regulated by the USACOE under Section 404 of the CWA and Sections 9 and 10 of the R&HA (i.e., pre-SWANCC and Rapanos). The PJD excludes exempted jurisdictional waters, but not those excluded by court ruling interpretations. The AJD provides a more thorough evaluation of issues of isolation, adjacency, and significant nexus as contemplated by the courts and excludes those areas from USACOE regulation that fail to meet the necessary litmus tests of the court decision and the agencies' implementation guidance. The USACOE has developed a Jurisdictional Determination Form Instructional Guidebook (USEPA and USACOE 2007) to aid field staff in completing AJDs.

On May 27, 2015, the USEPA and the USACOE released a final rule broadly expanding the definition of WoUS. This new definition would do a multitude of things including expanding the inclusion of many non-navigable waters and tributaries as WoUS, expanding inclusion of regulation on waters that are not tributary to traditionally navigable waters by assumption rather than demonstration of significant nexus, and altering the placement of burden of evidence from a demonstration of jurisdiction of the USEPA and USACOE to a demonstration of lack of jurisdiction under the CWA.

The rule originally went into effect on August 28, 2015, and was immediately challenged in lawsuits across the country. Courts subsequently stayed the implementation of the rule nationwide. Because the challenges and court actions on the rule were rapid and broad sweeping, the practical field application of this new rule has not yet been tested, however, implementation of the 2015 Final Rule would likely not substantially change the delineation of WoUS for this particular project based on the nature and characteristics of the features present and interpretation of the proposed changes under the presently stayed regulation.

California State Water Resources Control Board/Regional Water Quality Control Board

The RWQCB (under the State Water Resources Control Board [SWRCB]) regulates wastewater discharges to "waters of the State", which is defined in section 13050(e) of the California Water Code as "any surface water or groundwater, including saline waters, within the boundaries of the State." For waters of the State that are federally regulated under the CWA, the RWQCB must provide state water quality certification pursuant to Section 401 of the CWA for activities that may result in discharge of pollutants into WoUS.

California Coastal Commission

State jurisdictional areas are addressed in this review and analysis due to the need for California Coastal Commission (CCC) review under the federal Coastal Zone Management Act (CZMA) and separate permitting under the California Coastal Act (CCA). The CCC regulates activities that would affect wetlands occurring in the California coastal zone through the CCA. However, the District has a certified Local Coastal Program (LCP) (City of Chula Vista, Amended 2013), which covers the BSA and enables authorization of projects by the District under the CCA via issuance of a CDP. As part of the regulatory process, the CCC must review all applications for a CDP.

Section 30121 of the CCA defines "wetland" as: "lands within the coastal zone that may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats and fens."

The CCA definition of "wetland" is further expanded upon in 14 CCR 13577(b) as:

Wetlands are lands 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 or drastic fluctuations of surface water levels, wave action, water flow, turbidity, or high concentrations of salt 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 deepwater habitats.

The CCC uses the same three criteria for defining wetlands as the USACOE (i.e., hydrophytic vegetation, hydric soils, and wetland hydrology); however, only one of the three criteria needs to be present for an area to be classified as a wetland. CCC jurisdiction extends beyond streambeds to include all tidal areas and isolated wetlands; however, jurisdiction is limited to areas within the coastal zone.

The CCC wetland definition is generally more encompassing than the USACOE definition in most respects; however, the language of 14 CCR 13577(b) would suggest that, where conditions are not capable of supporting hydric soils or hydrophytic vegetation, hydrologic indicators of saturation or surface waters should be expressed on an annual basis (i.e., "at some time during each year"), not just under ordinary high water conditions as is the case under the federal regulatory standard. As a result, the CCA definition of wetlands would appear to be more limited than the federal act where no soil or vegetation indicators exist.

Wetland Functions and Values

Following the jurisdictional wetland delineation, wetland functions and values were assessed based on a visual qualitative analysis. Wetland functions can be defined as the physical, chemical, and biological characteristics of a wetland. The physical and chemical functions and values of a wetland are determined based on the wetland width, slope, substrate, hydrology characteristics, location and proximity to relatively permanent waters, and habitat constituents. These functions and values typically include groundwater recharge, floodflow alteration, streambed stabilization, sediment/toxicant retention, nutrient transformation, and production export. The biological functions of a wetland typically include wildlife habitat and cover.

Vegetation Mapping and Botanical/Wildlife Survey

Concurrent with the jurisdictional delineation, M&A biologists conducted a ground-truthing survey of vegetation communities and botanical/wildlife survey previously mapped by Dudek (2015) within the current project BSA (Table 3-1). The survey was conducted on-foot and existing vegetation types were delineated on a 1" = 100' scale, color aerial photograph of the project site and where needed, delineated using a GPS. A minimum mapping unit of 0.01-acre was used for vegetation mapping.

The vegetation types were classified according to the Holland (1986) code classification system as modified by Oberbauer (2008). A list of detectable flora and fauna species was recorded in a field notebook. Plant identifications were either resolved in the field or later determined through verification of voucher specimens, and wildlife species were determined through direct observation (aided by binoculars), identification of songs, call notes and alarm calls, or by detection of sign (e.g., burrows, tracks, scat, etc.).

The scientific and common names utilized for the floral and faunal resources were noted according to the following nomenclature: flora, Baldwin (2011); and birds, American Ornithologists' Union (1998 and 2017).

3.1.3 Survey Dates, Times, and Conditions

Table 3-1 summarizes the 2018 survey dates, times, and conditions.

Table 3-1: Survey Date(s), Time(s), and Conditions

Survey	Date	Time	Conditions (start to end) [1]	Biologist
Jurisdictional Delineation	2018 Mar 9	1030 - 1400	Weather: 5%-100% cc Wind: 2 BS Temperature: 65°-68° F	Amanda K. Gonzales

[1] cc = cloud cover; BS = Beaufort scale [BS 2 = 4-7 miles per hour (mph)]; °F = degrees Fahrenheit

3.2 APPLICABLE REGULATIONS

A variety of federal, state, and local regulations may apply to the proposed project. These regulations are listed herein with a brief description.

3.2.1 Federal Regulations and Standards

3.2.1.1 Federal Endangered Species Act (ESA)

The federal ESA (16 U.S.C. 1513-1543) was enacted in 1973 to provide protection to threatened and endangered species and their associated ecosystems. "Take" of a listed species is prohibited except when authorization has been granted through a permit under Sections 4(d), 7, or 10(a) of the act. Take is defined as harassing, harming, shooting, wounding, killing, trapping, capturing, or collecting, or attempting to engage in any of these activities without a permit.

Migratory Bird Treaty Act (MBTA)

The Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703-712) was enacted in 1918. Its purpose is to prohibit the kill or transport of native migratory birds, or any part, nest, or egg of any such bird unless allowed by another regulation adopted in accordance with the MBTA. Under the MBTA of 1918 (16 U.S.C. section 703-712; Ch. 128; July 3, 1918; 40 Stat. 755; as amended 1936, 1956, 1960, 1968, 1969, 1974, 1978, 1986 and 1998), it is unlawful, except as permitted by the USFWS, to "take, possess, transport, sell, purchase, barter, import, or export all species of birds protected by the MBTA, as well as their feathers, parts, nests, or eggs (USFWS 2003). Take means to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect (50 CFR 10.12). Birds protected by the MBTA include all birds covered by the treaties for the protection of migratory birds between the United States and Great Britain (on behalf of Canada, 1916), Mexico (1936), Japan (1972), and Russia (1976), and subsequent amendments."

It is important to note that since the MBTA addresses migratory birds by family rather than at a lower taxonomic level, most bird species are protected by the MBTA because most taxonomic families include migratory members. In addition, "take" as defined under the federal MBTA is not synonymous with "take" as defined under the federal ESA. The MBTA definition of "take" lacks a "harm and harassment" clause comparable to "take" under the ESA, thus, the MBTA authority does not extend to activities beyond the nests, eggs, feathers, or specific bird parts (i.e., activities or habitat modification in the vicinity of nesting birds that do not result in "take" as defined under the MBTA are not prohibited). Further, "a permit is not required to dislodge or destroy migratory bird nests that are not occupied by juveniles or eggs; however, any such destruction that results in take of any migratory bird is a violation of the MBTA (i.e., where juveniles still depend on the nest for survival) (USFWS 2003)."

Federal Water Pollution Control Act (Clean Water Act), 1972

In 1948, Congress first passed the Federal Water Pollution Control Act. This act was amended in 1972 and became known as the CWA (33 U.S.C. 1251). The act regulates the discharge of pollutants into waters of the U.S. Under Section 404, permits need to be obtained from the USACOE for discharge of dredge or fill material into waters of the U.S. Under Section 401 of the CWA, Water Quality Certification from the RWQCB would need to be obtained if there are to be any impacts to waters of the U.S.

3.2.2 State Regulations and Standards

California Environmental Quality Act (CEQA)

CEQA requires that biological resources be considered when assessing the environmental impacts resulting from proposed actions. CEQA does not specifically define what constitutes an "adverse effect" on a biological resource. Instead, lead agencies are charged with determining what specifically should be considered an impact.

California Fish and Game Code (FGC)

The California Fish and Game Code (FGC) regulates the taking or possession of birds, mammals, fish, amphibian 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 SAA regulations (Section 1600-1616), as well as provisions for legal hunting and fishing, and tribal agreements for activities involving take of native wildlife.

In addition, Sections 3503, 3503.5, and 3513 of the FGC prohibit the "take, possession, or destruction of bird nests or eggs." Section 3503 states: "It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto." Section 3503.5 provides a refined and greater protection for birds-of-prey and states: "It is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." The distinctions made for birds-of-prey are the inclusion of such birds themselves to the protections and the elimination of the term "needlessly" from the language of §3503. Section 3513 states: "It is unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Bird Treaty Act."

The definition of "take" under the FGC is not distinct from the definition of "take" under CESA, which is defined as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill" (FGC Code §86); however, it is important to note that the state definition of "take" again does not include a "harm and harassment" clause, and thus, activities or habitat modification in the vicinity of nesting birds that do not result in "take" as defined under the FGC/CESA are not prohibited.

Porter-Cologne Water Quality Control Act

This act is substantively the California version of the Federal CWA. It provides for statewide coordination of water quality regulations through the establishment of the SWRCB and nine separate RWQCBs that oversee water quality regulation on a day-to-day basis at the regional watershed basin level.

California Coastal Act (CCA)

Under the CCA of 1976, the CCC regulates activities that would affect wetlands occurring in the California coastal zone through the CCA. The District has a certified Local Coastal Program (LCP) (Amended 2013), which covers the BSA and enables authorization of projects by the District under the CCA via issuance of a CDP. As part of the regulatory process, the CCC must review all applications for a CDP.

3.2.3 Local Regulations and Standards

The site is located within the Sweetwater District of the CVBMP. The primary controlling documents for the CVBMP include: 1) the Mitigation Monitoring and Reporting Program (MMRP) developed as part of the CEQA environmental review process (FEIR, Dudek 2010); 2) the Settlement Agreement (SDUPD 2010) entered into between the District, the City of Chula Vista and the Redevelopment Agency of the City of Chula Vista; and 3) the Chula Vista Bayfront Development Policies (SDUPD 2012), which bring together all conditions and policies that will guide development along the Chula Vista Bayfront. The Settlement Agreement further refines restoration and enhancement objectives for areas classified as Wildlife Habitat Areas (WHAs) within the Chula Vista Bayfront Project area, provides for management and protection of natural habitats through development of a Natural Resources Management Plan (NRMP) (Port and City 2016), and identifies priorities for habitat restoration. The environmental protections identified in the Settlement Agreement go above and beyond those required by federal, state, and local laws and regulations and, as detailed in the MMRP. Design of the proposed project has been evaluated to be consistent with the above-listed controlling documents.

CHAPTER 4

SURVEY RESULTS

4.1 PHYSICAL CHARACTERISTICS

The BSA is located within the Sweetwater District of the CVBMP and occurs on the Bayfront, over predominantly undeveloped land surrounded by commercial development. The site is bound to the east by Marina Parkway, a two lane paved road that separates the Bayfront from seasonal F&G Street Marsh. A pipe culvert under Marina Parkway allows tidal flows to enter into the marsh.

The elevation within the BSA ranges from approximately +2 feet NAVD88 in the channel bottom to +13 feet NAVD88 at the top of the channel banks. From north to south, soils within the BSA are mapped as Huerhuero loam (2-9% slopes), Tidal flats, and Made land (Figure 4-1). The BSA is not located within federally designated critical habitat.

Regionally, the BSA is located in the southern coast ecoregion of San Diego County. The BSA is located at the Bayfront, within the Lower Sweetwater Hydrologic Area (Basin No. 9.10) of the Sweetwater Hydrologic Unit/Watershed (Basin No. 9.00) (Figure 4-2). San Diego Bay is recognized under section 303(d) of the CWA as an impaired waterbody for Polychlorinated biphenyls (PCBs) (SWRCB 2010). The BSA partially occurs within the Federal Emergency Management Agency 100-year floodplain and 500-year floodplain (SanGIS 2012).

4.2 BIOLOGICAL RESOURCES-VEGETATION AND FLORA

4.2.1 Botanical Resources - Vegetation and Flora

Ten vegetation types inclusive of sub-categories were identified within the BSA during the biological survey (Table 4-1; Figure 4-3). The below paragraphs provide a description of each vegetation community. A list of the floral species observed within the BSA during the biological surveys has been included with this report in Appendix 1.

Vegetation Community	Holland/ Oberbauer Code	General Habitat Group Classification	Existing (acres)
Open water	64100	Wetland	0.22
Beach	64400	Wetland	0.23
Southern coastal salt marsh	52120	Wetland	0.34
Diegan coastal sage scrub	32500	Upland	0.25
Diegan coastal sage scrub – baccharis dominated	32500	Upland	0.03
Disturbed Diegan coastal sage scrub	32500	Upland	0.01
Bare ground	NA	Upland	0.02
Disturbed Habitat	11300	Upland	1.80
Urban/developed	12000	Upland	1.38
Urban/developed - riprap	12000	Upland	<0.01
		Total:	**4.28**

Table 4-1: Habitats/Vegetation Communities within the Study Area

M&A #15-016-02

Soils Map

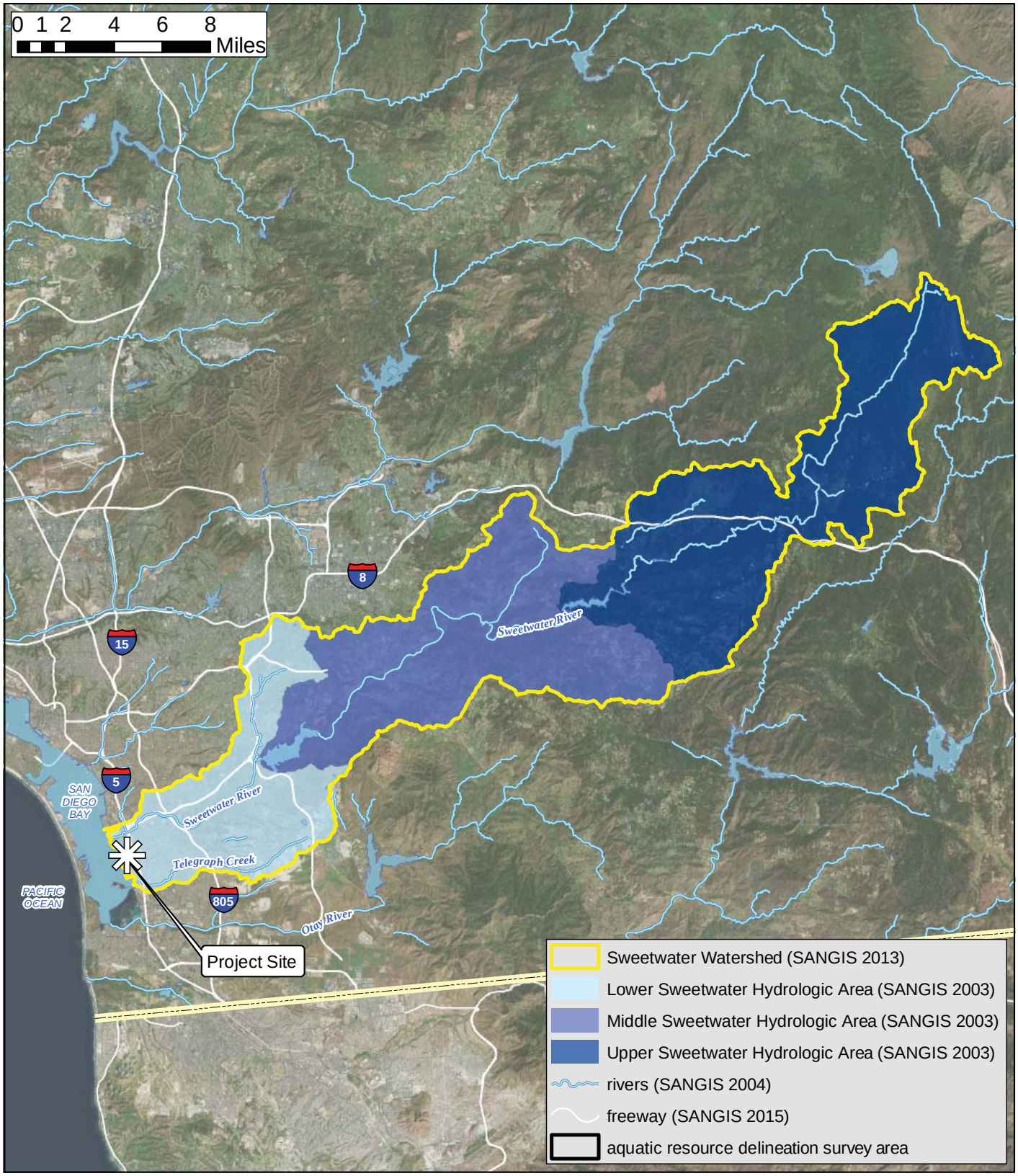
Chula Vista Bayfront Urban Greening Grant Project

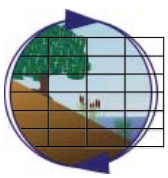
Aerial Source: ESRI 2016

Created On: 3/29/2018

Merkel & Associates, Inc.

Figure 4-1: Soils Map





Regional Watershed Map

Chula Vista Bayfront Urban Greening Grant Project

Aerial Source: ESRI 2016

Created On: 3/29/2018

Merkel & Associates, Inc.

Figure 4-2: Regional Watershed Map

M&A #15-016-02

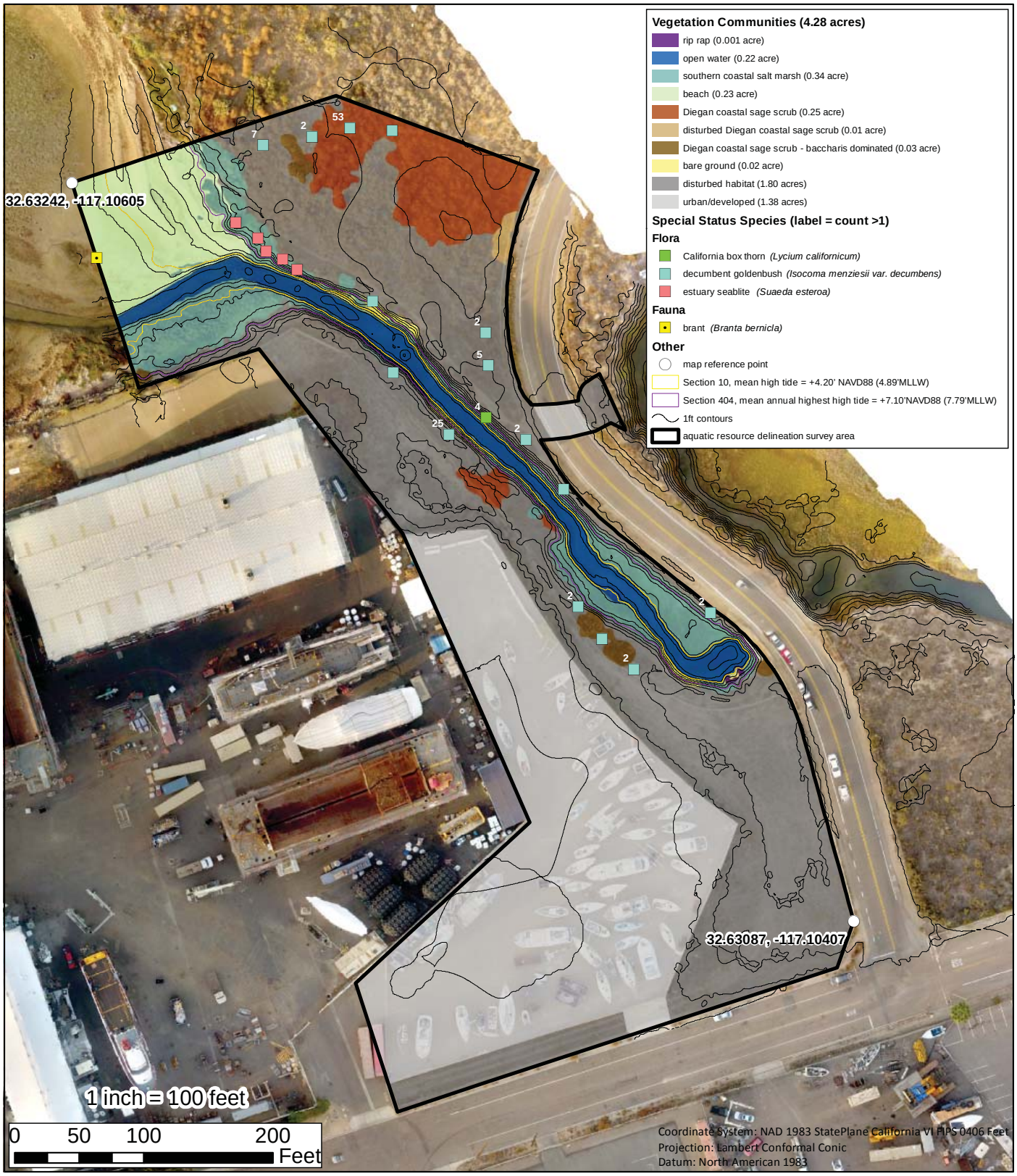


Figure 4-3: Biological Resources Map

The project site is located on the Bayfront and lands along the western portion of the BSA have been mapped as salt marsh and beach. The BSA is bisected by a fully tidal channel that connects the F&G Street Marsh to San Diego Bay through two approximate 36-inch HDPE corrugated pipe culverts. The channel bed is narrow, averaging approximately eight to ten feet wide near the proposed bridge with vertical and eroding banks. At their maximum, banks are near 8 feet in height. The channel bed has been classified as open water, with portions of the eroding bank classified as bare ground. Within the bed are notable amounts of concrete rubble and other debris intermixed with the soil. A small area of riprap and bare ground has been identified at the outlet of a small pipe in the eastern portion of the BSA. Southern coastal salt marsh occurs on the shallow banks of the beach, prior to transitioning to upland habitat as well as benches that have established following erosion. Small, individual patches of salt marsh plants are also present at the top of the channel bank. The salt marsh community is generally sporadic and linear in nature and overall, dominated by alkali heath (Frankenia salina) and pacific pickleweed (Sarcocornia pacifica), with inclusions of salty Susan (Jaumea carnosa), saltwort (Batis maritima), estuary seablite (Suaeda esteroa), shoregrass (Distichlis littoralis), Parish's pickleweed (Arthrocnemum subterminale), western marsh-rosemary (Limonium californicum), and alkali weed (Cressa truxillensis). Additional species present along the transitional boundary to higher elevations include saltgrass (Distichlis spicata), decumbent goldenbush (Isocoma menziesii var. decumbens), Australian saltbush (Atriplex semibaccata), and Russian thistle (Salsola tragus). Regionally, coastal salt marsh is classified as a sensitive vegetation community; the CVBMP MMRP is consistent with regional standards.

The upland habitat is dominated by disturbed lands with an inclusion of Diegan coastal sage scrub. The disturbed lands are dominated by a relatively dense cover of garland (Glebionis coronaria), a non-native annual herb with an inclusion of crystalline iceplant (Mesembryanthemum crystallinum), Russian thistle, horehound (Marrubium vulgare), ocean locoweed (Astragalus trichopodus var. lonchus), mustard species, and ripgut grass (Bromus diandrus). With the exception of ocean locoweed, all of the above listed species are non-native. Sporadic individuals of plants typical of Diegan coastal sage scrub are also present in the disturbed habitat; they include broom baccharis (Baccharis sarothroides) and California sagebrush (Artemisia californica). A dirt path is also present in this community and extends from the paved roadway to the beach. Disturbed habitat has also been identified in the southern portion of the BSA, immediately east of the boat yard, which is classified as urban developed lands. Within this area, the lands are comprised of bare ground with low growing sporadic non-native herb species including white stem filaree (Erodium moschatum), Russian thistle, and garland with an inclusion of tree tobacco (Nicotiana glauca), mustard species, and ocean locoweed. Due to the height of the vegetation, it is possible that this area is actively maintained (e.g., mowed). Regionally, disturbed habitat is not classified as a sensitive vegetation community; the CVBMP MMRP is consistent with regional standards.

Various forms of Diegan coastal sage scrub occur onsite, primarily within the northern portion of the BSA. Here the Diegan coastal sage scrub supports plants typical of a higher quality community dominated by low-growing California sagebrush, coastal California buckwheat (Eriogonum fasciculatum var. fasciculatum), and decumbent goldenbush with an inclusion of broom baccharis and coyote brush (Baccharis pilularis). Monotypic groupings of Baccharis have been classified as Diegan coastal sage scrub – baccharis dominated while areas with a high inclusion of non-native species and dumped debris have been classified as disturbed Diegan coastal sage scrub. Regionally, Diegan coastal sage scrub is classified as a sensitive vegetation community; the CVBMP MMRP is consistent with regional standards.

4.2.2 Zoological Resources - Fauna

Few wildlife species were noted onsite; those detected were all avian species. However, additional wildlife species are expected to occur onsite and/or in the general area, most of which are expected to be species commonly found in native and naturalized habitats throughout San Diego County including urban adapted species. A list of the faunal species observed within the BSA during the biological survey has been included with this report in Appendix 2. The avian species detected onsite were predominantly shore birds, foraging on the exposed beach and extending offsite into the open waters of the Bay. They included marbled godwit (Limosa fedoa), dowitcher (Limnodromus sp.) and sandpiper (Calidris sp.). In addition, a group of Brant (Branta bernicla), a winter visitor to San Diego County were also intermixed with the above listed species.

Due to the proximity to the Bay and presence of native vegetation communities, there is a potential for various urban associated and marsh associated species to forage, nest, and/or disperse through the BSA including species such as the Anna's hummingbird (Calypte anna).

4.2.3 Rare, Threatened, Endangered, Endemic and/or Sensitive Species

4.2.3.1 Special Status Species Present within the BSA

Four special status species were identified within the BSA during the biological survey; they are depicted in Figure 4-3 and discussed below. In some instances, special status is limited to populations or life stages of a species. Where this is the case, the limited applicability is indicated in parentheses.

State CEQA Guidelines §15380 (Title 14, Chapter 3, Article 20) define "endangered, rare or threatened species" as "species or subspecies of animal or plant or variety of plant" listed under the Code of Federal Regulations, Title 50, Part 17.11 or 17.12 (Volume 1, Chapter I) or California Code of Regulations, Title 14, Sections 670.2 or 670.5 (Division 1, Subdivision 3, Chapter 3), or a species not included in the above listings but that can be shown to be "endangered" meaning "when its survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors" or "rare" meaning "although not presently threatened with extinction, the species is existing in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens or the species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered 'threatened' as that term is used in the Federal Endangered Species Act". State CEQA guidelines Appendix G, Section IV generally refers to species that fall under the above criteria as "special status species".

Thus, for the purposes of this report, special status species are: 1) federally and state listed species (CDFW 2018a and 2017b); 2) CDFW Species of Special Concern (SSC) and Fully Protected (FP) species (CDFW 2018b and 2017c); 3) species designated as California Rare Plant Rank of 1 or 2 by the by the California Native Plant Society (CNPS); and 4) species identified as special status in the CVBMP EIR (Dudek 2010).

The following four species were detected onsite and discussed below:

- California box thorn (Lycium californicum), a CNPS California Rare Plant Rank List 4.2 [Plants of limited distribution (a watch list), Fairly threatened in California (moderate degree/immediacy of threat];
- Estuary seablite (Suaeda esteroa), a CNPS California Rare Plant Rank List 1B.2 (Plant rare or endangered in California and elsewhere, Moderately threatened in California with a moderate degree and immediacy of threat);
- Decumbent goldenbush (Isocoma menziesii var. decumbens), a CNPS California Rare Plant Rank List 1B.2 (Plant rare or endangered in California and elsewhere, Moderately threatened in California with a moderate degree and immediacy of threat); and
- Brant (Branta bernicla), a CDFW Species of Special Concern.

California box thorn

Four California box thorn were identified on the northern edge of the channel that bisects the BSA. All of the plants were located outside the channel limits at the top of the eroding bank. The plants were small, low growing and classified as part of the surrounding habitat (i.e., disturbed habitat). California box thorn is a perennial shrub found in coastal bluff scrub and/or coastal sage scrub communities at elevations between approximately 16 and 492 feet.

Estuary seablite

Five estuary seablite were detected along the northern bank of the channel in the western portion of the BSA. The plants were relatively large and classified as southern coastal salt marsh. Estuary seablite is a perennial herb found in coastal bluff scrub, coastal dunes, marshes and swamps on the margins of coastal salt marsh at elevations ranging from approximately 0 to 164 feet.

Decumbent Goldenbush

Decumbent goldenbush was detected sporadically throughout the upland habitat. Plants were observed individually as well as in small groups. This species is a small shrub found in chaparral and coastal sage scrub (sand often in disturbed areas), and occasionally in wetland-riparian areas. Decumbent goldenbush is documented to occur in sage scrub and disturbed communities throughout coastal San Diego County as well as in the local South Bay region (Calflora 2018).

Black Brant

A group of approximately 20 black brant were observed in the shallow open waters of the Bay, extending outside of the BSA. Brant are winter visitors to San Diego County and generally occur in shallow bays and estuaries where they consume eelgrass as their

primary food resource.

Other Avian Species

The project site has a potential to be utilized by other regionally common migratory birds that are not designated as special status species under CEQA, but are protected under the federal MBTA and FGC Code Sections 3503 and 3513. No avian nests were observed within the BSA during the biological survey; however, birds protected by the above-referenced regulations that have a potential to nest within the BSA could occur onsite and include urban tolerant species such as Anna's hummingbird.

4.2.3.2 Occurrence Potential for Special Status Species within the BSA

An evaluation of the potential for special status animal species to occur within the BSA was conducted. This included review of the Biological Resources Survey Report for the E Street Realignment in Chula Vista, Chula Vista Bayfront Master Plan (Dudek 2015) as well as the Final EIR for the CVBMP (Dudek 2010). Per the 2015 report, one special status plant, estuary seablite and no special status fauna were documented within the BSA. The Final EIR for the CVBMP did not identify any special species status species in the BSA.

The 2015 and 2010 reports evaluated the potential presence of the following special status avian species: Belding's savannah sparrow (Passerculus sandwichensis beldingi), brown pelican (Pelecanus occidentalis), burrowing owl (Athene cunicularia), California horned lark (Eremophila alpestris actia), Cooper's hawk (Accipiter cooperii), Double-crested cormorant (Phalacrocorax auritus), Osprey (Pandion haliaetus), Northern harrier (Circus cyaneus), and southern California rufous-crowned sparrow (Aimophila ruficeps canescens). Of the above-listed species, the only federally or state list species is Belding's savannah sparrow, which is state listed endangered. Due to the limited coastal salt marsh present in the BSA and presence of a larger stand of marsh to the east, the potential for the Belding's savannah sparrow to nest onsite is low. In addition, there is no suitable nesting habitat for the remaining above-listed species.

The light-footed Ridgway's rail (Rallus obsoletus levipes), formerly known as light-footed clapper rail, a federally and state listed endangered species, has a low potential to utilize the southern coastal salt marsh habitat within the BSA as foraging habitat only; no suitable nesting habitat present onsite. This species is a year-round resident of the tidal salt marshes and typically nests in marsh habitat dominated by tall, dense California cordgrass (Spartina foliosa) and occasionally in pickleweed.

The 2015 report also evaluated the potential presence for the senile tiger beetle (Cicindela senilis frosti), a CDFW CNDDB Special Animal. The senile tiger beetle occurs in coastal salt marsh, fresh and brackish lagoons, open patches of pickleweed, dried salt pans, and muddy alkali areas with no historic records in the CVBMP area. Due to the erosive nature of the channel and small area of coastal salt marsh habitat present within the BSA, the potential for senile tiger beetle to occur onsite is expected to be low.

4.2.4 Wetland and Jurisdictional Waters

Table 4-2 and 4-3 below quantify the acreage of jurisdictional resources within the BSA and Figure 4-4 shows the locations of these resources. shows the locations of these resources. Wetland determination data forms and photo points have been included with this report in Appendix 3. Table 4-4 below summarizes the results of the wetland data forms. General overview photos of the BSA are included as Appendix 4.

Table 4-2: Jurisdictional Resources within the Biological Study Area

Vegetation Community	Holland/ Oberbauer Code	Existing Acreage (Onsite)			
		USACOE wetland[1]	USACOE water[2]	CCC Wetland only	Total
Open water	64100	0.00	0.22	0.00	0.22
Beach	64400	0.00	0.23	<0.01	0.23
Southern coastal salt marsh	52120	0.25	0.00	0.09	0.34
Bare ground	NA	0.00	0.01	0.00	0.01
Disturbed habitat	11300	0.00	0.01	0.00	0.01
Urban/developed	12000	0.00	<0.01	0.00	<0.01
Urban/developed - riprap	12000	0.00	<0.01	0.00	<0.01
Total:		**0.25**	**0.47**	**0.09**	**0.81**

1 Also regulated by RWQCB and CCC as a wetland.

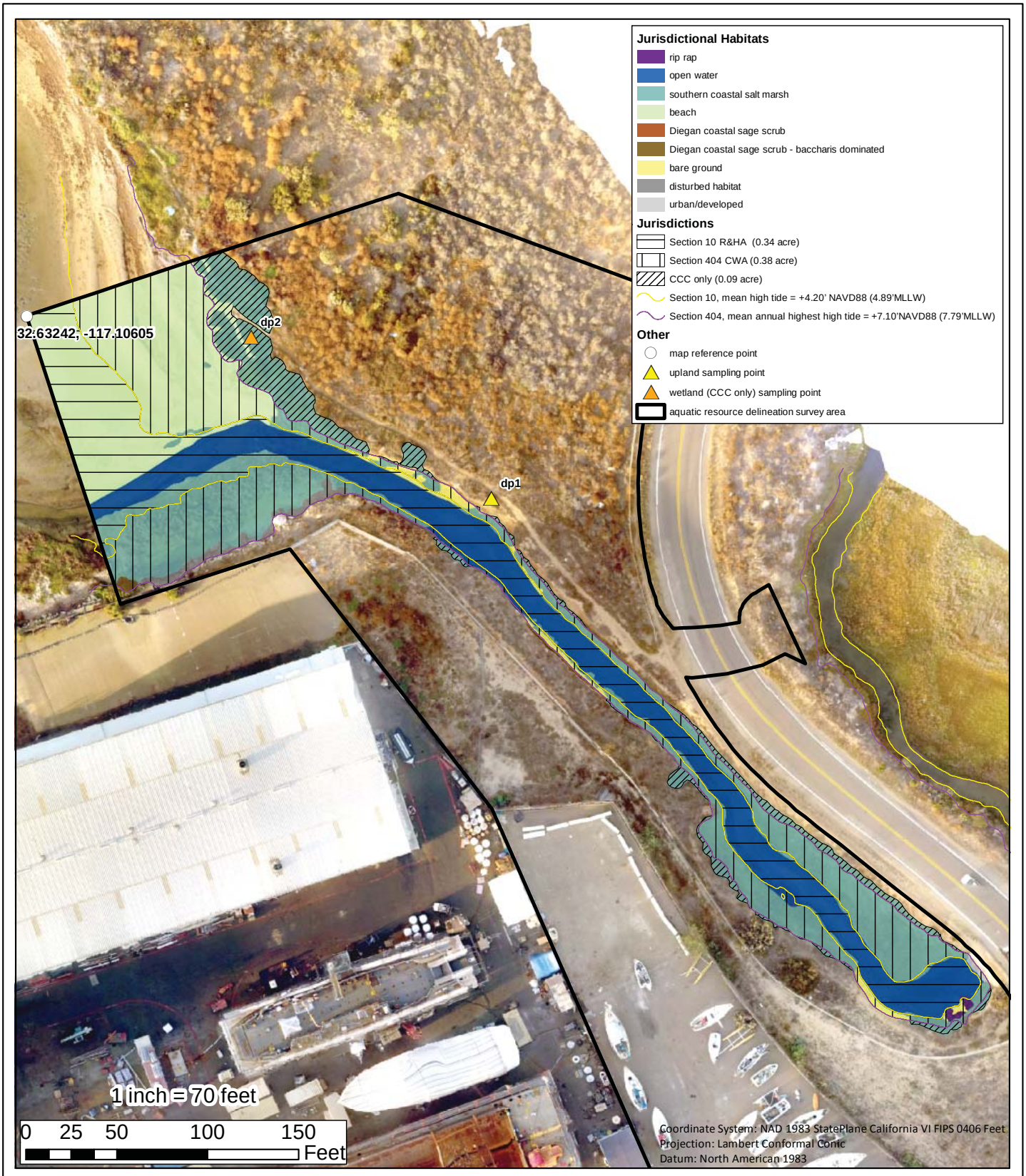
2 Also regulated by RWQCB and CCC due to hydrology indicators.

Table 4-3: Summary of Jurisdictional Resources within the Study Area

Vegetation Community	Existing Acreage (Onsite)			
	Section 10	Section 404	CCC Only	Total
Open water	0.21	0.01	0.00	0.22
Beach	0.10	0.13	<0.01	0.23
Southern coastal salt marsh	0.03	0.22	0.09	0.34
Bare ground	<0.01 (0.002)	0.01	0.00	0.01
Disturbed habitat	0.00	0.01	0.00	0.01
Urban/developed	0.00	0.001	0.00	<0.01
Urban/developed - riprap	<0.01 (0.0002)	<0.01 (0.001)	0.00	<0.01
Total:	**0.34**	**0.38**	**0.09**	**0.81**

Table 4-4: Summary of Wetland Determination Data Forms

Data Form	Wetland Determination Field Indicators			Stream Association	Determination	Jurisdiction
	Vegetation	Soils	Hydrology			
DP1	No	No	No	None	Upland	None
DP2	Yes	No	No	Tidal Adjacency	CCC wetland	CCC



Jurisdictional Resources Map

Chula Vista Bayfront Urban Greening Grant Project

Aerial Source: Merkel & Associates 2018 Created On: 3/29/2018

Merkel & Associates, Inc.

Figure 4-4: Jurisdictional Resources Map

San Diego Bay, a tidally influenced body of water, is defined as a jurisdictional, traditionally navigable WoUS. As a result, waters of the bay are regulated as navigable waters under Section 10 of the R&HA to the mean high water line, which in the project area is located at an elevation of +4.20 feet NAVD88 (+4.89 feet MLLW). In addition, for tidal traditionally navigable WoUS the regulatory limits in absence of the presence of wetlands extends to the high tide line. In tidal waters such as San Diego Bay this boundary is defined as the annual highest high tide omitting storm surge; within the Bay at the project site, this boundary is defined as +7.10 feet NAVD88 (+7.79 ft MLLW). This area (i.e., annual highest high tide) is regulated by the USACOE under Section 404 of the CWA and RWQCB under Section 401 of the CWA. The locations of these elevationally defined base regulatory boundaries are illustrated in Figure 4-4 and quantified in Table 4-3.

As described in Section 2.2.1 above, the BSA is bisected by a tidally influenced channel that flows eastward to offsite lands under Marina Parkway via pipe culverts. The channel bed is narrow, averaging approximately eight to ten feet wide with vertical eroding banks, narrow benches, and a maximum depth of approximately eight feet. Due to the erosive nature of the channel, there is generally a clear line of where the Section 10 and Section 404 boundary occur. Southern coastal salt marsh that occurs within these boundaries has been classified as USACOE wetland. No other vegetation communities are classified as USACOE wetland. Patches of southern coastal salt marsh do occur above the annual highest high tide, and this is where M&A conducted wetland data point evaluations as discussed in the below paragraphs.

Data Point 1 is located at the top of the bank between the dirt path and eroding bank. It is dominated by ripgut grass (UPL), Russian thistle (FACU), and garland (UPL), with an inclusion of crystalline iceplant (FACU) and alkali heath (FACW). Hydrophytic vegetation is not present (i.e., does not meet the Dominance Test). In addition, hydric soils are not present and wetland hydrology was not evident. Thus, this area was confirmed to be upland; classified as disturbed habitat.

Data Point 2 is located at the top of the bank but in an area dominated by hydrophytic vegetation, classified as southern coastal salt marsh. Specifically, the area is dominated by Australian saltbush (FAC) and estuary seablite (FACW), with an inclusion of saltgrass (FAC), alkali heath (FACW), and garland (UPL). Hydric soils are not present and wetland hydrology was not evident. Patches of southern coastal salt marsh that occur in similar locations, i.e., at the top of the bank and outside the annual highest high tide, have been classified as a CCC wetland only.

4.2.4.1 Functions and Values

The functions and values of the marine habitats within the BSA are low. The channel is eroding and as a result the marsh habitat is sparse and not well developed. The adjacent uplands within the BSA are disturbed in nature, dominated by non-native upland species, most notably garland. From the biological functions standpoint the marine habitats within the BSA are also not expected to provide substantial breeding or foraging habitat.

4.2.5 Wildlife Movement and Nursery Sites

Many species of wildlife move through the landscape during their daily and/or seasonal activities. Many resident and sedentary species move only short distances within their home ranges or territories. Others, such as migratory birds, may move great distances during the year. Larger mammalian predators often traverse extensive areas of the landscape over the course of their activities. Because predation is a key process in maintaining biodiversity, it is important to maintain connectivity between large core areas of preserved habitat (Soulé and Terborgh 1999). Corridors are often defined as linear habitats that differ from the extensive surrounding landscape in which they are embedded. But Soulé and Terborgh (1999) point out that this definition is vague and has multiple meanings. The key concept in regional conservation efforts is landscape connectivity. Core areas need to be connected. The more fragmented and isolated a patch of habitat becomes, the less value it has for regional conservation efforts.

The San Diego Bay is an important landscape for migratory avian species such as brant which forage in the shallow open waters of the Bay. Within the BSA, the erosive nature of the channel banks and limited native marsh habitats reduce the potential for the site to serve as a nursery site. The channel area provides limited continuity between the Bayfront and the F&G Street Marsh, however, the proposed work along this hydraulic connection is intended to strengthen the overall habitat connectivity functions of this strained connection.

CHAPTER 5

BIOLOGICAL IMPACT ANALYSIS

BIOLOGICAL IMPACT ANALYSIS

State CEQA Guidelines §15065 (a) (Title 14, Chapter 3, Article 5) states, "A project may have a significant effect on the environment" if:

- "The project has the potential to substantially degrade the quality of the environment; substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; substantially reduce the number or restrict the range of an endangered, rare or threatened species; or eliminate important examples of the major periods of California history or prehistory."
- "The project has possible environmental effects, which are individually limited but cumulatively considerable."

The following analysis identifies potential impacts to biological resources that could result from implementation of the proposed project, and addresses the significance of these impacts pursuant to CEQA, in accordance with the Issues listed under CEQA Guidelines Appendix G, Section IV.

5.1 IMPACT DEFINITIONS

Project impacts are categorized pursuant to CEQA as direct, indirect, or cumulative impacts.

- CEQA Guidelines §15358 (a) (1) and (b) (Title 14, Chapter 3, Article 20) defines a "direct impact or primary effect" as "effects, which are caused by the project and occur at the same time and place" and relate to a "physical change" in the environment.
- CEQA Guidelines §15358 (a) (2) and (b) (Title 14, Chapter 3, Article 20) defines an "indirect impact or secondary effect" as "effects, which are caused by the project and are later in time or farther removed in distance, but are still reasonably foreseeable" and relate to a "physical change" in the environment.
- CEQA Guidelines §15355 (Title 14, Chapter 3, Article 20) defines "cumulative impacts" as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts."

Direct, indirect, and cumulative impacts can be described as either permanent or temporary. Permanent impacts are generally defined as effects that would result in an irreversible loss of biological resources; temporary impacts can be defined as effects that could be restored, thus providing habitat and wildlife functions and values effectively equal to the functions and values that existed before the area was impacted.

5.2 MITIGATION DEFINITIONS

CEQA Guidelines §15370 (Title 14, Chapter 3, Article 20) defines "mitigation" as:

- "Avoiding the impact altogether by not taking a certain action or parts of an action."
- "Minimizing impacts by limiting the degree or magnitude of the action and its implementation."
- "Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment."
- "Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action."
- "Compensating for the impact by replacing or providing substitute resources or environments."

5.3 PROJECT IMPACTS, SIGNIFICANCE, AND RECOMMENDED MITIGATION

Potential project impacts were evaluated based on examination of the proposed project within the context of the biological resources documented during the field survey and those biological resources assessed as having a likely potential to occur in the project area. Direct impacts were determined by overlaying the project plans on the mapped vegetation communities/habitats in GIS ESRI software platforms. Indirect impacts were determined based on the design, intended use, and location of the proposed project elements relative to biological resources.

5.3.1 Habitats/Vegetation Communities

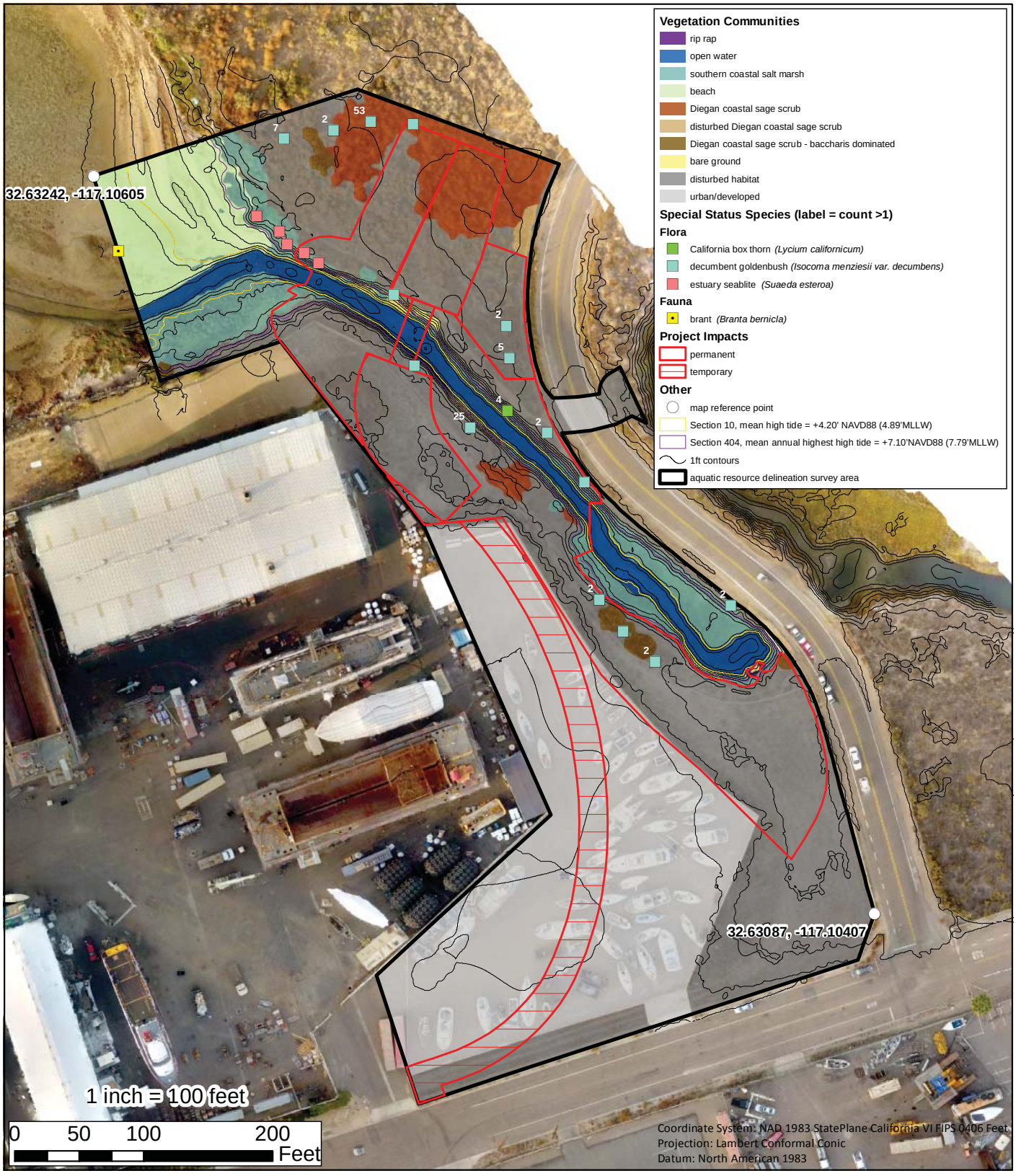
Implementation of the proposed project would result in permanent and temporary direct impacts (Table 5-1; Figure 5-1). Implementation of the bridge would result in permanent impacts to Diegan coastal sage scrub and disturbed habitat. The bridge would not result in placement of fill or dredged material within wetland or jurisdictional resources (discussed in the below section); however, for purposes of this analysis, we have assumed that the shading generated as a result of the new structure would be classified as a permanent impact. Temporary impacts to upland communities would occur from temporary construction access needs.

The project is also proposing channel enhancement via slope layback and removal/excavation of existing concrete rubble/debris from the channel bed and development of marsh benches along the channel length to improve habitat connectivity. Implementation of the channel enhancement would result in a no-net-loss of habitat acreage and would increase the width of the channel bed. However, some patches of existing coastal salt marsh would be lost due to the channel enhancement and would not be restored within the same location within the BSA (i.e., not returned to exact location). As a result of the relocation and lack of final design detail, impacts to the coastal salt marsh are assumed to be permanent for impact and mitigation calculation. Inclusive as part of the proposed channel enhancement is removal and relocation of Outfall No. CV1-2. The project proposes to remove the outfall and associated riprap from the existing channel bed and to relocate the outfall and associated features (i.e., energy dissipater and associated work area for future maintenance) to disturbed upland habitat.

Table 5-1: Habitats/Vegetation Communities, Impacts, and Mitigation

Vegetation Community	Project Impact (acres)			Mitigation Ratio (Perm./Temp.)	Mitigation Required
	Perm.	Temp.	Total		
Open water (ACOE water)	0.00	0.10	0.10	1:1	0.10
Beach (ACOE water)	0.00	0.00	0.00	NA	0.00
Southern coastal salt marsh (ACOE wetland)	0.05	0.00	0.05	4:1	0.20
Southern coastal salt marsh (CCC only wetland)	0.02	0.00	0.02	4:1[1]	0.08
Bare ground (ACOE water)	0.00	0.01	0.01	1:1	0.01
Urban/developed – riprap (ACOE water)	0.00	0.00	0.00	None	0.00
Jurisdictional Resources Subtotal:	**0.18**	**0.00**	**0.18**		**0.39**
Diegan coastal sage scrub	0.12	0.00	0.12	3:1	0.36
Diegan coastal sage scrub – baccharis dominated	0.02	0.00	0.02	3:1	0.06
Diegan coastal sage scrub - disturbed	0.00	0.00	0.00	3:1	0.00
Bare ground	0.01	0.00	0.01	None	0.00
Disturbed Habitat	1.13	0.03	1.16	None	0.00
Urban/developed	0.02	0.24	0.26	None	0.00
Upland Resources Subtotal:	**1.30**	**0.27**	**1.57**		**0.42**
Grand Total:	**1.48**	**0.27**	**1.75**		**0.81**

[1] Of the total impact to southern coastal salt marsh CCC only wetland, 0.0008 acres of impact would result from bridge shading. Per CVBMP MMRP Mitigation Measure 4.8-14, the mitigation ratio for impacts to CCC wetland as a result of bridge shading would be 2:1; however, MMRP Mitigation Measure . Due to rounding, the total mitigation requirement would continue to round up to 0.08 acres.



Project Impacts Map

Chula Vista Bayfront Urban Greening Grant Project

Aerial Source: Merkel & Associates 2018

Created On: 3/29/2018

Merkel & Associates, Inc.

Figure 5-1: Project Impacts Map

Impacts to southern coastal salt marsh and Diegan coastal sage scrub are significant per the CVBMP MMRP and would require mitigation at a 4:1 and a 3:1 ratio, respectively. Thus, implementation of habitat-based mitigation in accordance with Table 5-1 and as bulleted below would be required to reduce impacts to a level below significance and ensure consistency with the CVBMP MMRP. Mitigation ratios listed in Table 5-1 are defined by the controlling documents discussed within Section 1.5.3 of this report. Impacts to bare ground, disturbed habitat, or urban/developed lands would be considered less than significant since these habitats are not regionally considered to have high conservation value requiring mitigation. This is consistent with guidance provided by the CVBMP MMRP. To offset habitat impacts, mitigation by habitat replacement is to be completed in accordance with Biological Mitigation Measure 1 (BIO-1). With the implementation of mitigation measure BIO-1 impacts to sensitive habitats would be mitigated to a less than significant level.

BIO-1: Corresponds to CVB MM#4.8-10, 4.8-12, 4.8-14, 4.8-21, and Development Policy 2.5:

> Mitigation of impacts to regionally and local sensitive habitats within the proposed project site includes the retention of at least an equivalent area of open water channel as impacted on the site, compensatory mitigation of southern coastal salt marsh, and Diegan coastal sage scrub habitat at increased area-based ratios (Table 5-1). The mitigation ratios presented in Table 5-1 are defined by the controlling documents for the CVBMP but subject to review by the resource and regulatory agencies and mitigation needs are to be determined by ratio based scaling from the actual project impacts based on final design and engineering. The extent of impacts identified in Table 5-1 is the worst case scenario for the project work. Mitigation for impacts are proposed to occur via onsite establishment and restoration of southern coastal salt marsh, rehabilitation of channel bed (e.g., open water), and establishment of maritime succulent scrub to compensate for impacts to Diegan coastal sage scrub. Mitigation would require preparation of a conceptual compensatory mitigation and monitoring plan, preparation of a long-term resource management plan, recordation of an open space easement, identification of a resource manager, and establishment of a funding mechanism to ensure annual ongoing basic stewardship.

Refer to Section 4.0 of this report for the conceptual mitigation plan governing habitat mitigation.

BIO-2: Corresponds to CVB MM4.8-6:

> During construction, impacts to regionally sensitive habitats adjacent to the project limit of work may occur if not effectively controlled through project design and construction monitoring and management actions. To mitigate impacts to adjacent habitats, the following construction-period impact control measures are recommended:
>
> A) Lighting: Temporary night lighting during construction, if required should be downcast/fully shielded and directed away from adjacent native habitat.
>
> B) Invasive: Best Management Practices (BMPs) proposed for the project should not include any species listed by the California Invasive Plant Council (Cal-IPC) in the California Invasive Plant Inventory.
>
> C) Toxic Substances and Drainage: A Stormwater Pollution Prevention Plan or similar, as applicable for the project should be prepared and BMPs implemented to control erosion and export of sediment.
>
> D) Access: Prior to the start of clearing and grubbing of habitat, temporary fencing (e.g., orange silt fence, orange snow fence, etc.) should be installed along the perimeter of the project footprint to prevent inadvertent disturbance to adjacent biological resources. Installation of perimeter fencing may require removal of vegetation using hand-held equipment and should not impede creek flows. Temporary fencing should be installed and maintained by the Contractor. A qualified biologist should be retained and perform the following duties: 1) inspect and oversee installation of the temporary fencing; 2) be onsite fulltime during the initial clearing and grubbing of habitat; 3) conduct weekly inspections thereafter during grading operations and modified as necessary to ensure compliance with the project biological requirements; and 4) provide environmental training for contractors and construction personnel prior to the start of construction work, training should be repeated if gaps of more than 30 days in construction operations were required, and annually provided thereafter (if necessary).

Indirect impacts were determined based on the design, intended use, and location of the proposed project elements relative to biological resources. The project proposes to allow passive recreational use across the bridge and associated pathway, which if not limited to the designated pathway could result in unauthorized encroachment into the adjacent habitats. The project includes barriers to prevent unauthorized encroachment into the adjacent habitats and the project proposes to enhance areas not permanently converted to urban use. Thus, project construction is not expected to result in additional indirect impacts to vegetation communities beyond those addressed under the initial CVBMP FEIR.

5.3.2 Special Status Species

Construction activities associated with channel enhancement would result in permanent, direct impacts to four California box thorn, five estuary seablite, and 43 decumbent goldenbush. Records for all species occur along the coastal habitats of San Diego County (Calflora 2018). In addition, the 2015 report identifies approximately 10 box thorn and 85 estuary seablite within the local area. The loss of less than a dozen California box thorn and estuary seablite is not expected to adversely affect the local populations of these species and thus would not be considered significant. In addition, the loss of 43 decumbent goldenbush is not expected to adversely affect the local population. However, as part of the onsite mitigation program, all species would be included in the planting palette.

The light-footed Ridgway's rail has a low potential to occur within the onsite southern coastal salt marsh and would not be expected to visit the area for any purpose other than transiting between marshes or foraging. In accordance with the CVB MMRP, the below mitigation measure would be required to reduce the potential impact (albeit low) to less than significant. With the implementation of mitigation measure BIO-3 potential impacts to light-footed Ridgway's rail would be less than significant level.

BIO-3: Corresponds to CVB MM4.8-4:

> Prior to construction or grading in any areas of suitable foraging habitat for light-footed Ridgway's rail, and, regardless of the time of year, the project developer(s) should retain a qualified biologist who should be approved by the Port, as appropriate, and should be present during removal of southern coastal salt marsh vegetation within the inlet to the F&G Street Marsh to ensure that there are no direct impacts to foraging rails. If a rail is encountered, construction would be temporarily halted until the bird leaves the area of construction. A bio-monitor should be present on-site during initial grubbing and clearing of vegetation to ensure that perimeter construction fencing is properly installed and maintained and they should perform periodic inspections of the construction site during all major grading to ensure that impacts to sensitive plants and wildlife are minimized (refer to BIO-2). The bio-monitor should send a monthly monitoring letter report to the Port detailing observations made during field inspections. The bio-monitor should also notify the Port immediately if clearing is done outside of the permitted project footprint. The project developer(s) should coordinate with the USFWS prior to impacting any areas of suitable foraging habitat for rails.

No other special status species are expected to have a moderate or high potential to occur onsite.

Indirect impacts were determined based on the design, intended use, and location of the proposed project elements relative to biological resources. The project is not proposing permanent lighting nor is the project proposing extended features on the bridge that could be utilized as perching posts for raptors. The bridge itself could be utilized by raptors (albeit low potential); however, the intended use of the bridge is primarily for pedestrian/bicycle traffic; thus, if perched, the recreational use of the bridge would deter prolonged perch use. Thus, project construction is not expected to result in indirect impacts to special status species.

5.3.3 Jurisdictional Resources

Construction activities would result in permanent and temporary, direct impacts to jurisdictional resources (Table 5-1, Figure 5-1). Impacts to jurisdictional resources are significant and would require implementation of the mitigation measure discussed in the above section and Mitigation Measure BIO-1 and BIO-2, as well as fulfilling the requirements of Mitigation Measure BIO-4 confirming federal and state approvals. With the implementation of mitigation measures BIO-1, BIO-2, and BIO-4, potential impacts to jurisdictional resources would be mitigated to a less than significant level.

BIO-4: Corresponds to CVB MM4.8-21A and MM4.8-12C:

> Impacts to jurisdictional resources listed in Table 5-1 require acquisition of the following permits and approvals, or demonstration to the Port Development Services Director that such approvals are not required:
>
> A) A R&HA Section 10 for work in traditionally navigable waters of the U.S.,
>
> B) A CWA Section 404 for discharge of dredged or fill material within waters of the U.S.,
>
> C) A CWA Section 401 state water quality certification for an action that may result in degradation of waters of the State, and
>
> D) A CDP issued by the District.

5.3.4 Wildlife Movement and Nursery Sites

Implementation of the project is not expected to interfere with connectivity to offsite habitat (F&G Street Marsh or San Diego Bay) or adversely affect the local long-term survival of resident or migratory wildlife species.

5.3.5 Policies and Ordinances

The following federal/state laws/regulations and local ordinances are applicable to the proposed project, and are evaluated below for consistency purposes.

5.3.5.1 Federal Migratory Bird Treaty Act and California Fish and Game Code

Nesting birds may be present within the project footprint during construction and could include such species as Anna's hummingbird. Impacts to active migratory bird nests, if present at the time of construction are prohibited under the federal MBTA and California FGC §3503 and §3513. Since avian species could potentially nest in the onsite habitats, the proposed project could result in impacts to active bird and/or raptor nests, if present at the time of construction under the federal MBTA and California FGC §3503 and §3513; therefore, the project Mitigation Measure BIO-5 listed below is required. With the implementation of mitigation measure BIO-5, potential impacts to nesting birds would be mitigated to a less than significant level.

BIO-5: Corresponds to CVBMP MMRP 4.8-3:

> If grading or construction occurs during the breeding season for migratory birds (January 15 through August 31), the project developer(s) should retain a qualified biologist, approved by the Port, to conduct a pre-construction survey for nesting migratory birds. The pre-construction survey must be conducted no more than 10 calendar days prior to the start of construction, the results of which must be submitted to the Port, for review and approval. If active nests are present, the Port would coordinate with USFWS and CDFW to determine the appropriate construction setback distance. Construction setbacks should be implemented until the young are completely independent of the nest or relocated with the approval of the USFWS and CDFW. A bio-monitor should be present on-site during initial grubbing and clearing of vegetation to ensure that perimeter construction fencing is properly installed and maintained and they should perform periodic inspections of the construction site during all major grading to ensure that impacts to sensitive plants and wildlife are minimized (refer to BIO-2). The bio-monitor should send a monthly monitoring letter report to the Port detailing observations made during field inspections. The bio-monitor should also notify the Port immediately if clearing is done outside of the permitted project footprint.

The proposed work area is adjacent to the Marine Group Boatyard and nearby Rohr industrial area that generate considerable noise from adjacent upland environments. However, portions of the work are near existing coastal salt marsh habitats that support intermittent to permanent use by noise sensitive wildlife species that may be affected by elevated levels of construction noise. In following the standards of the CVBMP MMRP, Mitigation Measure BIO-6 should be adopted to minimize potential noise impacts to sensitive species. With the implementation of mitigation measure BIO-6, impacts of noise on wildlife would be mitigated to a level below significance.

BIO-6: Corresponds to CVBMP MMRP 4.8-6:

> A. Construction-related noise. Construction-related noise should be limited adjacent to the Sweetwater Marsh and South San Diego Bay Units of the San Diego Bay National Wildlife Refuge, F&G Street Marsh, the mudflats west of the Sweetwater District, and the J Street Marsh during the general avian breeding season of January 15 to August 31. During the avian breeding season, noise levels from construction activities must not exceed 60 dB(A) Leq., or ambient noise levels if higher than 60 dB(A). The project developer(s) should prepare and submit to the Port for review and approval an acoustical analysis and nesting bird survey to demonstrate that the 60 dB(A) Leq. Noise level is maintained at the location of any active nest within the marsh. If noise attenuation measures or modifications to construction activities are unable to reduce the noise level below 60 dB(A), either the developer(s) must immediately consult with the USFWS to develop a noise attenuation plan or construction in the affected areas must cease until the end of the breeding season. Because potential construction noise levels above 60 dB(A) Leq have been identified at the F&G Street Marsh, specific noise attenuation measures have been identified and are addressed in Section 4.7 of the EIR.

5.3.5.2 Chula Vista Bayfront Master Plan, Mitigation Monitoring and Reporting Program

Implementation of the mitigation measures listed within the above sections would ensure consistency with the CVBMP MMRP. The below tables have been prepared to ensure that the results of the current biological investigation and impact analysis comply with all applicable development policies identified in the CVB Development Policies and MMRP, respectively.

Table 5-2: Consistency Evaluation with the Chula Vista Bayfront Development Policies

Policy Number	Policy Text	Consistency
2.1	The biological productivity and the quality of wetlands shall be protected and, where feasible, restored.	Consistent – The project includes channel enhancement.
2.2	Wetlands shall be defined and delineated consistent with the Coastal Act and the Coastal Commission Regulations, and shall include, but not be limited to, lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens. Any unmapped areas that meet these criteria are wetlands and shall be accorded all of the protections provided for wetlands in the PMP. Wetlands shall be further 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.	Consistent – The wetland delineation conducted for this report complies; refer to Section 1.4.2 of this report for survey methods and Section 2.2.4 for survey results.
2.3	Where the required initial site inventory indicates the presence or potential for wetland species or other wetland indicators, the District shall require the submittal of a detailed biological study of the site, with the addition of a delineation of all wetland areas on the project site. Wetland delineations shall be based on the definitions contained in Section 13577(b) of Title 14 of the California Code of Regulations.	Consistent – This report is in compliance with the policy; refer to Section 1.4.2 (CCC subheading) of this report for survey methods and Section 2.2.4 for survey results.
2.4	a) The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this Plan, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following: (1) New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities. (2) Maintaining existing, or restoring previously dredged, depths in existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps. (3) In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities. (4) Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines. (5) Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas. (6) Restoration purposes. (7) Nature study, aquaculture, or similar resource dependent activities.	Consistent -The project would result in filling and excavation of coastal waters of the U.S., USACOE wetlands, and CCC wetlands as a result of channel enhancement and onsite compensatory mitigation.
2.5	Where wetland fill or development impacts are permitted in wetlands in accordance with the Coastal Act and any applicable PMP policies, mitigation measures shall include creation of wetlands of the same type lost. Adverse impacts will be mitigated at a ratio of 4:1 for all types of wetland, and 3:1 for non-wetland riparian areas. Replacement of wetlands on-site or adjacent to the project site, within the same wetland system, shall be given preference over replacement off-site or within a different system. Areas subjected to temporary wetland impacts shall be restored to the pre-project condition at a 1:1 ratio. Temporary impacts are disturbances that last less than 12 months and do not result in the physical disruption of the ground surface, death of significant vegetation within the development footprint, or negative alterations to wetland hydrology.	Consistent – All impacts to southern coastal salt marsh are classified as permanent and a 4:1 mitigation ratio has been applied. Impacts to other the remaining jurisdictional resources consisting of waters of the U.S. are habitat enhancement impacts and will be mitigated at a no-net loss standard of a 1:1 ratio within the widened and deepened channel.
2.6	Wherever wetlands are identified, a buffer of at least 100 feet in width from the upland edge of wetlands and at least 50 feet in width from the upland edge of riparian habitat shall be established. In some unusual cases, smaller buffers may be appropriate, when conditions of the site as demonstrated in a site specific biological survey, the nature of the proposed development, etc. show that a smaller buffer would provide adequate protection. In such cases, the California Department of Fish and Game (CDFG) must be consulted and agree that a reduced buffer is appropriate and the District, or Commission on appeal, must find that the development could not be feasibly constructed without a reduced buffer. However, in no case shall the buffer be less than 50 feet.	Not applicable
5.2	Prohibit active recreation, construction of any road (whether paved or not), within No	Consistent – the proposed bridge is located

Table 5-2 Continued

Policy Number	Policy Text	Consistency
	Touch Buffer Areas and "Transition Buffer Areas" as that term is defined and described in Exhibit 2, with the exception of existing or necessary access points for required maintenance.	outside the established buffers.
5.3	Protect the No Touch Buffer Areas from the impacts of the Chula Vista Bayfront project including, without limitation, fencing necessary to protect the Sweetwater Marsh and the Sweetwater parcel tidal flats, the J Street Marsh next to the San Diego Bay National Wildlife Refuge, and the north side of Parcel H-3.	Not Applicable
5.4	Include additional controls and strategies restricting movement of humans and Predators into sensitive areas beyond the boundaries of the designated Buffer Areas.	Consistent – the proposed bridge includes open fencing to prevent unauthorized access by path users into the adjacent habitats while still allow wildlife movement.
5.9	"Environmentally sensitive habitat area" (ESHA) means 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. The following areas shall be considered ESHA, unless there is compelling site-specific evidence to the contrary: • Any habitat area that is rare or especially valuable from a local, regional, or statewide basis. • Areas that contribute to the viability of plant or animal species designated as rare, threatened, or endangered under State or Federal law. • Areas that contribute to the viability of species designated as Fully Protected or Species of Special Concern under State law or regulations. • Areas that contribute to the viability of plant species for which there is compelling evidence of rarity, for example, those designated by the California Native Plant Society (CNPS) as 1b (Rare or endangered in California and elsewhere), such as Nuttall's scrub oak or "2" (rare, threatened or endangered in California but more common elsewhere), such as wart-stemmed Ceanothus.	Consistent – the southern coastal salt marsh communities have been classified as sensitive vegetation communities and are considered to be ESHA. The Diegan coastal sage scrub present on site has been considered for its potential ESHA status, but is not considered to be ESHA due to its fragmented nature, absence of adequate continuity to contribute to the viability of plant and animal populations considered to be rare, threatened or endangered and the lack of support for species designated as fully protected. Future restored buffer habitats in the Bayfront are anticipated to expand the upland habitat function and may result in development of future upland scrub habitat ESHA.
5.10	New development shall be sited and designed to avoid impacts to ESHA. ESHA shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas. Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of	Consistent – the proposed bridge has been designed to avoid/span the ESHA. However, other activities to flatten channel grades, expand coastal salt marsh benches, improve habitat continuity and accommodate sea level rise in the wetland enhancements do result in direct
	those habitat and recreation areas. These uses include enhancement/restoration work, passive recreational parks and public access or recreational facilities such as trails and bike paths integrated into the natural environment and sited and designed to preserve, and be compatible with, native habitat.	impacts to ESHA. These impacts are necessarily located in areas of ESHA as the enhancement seeks to improve conditions of the tidally influenced waters supporting ESHA, albeit degraded and fragmented in current form. The activities contemplated within the project are consistent with adjacency to ESHA resources.
5.12	In the 1-g parcel area, a pedestrian bridge is proposed to create a linkage over a tidal inlet associated with the F & G Street Marsh. Tidal habitats should be treated as ESHA and the bridge crossing must be designed to enhance the habitat values present and reduce erosion. This bridge span must be extended and the existing incised channel slope should be cut back, reducing the slope and then creating additional salt marsh habitat on the created floodplain. Site-specific studies to assess the extent and quality of natural resources at the site will be required at the time development is proposed.	Consistent – the tidal habitats are classified as jurisdictional resources and the project includes channel enhancement to reduce erosion; all areas would be replanted with native species. This report serves as the site specific study. The bridge crossing is of a free-span design with abutments outside of ESHA. All work in the wetlands is considered compatible with ESHA.
5.13	If located in or adjacent to ESHA, new development shall include an inventory conducted by a qualified biologist of the plant and animal species present on the project site. If the initial inventory indicates the presence or potential for sensitive species or habitat on the project site, a detailed biological study shall be required. Sensitive species are those listed in any of three categories: federally listed, state listed or designated species of special concern or fully protected species, and CNPS categories 1B and 2.	Consistent – The 2015 Dudek report prepared for the project area as well as this current report fulfill this requirement.
5.14	Development adjacent to ESHAs shall minimize impacts to habitat values or sensitive species to the maximum extent feasible. Native vegetation buffer areas shall be provided around ESHAs to serve as transitional habitat and provide distance and physical barriers to human intrusion. Buffers shall be of a sufficient size to ensure the biological integrity and preservation of the ESHA they are designed to protect	Consistent – the bridge has been designed to avoid fill and/or placement of dredged material into jurisdictional resources. Slopes and upland restoration planting will further buffer ESHA from disturbance.
5.15	All buffers around (non-wetland) ESHA shall be a minimum of 100 feet in width, or a lesser width may be approved by the District if findings are made that a lesser buffer would adequately protect the resource. However, in no case can the buffer size be reduced to less than 50 feet.	Consistent – there are no designated non-wetland ESHA resources (similar to Policy 5.2).
5.16	Public access-ways and trails are considered resource dependent uses. New access-	Consistent – fencing is proposed as part of the

Table 5-2 Continued

Policy Number	Policy Text	Consistency
	ways and trails located within or adjacent to ESHA shall be sited to minimize impacts to ESHA to the maximum extent feasible. Measures including, but not limited to, signage, placement of boardwalks, and limited fencing shall be implemented as necessary to protect ESHA.	bridge to prevent users from leaving the path. Upland habitat mitigation is also to be developed through final design to integrate additional buffer planting characteristics to assist in controlling off-trail activities within buffers or ESHA environments.
5.17	Modifications to required development standards that are not related to ESHA protection (street setbacks, height limits, etc.) shall be permitted where necessary to avoid or minimize impacts to ESHA.	Not applicable.
5.18	Protection of ESHA and public access shall take priority over other development standards and where there is any conflict between general development standards and ESHA and/or public access protection, the standards that are most protective of ESHA and public access shall have precedence.	Not Applicable
5.19	Impacts to native habitat that does not constitute ESHA that cannot be avoided through the implementation of siting and design alternatives shall be fully mitigated, with priority given to on-site mitigation. Off-site mitigation measures shall only be approved when it is not feasible to fully mitigate impacts on-site or where off-site mitigation is more protective. Mitigation for impacts to native habitat shall be provided at a 3:1 ratio.	Consistent – the project would mitigate non-ESHA sage scrub habitat at a 3:1 ratio.
11.1	Walkways, paths, and overlooks near Wildlife Habitat Areas outside of the No Touch Buffer Areas will be designed in accordance with the following: a) Alignment, design, and general construction plans of walkways and overlooks will be developed to minimize potential impacts to Wildlife Habitat Areas. b) Path routes will be sited with appropriate setbacks from Wildlife Habitat Areas. c) Paths running parallel to shore or marsh areas that will cause or contribute to birdflushing will be minimized throughout the Chula Vista Bayfront. d) Walkways and overlooks will be designed to minimize and eliminate, where possible, perching opportunities for raptors and shelter for skunks, opossums or other Predators. e) Walkways and overlooks that approach sensitive areas must be blinded, raised, or otherwise screened so that birds are not flushed or frightened. In general, walkway and overlook designs will minimize visual impacts on the Wildlife Habitat Areas of people on the walkways.	Consistent – impacts associated with the bridge have been minimized to the maximum extent practicable (only impact would result from shading). The bridge is expected to be high enough over the channel bottom to prevent establishment of urban adapted predators and the bridge is expected to be set back enough from the open water of the Bay (where most shore birds and waterfowl would forage) to avoid regular nuisance to resting and/or foraging wildlife.
20.3	Create a meandering pedestrian trail constructed of natural material that is easily maintained and intenwoven throughout the Signature Park. Create, as part of the E Street Extension, a pedestrian pathway/bridge to provide a safe route for pedestrians to walk and to transition from the Sweetwater District to the Harbor Park Shoreline Promenade and park in the Harbor District.	Consistent – the proposed bridge fulfills the policy requirement. Relocation of the bridge away from E Street Extension (Marina Parkway) reduces the required scale of impact to ESHA by locating the bridge over a portion of deeply incised channel that supports little marsh habitat (approximately 64 square feet) compared to the initially analyzed roadway adjacent bridge trail that would extend salt marsh impacts along the roadside margin for a length of approximately 260 linear feet with a variable width of impact.

Table 5-3 Consistency Evaluation with the Chula Vista Bayfront MMRP

MM Number	Summary of Significant Impact	MM Text	Consistency
4.8	*Terrestrial Biological Resources*		
4.8-1	Impacts to nesting raptors	Not Applicable	Not Applicable - No potential for raptors to nest within the project area. Discussed in Sections 2.2.3.2 and 2.25 of this report.
4.8-2	Impacts to western burrowing owl	Not Applicable	Not Applicable - No potential for burrowing owl to occur within the project area. Discussed in Section 2.2.3.2 of this report.
4.8-3	Impacts to nesting birds protected by the MBTA	If grading or construction occurs during the breeding season for migratory birds (January 15 through August 31), the project developer(s) shall retain a qualified biologist, approved by the Port/City (depending on the jurisdiction), to conduct a pre-construction survey for nesting migratory birds. The pre-construction survey must be conducted no more than 10 calendar days prior to the start of construction, the results of which must be submitted to the Port or City, as	Consistent – Implementation of BIO-5, as included in this report would ensure consistency with MM 4.8-3.

Table 5-3 Continued

MM Number	Summary of Significant Impact	MM Text	Consistency
		appropriate, for review and approval. If active nests are present, the Port will consult with USFWS and CDFG to determine the appropriate construction setback distance. Construction setbacks shall be implemented until the young are completely independent of the nest, or, relocated with the approval of the USFWS and CDFG. A bio-monitor shall be present on site during initial grubbing and clearing of vegetation to ensure that perimeter construction fencing is being maintained. A bio-monitor shall also perform periodic inspections of the construction site during all major grading to ensure that impacts to sensitive plants and wildlife are minimized. Depending on the sensitivity of the resources, the City and/or Port shall define the frequency of field inspections. The bio-monitor shall send a monthly monitoring letter report to the City and/or Port detailing observations made during field inspections. The bio-monitor shall also notify the City and/or Port immediately if clearing is done outside of the permitted project footprint.	
4.8-4	Impacts to the light-footed clapper rail and loss of raptor foraging habitat at the inlet of the F&G Street Marsh as a result of the construction of the extension of E Street and development of Sweetwater Park.	Prior to construction or grading in any areas of suitable nesting or foraging habitat for light-footed and, regardless of the time of year, the project developer(s) shall retain a qualified biologist who shall be approved by the Port or City, as appropriate, and shall be present during removal of southern coastal salt marsh vegetation within the inlet to the F & G Street Marsh to ensure that there are no direct impacts to foraging light-footed clapper rails. If a light-footed clapper rail is encountered, construction will be	Consistent – Implementation of BIO-3, as included in this report would ensure consistency with MM 4.8-4.
		temporarily halted until the bird leaves the area of construction. A bio-monitor shall be present on site during initial grubbing and clearing of vegetation to ensure that perimeter construction fencing is being maintained. A bio-monitor shall also perform periodic inspections of the construction site during all major grading to ensure that impacts to sensitive plants and wildlife are minimized. Depending on the sensitivity of the resources, the City and/or Port shall define the frequency of field inspections. The bio-monitor shall send a monthly monitoring letter report to the City and/or Port detailing observations made during field inspections. The bio-monitor shall also notify the City and/or Port immediately if clearing is done outside of the permitted project footprint. The project developer(s) shall consult with the U.S. Fish and Wildlife Service prior to impacting any areas of suitable nesting or foraging habitat for light-footed clapper rail so as not to prevent any unauthorized take of the light-footed clapper rail. Any take must be authorized by U.S. Fish and Wildlife Service.	
4.8-5	Impact to MSCP-covered species within the City's jurisdiction	Not Applicable	Not Applicable
4.8-6	Potential impact to special status species present in the F&G Street Marsh and Sweetwater Marsh National Wildlife Refuge as a result of construction adjacent to these locations.	A. Construction-related noise (full measure not included) B. Perching of raptors (NA) C. Raptor management and monitoring (NA) D. Lighting (full measure not included) E. Noise (same as 4.8-6A. Construction-related Noise) F. Invasives (full measure not included)	Consistent – Implementation of BIO-6, as included in this report would ensure consistency with MM 4.8-6 construction related noise. BIO-2 is included in this report to offset potential impacts to natural resources located adjacent to the project area and is consistent, as applicable with MM 4.8-6. Specifically, lighting is not

Table 5-3 Continued

MM Number	Summary of Significant Impact	MM Text	Consistency
		G. Toxic Substances and Drainage (full measure not included) H. Public Access (NA) I. Boating Impacts (NA)	proposed; however, in the event temporary lighting is necessary during construction, implementation of BIO-2A, as included in this report would ensure consistency with MM 4.8-6 lighting requirements. Implementation of BIO-2B, as included in this report would ensure consistency with MM 4.8-6 construction-period invasive species requirements (e.g, prohibit use of invasive species). Implementation of BIO-2C, as included in this report would ensure consistency with MM 4.8-6 BMPs (e.g., reduce the potential for impact as a result of release of toxins, chemicals, etc.) that might harm the natural environment. Access areas outside the project footprint are prohibited. Implementation of BIO-2D, as included in this report would ensure consistency with MM 4.8-6 public access (e.g., requirements to install and maintain fencing, oversight by a biologist, requirement for inspections, and pre-construction training for construction personnel). The project does not propose to install trees or other potential raptor perch sites. Section 4 of this report is included to offset significant impacts to jurisdictional and upland habitats via onsite establishment and rehabilitation. The planting palette does not include invasive species or trees.
4.8-7	No significant impact identified; measure provided as further mitigation to reduce potential indirect impacts to biological resources.	Natural Resources Management Plan (full measure not included)	Consistent – The project has been designed to be consistent with the NRMP and Settlement Agreement; consistency is detailed below (the below headings are consistent with those in the Settlement Agreement).
			No-touch Buffer: Consistent – The bridge and associated trail system has been designed to avoid the No-touch buffer. This includes placement of the trail outside of the buffer limits and includes fencing to prevent unauthorized access by path users into the adjacent habitats while still allowing for wildlife movement. Walkway and Path Design: Consistent - The bridge and associated trail system has been placed outside the No-touch buffer and set back enough from the open water of the Bay (where most shore birds and waterfowl would forage) to avoid regular nuisance to resting and/or foraging wildlife. Predator Management: Consistent – The bridge is expected to be high enough over the channel bottom to prevent establishment of urban adapted predators. Additional Habitat Management and Protection: Not Applicable Bird Strikes and Bird Disorientation: Not Applicable Storm Water and Urban Runoff Quality: Not Applicable Landscaping and Vegetation: Consistent – Implementation of the conceptual mitigation plan, included in Section 4 of this report would

Table 5-3 Continued

MM Number	Summary of Significant Impact	MM Text	Consistency
			ensure consistency with landscape and vegetation requirements. The conceptual mitigation plan does not include invasive species or trees. Lighting and Illumination: Consistent – Not Applicable, no permanent lighting proposed. Noise: Consistent – Implementation of BIO-6, as included in this report would ensure consistency with construction-related noise. Education: Not Applicable Boating Impacts: Not Applicable Restoration Priorities: Consistent – The proposed project includes removal of concrete debris/riprap from the channel bed as well as slope layback to prevent further erosion and to promote establishment of native marsh habitat (transitioning to native upland habitat). Sweetwater and Otay District Public Park Requirements: Consistent – The proposed project consists of a span bridge to serve as an over water connection for the Sweetwater Park Path. Phase I Signature Park Improvements: Not Applicable Hazardous Waste Removal Standards: Implementation of BIO-2C, as included in this report would ensure consistency with BMP requirements (e.g., reduce the potential for impact as a result of release of toxins, chemicals, etc.) to prevent harm to the natural environment. H-3 Densities: Not Applicable Creation of the South Bay Wildlife Advisory Group: Not Applicable Dispute Resolution: Not Applicable Bayfront Cultural and Design Committee for Project Located in Port District Lands: Not Applicable Port Master Plan Amendment: Not Applicable Energy: Not Applicable Housing Impacts: Not Applicable The Coalition's Undertakings: Not Applicable Identification of Grants: Not Applicable No Limitation on the District's, City's or RDA's Discretion: Not Applicable The District's, City's and RDA's Undertakings: Not Applicable Reservation of Discretion: Not Applicable

Table 5-3 Continued

MM Number	Summary of Significant Impact	MM Text	Consistency
			Job Quality: Not Applicable Miscellaneous: Not Applicable
4.8-8	Construction of H Street Pier	Not Applicable	Not Applicable
4.8-9	Impacts associated with reconfiguration of the marinas or for dredging and filling of the navigation channels.	Not Applicable	Not Applicable
4.8-10	Impacts to disturbed coastal sage scrub, non-native grassland, mulefat scrub/riparian scrub, southern coastal salt marsh, disturbed riparian, and disturbed seasonal pond as a result of grading for project-level and program level elements within the Port's jurisdiction.	Port: A. Prior to the commencement of grading for development in each phase that impacts riparian habitat or sensitive vegetation communities, the Port or Port tenants, as appropriate, shall prepare and initiate implementation of a restoration plan for impacts to riparian habitat and sensitive vegetation communities in accordance with the mitigation requirements presented in Table 4.8-6. Prior to the commencement of Phase I grading that impacts riparian habitat or sensitive vegetation communities, the Port shall coordinate with the wildlife agencies for the preparation and approval of a detailed restoration plan within the Port's jurisdiction. The restoration plan shall be prepared by a qualified biologist, and the plan shall be approved by the Port. The guidelines for this plan will be developed in consultation with the regulatory agencies. The plan shall summarize the approach taken to avoid and minimize impacts to sensitive habitats, detail the target functions and values, and address the approach to restoring those functions and values. Typically, the restoration plan shall detail the site selection process; shall propose site preparation	Consistent – This report serves as a project-level assessment of potential impacts. BIO-1 included in the report, quantifies project impacts and associated mitigation, as well as requires preparation of a conceptual mitigation plan to offset significant impacts. A 3:1 mitigation ratio has been applied for permanent impacts to Diegan coastal sage scrub, not 1.5:1 as presented in the Final EIR Table 4.8-6. A 3:1 ratio would ensure consistency with Development Policy 5.19. All impacts to southern coastal salt marsh are classified as permanent and a 4:1 mitigation ratio has been applied. Impacts to other the remaining jurisdictional resources consisting of waters of the U.S. are habitat enhancement impacts and will be mitigated at a no-net loss standard of a 1:1 ratio within the widened and deepened channel. These ratios are consistent with MMRP 4.8-10 and Development Policy 2.5. Section 4 of this report serves as the conceptual mitigation plan. As stated in the first paragraph of Section 4, this conceptual mitigation plan will be refined during final design. In addition, the
		techniques, planting palettes, implementation procedures, monitoring and maintenance practices; shall establish performance criteria for each mitigation site. Typical success criteria may include percent canopy cover, percent of plant survival, and percent of native/non-native canopy cover. A minimum 5-year maintenance and monitoring period would be implemented following installation to ensure each area is successful. The restoration plan shall address monitoring requirements and specify when annual reports are to be prepared and what they shall entail. Qualitative and quantitative assessments of the site conditions shall be included. If the mitigation standards have not been met in a particular year, contingency measures shall be identified in the annual report and remediation will occur within 3 months or start of the growing season. The Port shall be responsible for ensuring that all of the success criteria are met to the satisfaction of the Port in consultation with the regulatory agencies. B. Prior to initiating any construction activities in each phase that would affect riparian habitat or sensitive vegetation communities, including clearing and grubbing associated with program level phases, an updated project- level assessment of potential impacts shall be made based on a specific project design. The Port or project developer(s), as appropriate, shall retain a qualified, Port-approved biologist to update appropriate surveys, identify the existing conditions, quantify impacts, and provide	mitigation plan will be required and reviewed as part of the regulatory approval process (BIO-4).

Table 5-3 Continued

MM Number	Summary of Significant Impact	MM Text	Consistency
		adequate mitigation measures to reduce impacts to below a level of significance. This updated assessment shall be submitted to the Port for review and approval.	
4.8-11	Impacts to non-native grassland, southern coastal salt marsh, and mulefat scrub/riparian scrub in the City's jurisdiction.	Not Applicable	Not Applicable
4.8-12	Impacts to USACOE wetlands and non-wetland waters as a result of program-level development within the Port's jurisdiction. Impacts to USACOE wetlands and non-wetland waters as a result of establishment of ecological buffer on OP-2A, reconfiguration of the harbor and marine, and bridges on HP-5.	Port: A. The Port or Port tenants, as appropriate, shall mitigate for permanent and temporary impacts to USACE jurisdictional waters at the following ratios: 1:1 for permanent impacts to non-wetland waters of the U.S.; 4:1 for impacts to wetlands; and 1:1 for all temporary impacts. A minimum of 1:1 mitigation must be created in order to achieve the no-net-loss requirement of the CWA. Table 4.8-8 provides a breakdown of the required mitigation acreages for all USACE impacts within the Port's jurisdiction, which totals 2.12 acres. Mitigation for impacts from the Bay and Marina components of the proposed project will be established through USACE regulations once final designs for this work in Phases II through IV are finalized. Prior to the commencement of grading activities for any projects that impact USACE jurisdictional waters, the Port or Port tenants, as appropriate, shall prepare and initiate implementation of a restoration plan detailing the measures needed to achieve the necessary mitigation. The guidelines for this plan will be developed in consultation with the regulatory agencies. The plan shall summarize the approach taken to avoid and minimize impacts to sensitive habitats, detail the	Consistent – This report serves as a project-level assessment of potential impacts. BIO-1 included in the report, quantifies project impacts and associated mitigation, as well as requires preparation of a conceptual mitigation plan to offset significant impacts. All impacts to USACOE wetlands are classified as permanent and a 4:1 mitigation ratio has been applied. Impacts to waters of the U.S. are habitat enhancement impacts and will be mitigated at a no-net loss standard of a 1:1 ratio within the widened and deepened channel. These ratios are consistent with MMRP 4.8-10, 4.8-12, and Development Policy 2.5. Section 4 of this report serves as the conceptual mitigation plan. As stated in the first paragraph of Section 4, this conceptual mitigation plan will be refined during final design. In addition, the mitigation plan will be required and reviewed as part of the regulatory approval process (BIO-4). Implementation of BIO-4, as included in this report would ensure consistency with MM 4.8-12C.
		target functions and values, and address the approach to restoring those functions and values. Typically, the restoration plan shall detail the site selection process; shall propose site preparation techniques, planting palettes, implementation procedures, monitoring and maintenance practices; shall establish performance criteria for each mitigation site. Typical success criteria may include percent canopy cover, percent of plant survival, and percent of native/non-native canopy cover. A minimum 5-year maintenance and monitoring period would be implemented following installation to ensure each area is successful. The restoration plan shall address monitoring requirements and specify when annual reports are to be prepared and what they shall entail. Qualitative and quantitative assessments of the site conditions shall be included. If the mitigation standards have not been met in a particular year, contingency measures shall be identified in the annual report and remediation will occur within 3 months or the start of the growing season. The Port shall be responsible for ensuring that all of the success criteria are met to the satisfaction of the Port in consultation with the regulatory agencies. Port/City: C. Prior to issuance of the first clearing and grubbing or grading permit, for activities that impacts USACE jurisdictional waters, the Port or Port tenants, as appropriate, and project developer(s) within the City's jurisdiction shall obtain a Section 404 permit from USACE. The permit application process would also entail approval of the restoration plan from the USACE	

Table 5-3 Continued

MM Number	Summary of Significant Impact	MM Text	Consistency
		as described above, with regards to areas that fall under the jurisdiction of USACE.	
4.8-13	Impacts to CDFW streambed and associated riparian.	Not Applicable	Not Applicable
4.8-14	Impacts to CCC wetland as a result of: E Street improvements, S-1 adjacent to the roadway at Bay Boulevard and E Street, bridge on E Street over the inlet to the F&G Street Marsh as part of the circulation element, and bridge to cross the HP-5 drainage ditch in the Harbor District.	Port. A. Mitigation for permanent direct and indirect (from bridge shading) impacts would be at a 2:1 ratio as detailed in Table 4.8-8. Prior to the commencement of grading activities for projects that impact CCC jurisdictional areas, the Port or Port tenants, as appropriate, shall prepare a restoration plan detailing the measures needed to create/restore CCC wetlands. The guidelines for this plan will be developed in consultation with the regulatory agencies. The plan shall summarize the approach taken to avoid and minimize impacts to sensitive habitats, detail the target functions and values, and address the approach to restoring those functions and values. Typically, the restoration plan shall detail the site selection process; shall propose site preparation techniques, planting palettes, implementation procedures, monitoring and maintenance practices; and shall establish performance criteria for each mitigation site. Typical success criteria may include percent canopy cover, percent of plant survival, and percent of native/non-native canopy cover. A minimum 5-year maintenance and monitoring period would be implemented following installation to ensure each area is successful. The restoration plan shall address monitoring requirements and specify when annual reports are to be prepared and what they shall entail. Qualitative and quantitative assessments of the site conditions shall be	Consistent – The proposed project would result in impacts to CCC wetlands from bridge shading. Footnote 1 in Table 6 of this report acknowledges the mitigation ratio of 2:1. BIO-1 included in the report, quantifies project impacts and associated mitigation, as well as requires preparation of a conceptual mitigation plan to offset significant impacts. Thus, implementation of BIO-1, as included in the report would ensure consistency with 4.8-14. Section 4 of this report serves as the conceptual mitigation plan.
		included. If the mitigation standards have not been met in a particular year, contingency measures shall be identified in the annual report and remediation will occur within 3 months or the start of the growing season. The Port shall be responsible for ensuring that all of the success criteria are met to the satisfaction of the Port in consultation with the regulatory agencies, including the CCC.	
4.8-15	Impacts to CCC wetland as a result of two addition bridges in the Otay District; riprap removal and bulkhead placement as a component to the Chula Vista Marina improvements (HW-1, HW-3, H-12) within the Harbor District; and re-channelization of Telegraph Canyon Channel in Otay District.	NA	NA
4.8-16	Impacts to CCC wetland as a result of establishment of the ecological buffer on OP-2A.	Not Applicable	Not Applicable
4.8-17	Impacts to CCC wetland as a result of additional road extensions in the Otay District	Not Applicable	Not Applicable
4.8-18	Impacts to CCC wetland on HP-13B.	Not Applicable	Not Applicable
4.8-19	Impacts to CCC wetland as a result of park development on OP-1B.	Not Applicable	Not Applicable
4.8-20	Impacts to CCC wetland as a result of development on O-4.	Not Applicable	Not Applicable
4.8-21	Impacts to waters under the	Port: A. Prior to the commencement of grading	Consistent – This report serves as a project-level

Table 5-3 Continued

MM Number	Summary of Significant Impact	MM Text	Consistency
	jurisdiction of RWQCB.	activities for project components impacting RWQCB jurisdictional waters, the Port or Port tenants, as appropriate, shall prepare and implement a restoration plan detailing the measures needed to create/restore RWQCB jurisdictional waters in accordance with the acreage identified in Table 4.8-8. Port/City: C. Prior to the commencement of grading activities for project components impacting RWQCB jurisdictional waters, the Port or Port tenants, as appropriate, and applicants within the City's jurisdiction shall obtain permits from RWQCB. The permit application process would also entail approval of the restoration plan as described above. Pursuant to the CWA, the Port and other applicants are required to obtain a Section 401 Water Quality Certification permit from RWQCB. Port/City: D. Prior to the commencement of grading activities for project components impacting RWQCB jurisdictional waters, including clearing and grubbing, the Port or Port tenants, as appropriate, and the project developer(s) within the City's jurisdiction shall consult with the RWQCB to determine if Waste Discharge Requirements from the RWQCB shall be required for impacts to isolated waters of the State.	assessment of potential impacts. BIO-1 included in the report, quantifies project impacts and associated mitigation, as well as requires preparation of a conceptual mitigation plan to offset significant impacts. All impacts to USACOE wetlands (also classified as RWQCB water) are classified as permanent and a 4:1 mitigation ratio has been applied. Impacts to waters of the U.S. (also classified as RWQCB water) are habitat enhancement impacts and will be mitigated at a no-net loss standard of a 1:1 ratio within the widened and deepened channel. These ratios are consistent with MMRP 4.8-10, 4.8-12, 4.8-21, and Development Policy 2.5. Section 4 of this report serves as the conceptual mitigation plan. Implementation of BIO-4, as included in this report would ensure consistency with 4.8-21C. The project does not support isolated waters of the State and thus would not require waste discharge requirement.
4.8-22	Impacts to southern coastal salt marsh, mulefat/riparian scrub as a result of: bridge proposed across HP-5 drainage ditch, improvement to the existing E	Not Applicable	Not Applicable

Table 5-3 Continued

MM Number	Summary of Significant Impact	MM Text	Consistency
	Street in the Sweetwater District, and development within the road easement on SP-4.		
4.8-23	Impacts to avian flight patterns and habitat use as a result of: RCC on H-3, residential on H-13, hotel on H-23, buildings on H-15, and buildings between 100 and 200 feet high along the project frontage.	Not Applicable	Not Applicable
4.9	*Marine Biological Resources*		
4.9-1 through 4.9-8	Impacts associated with marinas, harbors, navigation channel, H Street Pier, and bulkhead replacement on HW-3	Not Applicable	Not Applicable

5.3.6 Cumulative Impacts

Implementation of the project mitigation and permitting requirements to mitigate for direct impacts to jurisdictional resources and Diegan coastal sage scrub would reduce impacts to less than cumulatively considerable. Onsite mitigation will be focused on establishment of southern coastal salt marsh and maritime succulent scrub to offset impacts to jurisdictional resources and Diegan coastal sage scrub. Mitigation will be governed by both a site specific restoration plan and a broader comprehensive framework plan for integration of habitat connectivity and sea level rise adaptation throughout the Chula Vista Bayfront (M&A 2017).

CHAPTER 6

CONCEPTUAL COMPENSATORY MITIGATION PLAN

CONCEPTUAL MITIGATION PLAN

This conceptual compensatory mitigation section has been prepared to support environmental review and as a framework plan guiding further habitat mitigation planning through final design and engineering stages of the proposed work. The mitigation areas are identified to confirm capacity to mitigate impacts on site within available project areas considering proposed trail infrastructure, grading limits, and other constraints. Additionally, mitigation is scaled to achieve mitigation needs based on broad impacts identified during preliminary design and impacts are anticipated to be reduced from those identified as the project details are refined. During final design and engineering mitigation areas will be refined and reduced commensurate with impact reduction, following the mitigation ratios in Table 5-1.

6.1 GOALS OF THE COMPENSATORY MITIGATION

The project proponent is proposing to mitigate impacts to jurisdictional wetland resources and upland Diegan coastal sage scrub through onsite mitigation (Figure 6-1). In addition, mitigation habitat configurations will be modified further during final design and engineering to conform with the public access trail project, buffering, and channel enhancement considerations of the site. Finally, as part of the final design and engineering, the mitigation areas will be configured to work with grading and restoration needs for future buffer enhancement, the future Sweetwater Signature Park planning, and Marina Parkway road raising, drainage, and wildlife connection bridging activities.

6.2 TYPES OF HABITATS TO BE ESTABLISHED AND RESTORED

This conceptual plan focuses on increasing the biological value of the southern coastal salt marsh resources along the F&G Street Marsh connector channel, expanding salt marsh on benches developed along the widened channel, and restoring uplands with maritime succulent scrub vegetation to offset impacts to Diegan coastal sage scrub communities. Rubble and debris removal from the tidal channel floor and channel deepening will be undertaken as part of the project to enhance tidal circulation and particularly drainage of the tidal channels in the F&G Street Marsh. This will improve flushing of accumulated algae in the lower marsh channel system. Additional channel widening and flaring is to improve wildlife movement and to accommodate habitat connectivity improvements associated with a future wildlife and tidal channel bridge beneath Marina Parkway. The channel sizing also provides for additional capacity needed to accommodate sea level rise predictions.

As indicated in Table 5-1, the maximum mitigation required under the preliminary design of the proposed work is 0.81 acre consisting of upland and wetland/non-wetland waters habitats. Uplands required to mitigate Diegan coastal sage scrub require 0.42 acre of scrub habitat replacement, proposed to be maritime succulent scrub. Mitigation for jurisdictional waters may total up to 0.39 acre, including 0.28 acre of coastal salt marsh and 0.11 acre of unvegetated open water channel or bare substrate. It is anticipated that the extent of mitigation needed will decline with reduction of impacts during final design and engineering.

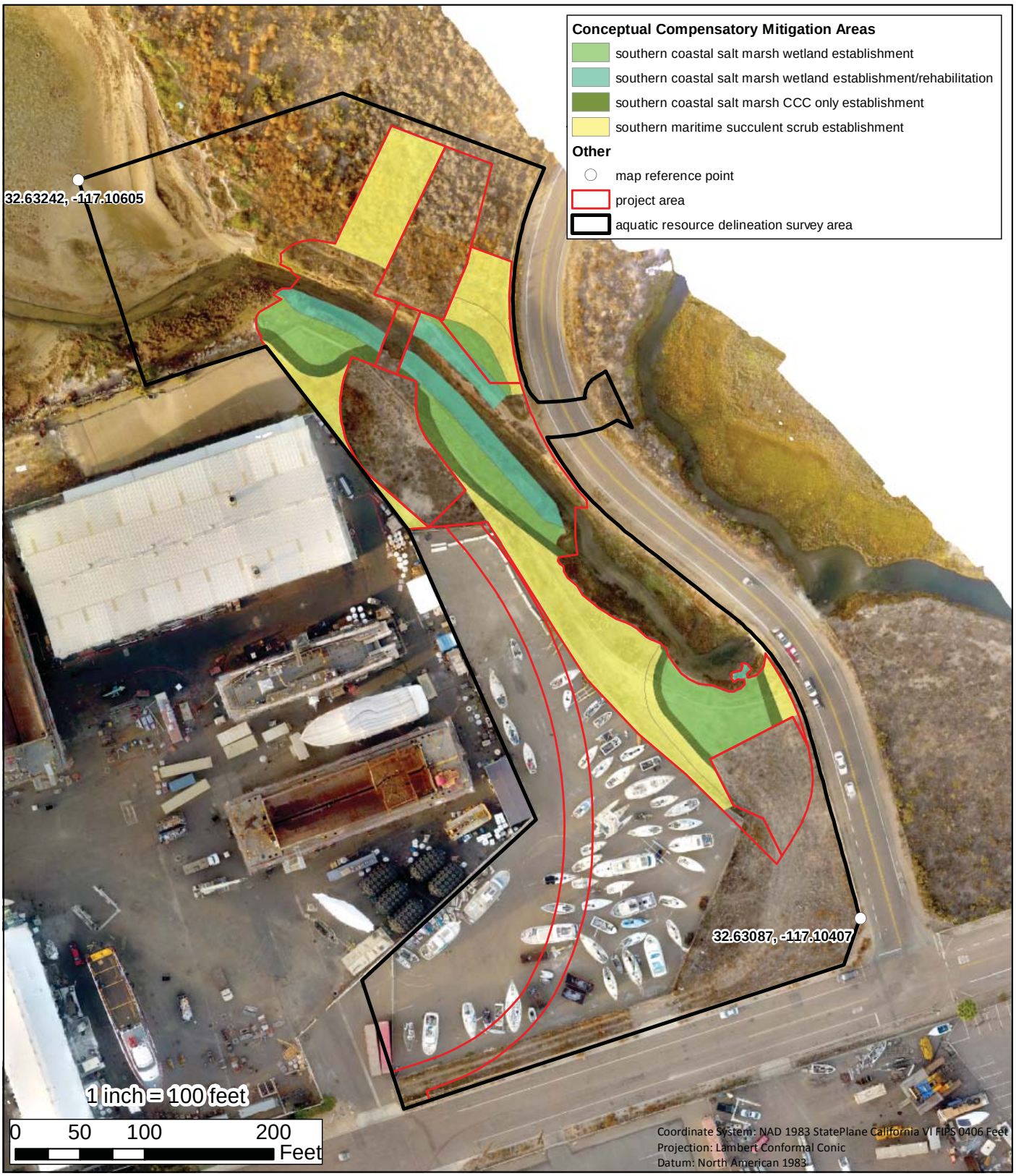
Based on Table 5-1, the compensatory upland and wetland mitigation requirement can be fully mitigated onsite via establishment and restoration activities.

6.2.1 Establishment

Establishment would focus on laying back the overly steepened banks of the incised channel in order to reduce present erosion and accommodate greater channel capacity for sea level rise and potential future enhanced connections and expansion of the F&G Street Marsh, and to create intertidal benches suitable to support southern coastal salt marsh habitat development. The proposed grading would target optimized bank configuration for stable and plantable slopes, optimizing the capacity to support marsh habitat. Upper channel banks would be planted with maritime succulent scrub habitat. The channel slopes are illustrated in the preliminary plan as 3:1 slopes, however variable slopes will ultimately be designed during final design and engineering to accommodate more realistic and functional tidal channel configurations with a lesser footprint being required.

Rehabilitation would focus on restoring degraded areas to higher quality habitat. This includes removal of concrete rubble/debris from the channel bottom and excavating the hardened channel floor to allow greater tidal drainage in the system and establishment of a soft bottom benthic community in the channel. The present channel is armored by debris that has fallen from eroding fills to the floor of the channel. This has restricted downward cutting in the channel and thus expanded lateral spread of the channel and erosion. The removal of armoring would allow more natural channel depths to be achieved based on the tidal wetland drainage complex existing within the F&G Street Marsh. As the channel bottom generally occurs below mean sea level it will not support marsh vegetation currently or in the future.

M&A #15-016-02



Merkel & Associates, Inc.

Figure 6-1: Conceptual Compensatory Mitigation

6.2.2 Time Lapse Between Impacts and Expected Compensatory Mitigation Success

Implementation of the compensatory mitigation is expected to begin concurrent with implementation of the project. Thus, the time lapse between impacts to jurisdictional (as well as sensitive upland resources) and expected mitigation success would be approximately five years.

6.3 ESTIMATED COST

The estimated costs for implementation, maintenance, and monitoring of the compensatory mitigation will be provided in a subsequent version of this plan, following greater plan development section.

6.4 DESCRIPTION OF THE PROPOSED COMPENSATORY MITIGATION SITE

A restrictive land use designation preventing future development would be placed over the final compensatory mitigation areas utilized for the project. The draft conceptual areas are illustrated in Figure 6-1 and will be reconfigured during final design and engineering. A Long-Term Habitat Management Plan (HMP) would be prepared to serve as the guide to be used by the long-term manager for management, maintenance, and monitoring of the compensatory mitigation area. The HMP would include at minimum: measures to maintain the vegetation success criteria identified by this plan, regular inspection for and removal of trash and other human generated waste, other management activities as needed to retain habitat for wildlife resources. The plan would also identify a financing mechanism to provide for sustaining maintenance and management of the mitigation site.

6.5 IMPLEMENTATION PLAN FOR THE COMPENSATORY MITIGATION SITE

The compensatory mitigation site will expand on the existing channel by contouring the eroding banks to allow for establishment of salt marsh habitat and maritime succulent scrub habitat. Because the mitigation site is to be located along an existing, tidally influenced channel system, it will contribute to the present system rather than being a stand-alone mitigation site.

6.5.1 Responsible Parties

The Port and City of Chula Vista would be responsible for the implementation of this plan. They are also responsible for the long-term management of all lands within the mitigation site.

The Port and City of Chula Vista would be responsible for retaining a qualified restoration specialist and revegetation contractor to implement the installation, maintenance, and monitoring programs. The Port and City of Chula Vista would be ultimately responsible for all aspects of permit compliance and success of the mitigation program. The Port and City of Chula Vista would also be responsible for providing necessary administrative, and technical and legal support as may be necessary to implement the required conservation protections for the mitigation areas.

6.6 IMPLEMENTATION SCHEDULE

Implementation of this plan would occur as follows. First, all areas would be surveyed and staked to designate the limits of work. The establishment and rehabilitation sites would then be cleared and grubbed in preparation for grading. Following site grading and any soil preparation needs, an irrigation system may be installed within the establishment and rehabilitation areas. The necessity for installation of irrigation has not yet been determined and is consideration of final design and engineering. Container plants would be installed. After planting of container plants, the site would be hydroseeded and evaluated and maintained during a 120-day plant establishment period. Following the 120-day plant establishment period, a minimum five-year maintenance and monitoring schedule would be initiated.

The optimal time to install native plants would be late fall/early winter to take advantage of seasonal conditions. Seed and container plants should be purchased from a reputable native plant company that has procured all seed and container plants from local plant populations occurring in the local coastal San Diego County region or as determined appropriate by the restoration specialist.

6.7 IRRIGATION AND PLANTING SPECIFICATIONS

6.7.1 Irrigation Plan

The determination of irrigation methodology and whether or not an irrigation system will be installed has not been made at this time and will be a consideration during final design for the project.

6.7.2. Planting Plan

All areas would be actively planted. Plantings will be spotted by the restoration specialist within template areas and expanded over the designated areas by the revegetation contractor. Any required modifications to the planting layout or plant materials based on the site conditions revealed after final grading would be made during implementation at the recommendation of the restoration specialist.

Plants typical of southern coastal salt marsh (Table 6-1) would be planted throughout the establishment and rehabilitation areas that would transition gradually to a maritime succulent scrub community (Table 6-2). Specifically, OBL and FACW species such as saltwort, salty Susan, shoregrass, alkali heath, pacific pickleweed, and Parish's pickleweed would be planted within the lower elevations of the marsh community. FACW and FAC species including estuary seablite, alkali weed, and saltgrass would be planted at the higher elevations of the tidal range where marsh plant materials would transition to upland wetland fringe species such as box thorn. The buffer would be planted with maritime succulent scrub species dominated by California sagebrush and jojoba (Simmondsia chinensis).

Table 6-1: Southern Coastal Salt Marsh Plant Palette

Species	Common Name	Unit Size	Density	Percent Cover
Arthrocnemum subterminale	Parish's Pickleweed	1-gallon	3-foot centers	15
Batis martima	Saltwort	1-gallon	3-foot centers	15
Distichlis littoralis	Shore Grass	1-gallon	3-foot centers	5
Frankenia salina	Alkali Heath	1-gallon	4-foot centers	20
Salicornia pacifica	Pacific Pickleweed	1-gallon	4-foot centers	30
Suaeda esteroa	Estuary seablite	1-gallon	4-foot centers	15

The standard procedure for planting container stock shall be to dig a hole, which is equal to the depth and approximately 1.5 times the width of the rootball. The hole shall be filled with water and allowed to drain. The plant shall then be positioned so that the surface of the rootball is at ground level. The hole shall then be backfilled with the native soil. An earthen watering basin shall be created in a two-foot diameter around each rootball. The plant shall then be watered in by hand or irrigated immediately after planting. It should be noted that native cuttings would be used instead of container plants if feasible.

Table 6-2: Maritime Succulent Scrub Plant Palette

Species	Common Name	Unit Size	Density	Percent Cover
Artemisia californica	Coastal Sagebrush	1-gallon	4-foot centers	35
Encelia californica	California Encelia	1-gallon	4-foot centers	7
Isocoma menziesii var. decumbens	*Decumbent Goldenbush*	*1-gallon*	*4-foot centers*	*6*
Isomeris arborea	Bladderpod	1-gallon	4-foot centers	2
Eriogonum fasciculatum v. f.	Flat-top Buckwheat	1-gallon	4-foot centers	3
Lycium californicum	California Desert Thorn/California Box Thorn	1-gallon	4-foot centers	6
Lycium brevipes v. brevipes	Common Desert Thorn	1-gallon	5-foot centers	6
Simmondsia chinensis	Jojoba	1-gallon	4-foot centers	15
Bahiopsis laciniata	San Diego Sunflower	1-gallon	4-foot centers	6
Rhus integrifolia	Lemonadeberry	1-gallon	6-foot centers	5
Bergerocactus emoryi	Velvet Cactus	1-gallon	4-foot centers	3
Yucca schidigera	Mohave Yucca	5-gallon	4-foot centers	3
Atriplex lentiformis	Big Saltbush	1-gallon	6-foot centers	2
Suaeda esteroa	Estuary seablite	1-gallon	4-foot centers	1

Following planting of container plants, a hydroseed mix consisting of a native seed mix (Table 6-3) and slurry will be sprayed over all maritime succulent scrub areas. This seed mix will provide soil stabilization and understory vegetation that is non-competitive with the container plants and contributes diversity and nurse crop benefits.

Table 6-3: Maritime Succulent Scrub Hydroseed Mix Palette

Species	Common Name	Lbs/Acre	Minimum P/G[1]
Camissoniopsis cheiranthifolia	Beach Sun Cup	1.0	95/90
Camissoniopsis bistorta	California Sun Cup	0.5	90/80
Lasthenia californica	Goldfields	1.0	90/75
Layia platyglossa	Tidy-tips	0.5	80/75
Eriophyllum confertiflorum	Golden Yarrow	1	60/60
Lupinus succulentus	Arroyo Lupine	4	98/85
Eschscholzia californica	California Poppy	3	98/85
Deinandra fasciculatum	Fasciculed Tarplant	3	45/80
Mimulus auranticus ssp. puniceus	Coast Monkey Flower	0.5	5/70
Plantago erecta	Dot-seed Plantain	10	97/89
Atriplex pacifica	South Coast Saltscale	1	90/80
Leptosyne californica	Sea Dahlia	2	75/60

[1] P/G = Purity/Germination

The hydroseed slurry will include fiber mulch, humate, gypsum, and soil stabilizer additives based on soil conditions and slopes determined during final design.

6.8 MAINTENANCE ACTIVITIES DURING THE MONITORING PERIOD

6.8.1 Maintenance Activities

Maintenance of the compensatory mitigation areas would occur throughout the 120-day plant establishment period (PEP) and the subsequent minimum five-year maintenance and monitoring period under the direction of the restoration specialist. Table 6-4 provides a maintenance schedule while the below sections provide a description for each maintenance activity.

Table 6-4: Minimum Five-Year Maintenance and Monitoring Schedule

Tasks [1]	Pre-Con	120-Day PEP	Year 1	Year 2	Year 3	Year 4	Year 5
Maintenance Activities [2]	---	Monthly	Monthly	Bi-Monthly	Bi-Monthly	Quarterly	Quarterly
Qualitative Monitoring	---	Monthly	Monthly	Monthly	Quarterly	Quarterly	Quarterly
Quantitative Surveys							
Vegetation Monitoring	---	---	Spring	Spring	Spring	Spring	Spring
Photo Documentation	Spring	Spring	Spring	Spring	Spring	Spring	Spring
Soil Monitoring	---	---	Spring	---	Spring	---	Spring
Surface Hydrology Monitoring		---	Spring	---	Spring	---	Spring
Reporting Frequency	Within 30 days	Within 30 days of completing PEP	Yearly				

[1] For purposes of this plan, the growing season (i.e., spring) would fall between March – September, when growing conditions are optimal.

[2] Maintenance activities would be directed by the restoration specialist who will conduct qualitative monitoring inspections. Maintenance activities could include (but not limited to): site protection (fencing/signage), trash and debris removal, weed control, horticultural treatments, erosion control, irrigation maintenance, and pest management. Replacement plantings would occur in accordance with established success milestones and criteria (to be provided).

6.9 SITE PROTECTION - FENCING/SIGNAGE

Public access is not proposed and would be restricted from the compensatory mitigation area throughout all phases of the project including construction and the subsequent minimum five-year maintenance and monitoring period. In addition, there is no intent for public access within the compensatory mitigation area following completion of the initial five-year mitigation program.

6.10 TRASH AND DEBRIS REMOVAL

The compensatory mitigation area would remain trash and debris free throughout the life of the project. All trash and debris will be removed and disposed of properly at a landfill site. Care will be taken to remove any debris that may impact native target vegetation. In these situations, removal will be at the discretion and supervision of the restoration specialist.

6.11 WEED CONTROL

Weed abatement of annual and invasive weeds would occur throughout the compensatory mitigation area on an as-needed basis. Weed abatement will be performed to control particularly noxious or competitive species that may inhibit the growth of desirable native vegetation. Hand weeding will be performed as needed throughout the maintenance period. Other weedy plants that invade the mitigation site in prohibitive numbers shall be removed if they pose a significant threat to the growth or survival of target vegetation. All seed heads shall be cut, removed and bagged prior to complete removal of the species. All weed propagules will be disposed of at an approved landfill site.

All weeds in wetland areas shall be removed by hand or treated with an aquatic-safe registered herbicide (e.g. Rodeo or Aquamaster). Round-Up or other registered glyphosate-based herbicides shall be used in upland areas located away from wetlands. Application of herbicide shall only be used if approved by the restoration specialist. Any herbicide treatment must be applied under the supervision of a licensed pest-control applicator. Herbicides used in all wetland areas must be EPA-registered for application in such environments to prevent deleterious effects of herbicides on aquatic resources.

6.12 HORTICULTURAL TREATMENTS

The purpose of the mitigation effort is to establish native wetland and upland buffer habitats. Horticultural treatments (e.g., pruning, fertilizing, staking) are typically not conducive to establishment of native habitats. The restoration specialist must approve any special treatments.

6.13 EROSION CONTROL

Surface soils would be held in place by hydroseed mix and container plantings. The specified hydroseed mix will include a binder to promote quick erosion control. A silt fence or other comparable erosion control devices would be installed during the site preparation phase of this plan to protect the adjacent resources from construction operations and would be maintained throughout the maintenance and monitoring program until no longer necessary, as deemed appropriate by the restoration specialist. No additional erosion control measures are anticipated at this time. However, if erosion poses a threat to the existing drainage or the habitat establishment program, measures shall be taken to contain surface soils. Erosion control activities may include application of a bio-fiber matrix or straw mulch and/or installation of straw wattles.

6.14 REPLACEMENT PLANTINGS

6.14.1 Planting

Plants would be replaced per the specifications identified in the project's success milestones (to be established as part of the regulatory review). Dead plants will be replaced with container grown plants of similar type and size (based on original installation). Where micro-habitat conditions are more favorable for growth of a different native species of similar character (i.e., tree, shrub), plant substitutions, as directed by the restoration specialist, may be made for onsite planting.

6.14.2 Hydroseed

All bare areas greater than 1,000 square feet (or as determined necessary by the restoration specialist) will be re-hydroseeded and/or hand seeded six weeks subsequent to the original hydroseed application. The restoration specialist may extend this period due to environmental conditions (i.e., soil temperature) that would preclude the germination of the hydroseed.

6.14.3 Irrigation Maintenance

If an irrigation system is installed, the system will be maintained in a fully operable condition throughout the duration of the plant establishment and minimum five-year maintenance and monitoring periods. The restoration specialist shall determine irrigation schedules during qualitative site visits made during the establishment period. Irrigation schedules will vary to correspond to seasonal weather, changing site conditions, and plant growth. At the direction of the restoration specialist, irrigation will be shut off after year three or for at minimum two years prior to request for sign-off by the regulatory agencies; the purpose is to promote plant acclimation to native hydrological conditions. Inspections will be conducted routinely and all necessary repairs will occur promptly to ensure establishment of the target vegetation.

6.14.4 Pest Management

Native species are resistant to most pests (including insects and fungi) associated with typical ornamental landscaping. Pest management of native habitats is typically limited to controlling herbivory from native wildlife including rabbits, ground squirrels, and gophers. If needed, the restoration specialist will provide all necessary recommendations regarding pest management.

6.15 MONITORING PLAN FOR THE COMPENSATORY MITIGATION SITE

Monitoring will include both qualitative and quantitative surveys. The purpose of the qualitative surveys is to ensure that the proper maintenance and establishment procedures are followed. The purpose of the quantitative surveys is to measure the establishment of the site to determine its compliance with the success milestones.

6.15.1 Qualitative Surveys

Qualitative surveys, consisting of a general site walkover and habitat characterization will completed during each monitoring visit as listed within Table 6-4. Surveys will be conducted by the restoration specialist who shall be accompanied by the revegetation contractor. General observations such as fitness and health of the planted species, pest problems, weed establishment, irrigation performance, mortality and drought stress will be noted in each site walkover. The restoration specialist will determine remedial measures necessary to facilitate compliance with performance standards. A written memorandum will be prepared after each monitoring visit, listing problems and recommended remedial measures and native plant health and seed germination. These memoranda will be provided to the Port/City and the revegetation contractor.

6.15.2 Quantitative Surveys

Vegetation Monitoring

The monitoring program for this plan incorporates Level 3 data collection for hydrophytic vegetation presence within the compensatory mitigation area. The presence of hydrophytic vegetation associated with a stream is an indicator of adjacent riparian habitat. Specifically, fixed transects of approximately 100 feet each would be established within each habitat type to determine total vegetative cover utilizing the point intercept method. Cover would be measured along each transect by recording each plant (or bare ground, leaf litter, and biological debris) that intercepted the measuring tape at two-foot intervals occurring above and below the tape. From these point intercepts, total plant cover, percent cover of each species, and percent cover of bare ground, leaf litter, and biological debris would be calculated for each transect; results could be extrapolated to the entire site. This method would take into account species overlap (i.e., absolute cover); thus percent cover could exceed 100 percent. Percent cover without overlap (i.e., relative cover) would also be extrapolated from the data; at sampling points where more than one native species occurred, only one of these species (the one providing the most cover) would be accounted for in the overall native cover evaluation. Also, container plants shall be counted for in order to calculate percent survivorship. In addition to transect and container plant counts, a general overview of the site will be made in order to assess the overall compliance with success criteria, species richness and average height of the shrub and tree strata, and areas requiring special modifications to the maintenance program.

Progress milestones would be established to track the project's status and to facilitate a successful compensatory mitigation project. Monitoring will be completed for a minimum of five years (for jurisdictional resources) or until success criteria are met or until alternative compensatory mitigation is agreed upon by the permitted and regulatory agencies.

Photo Documentation

Permanent photo point location and directions will be established at each of the fixed vegetation transects and at ideal vantage points to photo-document year to year changes. Datasheets with the date, photographer, photo transect and vantage point number, direct, and general description. The datasheets and a graphic showing the mapped photo and transect locations will be included as part of the annual monitoring reports.

Soil Monitoring

Soil hydrology monitoring, a Level 3 data collection, would be performed for assessment of hydric soils presence within the compensatory mitigation area. The presence of hydric soils is one of three parameters to define an area as a USACOE wetland; thus, this would be performed in USACOE wetland establishment areas only when the area is above the annual highest high tide, defined at +7.10 feet NAVD88 (+7.79 feet MLLW). Hydric soils are defined as "a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part" (USACOE 2008, Section 3). Most hydric soils exhibit characteristic morphologies that result from repeated periods of saturation or inundation for more than a few days. This saturation or inundation, when combined with microbal activity in the soil, causes the depletion of oxygen, which promotes various processes including the accumulation of organic matter and the reduction, translocation, or accumulation of iron and other reducible elements. Ultimately, these processes result in distinctive characteristics that persist in the soil during both wet and dry periods, allowing for the identification of hydric soils in the field. Hydric soil indicators as described in the ACOE Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACOE 2008) and National Technical Committee for Hydric Soils (NTCHS) Field Indicators of Hydric Soils in the United States (USDA 2010) would be used to assess the presence of hydric soils.

Soil test pits would be dug during Year 1 monitoring, while the temporary irrigation (if installed) is still providing supplemental irrigation to the site and again in Years 3 and 5 to determine whether hydric soils have developed or persisted after termination irrigation (refer to Table 6-4). The test pits would be dug to a minimum depth of 12 inches or as needed to document the soil chroma index using the Munsell® Soil Color Charts (Munsell® Color 2000), as well as additional hydric soil indicators. The soil would be determined to be hydric if one or more hydric soil indicators as listed within the USACOE Arid West Supplement were present. Indicators for problematic hydic soils may include moderately to very strong alkaline soils (7.9 or higher) for which samples would need to be collected and analyzed by an approved laboratory. Hydric soils will be required prior to final sign-off of the USACOE wetland compensatory mitigation site unless the USACOE project manager determines that strong evidence of hydrophytic vegetation and wetland hydrology are present and that wetland design is not the cause of the absence of hydric soil indicators. The surface wetland hydrology indicators and/or hydrophytic vegetation data may serve as evidence that the USACOE can use to determine that the site is functioning as a wetland, as the hydric soils continue to develop.

Surface Hydrology Monitoring

Surface wetland hydrology monitoring, a Level 3 data collection, would be performed for assessment of wetland hydrology presence within the compensatory mitigation area. The presence of wetland hydrology is one of three parameters to define an area as a USACOE wetland; thus, this would be performed in USACOE wetland establishment areas only when the area is above the annual highest high tide, defined at +7.10 feet NAVD88 (+7.79 feet MLLW). Wetland hydrology is indicated by the presence of surficial or sub-surficial hydrologic characteristics long enough during the growing season to show that the presence of water has an overriding influence on the characteristics of vegetation and soils due to anaerobic and reducing conditions, respectively; thus, for an area to be defined as a wetland, periodic inundation or saturation of soils during the growing season must be determined to be present (USACOE 2008, Section 4).

For the purposes of this MMP, the wetland hydrology indicators described in the USACOE Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACOE 2008) would be used to assess the presence of wetland hydrology. Surface hydrology monitoring would initially be assessed at Year 1 and again in Years 3 and 5 to determine whether wetland hydrology indicators are present (refer to Table 6-4). Specifically, surface wetland hydrology would be determined to be present if one or more primary indicators or two or more secondary indicators were observed.

If necessary, surface hydrology indicators could be evaluated using the Corps of Engineers Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States (USACOE 2008). The OHWM is a defining element for identifying the lateral limits of non-wetland waters; Tables 4-4 and 5-1 within the 2008 guide list potential OHWM indicators typically found below, at, or above the ordinary high water boundary. The list includes both geomorphic and vegetation indicators; however, not all indicators will be present onsite.

6.16 MONITORING SCHEDULE

The compensatory mitigation maintenance and monitoring would follow the schedule in Table 5-1. These activities will be completed over the next five years (at minimum) to ensure the success of the Project.

6.17 PERFORMANCE STANDARDS FOR TARGET DATES AND SUCCESS CRITERIA

Performance criteria will be based on quantitative surveys including CRAM, vegetation transects, hydric soil monitoring, and surface hydrology monitoring. The success criteria and target dates will be provided as part of the project refinement during final design and engineering. These performance criteria will be utilized to assess the annual progress of the mitigation areas, and are regarded as interim project objectives designed to achieve the final goals. Fulfillment of these criteria will indicate that the compensatory mitigation project is progressing toward the habitat types and functions that constitute the long-term goals of this MMP. If mitigation efforts fail to meet the performance standards in any one year, the restoration specialist will recommend remedial actions to be implemented the following year that will enhance the vegetation to a level in conformance with the original standards.

6.18 COMPLETION OF COMPENSATORY MITIGATION

Upon achievement of the fifth year success standards and completion of the five-year maintenance period, the restoration specialist will prepare a Final Monitoring and Notice of Completion Report. The report will be submitted to the regulatory permitting agencies for evaluation of the success of the revegetation effort and final acceptance. The Final Monitoring and Notice of Completion Report will make a determination whether the requirements of the mitigation plan have been met.

6.19 CONTINGENCY MEASURES

6.19.1 Initiating Procedures

If an annual monitoring event identifies failure to attain the prescribed milestone, the restoration specialist shall analyze the cause(s) of failure and propose remedial action for approval.

6.19.2 Alternative Locations for Contingency Compensatory Mitigation

The proposed mitigation site represents an optimal circumstance for mitigation of impacts to wetland and maritime succulent scrub resources and no alternative locations are proposed at this time.

CHAPTER 7

HYDROLOGICAL REVIEW

7.1. CHANNEL DIMENSIONS

7.1.1. TIDAL FLOWS

Tidal channels adjust in size to accommodate the tidal flow moving through the channel. For example, an undersized channel tends to scour because the restricted flow area creates higher velocity, which can erode the channel bottom or edges. The channel will continue scouring until it begins to approach dimensions that are in equilibrium with the tidal flow. Conversely, an oversized channel may fill it with sediment (assuming sufficient sediment supply) because tidal flows are slower, allowing sediment to drop out of suspension.

The existing culverts that feed the F & G Street Marsh are undersized, so the tidal flow in the entrance channel is limited based on the amount of flow through the culvert. The planned F & G Street Marsh Restoration would include a larger culvert under E Street that would be sized to allow full tidal flow to the F & G Street Marsh, which would increase the tidal prism moving through the channel. Additionally, the planned restoration of F & G Street Marsh, which would lower grades at the northern end of the marsh and north of E Street, would expand the marsh area, thereby further increasing the tidal prism moving through the entrance channel. Further west, the planned creation of marsh along the Sweetwater shoreline would also increase the flow moving in the entrance channel. Lastly, future sea-level rise is also expected to increase the tidal prism in the channel.

The additional tidal prism of the planned restoration and future sea-level rise conditions would cause increased scour of the entrance channel. The channel is armored with concrete rubble, which prevents downcutting, so, currently, the channel side slopes erode to accommodate changes in the tidal flow. Without enhancement of the channel, it is likely that the side slopes will continue to slough and erode, but sizing the channel to accommodate the tidal flow will help stabilize the slopes.

ESA used empirical tidal channel hydraulic geometry relationships to estimate channel cross-sectional area, width, and depth based on marsh area and/or tidal prism (ESA 2017). This analysis was initially conducted for the conceptual-level design completed as part of the Chula Vista Bayfront Enhancement project. Table 7-1 presents the results of this analysis.

HYDRAULIC GEOMETRY CHANNEL SIZING PROJECTIONS

	Depth below MHHW[1] (ft)	Width at MHHW[1] (ft)	Area (SF)	Where Applicable
Near-Term				
Existing Channel	3.1	18	40	Upstream (south) of confluence with future planned new channel to F&G St Marsh
Projected Channel under Restored Conditions (F&G St Marsh)	6.9	40	160	The expanded entrance channel from the future culvert planned under E Street to the confluence with the future planned Sweetwater channel (e.g., under pedestrian bridge)
Projected Channel under Restored Conditions (F&G St Marsh + Sweetwater Marsh)	7.8	57	250	From confluence with future planned Sweetwater channel to bay
Long-Term				
Projected Channel under Restored Conditions + 2 ft of Sea-Level Rise[2] (F&G St Marsh)	8.2	64	300	At pedestrian bridge
Projected Channel under Restored Conditions + 5.5 ft of Sea-Level Rise[3] (F&G St Marsh)	10.2	113	660	At pedestrian bridge

1. MHHW is 5.3 ft NAVD in San Diego Bay (NOAA)
2. 2 ft of sea-level rise is projected by 2050 based on the high-range projection from the National Research Council (NRC 2012). 2 ft of sea-level rise has a roughly 0.5 percent chance of occurring by 2050 according to the 2018 state guidance from the California Natural Resources Agency and California Ocean Protection Council (CalNRC & OPC 2018).
3. 5.5 ft of sea-level rise is projected by 2100 based on the high-range projection from NRC 2012. 5.5 ft of sea-level rise has a roughly 0.5 percent chance of occurring by 2100 (CalNRC & OPC 2018).

Table 7-1: Hydraulic Geometry Channel Sizing Projections

Figure 7-1 shows the estimated equilibrium channel projections in cross-section. If the pedestrian bridge length is less than the projected equilibrium width of the channel with sea-level rise, then the bridge will constrain the channel width and the channel may downcut and deepen to compensate and reach the equilibrium cross-sectional area. For example, if the bridge length is 70 feet, the channel depth could be 14.1 ft, with a bed elevation of -8.8 ft NAVD, as shown in Figure 7-1. Note that ESA has not performed a bridge scour analysis. A bridge scour analysis will need to be performed in subsequent phases of bridge design.

7.1.2. STORM FLOWS

A new storm drain is planned at or near the planned new culvert under E Street. During a 2-percent annual chance event, the drain is estimated to contribute 10 cubic feet per second to the planned entrance channel. Compared to the average flow of the tidal prism (12 acre-feet over 6 hours (one tide cycle) under design conditions or 24 cubic feet per second), the additional storm flow is small. It is expected that the tidal flow will be the dominate channel-forming flow rather than the less frequent and smaller storm flows. However, potential scour near the planned storm culvert outlet should be considered during the design of the culvert.

It is assumed that the future planned storm drain will be constructed at the same time as the future planned culvert under E Street. Constructing the storm drain before the future planned culvert would likely require the storm drain to outlet onto the proposed marsh bench, which would likely scour the proposed marsh bench.

7.1.3. CONSTRUCTABILITY

Hydraulic geometry relationships provide ideal channel dimensions based on parabolic cross-sections which form in nature, but are difficult to construct by excavation. For feasibility purposes, a trapezoidal or V-shaped channel with side slopes no steeper than 2 or 3:1 (H:V) is typically constructed. Natural channel scour and sediment deposition will adjust the channel side slopes and cross sectional geometry over time to more closely match the hydraulic geometry estimates.

Table 7-2 presents the channel dimensions based on the hydraulic geometry relationships in combination with engineering judgment for channel constructability and assuming 3:1 side slopes. In the next phase of the design, it is recommended that the geotechnical engineer provide a geotechnical analysis of channel bank stability to confirm that channel slopes are appropriate. Figure 7-2 shows the plan view of the conceptual channel layout and the locations of the conceptual channel cross-section shown in Figures 7-3 and 7-4.

PROPOSED CHANNEL DIMENSION

Channel Reach	Bottom Elevation (ft NAVD)	Top Width at MHHW[1] (ft)	Bottom Width (ft)	Slope	Cross Sectional Area (SF)
Channel between planned new culvert under E Street and confluence with planned Sweetwater channel (e.g., under pedestrian bridge)	-1	42	4	3:1	145
From confluence with planned Sweetwater channel to bay	-2.5	56	6	3:1	240

1. MHHW is 5.3 ft NAVD in San Diego Bay (NOAA)

Table 7-2: Proposed Channel Dimension

While Table 7-2 provides the proposed channel dimensions within the specific channel reaches, the channel design would transition between the two reaches. Figure 7-2 shows the proposed channel toe and top of slope for the channel reach, between the planned culvert under E Street (in blue in Figure 7-1) and the planned Sweetwater channel, which would go under the pedestrian bridge (Figure 7-2). The wider channel dimensions narrow to join the downstream connection to the bay, where the existing channel is narrower and shallower than the proposed channel. The channel beyond the limit of disturbance is expected to scour naturally after restoration of F & G Street Marsh to reach equilibrium with the tidal flow, since this area is mudflat and not armored with concrete rubble, but this portion of the channel is not included in the proposed channel excavation to avoid impacts to the existing marsh. After construction, it is likely that some amount of sediment will begin to fill the channel before restoration of F & G Street Marsh is completed. However, this sediment would be much easier to scour out after restoration, compared to the existing concrete rubble, and is not expected to impact channel downcutting in the future.

In the future with sea-level rise, the channel is expected to widen and deepen through natural scour of the channel by tidal flows. If channel downcutting exposes subsurface material that limits scour, the channel may preferentially widen to compensate and provide the equilibrium channel cross-sectional area. Similarly, the channel may preferentially deepen if the width is constrained by the pedestrian bridge (as discussed in Section 1.1 above) or less erodible subsurface material that is exposed through channel enlargement. Adaptive management may be required to excavate less erodible subsurface material that is exposed with sea-level rise, for example if channel scour is limited to the point that it effects the tide range in the F&G Street Marsh. The bridge design should consider the potential tidal channel bed elevations with sea-level rise described in Section 1.1 and shown in Figure 7-1. For example, if the bridge width is set at 70 ft, the channel could scour down to approximately -9 ft NAVD with 5.5 feet of sea-level rise, as shown in Figure 7-1. Note that ESA has not performed a bridge scour analysis. A bridge scour analysis will need to be performed in subsequent phases of bridge design. Also, note that, based on the projected tidal channel dimensions with 2 feet of sea-level rise, the marsh benches under the bridge would be lost, as the channel expands to 64 feet.

7.2. CHANNEL MARSH BENCHING

The proposed channel restoration includes channel benching to provide additional area at elevations appropriate for restoring marsh habitats (Figure 7-4). ESA 2017 (Section 2.2.3.1) includes an analysis of habitat elevations for the Chula Vista Bayfront project based on inundation frequency and surveyed habitats. Mid salt marsh is expected to occur at elevations between 4.1 and 5.8 ft NAVD while high salt marsh is expected between 5.8 and 6.6 ft NAVD. In order to create additional salt marsh habitat around the channel, the channel bench was set between 5.3 and 6 ft NAVD. The slope above the marsh bench was set to 3:1 (pending geotechnical recommendations), from 6 ft NAVD up to existing grade in order to increase the area of the marsh bench. Lower elevations would be less sustainable with sea-level rise, and elevations close to the upper end of high marsh can be harder to establish marsh species.

As shown in Figure 7-1, channel benching was added in areas where space was available between the existing and proposed infrastructure (e.g., E Street, pedestrian trail). Additionally, the channel benching was designed to avoid existing marsh habitat where possible. Figure 7-4 shows a typical cross-section through a marsh bench area. The marsh bench between the pedestrian bridge and E Street will likely be exposed to wind waves from the bay. Slope armoring may be required to limit erosion of the slope and protect the road. Slope armoring is therefore included as part of the marsh bench concept as shown in Figure 7-2. Another option would be to not construct a bench between the pedestrian bridge and E Street to avoid the risk of erosion of the road.

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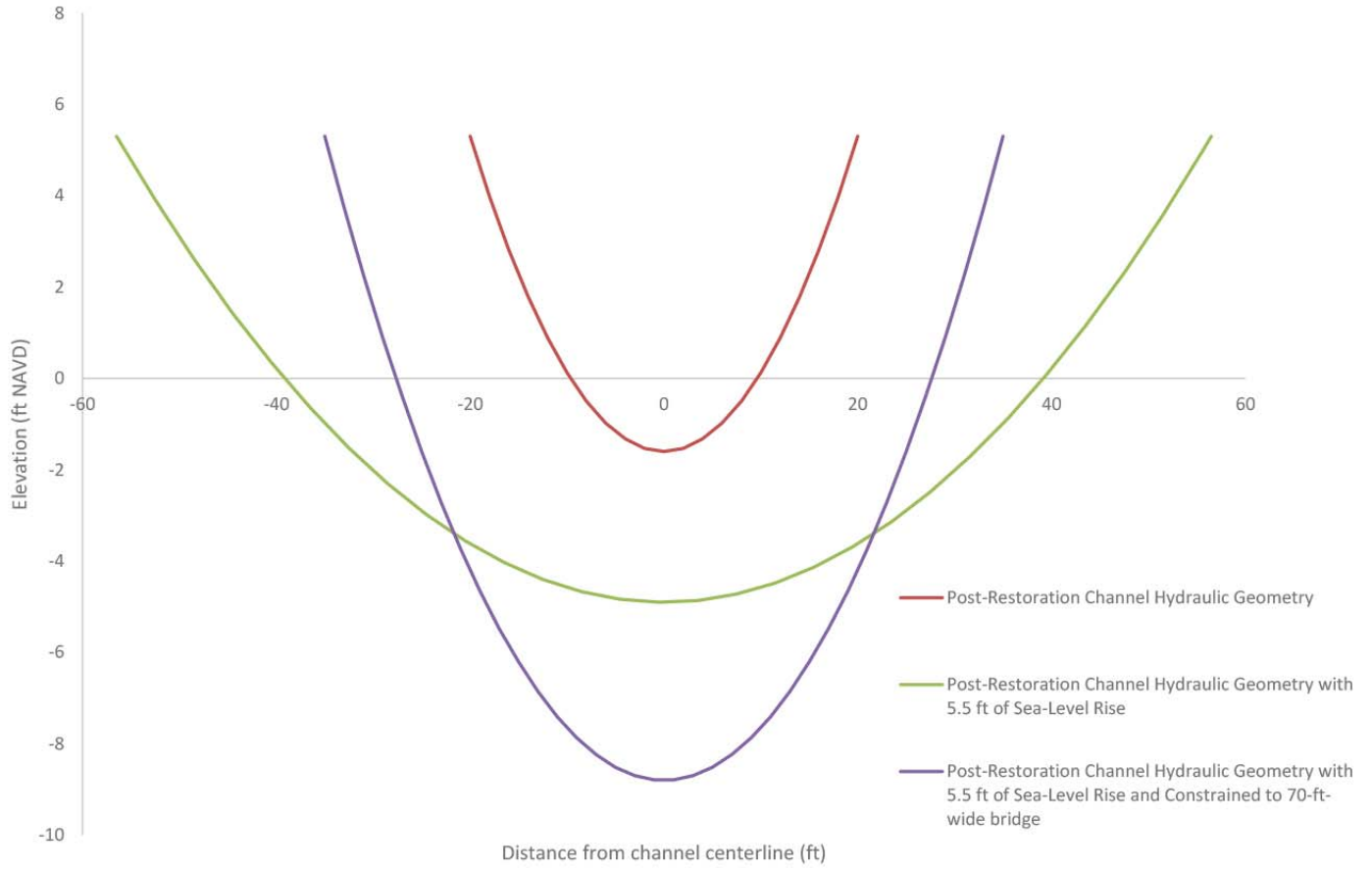
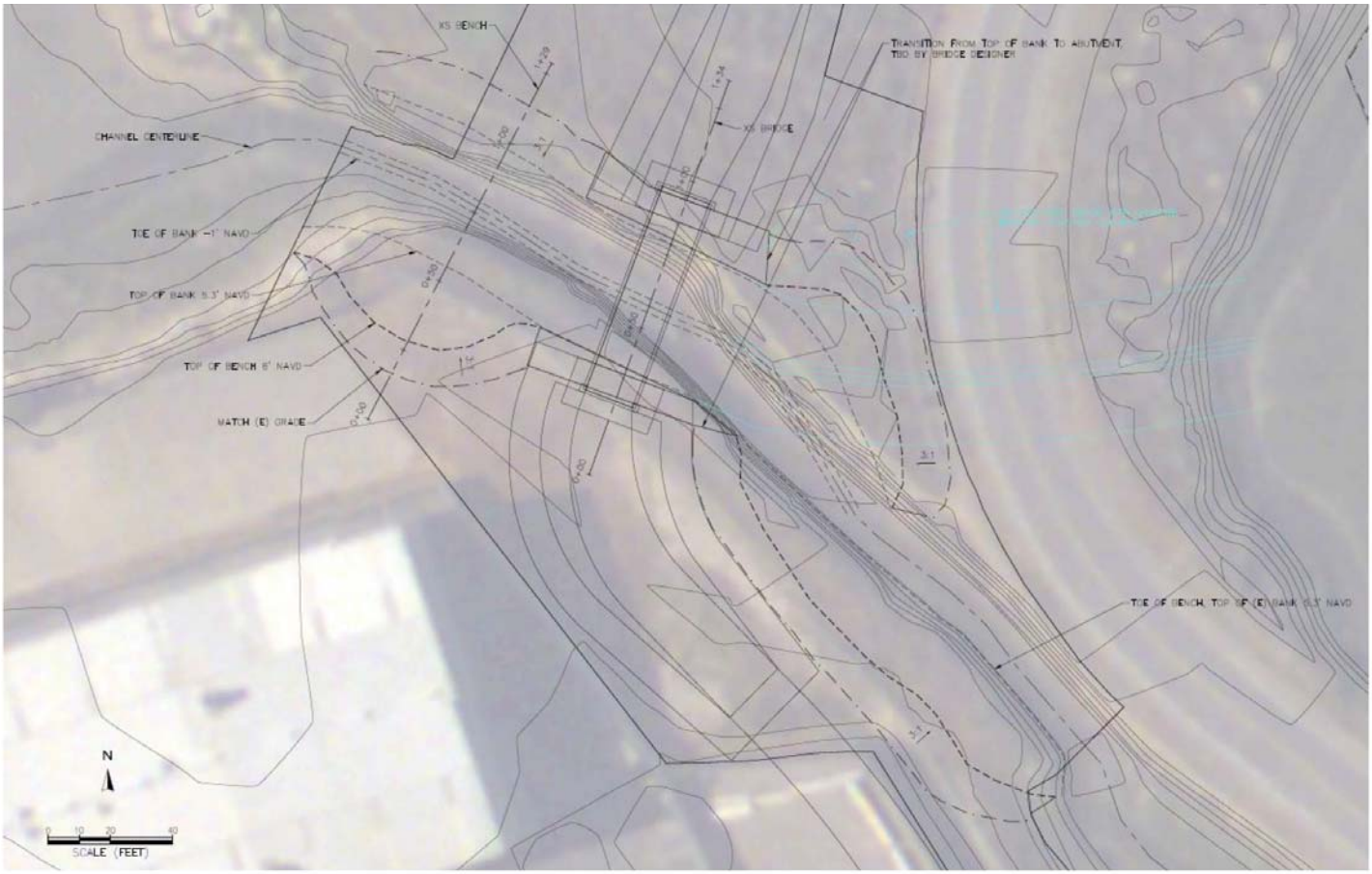


SOURCE: ESA 2018

Chula Vista Bayfront Urban Greening Grant / D150388.02

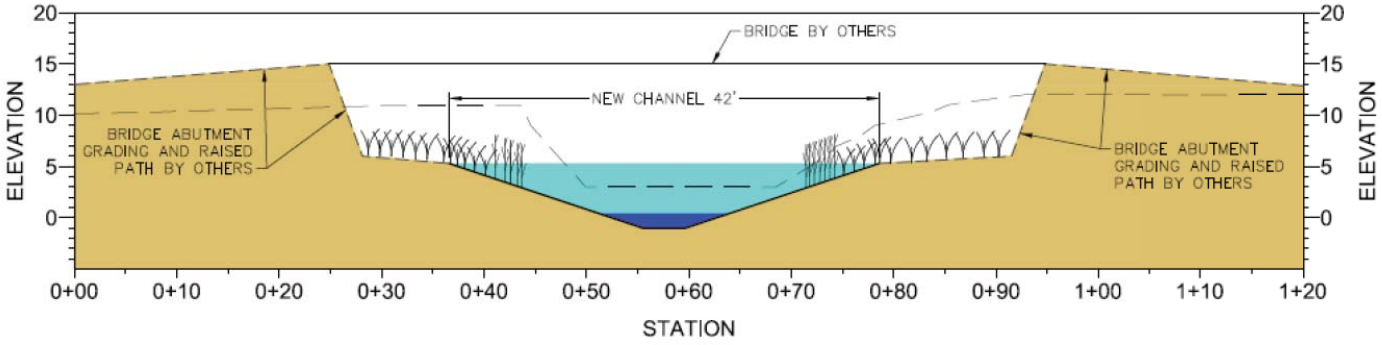
Figure 7-2: Concept Channel Cross-section at Pedestrian Bridge



SOURCE: ESA 2018

Chula Vista Bayfront Urban Greening Grant / D150388.02

Figure 7-3: Channel and Bench Grading Concept Plan View

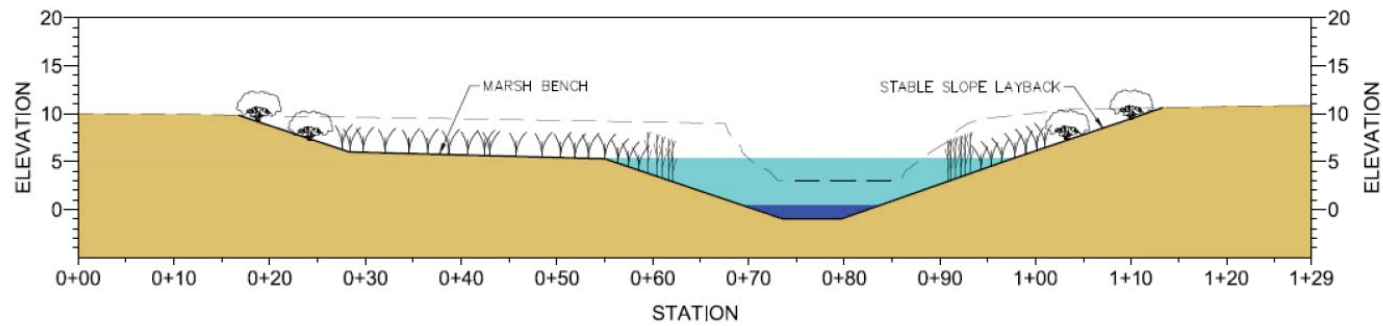


SOURCE: ESA 2018

Chula Vista Bayfront Urban Greening Grant / D150388.02

Conceptual Channel Cross-Section at Pedestrian Bridge

Figure 7-4: Channel Bench Concept Cross-Section at Pedestrian Bridge



SOURCE: ESA 2018

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Figure 7-5: Channel Bench Concept Cross-Section

CHAPTER 8

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8.1 REFERENCES

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CHAPTER 9

APPENDIX

APPENDIX 1. FLORA SPECIES OBSERVED WITHIN THE BSA

Habitat Types:

O = Open Water
B = Beach
S = Southern Coastal Salt Marsh
C = Diegan Coastal Sagescrub
Diegan Coastal Sagescrub – disturbed
Diegan Coasta Sagescrub – baccharis dominated
H = Disturbed Habitat
U = Urban/Developed

* = Denotes non-native flora species.

Scientific Name	Common Name	Habitat
DICOTYLEDONS		
Aizoaceae – Fig-Marigold Family		
**Mesembryanthemum crystallinum* L.	crystalline iceplant	H
Asteraceae - Sunflower Family		
Artemisia californica Less.	California sagebrush	C, H
Baccharis pilularis DC.	coyote brush, chaparral broom	C, H
Baccharis sarothroides A. Gray	broom baccharis	C, H
**Glebionis coronaria* (L.) Spach	garland, crown daisy	C, H
Isocoma menziesii (Hook. & Arn.) G. L. Nesom var. *decumbens* (Greene) G. L. Nesom	decumbent goldenbush	C, S, H
Jaumea carnosa (Less.) A. Gray	salty Susan, fleshy jaumea	S
Bataceae - Saltwort Family		
Batis maritima L.	saltwort, beachwort	S
Brassicaceae - Mustard Family		
**Brassica nigra* (L.) Koch	black mustard	C, H
**Hirschfeldia incana* (L.)Lagr.-Fossat	short-pod mustard	C, H
Chenopdiaceae – Goosefoot Family		
Arthrocnemum subterminale (Parish) Standl.	Parish's pickleweed	S
**Atriplex semibaccata* R. Br.	Australian saltbush	S, H
**Salsola tragus* L.	Russian thistle, tumbleweed	S, C, H
Convolvulaceae - Morning-Glory Family		
Cressa truxillensis Kunth.	alkali weed	S
Fabaceae - Pea Family		
Astragalus trichopodus (Nutt.) A. Gray var. *lonchus* (M. E. Jones) Barneby	ocean locoweed	S, H,
Frankeniaceae - Frankenia Family		
Frankenia salina (Molina) I. M. Johnston	alkali heath	S
Geraniaceae - Geranium Family		
**Erodium moschatum* (L.)L'Hér.	white-stem filaree	C, H
Lamiaceae - Mint Family		
**Marrubium vulgare* L.	horehound	H
Plumbaginaceae - Leadwort Family		

Scientific Name	Common Name	Habitat
Limonium californicum (Boiss.) A.A. Heller	western marsh-rosemary	S
Polygonaceae - Buckwheat Family		
Eriogonum fasciculatum Benth. var. *fasciculatum*	coastal California buckwheat	C, H
Solanaceae - Nightshade Family		
Lycium californicum Nutt.	California desert thorn	H
**Nicotiana glauca* Graham	tree tobacco	H, C
MONOCOTYLEDONS		
Poaceae - Grass Family		
**Bromus diandrus* Roth	ripgut grass	H, C
Distichlis littoralis (Engelm.) H.L. Bell & Columbus	shoregrass	S
Distichlis spicata (L.) Greene	saltgrass	S

APPENDIX 2. FAUNA SPECIES OBSERVED OR DETECTED WITHIN THE BSA

Habitat Types:

O = Open Water
B = Beach
S = Southern Coastal Salt Marsh
C = Diegan Coastal Sagescrub
Diegan Coastal Sagescrub – disturbed
Diegan Coasta Sagescrub – baccharis dominated
H = Disturbed Habitat
U = Urban/Developed
FO = fly over

* = denotes introduced species

Abundance Codes (birds only):

A = Abundant: Almost always encountered in moderate to large numbers in suitable habitat and the indicated season.
C = Common: Usually encountered in proper habitat at the given season.
U = Uncommon: Infrequently detected in suitable habitat. May occur in small numbers or only locally in the given season.
R = Rare: Applies to species that are found in very low numbers.

"Numbers" indicate the number of individuals observed during the field survey work.

Status Codes (birds only):

M= Migrant: Uses the site for brief periods of time, primarily during the spring and fall months.
R = Year-round resident: Probable breeder on-site or in the vicinity.
S = Spring/summer resident: Probable breeder on-site or in the vicinity unless combined with transient status.
T = Transient: Uses site irregularly in summer but unlikely to breed. Not a true migrant and actual status often poorly known
W = Winter visitor: Does not breed locally.
V = Casual vagrant: Not expected; out of normal geographic or seasonal range and by definition rare.

Common Name	Scientific Name	Habitat	Abundance	Status
BIRDS				
Ardeidae (Herons and Bitterns)				
snowy egret	*Egretta thula*	O, B, S	C	T, R
Anatidae (Swans, Geese, and Ducks)				
brant	*Branta bernicla*	B	C	M, W
Scolopacidae (Sandpipers and Relatives)				
marbled godwit	*Limosa fedoa*	B	C	M, W, T
Laridae (Gulls and Terns)				
western gull	*Larus occidentalis*	FO	A	R, T
Trochilidae (Hummingbirds)				
Anna's hummingbird	*Calypte anna*	H	C	R

APPENDIX 3. GENERAL OVERVIEW PHOTOS OF THE BIOLOGICAL STUDY AREA

Photo 1. Overview photo; taken from the western portion of the BSA and directed southeast. Photo taken on 3/9/2018.

Photo 2. Overview photo; taken from the same location as Photo 1 but directed westward toward the San Diego Bay. Photo taken on 3/9/2018.

Photo 3. Overview photo; taken from the eastern portion of the BSA and directed northward. Photo taken on 3/9/2018.

Photo 4. Photo taken from inside the eroding channel; just east of the proposed bridge span. Photo directed west toward San Diego Bay. Taken on 3/9/2018.

APPENDIX 4. JURISDICTIONAL WETLAND DELINEATION DATA FORMS AND PHOTO POINTS

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: CVB Sweetwater Urban Greening Grant Project City/County: CVBMP / Chula Vista / San Diego Sampling Date: 3/9/18

Applicant/Owner: San Diego Unified Port District State: CA Sampling Point: DP1

Investigator(s): Amanda Gonzales Section, Township, Range: unsectioned, T18S, R2W

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

Subregion (LRR): LRR-C Lat: 32.63216 Long: -117.10521 Datum: WGS 84

Soil Map Unit Name: Huerhuero loam, 2-9% slopes NWI classification: Upland

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

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

Are Vegetation N, Soil N, or Hydrology N 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 ✓	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks:
DP located within upland habitat.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ~4 x 10')	Absolute % Cover	Dominant Species?	Indicator Status
1. —	—		
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: ~4 x 10')			
1. —	—		
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: ~4 x 10')			
1. Bromus diandrus	40	Y	UPL
2. Salsola tragus	20	Y	FACU
3. Glebionis coronaria	20	Y	UPL
4. Frankenia salina	10	N	FACW
5. Mesembryanthemum crystallinum	10	N	FACU
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: ~4 x 10')			
1. —	—		
2.			
	0 = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	1	x 2 =	2
FAC species	0	x 3 =	0
FACU species	2	x 4 =	8
UPL species	1	x 5 =	5
Column Totals:	4 (A)		15 (B)

Prevalence Index = B/A = 3.75

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 ✓

Remarks:
DP located outside the tidal influence, at the top of the bank. Hydrophytic vegetation not dominant.

SOIL

Sampling Point: DP 1

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
0-6	10YR 3/3	90	—				Sandy loam	

[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 ✓

Remarks:

Difficult to dig due to debris (encrusted glass) & small rocks.

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 ✓ 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:

MHA topo & Duduck 2015

Remarks:

DP located at the top of the channel bank outside the mean high water line and mean annual highest high tide.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: CVB Sweetwater Urban Greening Grant Project City/County: CVBMP / Chula Vista / San Diego Sampling Date: 3/9/18

Applicant/Owner: San Diego Unified Port District State: CA Sampling Point: DP 2

Investigator(s): Amanda Gonzales Section, Township, Range: unsectioned, T18S, R2W

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

Subregion (LRR): LRR-C Lat: 32.63240 Long: -117.10514 Datum: WGS 84

Soil Map Unit Name: Huerhuero loam, 2-9% slopes NWI classification: Upland

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

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

Are Vegetation N, Soil N, or Hydrology N 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 ____	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks:

DP located above the mean annual highest high tide on a bench. Community dominated by hydrophytic veg, but hydric soils and wetland hydrology not present.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ~5x12)	Absolute % Cover	Dominant Species?	Indicator Status
1. —	—		
2.			
3.			
4.			
	Ø = Total Cover		
Sapling/Shrub Stratum (Plot size: ~5x12)			
1. —	—		
2.			
3.			
4.			
5.			
	Ø = Total Cover		
Herb Stratum (Plot size: ~5x12)			
1. Atriplex semibaccata	60	Y	FAC
2. Suaeda taxifolia	20	Y	FACW
3. Distichlis spicata	10	N	FAC
4. Frankenia salina	5	N	FACW
5. Glebionis coronaria	5	N	UPL
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: ~5x12)			
1. —	—		
2.			
	Ø = Total Cover		

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

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: 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:

✓ 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 ____

Remarks:

DP located on a bench, dominated by hydrophytic vegetation.

SOIL

Sampling Point: DP 2

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
0-6	10YR 3/3	90	—				Sandy loam	

[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 ✓

Remarks:

Similar conditions as DP 1. Hydric soils not 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)
- ___ 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:

DP located ntside/above the annual highest high tide, on a bench. Wetland hydrology not present.

Photo Point 1. Overview photo of Wetland Data Point 1. Photo directed southeast. Photo taken on 3/9/2018. Data point located within upland habitat.

Photo Point 2. View photo of Wetland Data Point 1. Photo directed west toward San Diego Bay. Photo taken on 3/9/2018. Data point located within upland habitat.

Photo Point 3. View photo of Wetland Data Point 1. Photo directed south. Photo taken on 3/9/2018.

Photo Point 4. Close up view of the soil pit at Wetland Data Point 1. Photo taken on 3/9/2018.

Photo Point 5. Overview photo of Wetland Data Point 2 (red shovel). Photo directed southeast. Photo taken on 3/9/2018. Data point located within CCC only wetland habitat.

Photo Point 6. Close up view of the soil pit at Wetland Data Point 2. Photo taken on 3/9/2018.

APPENDIX 2. BIOLOGICAL IMPACT ANALYSIS REPORT FOR THE CHULA VISTA BAYFRONT SWEETWATER URBAN GREENING GRANT EARLY ACTION PROJECT (M&A 2018A)

CHULA VISTA BAYFRONT SWEETWATER URBAN GREENING GRANT EARLY ACTION PROJECT

BIOLOGICAL IMPACT ANALYSIS REPORT

May 29, 2018

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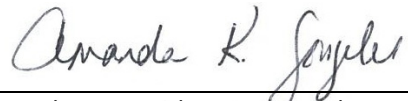
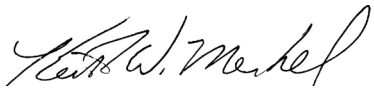


Amanda K. Gonzales, Senior Biologist



Keith W. Merkel, Principal Consultant

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GLOSSARY OF TERMS AND ACRONYMS

AJD Approved Jurisdictional Determination
BS Beaufort scale
BSA Biological Study Area
CCA California Coastal Act
CCC California Coastal Commission
CDFW California Department of Fish and Wildlife
CEQA California Environmental Quality Act
CESA California Endangered Species Act
CNDDB California Natural Diversity Database
CNPS California Native Plant Society
CVB Chula Vista Bayfront
CVBMP Chula Vista Bayfront Master Plan
CWA Clean Water Act
CDP Coastal Development Permit
District (or Port) San Diego Unified Port District
ESA (Federal) Endangered Species Act
ESRI Environmental Systems Research Institute
°F degrees Fahrenheit
FAC Facultative Plants
FACU Facultative Upland Plants
FACW Facultative Wetland Plants
FEIR Final Environmental Impact Report
FGS Fish and Game Code
GIS Geographical Information System
GPS Global Positioning System
LCP Local Coastal Program
M&A Merkel & Associates, Inc.
MBTA Migratory Bird Treaty Act
HMP (long-term) Habitat Management Plan
MLLW Mean Lower Low Water
MMRP Mitigation and Monitoring Program
MPH Miles per Hour
NAVD88 North American Vertical Datum of 1988
NWW Non-wetland Waters of the U.S.
OBL Obligate Wetland Plants
OHWM Ordinary High Water Mark
PJD Preliminary Jurisdictional Determination
Port (or District) San Diego Unified Port District
RWQCB Regional Water Quality Control Board
SWANCC Solid Waste Agency of Northern Cook County
SWRCB State Water Resources Control Board
TNW Traditional Navigable Waters
USACOE U.S. Army Corps of Engineers
USEPA U.S. Environmental Protection Agency
USFWS U.S. Fish and Wildlife Service
USGS U.S. Geological Survey
WoUS Waters of the U.S.

1.0 INTRODUCTION

1.1. Purpose of the Report

Merkel & Associates, Inc. (M&A) has prepared this biological impact analysis report, inclusive of a jurisdictional delineation for the proposed Chula Vista Bayfront (CVB) Sweetwater Urban Greening Grant Early Action Project. The purpose of this report is to document the existing biological conditions within the project biological study area (BSA); identify potential impacts to biological resources that could result from implementation of the proposed project; and recommend measures to avoid, minimize, and/or mitigate significant impacts consistent with applicable federal, state, and local regulations including the California Environmental Quality Act (CEQA) and the Final Environmental Impact Report (FEIR) for the Bayfront Master Plan (CVBMP) (Dudek 2010).

This report will also serve as documentation of a Jurisdictional Determination (JD) to support the U.S. Army Corps of Engineers' (USACOE) consideration of issuance of a permit under Section 404 of the Clean Water Act (CWA) and a permit for work in traditionally navigable waters of the U.S. (WoUS) under Section 10 of the Rivers & Harbors Act (R&HA). This report also supports authorization by other state and local agencies consisting of California Regional Water Quality Control Board (RWQCB) for a Water Quality Certification under Section 401 of the CWA and San Diego Unified Port District (District or Port) for issuance of the Coastal Development Permit (CDP). The marine waters within the project are not subject to California Department of Fish & Wildlife (CDFW) regulation under section 1600 of the California Fish & Game Code.

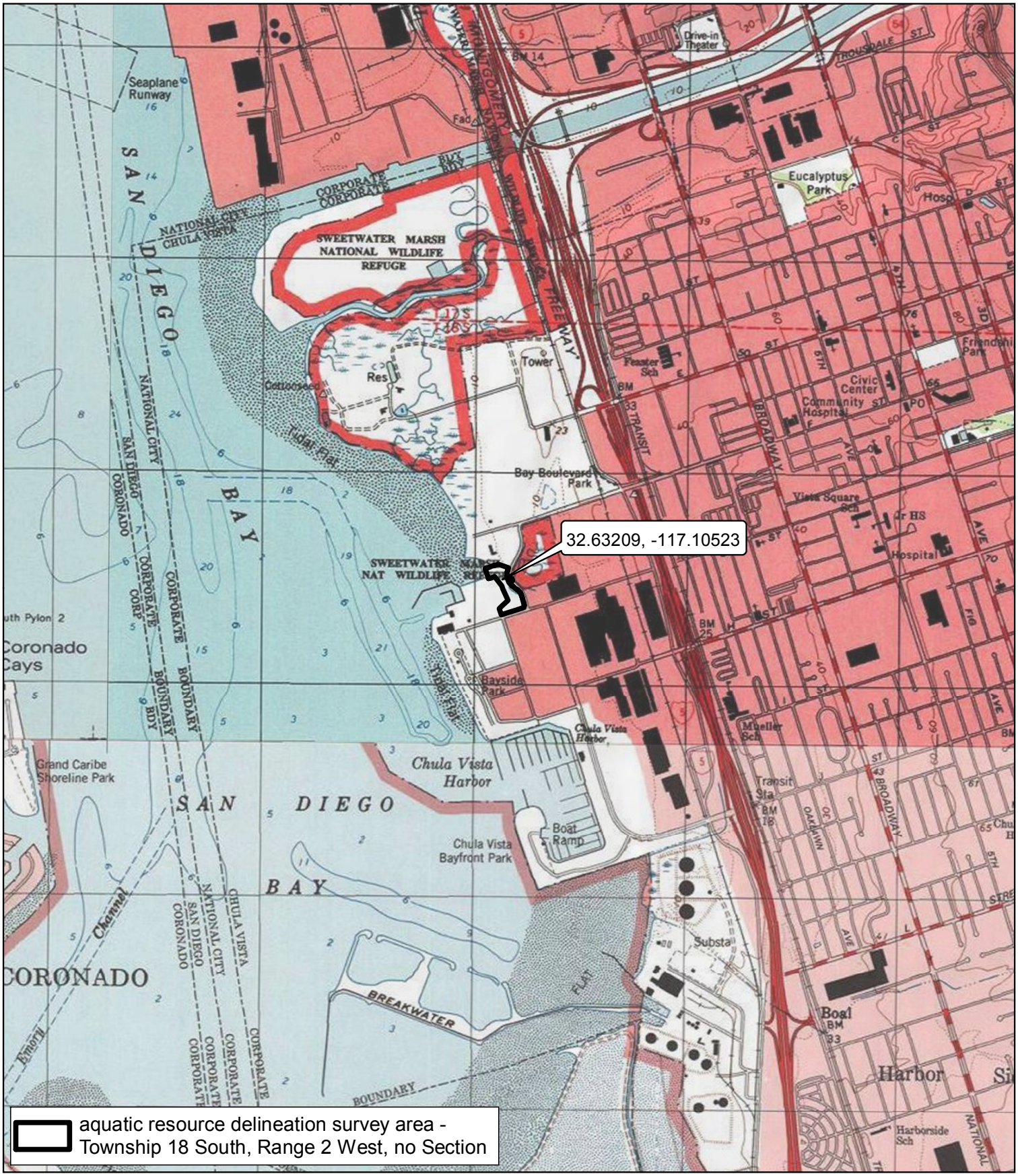
1.2. Project Location

The project site is located within the boundary of the Chula Vista Bayfront Master Plan (CVBMP) in the City of Chula Vista, California. It lies within unsectioned lands, Township 18 South, Range 2 West of the San Bernardino Base and Meridian, U.S. Geological Survey 7.5' National City, California Quadrangle (Latitude 32.63209, Longitude -117.10523 decimal degrees for central portion of the site, WGS84 datum) (Figure 1).

The project site occurs between the open waters of San Diego Bay and Marina Parkway, between Lagoon Drive and G Street west of the F&G Street Marsh (Figure 2). The site includes portions of Assessor Parcel Numbers 567-010-28 and 760-048-00

1.3. Project Description

The proposed project is a span bridge over the inlet channel from the San Diego Bay toward the seasonal F&G Street Marsh. The project also includes slope layback to prevent further erosion along the length of the channel and to accommodate habitat continuity and sea level rise adaptation objectives. As part of the slope layback, the existing banks would be contoured to promote establishment of native marsh habitats and existing rubble/debris would be excavated from the channel bottom to remove impediments to channel deepening and improvements of tidal drainage. As part of the slope contouring, Outfall No. CV1-2, an existing 18-inch storm drain and associated riprap would be removed from the channel bed and relocated. The relocated storm drain system, inclusive of an energy dissipater and associated work area for future maintenance would be shortened to outlet in disturbed upland habitat and upsized to a 48-inch storm drain to accommodate future runoff from development associated with the CVBMP project.



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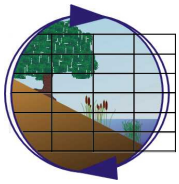
Project Vicinity Map

Chula Vista Bayfront Urban Greening Grant Project

Source: USGS 7.5' National City, CA Quadrangle

Figure 1



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Local Setting Map

Chula Vista Bayfront Urban Greening Grant Project

Aerial Source: ESRI 2016

Created On: 3/29/2018

Figure 2

The proposed bridge would serve as an over water connection for the Sweetwater Park Path and is intended for pedestrian/bicycle traffic. The bridge would primarily serve park users; however, it would also be designed to accommodate light maintenance vehicles. No lighting is proposed in association with the bridge and no nighttime work is proposed. The bridge would also serve as the terminus of future buffer protection fencing at the tidal channel.

The bridge would be made of a galvanized steel frame and would be approximately 16 feet wide to allow for safe and adequate access for all uses, as well as off traffic flow pedestrian standing room. It would be supported by two concrete abutments at either end of the bridge which would provide for the span across the channel and avoid the need for any center supports. These abutments would be placed back from the existing channel banks to reduce impacts on the channel itself. The bridge would be put into place using a crane from a temporary upland staging area. All site impacts related to construction activities, including access, grading of park path up to the bridge elevation, channel improvements, and habitat establishment and rehabilitation are included as part of the project design.

Implementation of the proposed project is expected to occur following acquisition of all applicable permits/authorizations. Construction of the project is expected to occur over an approximate four month period.

1.4. Survey Methodologies

1.4.1. Literature and Data Review

Historical and currently available biological literature and data pertaining to the project area were reviewed prior to initiation of the field investigations. This review included examination of: 1) aerial photography for the project site (Google Earth Pro and M&A 2016); 2) previously mapped vegetation data for the project vicinity (Dudek 2015); 3) soil types mapped on the project site (SanGIS 2002); 4) digital elevation model (DEM) and topographic data (M&A 2016, Port of San Diego 2018); 5) federally designated critical habitat for the project vicinity (USFWS 2017a); 6) CDFW California Natural Diversity Database (CNDDB) and USFWS special status species records for the project vicinity (CDFW 2017a and USFWS 2017b, respectively); and 7) previous biological reports/data for the project site and local vicinity including: *Final Environmental Impact for the Chula Vista Bayfront Master Plan* (Dudek 2010), *Biological Resources Survey Report for the E Street Realignment in Chula Vista, Chula Vista Bayfront Master Plan* (Dudek 2015) and *Final Report Restoration and Enhancement Alternatives for the Chula Vista Bayfront* (M&A 2017).

1.4.2. Field Survey(s) Conducted

1.4.2.1. Jurisdictional Delineation

M&A biologists conducted a jurisdictional wetland delineation in March 2018 using the routine onsite determination methods noted in the *USACOE Wetland Delineation Manual* (Environmental Laboratory 1987) and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACOE 2008a) (Table 1). In addition, the delineation was expanded to provide a full review of jurisdiction over wetlands and non-wetland WoUS/state to define the physical boundaries of regulation by various federal, state, and local agencies. This included defining the physical boundaries of navigable waters at the mean high water (+4.20 feet NAVD88 (+4.89 feet

MLLW)) and tidal WoUS, defined as the mean annual highest high tide [+7.10 feet NAVD88 (+7.79 feet mean lower low water (MLLW))].

Prior to conducting the delineation, the BSA was evaluated to identify potential jurisdictional wetlands and/or waterways, and their connection to offsite hydrological resources. In addition, the overall landforms, slopes, soils, and climatic/hydrological conditions present within the BSA were assessed. This included review of the *Biological Resources Survey Report for the E Street Realignment in Chula Vista, Chula Vista Bayfront Master Plan* (Dudek 2015) and preparation of a topographic map.

Evidence supporting the jurisdictional delineation was recorded on wetland determination field data forms and depicted in photographs of the data points. Data points were taken in areas that were visually determined to best represent the characteristics of each potential wetland community type and/or jurisdictional resource identified within the BSA, as well as in areas where the presence of a wetland and/or jurisdictional resource was uncertain.

The USACOE routine onsite determination methods require the presence of three parameters to define an area as a wetland (i.e., hydrophytic vegetation, hydric soils, and wetland hydrology); however, procedural deviations are required and allowed for under the delineation methods where normal circumstances do not exist [i.e., some wetland indicators of one or more of the parameters can be periodically lacking due to normal seasonal or annual variations in environmental conditions (i.e., problem areas) or effects of recent human activities or natural events (i.e., atypical situations)]. At each data point location, the area was first assessed to determine if normal environmental conditions were present. Each data point was then evaluated for indicators of each of the wetland parameters (as described below).

Wetland habitats and jurisdictional waterways were delineated using a Trimble® GeoExplorer Global Positioning System (GPS) unit with submeter accuracy and plotted onto 1" = 100' scale, spatially correct color aerial photograph (M&A 2016) of the BSA. Data collected from the survey were digitized in Environmental Systems Research Institute (ESRI) Geographic Information Systems (GIS) software, using ArcGIS for Desktop.

Information on the overall delineation process and regulatory jurisdictions may be found in the USACOE *Wetland Delineation Manual* (Environmental Laboratory 1987) and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACOE 2008a), as well as federal and state, or through guidance provided by judicial interpretation, solicitors opinions, and regulatory guidance issued to jurisdictional agencies.

1.4.2.1.1. Wetland Parameters

Hydrophytic Vegetation

Hydrophytic vegetation is defined as "the community of macrophytes that occurs in areas where inundation and soil saturation is either permanent, or of sufficient frequency and duration to exert a controlling influence on the plant species present" (USACOE 2008a, Section 2). For the purposes of this delineation, five levels of wetland indicator status were used to assess the presence of hydrophytic vegetation, based on the most current National Wetland Plant List for the Arid West (USACOE 2016a): species classified as 1) obligate wetland plants (OBL) [plants that occur almost

always (estimated probability >99%) in wetlands under natural conditions, but which may also occur rarely (estimated probability <1%) in non-wetlands]; 2) facultative wetland plants (FACW) [plants that occur usually (estimated probability >67% to 99%) in wetlands, but also occur (estimated probability 1% to 33%) in non-wetlands]; 3) facultative plants (FAC) [plants with a similar likelihood (estimated probability 33% to 67%) of occurring in both wetlands and non-wetlands]; 4) facultative upland plants (FACU) [plants that occur sometimes (estimated probability 1% to <33%) in wetlands, but occur more often (estimated probability >67% to 99%) in non-wetlands]; and 5) obligate upland plants (UPL) [plants that occur rarely (estimated probability <1%) in wetlands, but occur almost always (estimated probability >99%) in non-wetlands under natural conditions] (Environmental Laboratory 1987, Table 1). Hydrophytic vegetation was determined to be present if any one of the following three indicator tests were satisfied: 1) the Dominance Test (Indicator 1), where "more than 50% of the dominant plant species across all strata were rated OBL, FACW, or FAC"; 2) the Prevalence Test (Indicator 2), where there were indicators of hydric soils and wetland hydrology, and the prevalence index was 3.0 or less, which is a weighted-average wetland indicator status of all plant species by abundance (percent cover); and/or 3) the Plant Morphological Adaptations Test (Indicator 3), where there were indicators of hydric soils and wetland hydrology present, and either the Dominance Test (Indicator 1) or Prevalence Test (Indicator 2) were satisfied after reconsideration of the indicator status of certain plant species that exhibited morphological adaptations for life in wetlands.

Hydric Soils

Hydric soils are defined as "a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part" (USACOE 2008a, Section 3). For the purposes of this delineation, the hydric soil indicators described in the USACOE *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACOE 2008a) and *National Technical Committee for Hydric Soils (NTCHS) Field Indicators of Hydric Soils in the United States* (USDA NRCS 2016) were used to assess the presence of hydric soils. Soil test pits were dug to the depth needed to document the soil chroma index using the Munsell® Soil Color Charts (Munsell® Color 2000), as well as additional hydric soil indicators. The soil was determined to be hydric if one or more hydric soil indicators were present.

Wetland Hydrology

Wetland hydrology is indicated by the presence of surficial or sub-surficial hydrologic characteristics long enough during the growing season to show that the presence of water has an overriding influence on the characteristics of vegetation and soils due to anaerobic and reducing conditions, respectively; thus, for an area to be defined as a wetland, periodic inundation or saturation of soils during the growing season must be determined to be present (USACOE 2008a, Section 4). For the purposes of this delineation, the wetland hydrology indicators described in the USACOE *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACOE 2008a) were used to assess the presence of wetland hydrology. Wetland hydrology was determined to be present if one or more primary indicators, or two or more secondary indicators were observed.

1.4.2.1.2. Jurisdiction of Wetlands and Waterways

U.S. Army Corps of Engineers

The USACOE has regulatory authority to issue permits for 1) the discharge of dredged or fill material in "waters of the U.S." under Section 404 of the CWA (33 U.S.C. 1344), and 2) work and placement of structures in "navigable waters of the U.S." under Sections 9 and 10 of the R&HA (33 U.S.C. 401).

The term "navigable waters of the U.S." is defined in 33 CFR Part 329.4 as "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 for use to transport interstate or foreign commerce."

The term "waters of the U.S." is defined in 33 CFR Part 328.3(a) as:

> (1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters subject to the ebb and flow of the tide; (2) All interstate waters and wetlands; (3) All other waters such as intrastate lakes, rivers, streams, (including intermittent streams), mudflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters: (i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or (ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or (iii) Which are used or could be used for industrial purpose by industries in interstate commerce; (4) All impoundments of waters otherwise defined as waters of the U.S. under the definition; (5) Tributaries of waters identified in (a) (1) through (4) of this section; (6) The territorial seas; (7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) (1) through (6) of this section; and (8) Waters of the U.S. do not include prior converted cropland.

"Wetlands" are defined in 33 CFR 328.3(b) as "those areas that are inundated or saturated by surface or ground water 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." Thus, all three parameters (i.e., hydrophytic vegetation, hydric soils, and wetland hydrology) must be present to classify an area as a Corps jurisdictional wetland under normal circumstances.

The limits of CWA jurisdiction in tidal WoUS [33 CFR 328.4(b)] extend to the high tide line or to the limits of adjacent non-tidal WoUS. The limits of jurisdiction in non-tidal waters of the U.S. [33 CFR 328.4(c)] extend to the limits of the wetlands or adjacent wetlands. Non-tidal waters of the U.S. that lack one or two of the wetland parameters may still be jurisdictional under the USACOE as non-wetland waters of the U.S. (NWW). In the absence of wetlands or adjacent wetlands, the limits of jurisdiction in non-tidal waters of the U.S. extend to the ordinary high water mark (OHWM), which is defined in 33 CFR 328.3(e) as, "that line on the shore established by the fluctuation of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas." The method for identification of lateral limits for potential NWWs are detailed in the USACOE *A*

Delineation Manual, A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States (USACOE 2008c, Revised 2010).

The regulatory purview of the USACOE under Section 404 of the CWA has been restricted by rulings of the U.S. Supreme Court. These have included principal rulings under *Solid Waste Agency of Northern Cook County (SWANCC) v. U.S. Army Corps of Engineers et al.* (2001) and the 2006 ruling in *Rapanos v. U.S.* and *Carabell v. U.S.* (hereafter referred to as *Rapanos*). Under the 2006 court ruling in *Rapanos* addressing the jurisdictional scope of "waters of the U.S.", no single opinion commanding a majority of the Court was issued. As a consequence, the U.S. Environmental Protection Agency (USEPA) and USACOE subsequently issued a joint memorandum (2008) addressing guidance on determining jurisdiction of "waters of the U.S.".

The memorandum, intended to address rulings in *SWANCC* and *Rapanos*, states that the agencies will assert jurisdiction over the following waters:

- Traditional navigable waters;
- Wetlands adjacent to traditional navigable waters;
- Non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months); and
- Wetlands that directly abut such tributaries.

The agencies will decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with a traditional navigable water:

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

The agencies generally will not assert jurisdiction over the following features:

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

The agencies will apply the significant nexus standard as follows:

- A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical and biological integrity of downstream traditional navigable waters (TNWs); and
- Significant nexus includes consideration of hydrologic and ecologic factors.

Key to the application of this guidance is a formalized oversight process involving both the USACOE and the USEPA in the adoption of an Approved Jurisdictional Determination (AJD). The intent of this formal process is to ensure consistency in the manner in which the agencies interpret the rulings and guidance at all levels. To institute the program by which jurisdictional determinations

are made, the USACOE issued RGL 08-02, now superseded by RGL 16-01 on the subject of Jurisdictional Determinations (USACOE 2008b and 2016b, respectively). Of importance in this guidance is the distinction between an applicant's request for a Preliminary Jurisdictional Determination (PJD) or an AJD. If a PJD is requested from the USACOE, the determination will be inclusive of all features that have historically been regulated by the USACOE under Section 404 of the CWA and Sections 9 and 10 of the R&HA (i.e., pre-*SWANCC* and *Rapanos*). The PJD excludes exempted jurisdictional waters, but not those excluded by court ruling interpretations. The AJD provides a more thorough evaluation of issues of isolation, adjacency, and significant nexus as contemplated by the courts and excludes those areas from USACOE regulation that fail to meet the necessary litmus tests of the court decision and the agencies' implementation guidance. The USACOE has developed a *Jurisdictional Determination Form Instructional Guidebook* (USEPA and USACOE 2007) to aid field staff in completing AJDs.

On May 27, 2015, the USEPA and the USACOE released a final rule broadly expanding the definition of WoUS. This new definition would do a multitude of things including expanding the inclusion of many non-navigable waters and tributaries as WoUS, expanding inclusion of regulation on waters that are not tributary to traditionally navigable waters by assumption rather than demonstration of significant nexus, and altering the placement of burden of evidence from a demonstration of jurisdiction of the USEPA and USACOE to a demonstration of lack of jurisdiction under the CWA.

The rule originally went into effect on August 28, 2015, and was immediately challenged in lawsuits across the country. Courts subsequently stayed the implementation of the rule nationwide. Because the challenges and court actions on the rule were rapid and broad sweeping, the practical field application of this new rule has not yet been tested, however, implementation of the 2015 Final Rule would likely not substantially change the delineation of WoUS for this particular project based on the nature and characteristics of the features present and interpretation of the proposed changes under the presently stayed regulation.

<u>California State Water Resources Control Board/Regional Water Quality Control Board</u>

The RWQCB (under the State Water Resources Control Board [SWRCB]) regulates wastewater discharges to "waters of the State", which is defined in section 13050(e) of the California Water Code as "any surface water or groundwater, including saline waters, within the boundaries of the State." For waters of the State that are federally regulated under the CWA, the RWQCB must provide state water quality certification pursuant to Section 401 of the CWA for activities that may result in discharge of pollutants into WoUS.

<u>California Coastal Commission</u>

State jurisdictional areas are addressed in this review and analysis due to the need for California Coastal Commission (CCC) review under the federal Coastal Zone Management Act (CZMA) and separate permitting under the California Coastal Act (CCA). The CCC regulates activities that would affect wetlands occurring in the California coastal zone through the CCA. However, the District has a certified Local Coastal Program (LCP) (City of Chula Vista, Amended 2013), which covers the BSA and enables authorization of projects by the District under the CCA via issuance of a CDP. As part of the regulatory process, the CCC must review all applications for a CDP.

Section 30121 of the CCA defines "wetland" as: "lands within the coastal zone that may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats and fens."

The CCA definition of "wetland" is further expanded upon in 14 CCR 13577(b) as:
Wetlands are lands 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 or drastic fluctuations of surface water levels, wave action, water flow, turbidity, or high concentrations of salt 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 deepwater habitats.

The CCC uses the same three criteria for defining wetlands as the USACOE (i.e., hydrophytic vegetation, hydric soils, and wetland hydrology); however, only one of the three criteria needs to be present for an area to be classified as a wetland. CCC jurisdiction extends beyond streambeds to include all tidal areas and isolated wetlands; however, jurisdiction is limited to areas within the coastal zone.

The CCC wetland definition is generally more encompassing than the USACOE definition in most respects; however, the language of 14 CCR 13577(b) would suggest that, where conditions are not capable of supporting hydric soils or hydrophytic vegetation, hydrologic indicators of saturation or surface waters should be expressed on an annual basis (i.e., "at some time during each year"), not just under ordinary high water conditions as is the case under the federal regulatory standard. As a result, the CCA definition of wetlands would appear to be more limited than the federal act where no soil or vegetation indicators exist.

1.4.2.1.3. Wetland Functions and Values

Following the jurisdictional wetland delineation, wetland functions and values were assessed based on a visual qualitative analysis. Wetland functions can be defined as the physical, chemical, and biological characteristics of a wetland. The physical and chemical functions and values of a wetland are determined based on the wetland width, slope, substrate, hydrology characteristics, location and proximity to relatively permanent waters, and habitat constituents. These functions and values typically include groundwater recharge, floodflow alteration, streambed stabilization, sediment/toxicant retention, nutrient transformation, and production export. The biological functions of a wetland typically include wildlife habitat and cover.

1.4.2.2. Vegetation Mapping and Botanical/Wildlife Survey

Concurrent with the jurisdictional delineation, M&A biologists conducted a ground-truthing survey of vegetation communities and botanical/wildlife survey previously mapped by Dudek (2015) within the current project BSA (Table 1). The survey was conducted on-foot and existing vegetation types were delineated on a 1" = 100' scale, color aerial photograph of the project site and where needed, delineated using a GPS. A minimum mapping unit of 0.01-acre was used for vegetation mapping.

The vegetation types were classified according to the Holland (1986) code classification system as modified by Oberbauer (2008). A list of detectable flora and fauna species was recorded in a field

notebook. Plant identifications were either resolved in the field or later determined through verification of voucher specimens, and wildlife species were determined through direct observation (aided by binoculars), identification of songs, call notes and alarm calls, or by detection of sign (e.g., burrows, tracks, scat, etc.).

The scientific and common names utilized for the floral and faunal resources were noted according to the following nomenclature: flora, Baldwin (2011); and birds, American Ornithologists' Union (1998 and 2017).

1.4.3. Survey Dates, Times, and Conditions

Table 1 summarizes the 2018 survey dates, times, and conditions.

Table 1. Survey Date(s), Time(s), Conditions

Survey	Date	Time	Conditions (start to end) [1]	Biologist
Jurisdictional Delineation	2018 Mar 9	1030 - 1400	Weather: 5%-100% cc Wind: 2 BS Temperature: 65°-68° F	Amanda K. Gonzales

[1] cc = cloud cover; BS = Beaufort scale [BS 2 = 4-7 miles per hour (mph)]; °F = degrees Fahrenheit

1.5. Applicable Regulations

A variety of federal, state, and local regulations may apply to the proposed project. These regulations are listed herein with a brief description.

1.5.1. Federal Regulations and Standards

1.5.1.1. Federal Endangered Species Act (ESA)

The federal ESA (16 U.S.C. 1513-1543) was enacted in 1973 to provide protection to threatened and endangered species and their associated ecosystems. "Take" of a listed species is prohibited except when authorization has been granted through a permit under Sections 4(d), 7, or 10(a) of the act. Take is defined as harassing, harming, shooting, wounding, killing, trapping, capturing, or collecting, or attempting to engage in any of these activities without a permit.

1.5.1.2. Migratory Bird Treaty Act (MBTA)

The Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703-712) was enacted in 1918. Its purpose is to prohibit the kill or transport of native migratory birds, or any part, nest, or egg of any such bird unless allowed by another regulation adopted in accordance with the MBTA. Under the MBTA of 1918 (16 U.S.C. section 703-712; Ch. 128; July 3, 1918; 40 Stat. 755; as amended 1936, 1956, 1960, 1968, 1969, 1974, 1978, 1986 and 1998), it is unlawful, except as permitted by the USFWS, to "take, possess, transport, sell, purchase, barter, import, or export all species of birds protected by the MBTA, as well as their feathers, parts, nests, or eggs (USFWS 2003). Take means to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect (50 CFR 10.12). Birds protected by the MBTA include all birds covered by the treaties for the protection of migratory birds between the United States and Great Britain (on

behalf of Canada, 1916), Mexico (1936), Japan (1972), and Russia (1976), and subsequent amendments."

It is important to note that since the MBTA addresses migratory birds by family rather than at a lower taxonomic level, most bird species are protected by the MBTA because most taxonomic families include migratory members. In addition, "take" as defined under the federal MBTA is not synonymous with "take" as defined under the federal ESA. The MBTA definition of "take" lacks a "harm and harassment" clause comparable to "take" under the ESA, thus, the MBTA authority does not extend to activities beyond the nests, eggs, feathers, or specific bird parts (i.e., activities or habitat modification in the vicinity of nesting birds that do not result in "take" as defined under the MBTA are not prohibited). Further, "a permit is not required to dislodge or destroy migratory bird nests that are not occupied by juveniles or eggs; however, any such destruction that results in take of any migratory bird is a violation of the MBTA (i.e., where juveniles still depend on the nest for survival) (USFWS 2003)."

1.5.1.3. Federal Water Pollution Control Act (Clean Water Act), 1972

In 1948, Congress first passed the Federal Water Pollution Control Act. This act was amended in 1972 and became known as the CWA (33 U.S.C. 1251). The act regulates the discharge of pollutants into waters of the U.S. Under Section 404, permits need to be obtained from the USACOE for discharge of dredge or fill material into waters of the U.S. Under Section 401 of the CWA, Water Quality Certification from the RWQCB would need to be obtained if there are to be any impacts to waters of the U.S.

1.5.2. State Regulations and Standards

1.5.2.1. California Environmental Quality Act (CEQA)

CEQA requires that biological resources be considered when assessing the environmental impacts resulting from proposed actions. CEQA does not specifically define what constitutes an "adverse effect" on a biological resource. Instead, lead agencies are charged with determining what specifically should be considered an impact.

1.5.2.2. California Fish and Game Code (FGC)

The California Fish and Game Code (FGC) regulates the taking or possession of birds, mammals, fish, amphibian 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 SAA regulations (Section 1600-1616), as well as provisions for legal hunting and fishing, and tribal agreements for activities involving take of native wildlife.

In addition, Sections 3503, 3503.5, and 3513 of the FGC prohibit the "take, possession, or destruction of bird nests or eggs." Section 3503 states: "It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto." Section 3503.5 provides a refined and greater protection for birds-of-prey and states: "It is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." The distinctions made for birds-of-prey are the inclusion of such birds themselves to the protections

and the elimination of the term "needlessly" from the language of §3503. Section 3513 states: "It is unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Bird Treaty Act."

The definition of "take" under the FGC is not distinct from the definition of "take" under CESA, which is defined as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill" (FGC Code §86); however, it is important to note that the state definition of "take" again does not include a "harm and harassment" clause, and thus, activities or habitat modification in the vicinity of nesting birds that do not result in "take" as defined under the FGC/CESA are not prohibited.

1.5.2.3. Porter-Cologne Water Quality Control Act

This act is substantively the California version of the Federal CWA. It provides for statewide coordination of water quality regulations through the establishment of the SWRCB and nine separate RWQCBs that oversee water quality regulation on a day-to-day basis at the regional watershed basin level.

1.5.2.4. California Coastal Act (CCA)

Under the CCA of 1976, the CCC regulates activities that would affect wetlands occurring in the California coastal zone through the CCA. The District has a certified Local Coastal Program (LCP) (Amended 2013), which covers the BSA and enables authorization of projects by the District under the CCA via issuance of a CDP. As part of the regulatory process, the CCC must review all applications for a CDP.

1.5.3. Local Regulations and Standards

The site is located within the Sweetwater District of the CVBMP. The primary controlling documents for the CVBMP include: 1) the *Mitigation Monitoring and Reporting Program* (MMRP) developed as part of the CEQA environmental review process (FEIR, Dudek 2010); 2) the Settlement Agreement (SDUPD 2010) entered into between the District, the City of Chula Vista and the Redevelopment Agency of the City of Chula Vista; and 3) the Chula Vista Bayfront Development Policies (SDUPD 2012), which bring together all conditions and policies that will guide development along the Chula Vista Bayfront. The Settlement Agreement further refines restoration and enhancement objectives for areas classified as Wildlife Habitat Areas (WHAs) within the Chula Vista Bayfront Project area, provides for management and protection of natural habitats through development of a Natural Resources Management Plan (NRMP) (Port and City 2016), and identifies priorities for habitat restoration. The environmental protections identified in the Settlement Agreement go above and beyond those required by federal, state, and local laws and regulations and, as detailed in the MMRP. Design of the proposed project has been evaluated to be consistent with the above-listed controlling documents.

2.0 SURVEY RESULTS

2.1. Physical Characteristics

The BSA is located within the Sweetwater District of the CVBMP and occurs on the Bayfront, over predominantly undeveloped land surrounded by commercial development. The site is bound to the east by Marina Parkway, a two lane paved road that separates the Bayfront from seasonal F&G Street Marsh. A pipe culvert under Marina Parkway allows tidal flows to enter into the marsh.

The elevation within the BSA ranges from approximately +2 feet NAVD88 in the channel bottom to +13 feet NAVD88 at the top of the channel banks. From north to south, soils within the BSA are mapped as Huerhuero loam (2-9% slopes), Tidal flats, and Made land (Figure 3). The BSA is not located within federally designated critical habitat.

Regionally, the BSA is located in the southern coast ecoregion of San Diego County. The BSA is located at the Bayfront, within the Lower Sweetwater Hydrologic Area (Basin No. 9.10) of the Sweetwater Hydrologic Unit/Watershed (Basin No. 9.00) (Figure 4). San Diego Bay is recognized under section 303(d) of the CWA as an impaired waterbody for Polychlorinated biphenyls (PCBs) (SWRCB 2010). The BSA partially occurs within the Federal Emergency Management Agency 100-year floodplain and 500-year floodplain (SanGIS 2012).

2.2. Biological Resources

2.2.1. Botanical Resources – Vegetation and Flora

Ten vegetation types inclusive of sub-categories were identified within the BSA during the biological survey (Table 2; Figure 5). The below paragraphs provide a description of each vegetation community. A list of the floral species observed within the BSA during the biological surveys has been included with this report in Appendix 1.

Table 2. Habitats/Vegetation Communities within the Biological Study Area

Vegetation Community	Holland/ Oberbauer Code	General Habitat Group Classification	Existing (acres)
Open water	64100	Wetland	0.22
Beach	64400	Wetland	0.23
Southern coastal salt marsh	52120	Wetland	0.34
Diegan coastal sage scrub	32500	Upland	0.25
Diegan coastal sage scrub – baccharis dominated	32500	Upland	0.03
Disturbed Diegan coastal sage scrub	32500	Upland	0.01
Bare ground	NA	Upland	0.02
Disturbed Habitat	11300	Upland	1.80
Urban/developed	12000	Upland	1.38
Urban/developed - riprap	12000	Upland	<0.01
		Total:	**4.28**

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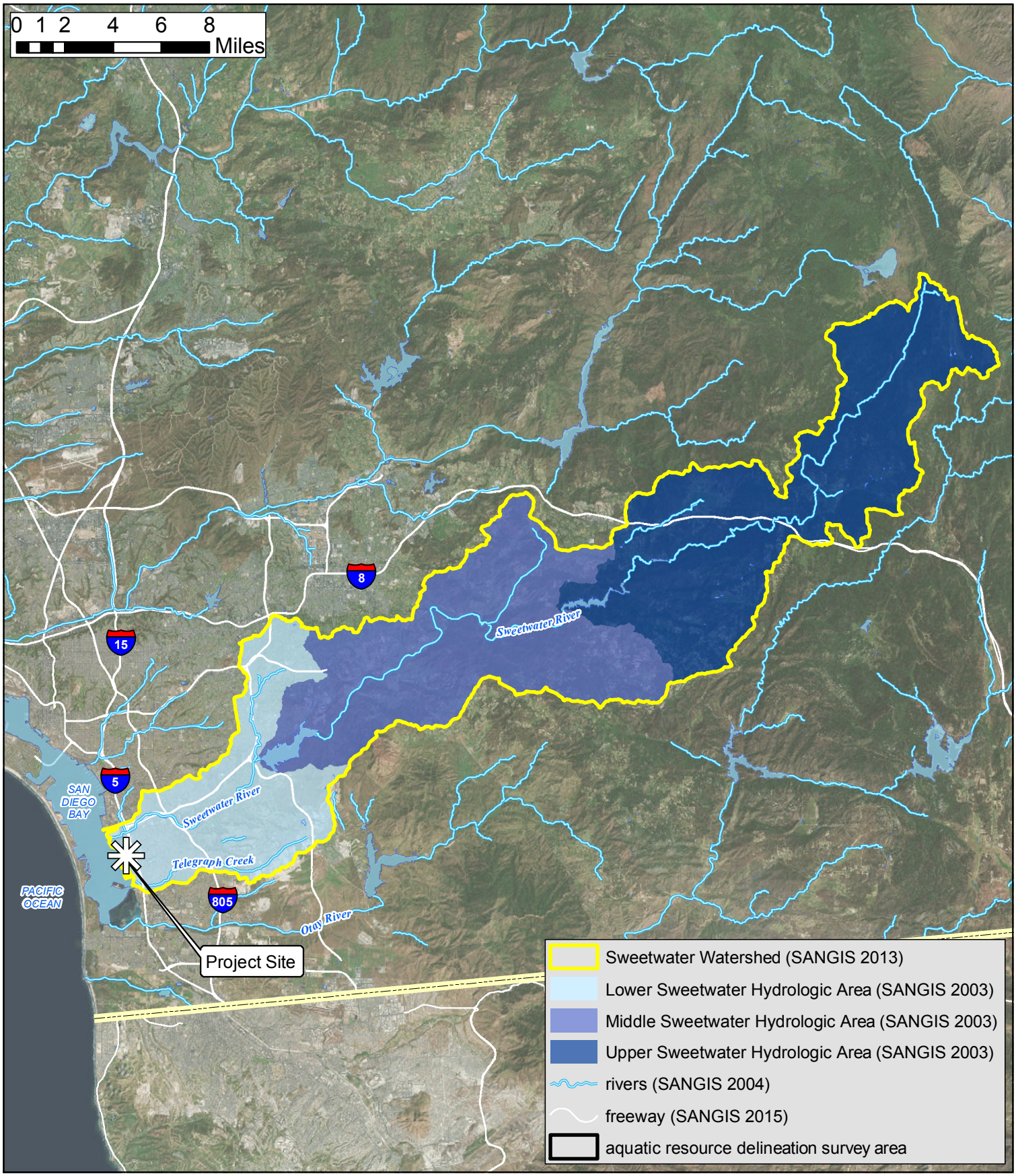
Soils Map

Chula Vista Bayfront Urban Greening Grant Project

Aerial Source: ESRI 2016

Created On: 3/29/2018

Figure 3



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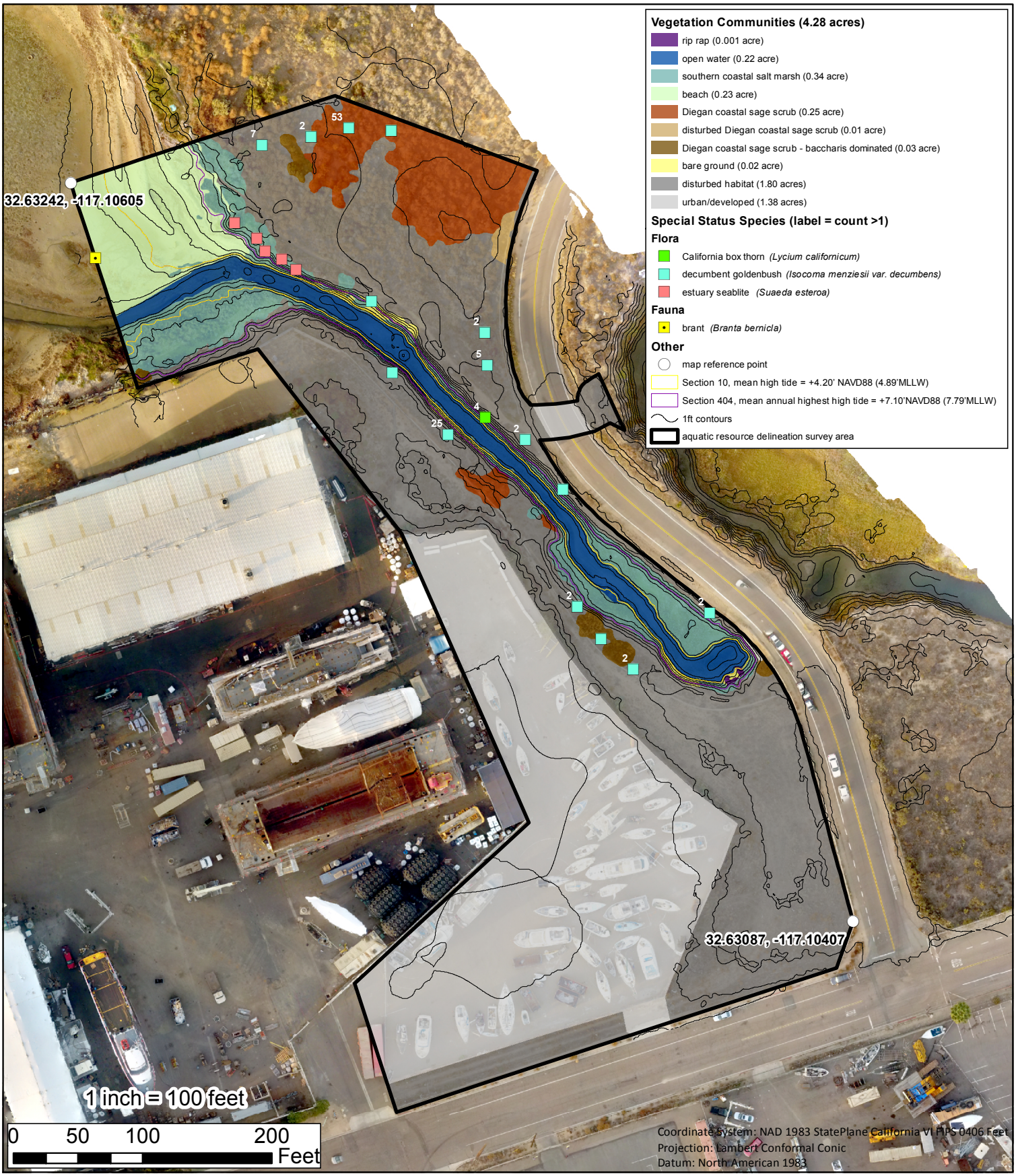
Regional Watershed Map

Chula Vista Bayfront Urban Greening Grant Project

Aerial Source: ESRI 2016

Created On: 3/29/2018

Figure 4



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Biological Resources Map

Chula Vista Bayfront Urban Greening Grant Project

Aerial Source: Merkel & Associates 2018

Created On: 3/29/2018

Figure 5

The project site is located on the Bayfront and lands along the western portion of the BSA have been mapped as salt marsh and beach. The BSA is bisected by a fully tidal channel that connects the F&G Street Marsh to San Diego Bay through two approximate 36-inch HDPE corrugated pipe culverts. The channel bed is narrow, averaging approximately eight to ten feet wide near the proposed bridge with vertical and eroding banks. At their maximum, banks are near 8 feet in height. The channel bed has been classified as open water, with portions of the eroding bank classified as bare ground. Within the bed are notable amounts of concrete rubble and other debris intermixed with the soil. A small area of riprap and bare ground has been identified at the outlet of a small pipe in the eastern portion of the BSA. Southern coastal salt marsh occurs on the shallow banks of the beach, prior to transitioning to upland habitat as well as benches that have established following erosion. Small, individual patches of salt marsh plants are also present at the top of the channel bank. The salt marsh community is generally sporadic and linear in nature and overall, dominated by alkali heath (*Frankenia salina*) and pacific pickleweed (*Sarcocornia pacifica*), with inclusions of salty Susan (*Jaumea carnosa*), saltwort (*Batis maritima*), estuary seablite (*Suaeda esteroa*), shoregrass (*Distichlis littoralis*), Parish's pickleweed (*Arthrocnemum subterminale*), western marsh-rosemary (*Limonium californicum*), and alkali weed (*Cressa truxillensis*). Additional species present along the transitional boundary to higher elevations include saltgrass (*Distichlis spicata*), decumbent goldenbush (*Isocoma menziesii* var. *decumbens*), Australian saltbush (*Atriplex semibaccata*), and Russian thistle (*Salsola tragus*). Regionally, coastal salt marsh is classified as a sensitive vegetation community; the CVBMP MMRP is consistent with regional standards.

The upland habitat is dominated by disturbed lands with an inclusion of Diegan coastal sage scrub. The disturbed lands are dominated by a relatively dense cover of garland (*Glebionis coronaria*), a non-native annual herb with an inclusion of crystalline iceplant (*Mesembryanthemum* crystallinum), Russian thistle, horehound (*Marrubium vulgare*), ocean locoweed (*Astragalus trichopodus* var. *lonchus*), mustard species, and ripgut grass (*Bromus diandrus*). With the exception of ocean locoweed, all of the above listed species are non-native. Sporadic individuals of plants typical of Diegan coastal sage scrub are also present in the disturbed habitat; they include broom baccharis (*Baccharis sarothroides*) and California sagebrush (*Artemisia californica*). A dirt path is also present in this community and extends from the paved roadway to the beach. Disturbed habitat has also been identified in the southern portion of the BSA, immediately east of the boat yard, which is classified as urban developed lands. Within this area, the lands are comprised of bare ground with low growing sporadic non-native herb species including white stem filaree (*Erodium moschatum*), Russian thistle, and garland with an inclusion of tree tobacco (*Nicotiana glauca*), mustard species, and ocean locoweed. Due to the height of the vegetation, it is possible that this area is actively maintained (e.g., mowed). Regionally, disturbed habitat is not classified as a sensitive vegetation community; the CVBMP MMRP is consistent with regional standards.

Various forms of Diegan coastal sage scrub occur onsite, primarily within the northern portion of the BSA. Here the Diegan coastal sage scrub supports plants typical of a higher quality community dominated by low-growing California sagebrush, coastal California buckwheat (*Eriogonum fasciculatum* var. *fasciculatum*), and decumbent goldenbush with an inclusion of broom baccharis and coyote brush (*Baccharis pilularis*). Monotypic groupings of *Baccharis* have been classified as Diegan coastal sage scrub – baccharis dominated while areas with a high inclusion of non-native species and dumped debris have been classified as disturbed Diegan coastal sage scrub. Regionally,

Diegan coastal sage scrub is classified as a sensitive vegetation community; the CVBMP MMRP is consistent with regional standards.

2.2.2. Zoological Resources – Fauna

Few wildlife species were noted onsite; those detected were all avian species. However, additional wildlife species are expected to occur onsite and/or in the general area, most of which are expected to be species commonly found in native and naturalized habitats throughout San Diego County including urban adapted species. A list of the faunal species observed within the BSA during the biological survey has been included with this report in Appendix 2. The avian species detected onsite were predominantly shore birds, foraging on the exposed beach and extending offsite into the open waters of the Bay. They included marbled godwit (*Limosa fedoa*), dowitcher (*Limnodromus* sp.) and sandpiper (*Calidris* sp.). In addition, a group of Brant (*Branta bernicla*), a winter visitor to San Diego County were also intermixed with the above listed species.

Due to the proximity to the Bay and presence of native vegetation communities, there is a potential for various urban associated and marsh associated species to forage, nest, and/or disperse through the BSA including species such as the Anna's hummingbird (*Calypte anna*).

2.2.3. Rare, Threatened, Endangered, Endemic and/or Sensitive Species

2.2.3.1. Special Status Species Present within the BSA

Four special status species were identified within the BSA during the biological survey; they are depicted in Figure 5 and discussed below. In some instances, special status is limited to populations or life stages of a species. Where this is the case, the limited applicability is indicated in parentheses.

State CEQA Guidelines §15380 (Title 14, Chapter 3, Article 20) define "endangered, rare or threatened species" as "species or subspecies of animal or plant or variety of plant" listed under the Code of Federal Regulations, Title 50, Part 17.11 or 17.12 (Volume 1, Chapter I) or California Code of Regulations, Title 14, Sections 670.2 or 670.5 (Division 1, Subdivision 3, Chapter 3), or a species not included in the above listings but that can be shown to be "endangered" meaning "when its survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors" or "rare" meaning "although not presently threatened with extinction, the species is existing in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens or the species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered 'threatened' as that term is used in the Federal Endangered Species Act". State CEQA guidelines Appendix G, Section IV generally refers to species that fall under the above criteria as "special status species".

Thus, for the purposes of this report, special status species are: 1) federally and state listed species (CDFW 2018a and 2017b); 2) CDFW Species of Special Concern (SSC) and Fully Protected (FP) species (CDFW 2018b and 2017c); 3) species designated as California Rare Plant Rank of 1 or 2 by the by the California Native Plant Society (CNPS); and 4) species identified as special status in the CVBMP EIR (Dudek 2010).

The following four species were detected onsite and discussed below:

- California box thorn (*Lycium californicum*), a CNPS California Rare Plant Rank List 4.2 [Plants of limited distribution (a watch list), Fairly threatened in California (moderate degree/immediacy of threat];
- Estuary seablite (*Suaeda esteroa*), a CNPS California Rare Plant Rank List 1B.2 (Plant rare or endangered in California and elsewhere, Moderately threatened in California with a moderate degree and immediacy of threat);
- Decumbent goldenbush (*Isocoma menziesii* var. *decumbens*), a CNPS California Rare Plant Rank List 1B.2 (Plant rare or endangered in California and elsewhere, Moderately threatened in California with a moderate degree and immediacy of threat); and
- Brant (*Branta bernicla*), a CDFW Species of Special Concern.

California box thorn

Four California box thorn were identified on the northern edge of the channel that bisects the BSA. All of the plants were located outside the channel limits at the top of the eroding bank. The plants were small, low growing and classified as part of the surrounding habitat (i.e., disturbed habitat). California box thorn is a perennial shrub found in coastal bluff scrub and/or coastal sage scrub communities at elevations between approximately 16 and 492 feet.

Estuary seablite

Five estuary seablite were detected along the northern bank of the channel in the western portion of the BSA. The plants were relatively large and classified as southern coastal salt marsh. Estuary seablite is a perennial herb found in coastal bluff scrub, coastal dunes, marshes and swamps on the margins of coastal salt marsh at elevations ranging from approximately 0 to 164 feet.

Decumbent Goldenbush

Decumbent goldenbush was detected sporadically throughout the upland habitat. Plants were observed individually as well as in small groups. This species is a small shrub found in chaparral and coastal sage scrub (sand often in disturbed areas), and occasionally in wetland-riparian areas. Decumbent goldenbush is documented to occur in sage scrub and disturbed communities throughout coastal San Diego County as well as in the local South Bay region (Calflora 2018).

Black Brant

A group of approximately 20 black brant were observed in the shallow open waters of the Bay, extending outside of the BSA. Brant are winter visitors to San Diego County and generally occur in shallow bays and estuaries where they consume eelgrass as their primary food resource.

Other Avian Species

The project site has a potential to be utilized by other regionally common migratory birds that are not designated as special status species under CEQA, but are protected under the federal MBTA and FGC Code Sections 3503 and 3513. No avian nests were observed within the BSA during the biological survey; however, birds protected by the above-referenced regulations that have a potential to nest within the BSA could occur onsite and include urban tolerant species such as Anna's hummingbird.

2.2.3.2. Occurrence Potential for Special Status Species within the BSA

An evaluation of the potential for special status animal species to occur within the BSA was conducted. This included review of the *Biological Resources Survey Report for the E Street Realignment in Chula Vista, Chula Vista Bayfront Master Plan* (Dudek 2015) as well as the Final EIR for the CVBMP (Dudek 2010). Per the 2015 report, one special status plant, estuary seablite and no special status fauna were documented within the BSA. The Final EIR for the CVBMP did not identify any special species status species in the BSA.

The 2015 and 2010 reports evaluated the potential presence of the following special status avian species: Belding's savannah sparrow (*Passerculus sandwichensis beldingi*), brown pelican (*Pelecanus occidentalis*), burrowing owl (*Athene cunicularia*), California horned lark (*Eremophila alpestris actia*), Cooper's hawk (Accipiter cooperii), Double-crested cormorant (*Phalacrocorax auritus*), Osprey (*Pandion haliaetus*), Northern harrier (*Circus cyaneus*), and southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*). Of the above-listed species, the only federally or state list species is Belding's savannah sparrow, which is state listed endangered. Due to the limited coastal salt marsh present in the BSA and presence of a larger stand of marsh to the east, the potential for the Belding's savannah sparrow to nest onsite is low. In addition, there is no suitable nesting habitat for the remaining above-listed species.

The light-footed Ridgway's rail (*Rallus obsoletus levipes*), formerly known as light-footed clapper rail, a federally and state listed endangered species, has a low potential to utilize the southern coastal salt marsh habitat within the BSA as foraging habitat only; no suitable nesting habitat present onsite. This species is a year-round resident of the tidal salt marshes and typically nests in marsh habitat dominated by tall, dense California cordgrass (*Spartina foliosa*) and occasionally in pickleweed.

The 2015 report also evaluated the potential presence for the senile tiger beetle (*Cicindela senilis frosti*), a CDFW CNDDB Special Animal. The senile tiger beetle occurs in coastal salt marsh, fresh and brackish lagoons, open patches of pickleweed, dried salt pans, and muddy alkali areas with no historic records in the CVBMP area. Due to the erosive nature of the channel and small area of coastal salt marsh habitat present within the BSA, the potential for senile tiger beetle to occur onsite is expected to be low.

2.2.4. Wetland and Jurisdictional Waters

Table 3 and 4 below quantify the acreage of jurisdictional resources within the BSA and Figure 6 shows the locations of these resources. Wetland determination data forms and photo points have been included with this report in Appendix 3. Table 5 below summarizes the results of the wetland data forms. General overview photos of the BSA are included as Appendix 4.

Table 3. Jurisdictional Resources within the Biological Study Area

Vegetation Community	Holland/ Oberbauer Code	Existing Acreage (Onsite)			
		USACOE wetland[1]	USACOE water[2]	CCC Wetland only	Total
Open water	64100	0.00	0.22	0.00	0.22
Beach	64400	0.00	0.23	<0.01	0.23
Southern coastal salt marsh	52120	0.25	0.00	0.09	0.34
Bare ground	NA	0.00	0.01	0.00	0.01
Disturbed habitat	11300	0.00	0.01	0.00	0.01
Urban/developed	12000	0.00	<0.01	0.00	<0.01
Urban/developed - riprap	12000	0.00	<0.01	0.00	<0.01
Total:		**0.25**	**0.47**	**0.09**	**0.81**

[1] Also regulated by RWQCB and CCC as a wetland.

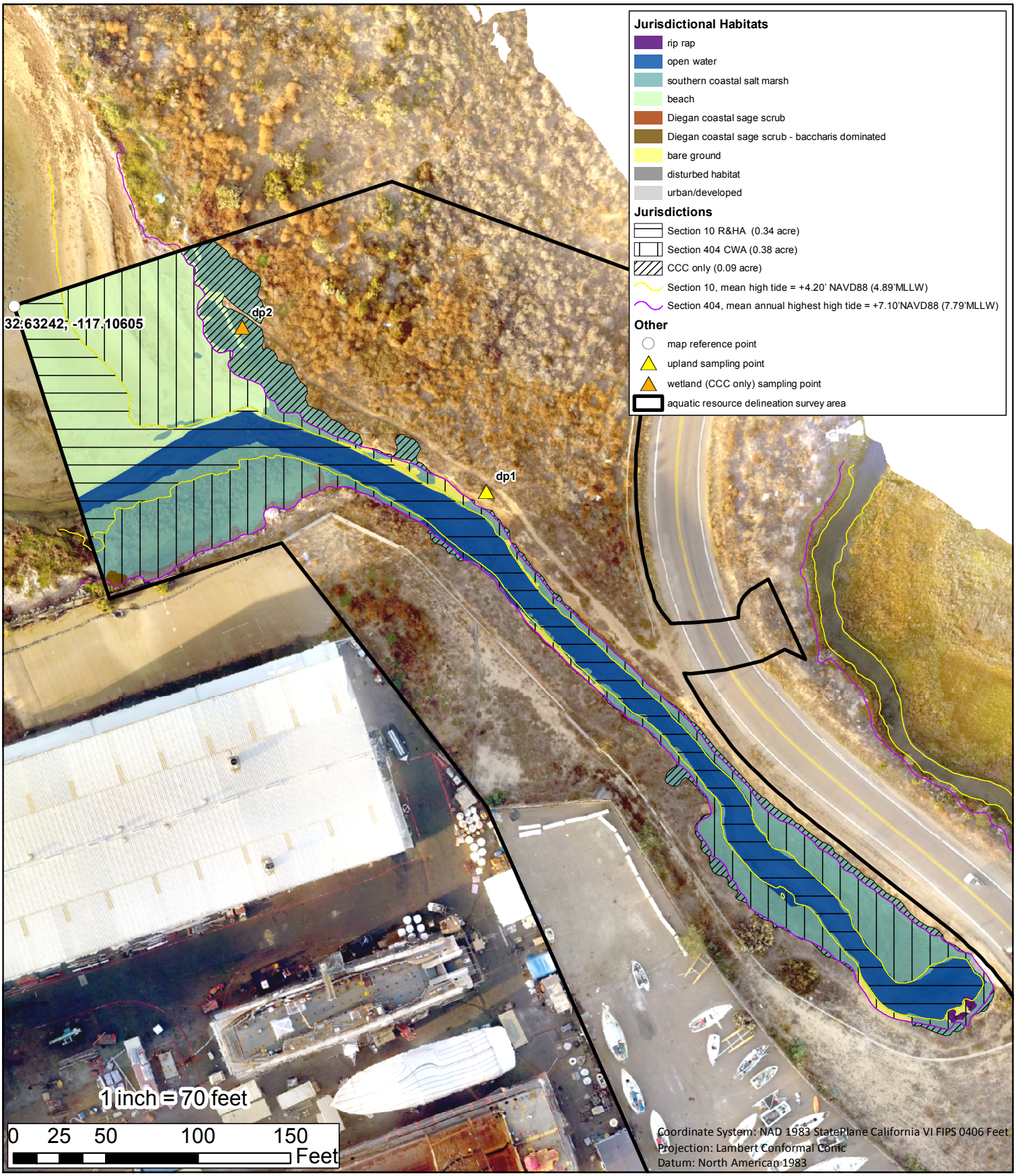
[2] Also regulated by RWQCB and CCC due to hydrology indicators.

Table 4. Summary of Jurisdictional Resources within the Biological Study Area by Regulation

Vegetation Community	Existing Acreage (Onsite)			
	Section 10	Section 404	CCC Only	Total
Open water	0.21	0.01	0.00	0.22
Beach	0.10	0.13	<0.01	0.23
Southern coastal salt marsh	0.03	0.22	0.09	0.34
Bare ground	<0.01 (0.002)	0.01	0.00	0.01
Disturbed habitat	0.00	0.01	0.00	0.01
Urban/developed	0.00	0.001	0.00	<0.01
Urban/developed - riprap	<0.01 (0.0002)	<0.01 (0.001)	0.00	<0.01
Total:	**0.34**	**0.38**	**0.09**	**0.81**

Table 5. Summary of Wetland Determination Data Forms

Data Form	Wetland Determination Field Indicators			Stream Association	Determination	Jurisdiction
	Vegetation	Soils	Hydrology			
DP1	No	No	No	None	Upland	None
DP2	Yes	No	No	Tidal Adjacency	CCC wetland	CCC



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Jurisdictional Resources Map

Chula Vista Bayfront Urban Greening Grant Project

Aerial Source: Merkel & Associates 2018

Created On: 3/29/2018

Figure 6

San Diego Bay, a tidally influenced body of water, is defined as a jurisdictional, traditionally navigable WoUS. As a result, waters of the bay are regulated as navigable waters under Section 10 of the R&HA to the mean high water line, which in the project area is located at an elevation of +4.20 feet NAVD88 (+4.89 feet MLLW). In addition, for tidal traditionally navigable WoUS the regulatory limits in absence of the presence of wetlands extends to the high tide line. In tidal waters such as San Diego Bay this boundary is defined as the annual highest high tide omitting storm surge; within the Bay at the project site, this boundary is defined as +7.10 feet NAVD88 (+7.79 ft MLLW). This area (i.e., annual highest high tide) is regulated by the USACOE under Section 404 of the CWA and RWQCB under Section 401 of the CWA. The locations of these elevationally defined base regulatory boundaries are illustrated in Figure 6 and quantified in Table 4.

As described in Section 2.2.1 above, the BSA is bisected by a tidally influenced channel that flows eastward to offsite lands under Marina Parkway via pipe culverts. The channel bed is narrow, averaging approximately eight to ten feet wide with vertical eroding banks, narrow benches, and a maximum depth of approximately eight feet. Due to the erosive nature of the channel, there is generally a clear line of where the Section 10 and Section 404 boundary occur. Southern coastal salt marsh that occurs within these boundaries has been classified as USACOE wetland. No other vegetation communities are classified as USACOE wetland. Patches of southern coastal salt marsh do occur above the annual highest high tide, and this is where M&A conducted wetland data point evaluations as discussed in the below paragraphs.

Data Point 1 is located at the top of the bank between the dirt path and eroding bank. It is dominated by ripgut grass (UPL), Russian thistle (FACU), and garland (UPL), with an inclusion of crystalline iceplant (FACU) and alkali heath (FACW). Hydrophytic vegetation is not present (i.e., does not meet the Dominance Test). In addition, hydric soils are not present and wetland hydrology was not evident. Thus, this area was confirmed to be upland; classified as disturbed habitat.

Data Point 2 is located at the top of the bank but in an area dominated by hydrophytic vegetation, classified as southern coastal salt marsh. Specifically, the area is dominated by Australian saltbush (FAC) and estuary seablite (FACW), with an inclusion of saltgrass (FAC), alkali heath (FACW), and garland (UPL). Hydric soils are not present and wetland hydrology was not evident. Patches of southern coastal salt marsh that occur in similar locations, i.e., at the top of the bank and outside the annual highest high tide, have been classified as a CCC wetland only.

2.2.4.1.1. Functions and Values

The functions and values of the marine habitats within the BSA are low. The channel is eroding and as a result the marsh habitat is sparse and not well developed. The adjacent uplands within the BSA are disturbed in nature, dominated by non-native upland species, most notably garland. From the biological functions standpoint the marine habitats within the BSA are also not expected to provide substantial breeding or foraging habitat.

2.2.5. Wildlife Movement and Nursery Sites

Many species of wildlife move through the landscape during their daily and/or seasonal activities. Many resident and sedentary species move only short distances within their home ranges or territories. Others, such as migratory birds, may move great distances during the year. Larger

mammalian predators often traverse extensive areas of the landscape over the course of their activities. Because predation is a key process in maintaining biodiversity, it is important to maintain connectivity between large core areas of preserved habitat (Soulé and Terborgh 1999). Corridors are often defined as linear habitats that differ from the extensive surrounding landscape in which they are embedded. But Soulé and Terborgh (1999) point out that this definition is vague and has multiple meanings. The key concept in regional conservation efforts is landscape connectivity. Core areas need to be connected. The more fragmented and isolated a patch of habitat becomes, the less value it has for regional conservation efforts.

The San Diego Bay is an important landscape for migratory avian species such as brant which forage in the shallow open waters of the Bay. Within the BSA, the erosive nature of the channel banks and limited native marsh habitats reduce the potential for the site to serve as a nursery site. The channel area provides limited continuity between the Bayfront and the F&G Street Marsh, however, the proposed work along this hydraulic connection is intended to strengthen the overall habitat connectivity functions of this strained connection.

3.0 BIOLOGICAL IMPACT ANALYSIS

State CEQA Guidelines §15065 (a) (Title 14, Chapter 3, Article 5) states, "A project may have a significant effect on the environment" if:

- "The project has the potential to substantially degrade the quality of the environment; substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; substantially reduce the number or restrict the range of an endangered, rare or threatened species; or eliminate important examples of the major periods of California history or prehistory."
- "The project has possible environmental effects, which are individually limited but cumulatively considerable."

The following analysis identifies potential impacts to biological resources that could result from implementation of the proposed project, and addresses the significance of these impacts pursuant to CEQA, in accordance with the Issues listed under CEQA Guidelines Appendix G, Section IV.

3.1. Impact Definitions

Project impacts are categorized pursuant to CEQA as direct, indirect, or cumulative impacts.

- CEQA Guidelines §15358 (a) (1) and (b) (Title 14, Chapter 3, Article 20) defines a "direct impact or primary effect" as "effects, which are caused by the project and occur at the same time and place" and relate to a "physical change" in the environment.
- CEQA Guidelines §15358 (a) (2) and (b) (Title 14, Chapter 3, Article 20) defines an "indirect impact or secondary effect" as "effects, which are caused by the project and are later in time or farther removed in distance, but are still reasonably foreseeable" and relate to a "physical change" in the environment.
- CEQA Guidelines §15355 (Title 14, Chapter 3, Article 20) defines "cumulative impacts" as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts."

Direct, indirect, and cumulative impacts can be described as either permanent or temporary. Permanent impacts are generally defined as effects that would result in an irreversible loss of biological resources; temporary impacts can be defined as effects that could be restored, thus providing habitat and wildlife functions and values effectively equal to the functions and values that existed before the area was impacted.

3.2. Mitigation Definitions

CEQA Guidelines §15370 (Title 14, Chapter 3, Article 20) defines "mitigation" as:

- "Avoiding the impact altogether by not taking a certain action or parts of an action."
- "Minimizing impacts by limiting the degree or magnitude of the action and its implementation."
- "Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment."

- "Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action."
- "Compensating for the impact by replacing or providing substitute resources or environments."

3.3. Project Impacts, Significance, and Recommended Mitigation

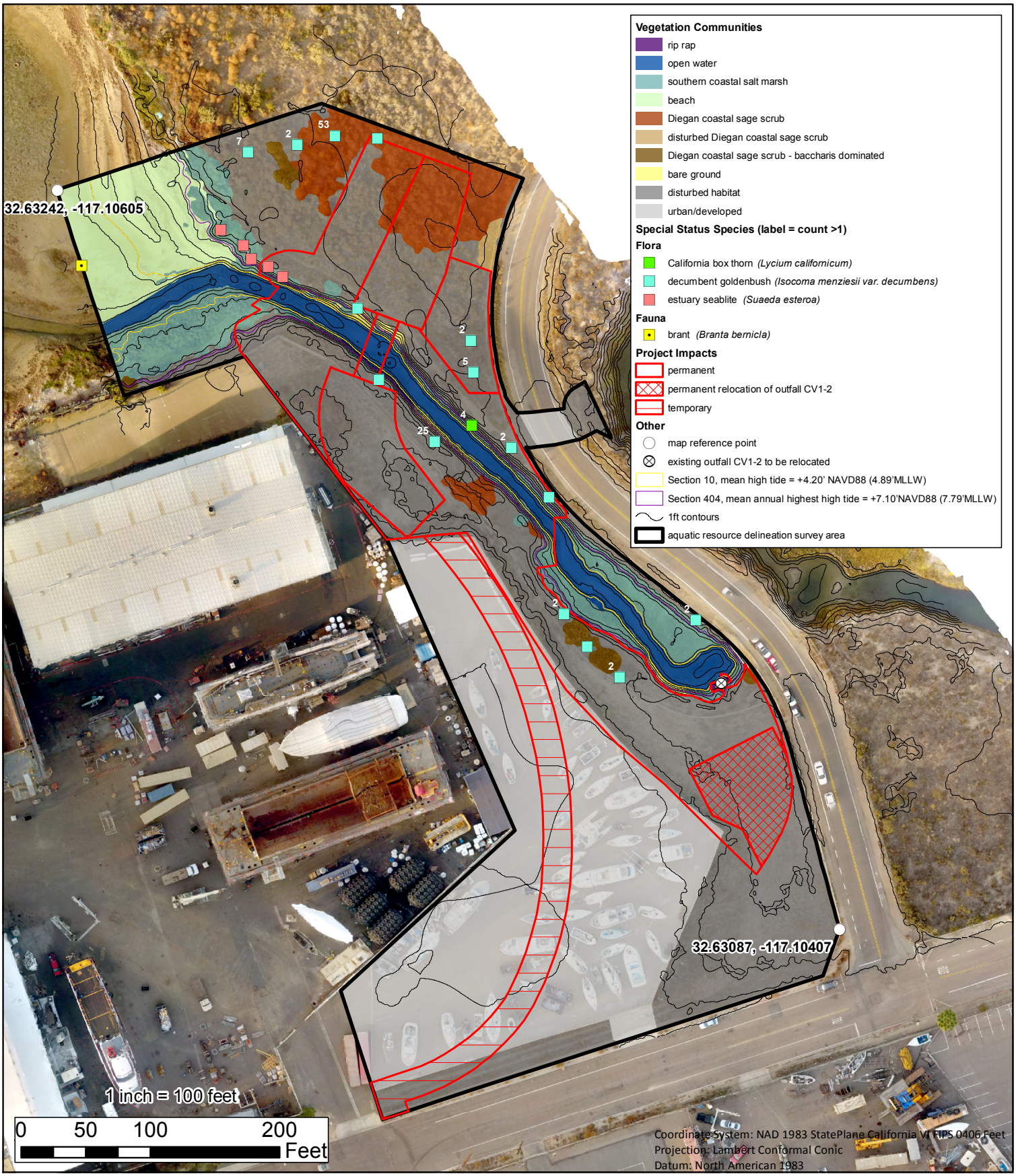
Potential project impacts were evaluated based on examination of the proposed project within the context of the biological resources documented during the field survey and those biological resources assessed as having a likely potential to occur in the project area. Direct impacts were determined by overlaying the project plans on the mapped vegetation communities/habitats in GIS ESRI software platforms. Indirect impacts were determined based on the design, intended use, and location of the proposed project elements relative to biological resources.

3.3.1. Habitats/Vegetation Communities

Implementation of the proposed project would result in permanent and temporary direct impacts (Table 6; Figure 7). Implementation of the bridge would result in permanent impacts to Diegan coastal sage scrub and disturbed habitat. The bridge would not result in placement of fill or dredged material within wetland or jurisdictional resources (discussed in the below section); however, for purposes of this analysis, we have assumed that the shading generated as a result of the new structure would be classified as a permanent impact. Temporary impacts to upland communities would occur from temporary construction access needs.

The project is also proposing channel enhancement via slope layback and removal/excavation of existing concrete rubble/debris from the channel bed and development of marsh benches along the channel length to improve habitat connectivity. Implementation of the channel enhancement would result in a no-net-loss of habitat acreage and would increase the width of the channel bed. However, some patches of existing coastal salt marsh would be lost due to the channel enhancement and would not be restored within the same location within the BSA (i.e., not returned to exact location). As a result of the relocation and lack of final design detail, impacts to the coastal salt marsh are assumed to be permanent for impact and mitigation calculation. Inclusive as part of the proposed channel enhancement is removal and relocation of Outfall No. CV1-2. The project proposes to remove the outfall and associated riprap from the existing channel bed and to relocate the outfall and associated features (i.e., energy dissipater and associated work area for future maintenance) to disturbed upland habitat.

Impacts to southern coastal salt marsh and Diegan coastal sage scrub are significant per the CVBMP MMRP and would require mitigation at a 4:1 and a 3:1 ratio, respectively. Thus, implementation of habitat-based mitigation in accordance with Table 6 and as bulleted below would be required to reduce impacts to a level below significance and ensure consistency with the CVBMP MMRP. Mitigation ratios listed in Table 6 are defined by the controlling documents discussed within Section 1.5.3 of this report. Impacts to bare ground, disturbed habitat, or urban/developed lands would be considered less than significant since these habitats are not regionally considered to have high conservation value requiring mitigation. This is consistent with guidance provided by the CVBMP MMRP. To offset habitat impacts, mitigation by habitat replacement is to be completed in accordance with Biological Mitigation Measure 1 (BIO-1). With the implementation of mitigation measure BIO-1 impacts to sensitive habitats would be mitigated to a less than significant level.



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Project Impacts Map

Chula Vista Bayfront Urban Greening Grant Project

Aerial Source: Merkel & Associates 2018

Created On: 3/29/2018

Figure 7

Table 6. Habitats/Vegetation Communities, Impacts, and Mitigation

Vegetation Community	Project Impact (acres)			Mitigation Ratio (Perm./Temp.)	Mitigation Required
	Perm.	Temp.	Total		
Open water (ACOE water)	0.00	0.10	0.10	1:1	0.10
Beach (ACOE water)	0.00	0.00	0.00	NA	0.00
Southern coastal salt marsh (ACOE wetland)	0.05	0.00	0.05	4:1	0.20
Southern coastal salt marsh (CCC only wetland)	0.02	0.00	0.02	4:1[1]	0.08
Bare ground (ACOE water)	0.00	0.01	0.01	1:1	0.01
Urban/developed – riprap (ACOE water)	0.00	0.00	0.00	None	0.00
Jurisdictional Resources Subtotal:	**0.18**	**0.00**	**0.18**		**0.39**
Diegan coastal sage scrub	0.12	0.00	0.12	3:1	0.36
Diegan coastal sage scrub – baccharis dominated	0.02	0.00	0.02	3:1	0.06
Diegan coastal sage scrub - disturbed	0.00	0.00	0.00	3:1	0.00
Bare ground	0.01	0.00	0.01	None	0.00
Disturbed Habitat	1.13	0.03	1.16	None	0.00
Urban/developed	0.02	0.24	0.26	None	0.00
Upland Resources Subtotal:	**1.30**	**0.27**	**1.57**		**0.42**
Grand Total:	**1.48**	**0.27**	**1.75**		**0.81**

[1] Of the total impact to southern coastal salt marsh CCC only wetland, 0.0008 acres of impact would result from bridge shading. Per CVBMP MMRP Mitigation Measure 4.8-14, the mitigation ratio for impacts to CCC wetland as a result of bridge shading would be 2:1; however, MMRP Mitigation Measure . Due to rounding, the total mitigation requirement would continue to round up to 0.08 acres.

BIO-1: Corresponds to CVBMP MM#4.8-10, 4.8-12, 4.8-14, 4.8-21, and Development Policy 2.5: Mitigation of impacts to regionally and local sensitive habitats within the proposed project site includes the retention of at least an equivalent area of open water channel as impacted on the site, compensatory mitigation of southern coastal salt marsh, and Diegan coastal sage scrub habitat at increased area-based ratios (Table 6). The mitigation ratios presented in Table 6 are defined by the controlling documents for the CVBMP but subject to review by the resource and regulatory agencies and mitigation needs are to be determined by ratio based scaling from the actual project impacts based on final design and engineering. The extent of impacts identified in Table 6 is the worst case scenario for the project work. Mitigation for impacts are proposed to occur via onsite establishment and restoration of southern coastal salt marsh, rehabilitation of channel bed (e.g., open water), and establishment of maritime succulent scrub to compensate for impacts to Diegan coastal sage scrub. Mitigation would require preparation of a conceptual compensatory mitigation

and monitoring plan, preparation of a long-term resource management plan, recordation of an open space easement, identification of a resource manager, and establishment of a funding mechanism to ensure annual ongoing basic stewardship.

Refer to Section 4.0 of this report for the conceptual mitigation plan governing habitat mitigation.

BIO-2: Corresponds to CVBMP MM4.8-6:
During construction, impacts to regionally sensitive habitats adjacent to the project limit of work may occur if not effectively controlled through project design and construction monitoring and management actions. To mitigate impacts to adjacent habitats, the following construction-period impact control measures are recommended:

A) Lighting: Temporary night lighting during construction, if required should be downcast/fully shielded and directed away from adjacent native habitat.

B) Invasive: Best Management Practices (BMPs) proposed for the project should not include any species listed by the California Invasive Plant Council (Cal-IPC) in the California Invasive Plant Inventory.

C) Toxic Substances and Drainage: A Stormwater Pollution Prevention Plan or similar, as applicable for the project should be prepared and BMPs implemented to control erosion and export of sediment.

D) *Access: Prior to the start of clearing and grubbing of habitat, temporary fencing (e.g., orange silt fence, orange snow fence, etc.) should be installed along the perimeter of the project footprint to prevent inadvertent disturbance to adjacent biological resources. Installation of perimeter fencing may require removal of vegetation using hand-held equipment and should not impede creek flows. Temporary fencing should be installed and maintained by the Contractor. A qualified biologist should be retained and perform the following duties: 1) inspect and oversee installation of the temporary fencing; 2) be onsite fulltime during the initial clearing and grubbing of habitat; 3) conduct weekly inspections thereafter during grading operations and modified as necessary to ensure compliance with the project biological requirements; and 4) provide environmental training for contractors and construction personnel prior to the start of construction work, training should be repeated if gaps of more than 30 days in construction operations were required, and annually provided thereafter (if necessary).*

Indirect impacts were determined based on the design, intended use, and location of the proposed project elements relative to biological resources. The project proposes to allow passive recreational use across the bridge and associated pathway, which if not limited to the designated pathway could result in unauthorized encroachment into the adjacent habitats. The project includes barriers to prevent unauthorized encroachment into the adjacent habitats and the project proposes to enhance areas not permanently converted to urban use. Thus, project construction is not expected to result in additional indirect impacts to vegetation communities beyond those addressed under the initial CVBMP FEIR.

3.3.2. Special Status Species

Construction activities associated with channel enhancement would result in permanent, direct impacts to four California box thorn, five estuary seablite, and 43 decumbent goldenbush. Records for all species occur along the coastal habitats of San Diego County (Calflora 2018). In addition, the

2015 report identifies approximately 10 box thorn and 85 estuary seablite within the local area. The loss of less than a dozen California box thorn and estuary seablite is not expected to adversely affect the local populations of these species and thus would not be considered significant. In addition, the loss of 43 decumbent goldenbush is not expected to adversely affect the local population. However, as part of the onsite mitigation program, all species would be included in the planting palette.

The light-footed Ridgway's rail has a low potential to occur within the onsite southern coastal salt marsh and would not be expected to visit the area for any purpose other than transiting between marshes or foraging. In accordance with the CVBMP MMRP, the below mitigation measure would be required to reduce the potential impact (albeit low) to less than significant. With the implementation of mitigation measure BIO-3 potential impacts to light-footed Ridgway's rail would be less than significant level.

BIO-3: Corresponds to CVBMP MM4.8-4:

> *Prior to construction or grading in any areas of suitable foraging habitat for light-footed Ridgway's rail, and, regardless of the time of year, the project developer(s) should retain a qualified biologist who should be approved by the Port, as appropriate, and should be present during removal of southern coastal salt marsh vegetation within the inlet to the F&G Street Marsh to ensure that there are no direct impacts to foraging* rails*. If a rail is encountered, construction would be temporarily halted until the bird leaves the area of construction. A bio-monitor should be present on-site during initial grubbing and clearing of vegetation to ensure that perimeter construction fencing is properly installed and maintained and they should perform periodic inspections of the construction site during all major grading to ensure that impacts to sensitive plants and wildlife are minimized (refer to BIO-2). The bio-monitor should send a monthly monitoring letter report to the Port detailing observations made during field inspections. The bio-monitor should also notify the Port immediately if clearing is done outside of the permitted project footprint. The project developer(s) should coordinate with the USFWS prior to impacting any areas of suitable foraging habitat for rails.*

No other special status species are expected to have a moderate or high potential to occur onsite.

Indirect impacts were determined based on the design, intended use, and location of the proposed project elements relative to biological resources. The project is not proposing permanent lighting nor is the project proposing extended features on the bridge that could be utilized as perching posts for raptors. The bridge itself could be utilized by raptors (albeit low potential); however, the intended use of the bridge is primarily for pedestrian/bicycle traffic; thus, if perched, the recreational use of the bridge would deter prolonged perch use. Thus, project construction is not expected to result in indirect impacts to special status species.

3.3.3. Jurisdictional Resources

Construction activities would result in permanent and temporary, direct impacts to jurisdictional resources (Table 6, Figure 7). Impacts to jurisdictional resources are significant and would require implementation of the mitigation measure discussed in the above section and Mitigation Measure BIO-1 and BIO-2, as well as fulfilling the requirements of Mitigation Measure BIO-4 confirming

federal and state approvals. With the implementation of mitigation measures BIO-1, BIO-2, and BIO-4, potential impacts to jurisdictional resources would be mitigated to a less than significant level.

BIO-4: Corresponds to CVBMP MM4.8-21A and MM4.8-12C:

Impacts to jurisdictional resources listed in Table 6 require acquisition of the following permits and approvals, or demonstration to the Port Development Services Director that such approvals are not required:

A) A R&HA Section 10 for work in traditionally navigable waters of the U.S.,
B) A CWA Section 404 for discharge of dredged or fill material within waters of the U.S.,
C) A CWA Section 401 state water quality certification for an action that may result in degradation of waters of the State, and
D) A CDP issued by the District.

3.3.4. Wildlife Movement and Nursery Sites

Implementation of the project is not expected to interfere with connectivity to offsite habitat (F&G Street Marsh or San Diego Bay) or adversely affect the local long-term survival of resident or migratory wildlife species.

3.3.5. Policies and Ordinances

The following federal/state laws/regulations and local ordinances are applicable to the proposed project, and are evaluated below for consistency purposes.

3.3.5.1. Federal Migratory Bird Treaty Act and California Fish and Game Code

Nesting birds may be present within the project footprint during construction and could include such species as Anna's hummingbird. Impacts to active migratory bird nests, if present at the time of construction are prohibited under the federal MBTA and California FGC §3503 and §3513. Since avian species could potentially nest in the onsite habitats, the proposed project could result in impacts to active bird and/or raptor nests, if present at the time of construction under the federal MBTA and California FGC §3503 and §3513; therefore, the project Mitigation Measure BIO-5 listed below is required. With the implementation of mitigation measure BIO-5, potential impacts to nesting birds would be mitigated to a less than significant level.

BIO-5: Corresponds to CVBMP MMRP 4.8-3:

If grading or construction occurs during the breeding season for migratory birds (January 15 through August 31), the project developer(s) should retain a qualified biologist, approved by the Port, to conduct a pre-construction survey for nesting migratory birds. The pre-construction survey must be conducted no more than 10 calendar days prior to the start of construction, the results of which must be submitted to the Port, for review and approval. If active nests are present, the Port would coordinate with USFWS and CDFW to determine the appropriate construction setback distance. Construction setbacks should be implemented until the young are completely independent of the nest or relocated with the approval of the USFWS and CDFW. A bio-monitor should be present on-site during initial grubbing and clearing of vegetation to ensure that perimeter construction fencing is properly installed and maintained and they should perform periodic inspections of the construction site during all major grading to ensure that impacts to sensitive plants and wildlife are minimized (refer to

BIO-2). The bio-monitor should send a monthly monitoring letter report to the Port detailing observations made during field inspections. The bio-monitor should also notify the Port immediately if clearing is done outside of the permitted project footprint.

The proposed work area is adjacent to the Marine Group Boatyard and nearby Rohr industrial area that generate considerable noise from adjacent upland environments. However, portions of the work are near existing coastal salt marsh habitats that support intermittent to permanent use by noise sensitive wildlife species that may be affected by elevated levels of construction noise. In following the standards of the CVBMP MMRP, Mitigation Measure BIO-6 should be adopted to minimize potential noise impacts to sensitive species. With the implementation of mitigation measure BIO-6, impacts of noise on wildlife would be mitigated to a level below significance.

BIO-6: Corresponds to CVBMP MMRP 4.8-6:

A. Construction-related noise. *Construction-related noise should be limited adjacent to the Sweetwater Marsh and South San Diego Bay Units of the San Diego Bay National Wildlife Refuge, F&G Street Marsh, the mudflats west of the Sweetwater District, and the J Street Marsh during the general avian breeding season of January 15 to August 31. During the avian breeding season, noise levels from construction activities must not exceed 60 dB(A) Leq., or ambient noise levels if higher than 60 dB(A). The project developer(s) should prepare and submit to the Port for review and approval an acoustical analysis and nesting bird survey to demonstrate that the 60 dB(A) Leq. Noise level is maintained at the location of any active nest within the marsh. If noise attenuation measures or modifications to construction activities are unable to reduce the noise level below 60 dB(A), either the developer(s) must immediately consult with the USFWS to develop a noise attenuation plan or construction in the affected areas must cease until the end of the breeding season. Because potential construction noise levels above 60 dB(A) Leq have been identified at the F&G Street Marsh, specific noise attenuation measures have been identified and are addressed in Section 4.7 of the EIR.*

3.3.5.2. Chula Vista Bayfront Master Plan, Mitigation Monitoring and Reporting Program

Implementation of the mitigation measures listed within the above sections would ensure consistency with the CVBMP MMRP. The below tables have been prepared to ensure that the results of the current biological investigation and impact analysis comply with all applicable development policies identified in the CVB Development Policies and MMRP, respectively.

Table 7. Consistency Evaluation with the Chula Vista Bayfront Development Policies

Policy Number	Policy Text	Consistency
2.1	The biological productivity and the quality of wetlands shall be protected and, where feasible, restored.	Consistent – The project includes channel enhancement.
2.2	Wetlands shall be defined and delineated consistent with the Coastal Act and the Coastal Commission Regulations, and shall include, but not be limited to, lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens. Any unmapped areas that meet these criteria are wetlands and shall be accorded all of the protections provided for wetlands in the PMP. Wetlands shall be further 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.	Consistent – The wetland delineation conducted for this report complies; refer to Section 1.4.2 of this report for survey methods and Section 2.2.4 for survey results.
2.3	Where the required initial site inventory indicates the presence or potential for wetland species or other wetland indicators, the District shall require the submittal of a detailed biological study of the site, with the addition of a delineation of all wetland areas on the project site. Wetland delineations shall be based on the definitions contained in Section 13577(b) of Title 14 of the California Code of Regulations.	Consistent – This report is in compliance with the policy; refer to Section 1.4.2 (CCC subheading) of this report for survey methods and Section 2.2.4 for survey results.
2.4	a) The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this Plan, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following: (1) New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities. (2) Maintaining existing, or restoring previously dredged, depths in existing	Consistent -The project would result in filling and excavation of coastal waters of the U.S., USACOE wetlands, and CCC wetlands as a result of channel enhancement and onsite compensatory mitigation.

Policy Number	Policy Text	Consistency
	navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps. (3) In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities. (4) Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines. (5) Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas. (6) Restoration purposes. (7) Nature study, aquaculture, or similar resource dependent activities.	
2.5	Where wetland fill or development impacts are permitted in wetlands in accordance with the Coastal Act and any applicable PMP policies, mitigation measures shall include creation of wetlands of the same type lost. Adverse impacts will be mitigated at a ratio of 4:1 for all types of wetland, and 3:1 for non-wetland riparian areas. Replacement of wetlands on-site or adjacent to the project site, within the same wetland system, shall be given preference over replacement off-site or within a different system. Areas subjected to temporary wetland impacts shall be restored to the pre-project condition at a 1:1 ratio. Temporary impacts are disturbances that last less than 12 months and do not result in the physical disruption of the ground surface, death of significant vegetation within the development footprint, or negative alterations to wetland hydrology.	Consistent – All impacts to southern coastal salt marsh are classified as permanent and a 4:1 mitigation ratio has been applied. Impacts to other the remaining jurisdictional resources consisting of waters of the U.S. are habitat enhancement impacts and will be mitigated at a no-net loss standard of a 1:1 ratio within the widened and deepened channel.
2.6	Wherever wetlands are identified, a buffer of at least 100 feet in width from the upland edge of wetlands and at least 50 feet in width from the upland edge of riparian habitat shall be established. In some unusual cases, smaller buffers may be appropriate, when conditions of the site as demonstrated in a site specific biological survey, the nature of the proposed development, etc. show that a smaller buffer would provide adequate protection. In such cases, the California Department of Fish and Game (CDFG) must be consulted and agree that a reduced buffer is appropriate and the District, or Commission on appeal, must find that the development could not be feasibly constructed without a reduced buffer. However, in no case shall the buffer be less than 50 feet.	Not applicable
5.2	Prohibit active recreation, construction of any road (whether paved or not), within No	Consistent – the proposed bridge is located

Policy Number	Policy Text	Consistency
	Touch Buffer Areas and "Transition Buffer Areas" as that term is defined and described in Exhibit 2, with the exception of existing or necessary access points for required maintenance.	outside the established buffers.
5.3	Protect the No Touch Buffer Areas from the impacts of the Chula Vista Bayfront project including, without limitation, fencing necessary to protect the Sweetwater Marsh and the Sweetwater parcel tidal flats, the J Street Marsh next to the San Diego Bay National Wildlife Refuge, and the north side of Parcel H-3.	Not Applicable
5.4	Include additional controls and strategies restricting movement of humans and Predators into sensitive areas beyond the boundaries of the designated Buffer Areas.	Consistent – the proposed bridge includes open fencing to prevent unauthorized access by path users into the adjacent habitats while still allow wildlife movement.
5.9	"Environmentally sensitive habitat area" (ESHA) means 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. The following areas shall be considered ESHA, unless there is compelling site-specific evidence to the contrary: • Any habitat area that is rare or especially valuable from a local, regional, or statewide basis. • Areas that contribute to the viability of plant or animal species designated as rare, threatened, or endangered under State or Federal law. • Areas that contribute to the viability of species designated as Fully Protected or Species of Special Concern under State law or regulations. • Areas that contribute to the viability of plant species for which there is compelling evidence of rarity, for example, those designated by the California Native Plant Society (CNPS) as 1b (Rare or endangered in California and elsewhere), such as Nuttall's scrub oak or "2" (rare, threatened or endangered in California but more common elsewhere), such as wart-stemmed Ceanothus.	Consistent – the southern coastal salt marsh communities have been classified as sensitive vegetation communities and are considered to be ESHA. The Diegan coastal sage scrub present on site has been considered for its potential ESHA status, but is not considered to be ESHA due to its fragmented nature, absence of adequate continuity to contribute to the viability of plant and animal populations considered to be rare, threatened or endangered and the lack of support for species designated as fully protected. Future restored buffer habitats in the Bayfront are anticipated to expand the upland habitat function and may result in development of future upland scrub habitat ESHA.
5.10	New development shall be sited and designed to avoid impacts to ESHA. ESHA shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas. Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of	Consistent – the proposed bridge has been designed to avoid/span the ESHA. However, other activities to flatten channel grades, expand coastal salt marsh benches, improve habitat continuity and accommodate sea level rise in the wetland enhancements do result in direct

Policy Number	Policy Text	Consistency
	those habitat and recreation areas. These uses include enhancement/restoration work, passive recreational parks and public access or recreational facilities such as trails and bike paths integrated into the natural environment and sited and designed to preserve, and be compatible with, native habitat.	impacts to ESHA. These impacts are necessarily located in areas of ESHA as the enhancement seeks to improve conditions of the tidally influenced waters supporting ESHA, albeit degraded and fragmented in current form. The activities contemplated within the project are consistent with adjacency to ESHA resources.
5.12	In the 1-g parcel area, a pedestrian bridge is proposed to create a linkage over a tidal inlet associated with the F & G Street Marsh. Tidal habitats should be treated as ESHA and the bridge crossing must be designed to enhance the habitat values present and reduce erosion. This bridge span must be extended and the existing incised channel slope should be cut back, reducing the slope and then creating additional salt marsh habitat on the created floodplain. Site-specific studies to assess the extent and quality of natural resources at the site will be required at the time development is proposed.	Consistent – the tidal habitats are classified as jurisdictional resources and the project includes channel enhancement to reduce erosion; all areas would be replanted with native species. This report serves as the site specific study. The bridge crossing is of a free-span design with abutments outside of ESHA. All work in the wetlands is considered compatible with ESHA.
5.13	If located in or adjacent to ESHA, new development shall include an inventory conducted by a qualified biologist of the plant and animal species present on the project site. If the initial inventory indicates the presence or potential for sensitive species or habitat on the project site, a detailed biological study shall be required. Sensitive species are those listed in any of three categories: federally listed, state listed or designated species of special concern or fully protected species, and CNPS categories 1B and 2.	Consistent – The 2015 Dudek report prepared for the project area as well as this current report fulfill this requirement.
5.14	Development adjacent to ESHAs shall minimize impacts to habitat values or sensitive species to the maximum extent feasible. Native vegetation buffer areas shall be provided around ESHAs to serve as transitional habitat and provide distance and physical barriers to human intrusion. Buffers shall be of a sufficient size to ensure the biological integrity and preservation of the ESHA they are designed to protect	Consistent – the bridge has been designed to avoid fill and/or placement of dredged material into jurisdictional resources. Slopes and upland restoration planting will further buffer ESHA from disturbance.
5.15	All buffers around (non-wetland) ESHA shall be a minimum of 100 feet in width, or a lesser width may be approved by the District if findings are made that a lesser buffer would adequately protect the resource. However, in no case can the buffer size be reduced to less than 50 feet.	Consistent – there are no designated non-wetland ESHA resources (similar to Policy 5.2).
5.16	Public access-ways and trails are considered resource dependent uses. New access-	Consistent – fencing is proposed as part of the

Policy Number	Policy Text	Consistency
	ways and trails located within or adjacent to ESHA shall be sited to minimize impacts to ESHA to the maximum extent feasible. Measures including, but not limited to, signage, placement of boardwalks, and limited fencing shall be implemented as necessary to protect ESHA.	bridge to prevent users from leaving the path. Upland habitat mitigation is also to be developed through final design to integrate additional buffer planting characteristics to assist in controlling off-trail activities within buffers or ESHA environments.
5.17	Modifications to required development standards that are not related to ESHA protection (street setbacks, height limits, etc.) shall be permitted where necessary to avoid or minimize impacts to ESHA.	Not applicable.
5.18	Protection of ESHA and public access shall take priority over other development standards and where there is any conflict between general development standards and ESHA and/or public access protection, the standards that are most protective of ESHA and public access shall have precedence.	Not Applicable
5.19	Impacts to native habitat that does not constitute ESHA that cannot be avoided through the implementation of siting and design alternatives shall be fully mitigated, with priority given to on-site mitigation. Off-site mitigation measures shall only be approved when it is not feasible to fully mitigate impacts on-site or where off-site mitigation is more protective. Mitigation for impacts to native habitat shall be provided at a 3:1 ratio.	Consistent – the project would mitigate non-ESHA sage scrub habitat at a 3:1 ratio.
11.1	Walkways, paths, and overlooks near Wildlife Habitat Areas outside of the No Touch Buffer Areas will be designed in accordance with the following: a) Alignment, design, and general construction plans of walkways and overlooks will be developed to minimize potential impacts to Wildlife Habitat Areas. b) Path routes will be sited with appropriate setbacks from Wildlife Habitat Areas. c) Paths running parallel to shore or marsh areas that will cause or contribute to birdflushing will be minimized throughout the Chula Vista Bayfront. d) Walkways and overlooks will be designed to minimize and eliminate, where possible, perching opportunities for raptors and shelter for skunks, opossums or other Predators. e) Walkways and overlooks that approach sensitive areas must be blinded, raised, or otherwise screened so that birds are not flushed or frightened. In general, walkway and overlook designs will minimize visual impacts on the Wildlife Habitat Areas of people on the walkways.	Consistent – impacts associated with the bridge have been minimized to the maximum extent practicable (only impact would result from shading). The bridge is expected to be high enough over the channel bottom to prevent establishment of urban adapted predators and the bridge is expected to be set back enough from the open water of the Bay (where most shore birds and waterfowl would forage) to avoid regular nuisance to resting and/or foraging wildlife.

Policy Number	Policy Text	Consistency
20.3	Create a meandering pedestrian trail constructed of natural material that is easily maintained and intenwoven throughout the Signature Park. Create, as part of the E Street Extension, a pedestrian pathway/bridge to provide a safe route for pedestrians to walk and to transition from the Sweetwater District to the Harbor Park Shoreline Promenade and park in the Harbor District.	Consistent – the proposed bridge fulfills the policy requirement. Relocation of the bridge away from E Street Extension (Marina Parkway) reduces the required scale of impact to ESHA by locating the bridge over a portion of deeply incised channel that supports little marsh habitat (approximately 64 square feet) compared to the initially analyzed roadway adjacent bridge trail that would extend salt marsh impacts along the roadside margin for a length of approximately 260 linear feet with a variable width of impact.

Table 8. Consistency Evaluation with the Chula Vista Bayfront MMRP

MM Number	Summary of Significant Impact	MM Text	Consistency
4.8	*Terrestrial Biological Resources*		
4.8-1	Impacts to nesting raptors	Not Applicable	Not Applicable - No potential for raptors to nest within the project area. Discussed in Sections 2.2.3.2 and 2.25 of this report.
4.8-2	Impacts to western burrowing owl	Not Applicable	Not Applicable - No potential for burrowing owl to occur within the project area. Discussed in Section 2.2.3.2 of this report.
4.8-3	Impacts to nesting birds protected by the MBTA	If grading or construction occurs during the breeding season for migratory birds (January 15 through August 31), the project developer(s) shall retain a qualified biologist, approved by the Port/City (depending on the jurisdiction), to conduct a pre-construction survey for nesting migratory birds. The pre-construction survey must be conducted no more than 10 calendar days prior to the start of construction, the results of which must be submitted to the Port or City, as	Consistent – Implementation of BIO-5, as included in this report would ensure consistency with MM 4.8-3.

MM Number	Summary of Significant Impact	MM Text	Consistency
		appropriate, for review and approval. If active nests are present, the Port will consult with USFWS and CDFG to determine the appropriate construction setback distance. Construction setbacks shall be implemented until the young are completely independent of the nest, or, relocated with the approval of the USFWS and CDFG. A bio-monitor shall be present on site during initial grubbing and clearing of vegetation to ensure that perimeter construction fencing is being maintained. A bio-monitor shall also perform periodic inspections of the construction site during all major grading to ensure that impacts to sensitive plants and wildlife are minimized. Depending on the sensitivity of the resources, the City and/or Port shall define the frequency of field inspections. The bio-monitor shall send a monthly monitoring letter report to the City and/or Port detailing observations made during field inspections. The bio-monitor shall also notify the City and/or Port immediately if clearing is done outside of the permitted project footprint.	
4.8-4	Impacts to the light-footed clapper rail and loss of raptor foraging habitat at the inlet of the F&G Street Marsh as a result of the construction of the extension of E Street and development of Sweetwater Park.	Prior to construction or grading in any areas of suitable nesting or foraging habitat for light-footed and, regardless of the time of year, the project developer(s) shall retain a qualified biologist who shall be approved by the Port or City, as appropriate, and shall be present during removal of southern coastal salt marsh vegetation within the inlet to the F & G Street Marsh to ensure that there are no direct impacts to foraging light-footed clapper rails. If a light-footed clapper rail is encountered, construction will be	Consistent – Implementation of BIO-3, as included in this report would ensure consistency with MM 4.8-4.

MM Number	Summary of Significant Impact	MM Text	Consistency
		temporarily halted until the bird leaves the area of construction. A bio-monitor shall be present on site during initial grubbing and clearing of vegetation to ensure that perimeter construction fencing is being maintained. A bio-monitor shall also perform periodic inspections of the construction site during all major grading to ensure that impacts to sensitive plants and wildlife are minimized. Depending on the sensitivity of the resources, the City and/or Port shall define the frequency of field inspections. The bio-monitor shall send a monthly monitoring letter report to the City and/or Port detailing observations made during field inspections. The bio-monitor shall also notify the City and/or Port immediately if clearing is done outside of the permitted project footprint. The project developer(s) shall consult with the U.S. Fish and Wildlife Service prior to impacting any areas of suitable nesting or foraging habitat for light-footed clapper rail so as not to prevent any unauthorized take of the light-footed clapper rail. Any take must be authorized by U.S. Fish and Wildlife Service.	
4.8-5	Impact to MSCP-covered species within the City's jurisdiction	Not Applicable	Not Applicable
4.8-6	Potential impact to special status species present in the F&G Street Marsh and Sweetwater Marsh National Wildlife Refuge as a result of construction adjacent to these locations.	A. Construction-related noise (full measure not included) B. Perching of raptors (NA) C. Raptor management and monitoring (NA) D. Lighting (full measure not included) E. Noise (same as 4.8-6A. Construction-related Noise) F. Invasives (full measure not included)	Consistent – Implementation of BIO-6, as included in this report would ensure consistency with MM 4.8-6 construction related noise. BIO-2 is included in this report to offset potential impacts to natural resources located adjacent to the project area and is consistent, as applicable with MM 4.8-6. Specifically, lighting is not

MM Number	Summary of Significant Impact	MM Text	Consistency
		G. Toxic Substances and Drainage (full measure not included) H. Public Access (NA) I. Boating Impacts (NA)	proposed; however, in the event temporary lighting is necessary during construction, implementation of BIO-2A, as included in this report would ensure consistency with MM 4.8-6 lighting requirements. Implementation of BIO-2B, as included in this report would ensure consistency with MM 4.8-6 construction-period invasive species requirements (e.g, prohibit use of invasive species). Implementation of BIO-2C, as included in this report would ensure consistency with MM 4.8-6 BMPs (e.g., reduce the potential for impact as a result of release of toxins, chemicals, etc.) that might harm the natural environment. Access areas outside the project footprint are prohibited. Implementation of BIO-2D, as included in this report would ensure consistency with MM 4.8-6 public access (e.g., requirements to install and maintain fencing, oversight by a biologist, requirement for inspections, and pre-construction training for construction personnel). The project does not propose to install trees or other potential raptor perch sites. Section 4 of this report is included to offset significant impacts to jurisdictional and upland habitats via onsite establishment and rehabilitation. The planting palette does not include invasive species or trees.
4.8-7	No significant impact identified; measure provided as further mitigation to reduce potential indirect impacts to biological resources.	Natural Resources Management Plan (full measure not included)	Consistent – The project has been designed to be consistent with the NRMP and Settlement Agreement; consistency is detailed below (the below headings are consistent with those in the Settlement Agreement).

MM Number	Summary of Significant Impact	MM Text	Consistency
			No-touch Buffer: Consistent – The bridge and associated trail system has been designed to avoid the No-touch buffer. This includes placement of the trail outside of the buffer limits and includes fencing to prevent unauthorized access by path users into the adjacent habitats while still allowing for wildlife movement. Walkway and Path Design: Consistent - The bridge and associated trail system has been placed outside the No-touch buffer and set back enough from the open water of the Bay (where most shore birds and waterfowl would forage) to avoid regular nuisance to resting and/or foraging wildlife. Predator Management: Consistent – The bridge is expected to be high enough over the channel bottom to prevent establishment of urban adapted predators. Additional Habitat Management and Protection: Not Applicable Bird Strikes and Bird Disorientation: Not Applicable Storm Water and Urban Runoff Quality: Not Applicable Landscaping and Vegetation: Consistent – Implementation of the conceptual mitigation plan, included in Section 4 of this report would

MM Number	Summary of Significant Impact	MM Text	Consistency
			ensure consistency with landscape and vegetation requirements. The conceptual mitigation plan does not include invasive species or trees. Lighting and Illumination: Consistent – Not Applicable, no permanent lighting proposed. Noise: Consistent – Implementation of BIO-6, as included in this report would ensure consistency with construction-related noise. Education: Not Applicable Boating Impacts: Not Applicable Restoration Priorities: Consistent – The proposed project includes removal of concrete debris/riprap from the channel bed as well as slope layback to prevent further erosion and to promote establishment of native marsh habitat (transitioning to native upland habitat). Sweetwater and Otay District Public Park Requirements: Consistent – The proposed project consists of a span bridge to serve as an over water connection for the Sweetwater Park Path. Phase I Signature Park Improvements: Not Applicable Hazardous Waste Removal Standards: Implementation of BIO-2C, as included in this

MM Number	Summary of Significant Impact	MM Text	Consistency
			report would ensure consistency with BMP requirements (e.g., reduce the potential for impact as a result of release of toxins, chemicals, etc.) to prevent harm to the natural environment. H-3 Densities: Not Applicable Creation of the South Bay Wildlife Advisory Group: Not Applicable Dispute Resolution: Not Applicable Bayfront Cultural and Design Committee for Project Located in Port District Lands: Not Applicable Port Master Plan Amendment: Not Applicable Energy: Not Applicable Housing Impacts: Not Applicable The Coalition's Undertakings: Not Applicable Identification of Grants: Not Applicable No Limitation on the District's, City's or RDA's Discretion: Not Applicable The District's, City's and RDA's Undertakings: Not Applicable Reservation of Discretion: Not Applicable

MM Number	Summary of Significant Impact	MM Text	Consistency
			Job Quality: Not Applicable Miscellaneous: Not Applicable
4.8-8	Construction of H Street Pier	Not Applicable	Not Applicable
4.8-9	Impacts associated with reconfiguration of the marinas or for dredging and filling of the navigation channels.	Not Applicable	Not Applicable
4.8-10	Impacts to disturbed coastal sage scrub, non-native grassland, mulefat scrub/riparian scrub, southern coastal salt marsh, disturbed riparian, and disturbed seasonal pond as a result of grading for project-level and program level elements within the Port's jurisdiction.	Port: A. Prior to the commencement of grading for development in each phase that impacts riparian habitat or sensitive vegetation communities, the Port or Port tenants, as appropriate, shall prepare and initiate implementation of a restoration plan for impacts to riparian habitat and sensitive vegetation communities in accordance with the mitigation requirements presented in Table 4.8-6. Prior to the commencement of Phase I grading that impacts riparian habitat or sensitive vegetation communities, the Port shall coordinate with the wildlife agencies for the preparation and approval of a detailed restoration plan within the Port's jurisdiction. The restoration plan shall be prepared by a qualified biologist, and the plan shall be approved by the Port. The guidelines for this plan will be developed in consultation with the regulatory agencies. The plan shall summarize the approach taken to avoid and minimize impacts to sensitive habitats, detail the target functions and values, and address the approach to restoring those functions and values. Typically, the restoration plan shall detail the site selection process; shall propose site preparation	Consistent – This report serves as a project-level assessment of potential impacts. BIO-1 included in the report, quantifies project impacts and associated mitigation, as well as requires preparation of a conceptual mitigation plan to offset significant impacts. A 3:1 mitigation ratio has been applied for permanent impacts to Diegan coastal sage scrub, not 1.5:1 as presented in the Final EIR Table 4.8-6. A 3:1 ratio would ensure consistency with Development Policy 5.19. All impacts to southern coastal salt marsh are classified as permanent and a 4:1 mitigation ratio has been applied. Impacts to other the remaining jurisdictional resources consisting of waters of the U.S. are habitat enhancement impacts and will be mitigated at a no-net loss standard of a 1:1 ratio within the widened and deepened channel. These ratios are consistent with MMRP 4.8-10 and Development Policy 2.5. Section 4 of this report serves as the conceptual mitigation plan. As stated in the first paragraph of Section 4, this conceptual mitigation plan will be refined during final design. In addition, the

MM Number	Summary of Significant Impact	MM Text	Consistency
		techniques, planting palettes, implementation procedures, monitoring and maintenance practices; shall establish performance criteria for each mitigation site. Typical success criteria may include percent canopy cover, percent of plant survival, and percent of native/non-native canopy cover. A minimum 5-year maintenance and monitoring period would be implemented following installation to ensure each area is successful. The restoration plan shall address monitoring requirements and specify when annual reports are to be prepared and what they shall entail. Qualitative and quantitative assessments of the site conditions shall be included. If the mitigation standards have not been met in a particular year, contingency measures shall be identified in the annual report and remediation will occur within 3 months or start of the growing season. The Port shall be responsible for ensuring that all of the success criteria are met to the satisfaction of the Port in consultation with the regulatory agencies. B. Prior to initiating any construction activities in each phase that would affect riparian habitat or sensitive vegetation communities, including clearing and grubbing associated with program level phases, an updated project- level assessment of potential impacts shall be made based on a specific project design. The Port or project developer(s), as appropriate, shall retain a qualified, Port-approved biologist to update appropriate surveys, identify the existing conditions, quantify impacts, and provide	mitigation plan will be required and reviewed as part of the regulatory approval process (BIO-4).

MM Number	Summary of Significant Impact	MM Text	Consistency
		adequate mitigation measures to reduce impacts to below a level of significance. This updated assessment shall be submitted to the Port for review and approval.	
4.8-11	Impacts to non-native grassland, southern coastal salt marsh, and mulefat scrub/riparian scrub in the City's jurisdiction.	Not Applicable	Not Applicable
4.8-12	Impacts to USACOE wetlands and non-wetland waters as a result of program-level development within the Port's jurisdiction. Impacts to USACOE wetlands and non-wetland waters as a result of establishment of ecological buffer on OP-2A, reconfiguration of the harbor and marine, and bridges on HP-5.	Port: A. The Port or Port tenants, as appropriate, shall mitigate for permanent and temporary impacts to USACE jurisdictional waters at the following ratios: 1:1 for permanent impacts to non-wetland waters of the U.S.; 4:1 for impacts to wetlands; and 1:1 for all temporary impacts. A minimum of 1:1 mitigation must be created in order to achieve the no-net-loss requirement of the CWA. Table 4.8-8 provides a breakdown of the required mitigation acreages for all USACE impacts within the Port's jurisdiction, which totals 2.12 acres. Mitigation for impacts from the Bay and Marina components of the proposed project will be established through USACE regulations once final designs for this work in Phases II through IV are finalized. Prior to the commencement of grading activities for any projects that impact USACE jurisdictional waters, the Port or Port tenants, as appropriate, shall prepare and initiate implementation of a restoration plan detailing the measures needed to achieve the necessary mitigation. The guidelines for this plan will be developed in consultation with the regulatory agencies. The plan shall summarize the approach taken to avoid and minimize impacts to sensitive habitats, detail the	Consistent – This report serves as a project-level assessment of potential impacts. BIO-1 included in the report, quantifies project impacts and associated mitigation, as well as requires preparation of a conceptual mitigation plan to offset significant impacts. All impacts to USACOE wetlands are classified as permanent and a 4:1 mitigation ratio has been applied. Impacts to waters of the U.S. are habitat enhancement impacts and will be mitigated at a no-net loss standard of a 1:1 ratio within the widened and deepened channel. These ratios are consistent with MMRP 4.8-10, 4.8-12, and Development Policy 2.5. Section 4 of this report serves as the conceptual mitigation plan. As stated in the first paragraph of Section 4, this conceptual mitigation plan will be refined during final design. In addition, the mitigation plan will be required and reviewed as part of the regulatory approval process (BIO-4). Implementation of BIO-4, as included in this report would ensure consistency with MM 4.8-12C.

MM Number	Summary of Significant Impact	MM Text	Consistency
		target functions and values, and address the approach to restoring those functions and values. Typically, the restoration plan shall detail the site selection process; shall propose site preparation techniques, planting palettes, implementation procedures, monitoring and maintenance practices; shall establish performance criteria for each mitigation site. Typical success criteria may include percent canopy cover, percent of plant survival, and percent of native/non-native canopy cover. A minimum 5-year maintenance and monitoring period would be implemented following installation to ensure each area is successful. The restoration plan shall address monitoring requirements and specify when annual reports are to be prepared and what they shall entail. Qualitative and quantitative assessments of the site conditions shall be included. If the mitigation standards have not been met in a particular year, contingency measures shall be identified in the annual report and remediation will occur within 3 months or the start of the growing season. The Port shall be responsible for ensuring that all of the success criteria are met to the satisfaction of the Port in consultation with the regulatory agencies. Port/City: C. Prior to issuance of the first clearing and grubbing or grading permit, for activities that impacts USACE jurisdictional waters, the Port or Port tenants, as appropriate, and project developer(s) within the City's jurisdiction shall obtain a Section 404 permit from USACE. The permit application process would also entail approval of the restoration plan from the USACE	

MM Number	Summary of Significant Impact	MM Text	Consistency
		as described above, with regards to areas that fall under the jurisdiction of USACE.	
4.8-13	Impacts to CDFW streambed and associated riparian.	Not Applicable	Not Applicable
4.8-14	Impacts to CCC wetland as a result of: E Street improvements, S-1 adjacent to the roadway at Bay Boulevard and E Street, bridge on E Street over the inlet to the F&G Street Marsh as part of the circulation element, and bridge to cross the HP-5 drainage ditch in the Harbor District.	Port. A. Mitigation for permanent direct and indirect (from bridge shading) impacts would be at a 2:1 ratio as detailed in Table 4.8-8. Prior to the commencement of grading activities for projects that impact CCC jurisdictional areas, the Port or Port tenants, as appropriate, shall prepare a restoration plan detailing the measures needed to create/restore CCC wetlands. The guidelines for this plan will be developed in consultation with the regulatory agencies. The plan shall summarize the approach taken to avoid and minimize impacts to sensitive habitats, detail the target functions and values, and address the approach to restoring those functions and values. Typically, the restoration plan shall detail the site selection process; shall propose site preparation techniques, planting palettes, implementation procedures, monitoring and maintenance practices; and shall establish performance criteria for each mitigation site. Typical success criteria may include percent canopy cover, percent of plant survival, and percent of native/non-native canopy cover. A minimum 5-year maintenance and monitoring period would be implemented following installation to ensure each area is successful. The restoration plan shall address monitoring requirements and specify when annual reports are to be prepared and what they shall entail. Qualitative and quantitative assessments of the site conditions shall be	Consistent – The proposed project would result in impacts to CCC wetlands from bridge shading. Footnote 1 in Table 6 of this report acknowledges the mitigation ratio of 2:1. BIO-1 included in the report, quantifies project impacts and associated mitigation, as well as requires preparation of a conceptual mitigation plan to offset significant impacts. Thus, implementation of BIO-1, as included in the report would ensure consistency with 4.8-14. Section 4 of this report serves as the conceptual mitigation plan.

MM Number	Summary of Significant Impact	MM Text	Consistency
		included. If the mitigation standards have not been met in a particular year, contingency measures shall be identified in the annual report and remediation will occur within 3 months or the start of the growing season. The Port shall be responsible for ensuring that all of the success criteria are met to the satisfaction of the Port in consultation with the regulatory agencies, including the CCC.	
4.8-15	Impacts to CCC wetland as a result of two addition bridges in the Otay District; riprap removal and bulkhead placement as a component to the Chula Vista Marina improvements (HW-1, HW-3, H-12) within the Harbor District; and re-channelization of Telegraph Canyon Channel in Otay District.	NA	NA
4.8-16	Impacts to CCC wetland as a result of establishment of the ecological buffer on OP-2A.	Not Applicable	Not Applicable
4.8-17	Impacts to CCC wetland as a result of additional road extensions in the Otay District	Not Applicable	Not Applicable
4.8-18	Impacts to CCC wetland on HP-13B.	Not Applicable	Not Applicable
4.8-19	Impacts to CCC wetland as a result of park development on OP-1B.	Not Applicable	Not Applicable
4.8-20	Impacts to CCC wetland as a result of development on O-4.	Not Applicable	Not Applicable
4.8-21	Impacts to waters under the	Port: A. Prior to the commencement of grading	Consistent – This report serves as a project-level

MM Number	Summary of Significant Impact	MM Text	Consistency
	jurisdiction of RWQCB.	activities for project components impacting RWQCB jurisdictional waters, the Port or Port tenants, as appropriate, shall prepare and implement a restoration plan detailing the measures needed to create/restore RWQCB jurisdictional waters in accordance with the acreage identified in Table 4.8-8. Port/City: C. Prior to the commencement of grading activities for project components impacting RWQCB jurisdictional waters, the Port or Port tenants, as appropriate, and applicants within the City's jurisdiction shall obtain permits from RWQCB. The permit application process would also entail approval of the restoration plan as described above. Pursuant to the CWA, the Port and other applicants are required to obtain a Section 401 Water Quality Certification permit from RWQCB. Port/City: D. Prior to the commencement of grading activities for project components impacting RWQCB jurisdictional waters, including clearing and grubbing, the Port or Port tenants, as appropriate, and the project developer(s) within the City's jurisdiction shall consult with the RWQCB to determine if Waste Discharge Requirements from the RWQCB shall be required for impacts to isolated waters of the State.	assessment of potential impacts. BIO-1 included in the report, quantifies project impacts and associated mitigation, as well as requires preparation of a conceptual mitigation plan to offset significant impacts. All impacts to USACOE wetlands (also classified as RWQCB water) are classified as permanent and a 4:1 mitigation ratio has been applied. Impacts to waters of the U.S. (also classified as RWQCB water) are habitat enhancement impacts and will be mitigated at a no-net loss standard of a 1:1 ratio within the widened and deepened channel. These ratios are consistent with MMRP 4.8-10, 4.8-12, 4.8-21, and Development Policy 2.5. Section 4 of this report serves as the conceptual mitigation plan. Implementation of BIO-4, as included in this report would ensure consistency with 4.8-21C. The project does not support isolated waters of the State and thus would not require waste discharge requirement.
4.8-22	Impacts to southern coastal salt marsh, mulefat/riparian scrub as a result of: bridge proposed across HP-5 drainage ditch, improvement to the existing E	Not Applicable	Not Applicable

MM Number	Summary of Significant Impact	MM Text	Consistency
	Street in the Sweetwater District, and development within the road easement on SP-4.		
4.8-23	Impacts to avian flight patterns and habitat use as a result of: RCC on H-3, residential on H-13, hotel on H-23, buildings on H-15, and buildings between 100 and 200 feet high along the project frontage.	Not Applicable	Not Applicable
4.9	*Marine Biological Resources*		
4.9-1 through 4.9-8	Impacts associated with marinas, harbors, navigation channel, H Street Pier, and bulkhead replacement on HW-3	Not Applicable	Not Applicable

3.3.6. Cumulative Impacts

Implementation of the project mitigation and permitting requirements to mitigate for direct impacts to jurisdictional resources and Diegan coastal sage scrub would reduce impacts to less than cumulatively considerable. Onsite mitigation will be focused on establishment of southern coastal salt marsh and maritime succulent scrub to offset impacts to jurisdictional resources and Diegan coastal sage scrub. Mitigation will be governed by both a site specific restoration plan and a broader comprehensive framework plan for integration of habitat connectivity and sea level rise adaptation throughout the Chula Vista Bayfront (M&A 2017).

4.0 CONCEPTUAL COMPENSATORY MITIGATION PLAN

This conceptual compensatory mitigation section has been prepared to support environmental review and as a framework plan guiding further habitat mitigation planning through final design and engineering stages of the proposed work. The mitigation areas are identified to confirm capacity to mitigate impacts on site within available project areas considering proposed trail infrastructure, grading limits, and other constraints. Additionally, mitigation is scaled to achieve mitigation needs based on broad impacts identified during preliminary design and impacts are anticipated to be reduced from those identified as the project details are refined. During final design and engineering mitigation areas will be refined and reduced commensurate with impact reduction, following the mitigation ratios in Table 6.

4.1. Goals of the Compensatory Mitigation

The project proponent is proposing to mitigate impacts to jurisdictional wetland resources and upland Diegan coastal sage scrub through onsite mitigation (Figure 8). In addition, mitigation habitat configurations will be modified further during final design and engineering to conform with the public access trail project, buffering, and channel enhancement considerations of the site. Finally, as part of the final design and engineering, the mitigation areas will be configured to work with grading and restoration needs for future buffer enhancement, the future Sweetwater Signature Park planning, and Marina Parkway road raising, drainage, and wildlife connection bridging activities.

4.2. Types of Habitats to be Established and Restored

This conceptual plan focuses on increasing the biological value of the southern coastal salt marsh resources along the F&G Street Marsh connector channel, expanding salt marsh on benches developed along the widened channel, and restoring uplands with maritime succulent scrub vegetation to offset impacts to Diegan coastal sage scrub communities. Rubble and debris removal from the tidal channel floor and channel deepening will be undertaken as part of the project to enhance tidal circulation and particularly drainage of the tidal channels in the F&G Street Marsh. This will improve flushing of accumulated algae in the lower marsh channel system. Additional channel widening and flaring is to improve wildlife movement and to accommodate habitat connectivity improvements associated with a future wildlife and tidal channel bridge beneath Marina Parkway. The channel sizing also provides for additional capacity needed to accommodate sea level rise predictions.

As indicated in Table 6, the maximum mitigation required under the preliminary design of the proposed work is 0.81 acre consisting of upland and wetland/non-wetland waters habitats. Uplands required to mitigate Diegan coastal sage scrub require 0.42 acre of scrub habitat replacement, proposed to be maritime succulent scrub. Mitigation for jurisdictional waters may total up to 0.39 acre, including 0.28 acre of coastal salt marsh and 0.11 acre of unvegetated open water channel or bare substrate. It is anticipated that the extent of mitigation needed will decline with reduction of impacts during final design and engineering.

Based on Table 6, the compensatory upland and wetland mitigation requirement can be fully mitigated onsite via establishment and restoration activities.

4.2.1. Establishment

Establishment would focus on laying back the overly steepened banks of the incised channel in order to reduce present erosion and accommodate greater channel capacity for sea level rise and potential future enhanced connections and expansion of the F&G Street Marsh, and to create intertidal benches suitable to support southern coastal salt marsh habitat development. The proposed grading would target optimized bank configuration for stable and plantable slopes, optimizing the capacity to support marsh habitat. Upper channel banks would be planted with maritime succulent scrub habitat. The channel slopes are illustrated in the preliminary plan as 3:1 slopes, however variable slopes will ultimately be designed during final design and engineering to accommodate more realistic and functional tidal channel configurations with a lesser footprint being required.

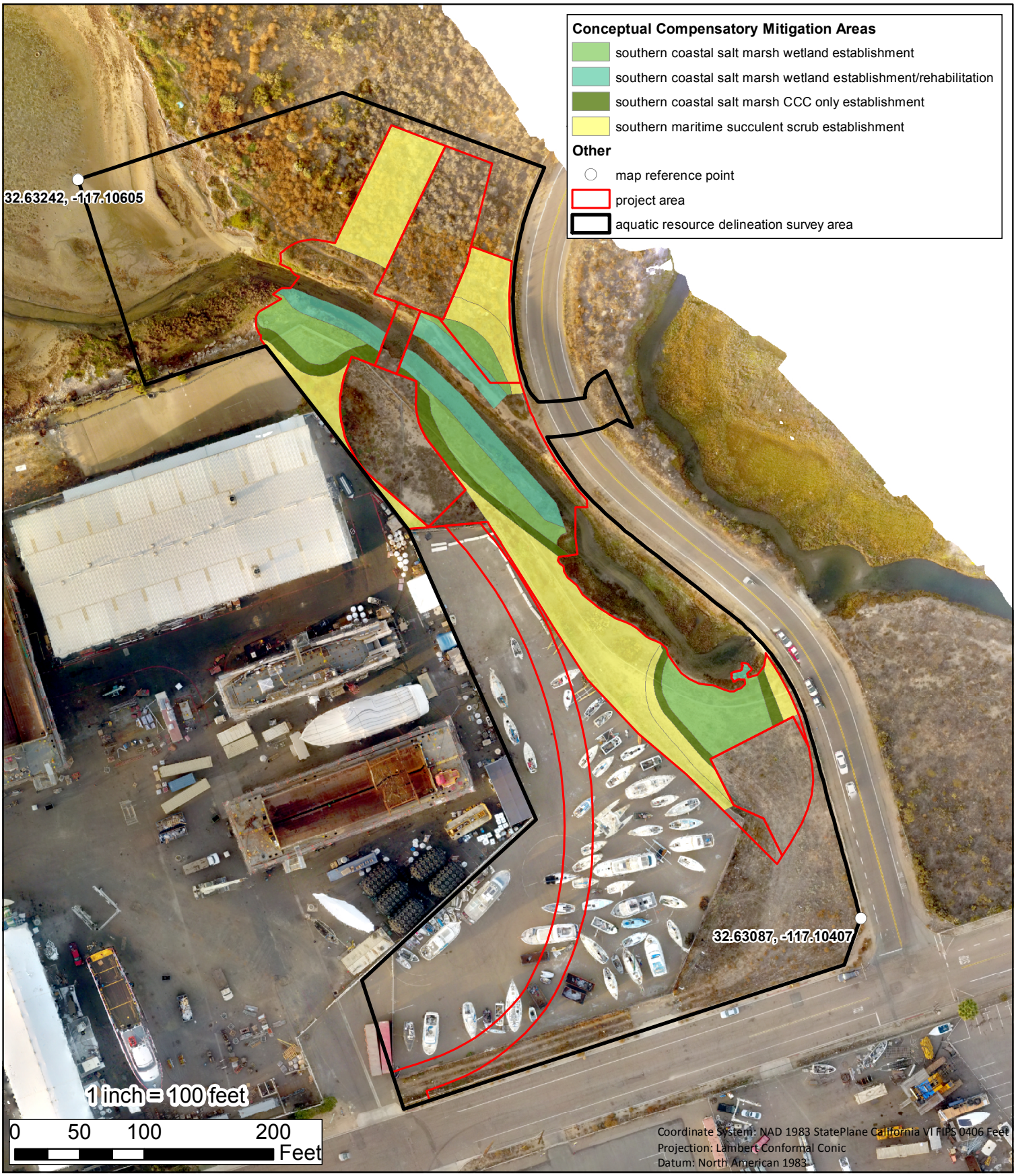
Rehabilitation would focus on restoring degraded areas to higher quality habitat. This includes removal of concrete rubble/debris from the channel bottom and excavating the hardened channel floor to allow greater tidal drainage in the system and establishment of a soft bottom benthic community in the channel. The present channel is armored by debris that has fallen from eroding fills to the floor of the channel. This has restricted downward cutting in the channel and thus expanded lateral spread of the channel and erosion. The removal of armoring would allow more natural channel depths to be achieved based on the tidal wetland drainage complex existing within the F&G Street Marsh. As the channel bottom generally occurs below mean sea level it will not support marsh vegetation currently or in the future.

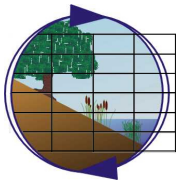
4.2.2. Time Lapse Between Impacts and Expected Compensatory Mitigation Success

Implementation of the compensatory mitigation is expected to begin concurrent with implementation of the project. Thus, the time lapse between impacts to jurisdictional (as well as sensitive upland resources) and expected mitigation success would be approximately five years.

4.3. Estimated Cost

The estimated costs for implementation, maintenance, and monitoring of the compensatory mitigation will be provided in a subsequent version of this plan, following greater plan development section.





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Conceptual Compensatory Mitigation

Chula Vista Bayfront Urban Greening Grant Project

Aerial Source: Merkel & Associates 2018

Created On: 3/29/2018

Figure 8

4.4. Description of the Proposed Compensatory Mitigation Site

A restrictive land use designation preventing future development would be placed over the final compensatory mitigation areas utilized for the project. The draft conceptual areas are illustrated in Figure 8 and will be reconfigured during final design and engineering. A Long-Term Habitat Management Plan (HMP) would be prepared to serve as the guide to be used by the long-term manager for management, maintenance, and monitoring of the compensatory mitigation area. The HMP would include at minimum: measures to maintain the vegetation success criteria identified by this plan, regular inspection for and removal of trash and other human generated waste, other management activities as needed to retain habitat for wildlife resources. The plan would also identify a financing mechanism to provide for sustaining maintenance and management of the mitigation site.

4.5. Implementation Plan for the Compensatory Mitigation Site

The compensatory mitigation site will expand on the existing channel by contouring the eroding banks to allow for establishment of salt marsh habitat and maritime succulent scrub habitat. Because the mitigation site is to be located along an existing, tidally influenced channel system, it will contribute to the present system rather than being a stand-alone mitigation site.

4.5.1. Responsible Parties

The Port and City of Chula Vista would be responsible for the implementation of this plan. They are also responsible for the long-term management of all lands within the mitigation site.

The Port and City of Chula Vista would be responsible for retaining a qualified restoration specialist and revegetation contractor to implement the installation, maintenance, and monitoring programs. The Port and City of Chula Vista would be ultimately responsible for all aspects of permit compliance and success of the mitigation program. The Port and City of Chula Vista would also be responsible for providing necessary administrative, and technical and legal support as may be necessary to implement the required conservation protections for the mitigation areas.

4.6. Implementation Schedule

Implementation of this plan would occur as follows. First, all areas would be surveyed and staked to designate the limits of work. The establishment and rehabilitation sites would then be cleared and grubbed in preparation for grading. Following site grading and any soil preparation needs, an irrigation system may be installed within the establishment and rehabilitation areas. The necessity for installation of irrigation has not yet been determined and is consideration of final design and engineering. Container plants would be installed. After planting of container plants, the site would be hydroseeded and evaluated and maintained during a 120-day plant establishment period. Following the 120-day plant establishment period, a minimum five-year maintenance and monitoring schedule would be initiated.

The optimal time to install native plants would be late fall/early winter to take advantage of seasonal conditions. Seed and container plants should be purchased from a reputable native plant company that has procured all seed and container plants from local plant populations occurring in the local coastal San Diego County region or as determined appropriate by the restoration specialist.

4.7. Irrigation and Planting Specifications

4.7.1. Irrigation Plan

The determination of irrigation methodology and whether or not an irrigation system will be installed has not been made at this time and will be a consideration during final design for the project.

4.7.2. Planting Plan

All areas would be actively planted. Plantings will be spotted by the restoration specialist within template areas and expanded over the designated areas by the revegetation contractor. Any required modifications to the planting layout or plant materials based on the site conditions revealed after final grading would be made during implementation at the recommendation of the restoration specialist.

Plants typical of southern coastal salt marsh (Table 9) would be planted throughout the establishment and rehabilitation areas that would transition gradually to a maritime succulent scrub community (Table 10). Specifically, OBL and FACW species such as saltwort, salty Susan, shoregrass, alkali heath, pacific pickleweed, and Parish's pickleweed would be planted within the lower elevations of the marsh community. FACW and FAC species including estuary seablite, alkali weed, and saltgrass would be planted at the higher elevations of the tidal range where marsh plant materials would transition to upland wetland fringe species such as box thorn. The buffer would be planted with maritime succulent scrub species dominated by California sagebrush and jojoba (*Simmondsia chinensis*).

Table 9. Southern Coastal Salt Marsh Plant Palette

Species	Common Name	Unit Size	Density	Percent Cover
Arthrocnemum subterminale	Parish's Pickleweed	1-gallon	3-foot centers	15
Batis martima	Saltwort	1-gallon	3-foot centers	15
Distichlis littoralis	Shore Grass	1-gallon	3-foot centers	5
Frankenia salina	Alkali Heath	1-gallon	4-foot centers	20
Salicornia pacifica	Pacific Pickleweed	1-gallon	4-foot centers	30
Suaeda esteroa	Estuary seablite	1-gallon	4-foot centers	15

The standard procedure for planting container stock shall be to dig a hole, which is equal to the depth and approximately 1.5 times the width of the rootball. The hole shall be filled with water and allowed to drain. The plant shall then be positioned so that the surface of the rootball is at ground level. The hole shall then be backfilled with the native soil. An earthen watering basin shall be created in a two-foot diameter around each rootball. The plant shall then be watered in by hand or irrigated immediately after planting. It should be noted that native cuttings would be used instead of container plants if feasible.

Table 10. Maritime Succulent Scrub Plant Palette

Species	Common Name	Unit Size	Density	Percent Cover
Artemisia californica	Coastal Sagebrush	1-gallon	4-foot centers	35
Encelia californica	California Encelia	1-gallon	4-foot centers	7
Isocoma menziesii var. decumbens	*Decumbent Goldenbush*	*1-gallon*	*4-foot centers*	*6*
Isomeris arborea	Bladderpod	1-gallon	4-foot centers	2
Eriogonum fasciculatum v. f.	Flat-top Buckwheat	1-gallon	4-foot centers	3
Lycium californicum	California Desert Thorn/California Box Thorn	1-gallon	4-foot centers	6
Lycium brevipes v. brevipes	Common Desert Thorn	1-gallon	5-foot centers	6
Simmondsia chinensis	Jojoba	1-gallon	4-foot centers	15
Bahiopsis laciniata	San Diego Sunflower	1-gallon	4-foot centers	6
Rhus integrifolia	Lemonadeberry	1-gallon	6-foot centers	5
Bergerocactus emoryi	Velvet Cactus	1-gallon	4-foot centers	3
Yucca schidigera	Mohave Yucca	5-gallon	4-foot centers	3
Atriplex lentiformis	Big Saltbush	1-gallon	6-foot centers	2
Suaeda esteroa	Estuary seablite	1-gallon	4-foot centers	1

Following planting of container plants, a hydroseed mix consisting of a native seed mix (Table 11) and slurry will be sprayed over all maritime succulent scrub areas. This seed mix will provide soil stabilization and understory vegetation that is non-competitive with the container plants and contributes diversity and nurse crop benefits.

Table 11. Maritime Succulent Scrub Hydroseed Mix Palette

Species	Common Name	Lbs/Acre	Minimum P/G[1]
Camissoniopsis cheiranthifolia	Beach Sun Cup	1.0	95/90
Camissoniopsis bistorta	California Sun Cup	0.5	90/80
Lasthenia californica	Goldfields	1.0	90/75
Layia platyglossa	Tidy-tips	0.5	80/75
Eriophyllum confertiflorum	Golden Yarrow	1	60/60
Lupinus succulentus	Arroyo Lupine	4	98/85
Eschscholzia californica	California Poppy	3	98/85
Deinandra fasciculatum	Fasciculed Tarplant	3	45/80
Mimulus auranticus ssp. puniceus	Coast Monkey Flower	0.5	5/70
Plantago erecta	Dot-seed Plantain	10	97/89
Atriplex pacifica	South Coast Saltscale	1	90/80
Leptosyne californica	Sea Dahlia	2	75/60

[1] P/G = Purity/Germination

The hydroseed slurry will include fiber mulch, humate, gypsum, and soil stabilizer additives based on soil conditions and slopes determined during final design.

4.8. Maintenance Activities During the Monitoring Period

4.8.1. Maintenance Activities

Maintenance of the compensatory mitigation areas would occur throughout the 120-day plant establishment period (PEP) and the subsequent minimum five-year maintenance and monitoring period under the direction of the restoration specialist. Table 12 provides a maintenance schedule while the below sections provide a description for each maintenance activity.

Table 12. Minimum Five-Year Maintenance and Monitoring Schedule

Tasks [1]	Pre-Con	120-Day PEP	Year 1	Year 2	Year 3	Year 4	Year 5
Maintenance Activities [2]	---	Monthly	Monthly	Bi-Monthly	Bi-Monthly	Quarterly	Quarterly
Qualitative Monitoring	---	Monthly	Monthly	Monthly	Quarterly	Quarterly	Quarterly
Quantitative Surveys							
Vegetation Monitoring	---	---	Spring	Spring	Spring	Spring	Spring
Photo Documentation	Spring	Spring	Spring	Spring	Spring	Spring	Spring
Soil Monitoring	---	---	Spring	---	Spring	---	Spring
Surface Hydrology Monitoring		---	Spring	---	Spring	---	Spring
Reporting Frequency	Within 30 days	Within 30 days of completing PEP	Yearly				

[1] For purposes of this plan, the growing season (i.e., spring) would fall between March – September, when growing conditions are optimal.

[2] Maintenance activities would be directed by the restoration specialist who will conduct qualitative monitoring inspections. Maintenance activities could include (but not limited to): site protection (fencing/signage), trash and debris removal, weed control, horticultural treatments, erosion control, irrigation maintenance, and pest management. Replacement plantings would occur in accordance with established success milestones and criteria (to be provided).

4.9. Site Protection - Fencing/Signage

Public access is not proposed and would be restricted from the compensatory mitigation area throughout all phases of the project including construction and the subsequent minimum five-year maintenance and monitoring period. In addition, there is no intent for public access within the compensatory mitigation area following completion of the initial five-year mitigation program.

4.10. Trash and Debris Removal

The compensatory mitigation area would remain trash and debris free throughout the life of the project. All trash and debris will be removed and disposed of properly at a landfill site. Care will be

taken to remove any debris that may impact native target vegetation. In these situations, removal will be at the discretion and supervision of the restoration specialist.

4.11. Weed Control

Weed abatement of annual and invasive weeds would occur throughout the compensatory mitigation area on an as-needed basis. Weed abatement will be performed to control particularly noxious or competitive species that may inhibit the growth of desirable native vegetation. Hand weeding will be performed as needed throughout the maintenance period. Other weedy plants that invade the mitigation site in prohibitive numbers shall be removed if they pose a significant threat to the growth or survival of target vegetation. All seed heads shall be cut, removed and bagged prior to complete removal of the species. All weed propagules will be disposed of at an approved landfill site.

All weeds in wetland areas shall be removed by hand or treated with an aquatic-safe registered herbicide (e.g. Rodeo or Aquamaster). Round-Up or other registered glyphosate-based herbicides shall be used in upland areas located away from wetlands. Application of herbicide shall only be used if approved by the restoration specialist. Any herbicide treatment must be applied under the supervision of a licensed pest-control applicator. Herbicides used in all wetland areas must be EPA-registered for application in such environments to prevent deleterious effects of herbicides on aquatic resources.

4.12. Horticultural Treatments

The purpose of the mitigation effort is to establish native wetland and upland buffer habitats. Horticultural treatments (*e.g.,* pruning, fertilizing, staking) are typically not conducive to establishment of native habitats. The restoration specialist must approve any special treatments.

4.13. Erosion Control

Surface soils would be held in place by hydroseed mix and container plantings. The specified hydroseed mix will include a binder to promote quick erosion control. A silt fence or other comparable erosion control devices would be installed during the site preparation phase of this plan to protect the adjacent resources from construction operations and would be maintained throughout the maintenance and monitoring program until no longer necessary, as deemed appropriate by the restoration specialist. No additional erosion control measures are anticipated at this time. However, if erosion poses a threat to the existing drainage or the habitat establishment program, measures shall be taken to contain surface soils. Erosion control activities may include application of a bio-fiber matrix or straw mulch and/or installation of straw wattles.

4.14. Replacement Plantings

4.14.1. Planting

Plants would be replaced per the specifications identified in the project's success milestones (to be established as part of the regulatory review). Dead plants will be replaced with container grown plants of similar type and size (based on original installation). Where micro-habitat conditions are more favorable for growth of a different native species of similar character (i.e., tree, shrub), plant substitutions, as directed by the restoration specialist, may be made for onsite planting.

4.14.2. Hydroseed

All bare areas greater than 1,000 square feet (or as determined necessary by the restoration specialist) will be re-hydroseeded and/or hand seeded six weeks subsequent to the original hydroseed application. The restoration specialist may extend this period due to environmental conditions (*i.e.,* soil temperature) that would preclude the germination of the hydroseed.

4.14.3. Irrigation Maintenance

If an irrigation system is installed, the system will be maintained in a fully operable condition throughout the duration of the plant establishment and minimum five-year maintenance and monitoring periods. The restoration specialist shall determine irrigation schedules during qualitative site visits made during the establishment period. Irrigation schedules will vary to correspond to seasonal weather, changing site conditions, and plant growth. At the direction of the restoration specialist, irrigation will be shut off after year three or for at minimum two years prior to request for sign-off by the regulatory agencies; the purpose is to promote plant acclimation to native hydrological conditions. Inspections will be conducted routinely and all necessary repairs will occur promptly to ensure establishment of the target vegetation.

4.14.4. Pest Management

Native species are resistant to most pests (including insects and fungi) associated with typical ornamental landscaping. Pest management of native habitats is typically limited to controlling herbivory from native wildlife including rabbits, ground squirrels, and gophers. If needed, the restoration specialist will provide all necessary recommendations regarding pest management.

4.15. Monitoring Plan for the Compensatory Mitigation Site

Monitoring will include both qualitative and quantitative surveys. The purpose of the qualitative surveys is to ensure that the proper maintenance and establishment procedures are followed. The purpose of the quantitative surveys is to measure the establishment of the site to determine its compliance with the success milestones.

4.15.1. Qualitative Surveys

Qualitative surveys, consisting of a general site walkover and habitat characterization will completed during each monitoring visit as listed within Table 12. Surveys will be conducted by the restoration specialist who shall be accompanied by the revegetation contractor. General observations such as fitness and health of the planted species, pest problems, weed establishment, irrigation performance, mortality and drought stress will be noted in each site walkover. The restoration specialist will determine remedial measures necessary to facilitate compliance with performance standards. A written memorandum will be prepared after each monitoring visit, listing problems and recommended remedial measures and native plant health and seed germination. These memoranda will be provided to the Port/City and the revegetation contractor.

4.15.2. Quantitative Surveys

4.15.2.1. Vegetation Monitoring

The monitoring program for this plan incorporates Level 3 data collection for hydrophytic vegetation presence within the compensatory mitigation area. The presence of hydrophytic vegetation associated with a stream is an indicator of adjacent riparian habitat. Specifically, fixed

transects of approximately 100 feet each would be established within each habitat type to determine total vegetative cover utilizing the point intercept method. Cover would be measured along each transect by recording each plant (or bare ground, leaf litter, and biological debris) that intercepted the measuring tape at two-foot intervals occurring above and below the tape. From these point intercepts, total plant cover, percent cover of each species, and percent cover of bare ground, leaf litter, and biological debris would be calculated for each transect; results could be extrapolated to the entire site. This method would take into account species overlap (i.e., absolute cover); thus percent cover could exceed 100 percent. Percent cover without overlap (i.e., relative cover) would also be extrapolated from the data; at sampling points where more than one native species occurred, only one of these species (the one providing the most cover) would be accounted for in the overall native cover evaluation. Also, container plants shall be counted for in order to calculate percent survivorship. In addition to transect and container plant counts, a general overview of the site will be made in order to assess the overall compliance with success criteria, species richness and average height of the shrub and tree strata, and areas requiring special modifications to the maintenance program.

Progress milestones would be established to track the project's status and to facilitate a successful compensatory mitigation project. Monitoring will be completed for a minimum of five years (for jurisdictional resources) or until success criteria are met or until alternative compensatory mitigation is agreed upon by the permitted and regulatory agencies.

4.15.2.2. Photo Documentation

Permanent photo point location and directions will be established at each of the fixed vegetation transects and at ideal vantage points to photo-document year to year changes. Datasheets with the date, photographer, photo transect and vantage point number, direct, and general description. The datasheets and a graphic showing the mapped photo and transect locations will be included as part of the annual monitoring reports.

4.15.2.3. Soil Monitoring

Soil hydrology monitoring, a Level 3 data collection, would be performed for assessment of hydric soils presence within the compensatory mitigation area. The presence of hydric soils is one of three parameters to define an area as a USACOE wetland; thus, this would be performed in USACOE wetland establishment areas only when the area is above the annual highest high tide, defined at +7.10 feet NAVD88 (+7.79 feet MLLW). Hydric soils are defined as "a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part" (USACOE 2008, Section 3). Most hydric soils exhibit characteristic morphologies that result from repeated periods of saturation or inundation for more than a few days. This saturation or inundation, when combined with microbal activity in the soil, causes the depletion of oxygen, which promotes various processes including the accumulation of organic matter and the reduction, translocation, or accumulation of iron and other reducible elements. Ultimately, these processes result in distinctive characteristics that persist in the soil during both wet and dry periods, allowing for the identification of hydric soils in the field. Hydric soil indicators as described in the ACOE Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACOE 2008) and National Technical Committee for Hydric Soils (NTCHS) Field Indicators of Hydric Soils in the United States (USDA 2010) would be used to assess the presence of hydric soils.

Soil test pits would be dug during Year 1 monitoring, while the temporary irrigation (if installed) is still providing supplemental irrigation to the site and again in Years 3 and 5 to determine whether hydric soils have developed or persisted after termination irrigation (refer to Table 12). The test pits would be dug to a minimum depth of 12 inches or as needed to document the soil chroma index using the Munsell® Soil Color Charts (Munsell® Color 2000), as well as additional hydric soil indicators. The soil would be determined to be hydric if one or more hydric soil indicators as listed within the USACOE Arid West Supplement were present. Indicators for problematic hydic soils may include moderately to very strong alkaline soils (7.9 or higher) for which samples would need to be collected and analyzed by an approved laboratory. Hydric soils will be required prior to final sign-off of the USACOE wetland compensatory mitigation site unless the USACOE project manager determines that strong evidence of hydrophytic vegetation and wetland hydrology are present and that wetland design is not the cause of the absence of hydric soil indicators. The surface wetland hydrology indicators and/or hydrophytic vegetation data may serve as evidence that the USACOE can use to determine that the site is functioning as a wetland, as the hydric soils continue to develop.

4.15.2.4. Surface Hydrology Monitoring

Surface wetland hydrology monitoring, a Level 3 data collection, would be performed for assessment of wetland hydrology presence within the compensatory mitigation area. The presence of wetland hydrology is one of three parameters to define an area as a USACOE wetland; thus, this would be performed in USACOE wetland establishment areas only when the area is above the annual highest high tide, defined at +7.10 feet NAVD88 (+7.79 feet MLLW). Wetland hydrology is indicated by the presence of surficial or sub-surficial hydrologic characteristics long enough during the growing season to show that the presence of water has an overriding influence on the characteristics of vegetation and soils due to anaerobic and reducing conditions, respectively; thus, for an area to be defined as a wetland, periodic inundation or saturation of soils during the growing season must be determined to be present (USACOE 2008, Section 4).

For the purposes of this MMP, the wetland hydrology indicators described in the USACOE *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACOE 2008) would be used to assess the presence of wetland hydrology. Surface hydrology monitoring would initially be assessed at Year 1 and again in Years 3 and 5 to determine whether wetland hydrology indicators are present (refer to Table 12). Specifically, surface wetland hydrology would be determined to be present if one or more primary indicators or two or more secondary indicators were observed.

If necessary, surface hydrology indicators could be evaluated using the Corps of Engineers Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States (USACOE 2008). The OHWM is a defining element for identifying the lateral limits of non-wetland waters; Tables 5 and 6 within the 2008 guide list potential OHWM indicators typically found below, at, or above the ordinary high water boundary. The list includes both geomorphic and vegetation indicators; however, not all indicators will be present onsite.

4.16. Monitoring Schedule

The compensatory mitigation maintenance and monitoring would follow the schedule in Table 12. These activities will be completed over the next five years (at minimum) to ensure the success of the Project.

4.17. Performance Standards for Target Dates and Success Criteria

Performance criteria will be based on quantitative surveys including CRAM, vegetation transects, hydric soil monitoring, and surface hydrology monitoring. The success criteria and target dates will be provided as part of the project refinement during final design and engineering. These performance criteria will be utilized to assess the annual progress of the mitigation areas, and are regarded as interim project objectives designed to achieve the final goals. Fulfillment of these criteria will indicate that the compensatory mitigation project is progressing toward the habitat types and functions that constitute the long-term goals of this MMP. If mitigation efforts fail to meet the performance standards in any one year, the restoration specialist will recommend remedial actions to be implemented the following year that will enhance the vegetation to a level in conformance with the original standards.

4.18. Completion of Compensatory Mitigation

Upon achievement of the fifth year success standards and completion of the five-year maintenance period, the restoration specialist will prepare a Final Monitoring and Notice of Completion Report. The report will be submitted to the regulatory permitting agencies for evaluation of the success of the revegetation effort and final acceptance. The Final Monitoring and Notice of Completion Report will make a determination whether the requirements of the mitigation plan have been met.

4.19. Contingency Measures

4.19.1. Initiating Procedures

If an annual monitoring event identifies failure to attain the prescribed milestone, the restoration specialist shall analyze the cause(s) of failure and propose remedial action for approval.

4.19.2. Alternative Locations for Contingency Compensatory Mitigation

The proposed mitigation site represents an optimal circumstance for mitigation of impacts to wetland and maritime succulent scrub resources and no alternative locations are proposed at this time.

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APPENDIX 1. FLORA SPECIES OBSERVED WITHIN THE BSA

Habitat Types:

O = Open Water
B = Beach
S = Southern Coastal Salt Marsh
C = Diegan Coastal Sagescrub
Diegan Coastal Sagescrub – disturbed
Diegan Coasta Sagescrub – baccharis dominated
H = Disturbed Habitat
U = Urban/Developed

* = Denotes non-native flora species.

Scientific Name	Common Name	Habitat
DICOTYLEDONS		
Aizoaceae – Fig-Marigold Family		
**Mesembryanthemum crystallinum* L.	crystalline iceplant	H
Asteraceae - Sunflower Family		
Artemisia californica Less.	California sagebrush	C, H
Baccharis pilularis DC.	coyote brush, chaparral broom	C, H
Baccharis sarothroides A. Gray	broom baccharis	C, H
**Glebionis coronaria* (L.) Spach	garland, crown daisy	C, H
Isocoma menziesii (Hook. & Arn.) G. L. Nesom var. *decumbens* (Greene) G. L. Nesom	decumbent goldenbush	C, S, H
Jaumea carnosa (Less.) A. Gray	salty Susan, fleshy jaumea	S
Bataceae - Saltwort Family		
Batis maritima L.	saltwort, beachwort	S
Brassicaceae - Mustard Family		
**Brassica nigra* (L.) Koch	black mustard	C, H
Descurainia pinnata (Walter) Britton	tansy-mustard	C, H
**Hirschfeldia incana* (L.)Lagr.-Fossat	short-pod mustard	C, H
Chenopdiaceae – Goosefoot Family		
Arthrocnemum subterminale (Parish) Standl.	Parish's pickleweed	S
**Atriplex semibaccata* R. Br.	Australian saltbush	S, H
**Salsola tragus* L.	Russian thistle, tumbleweed	S, C, H
Suaeda esteroa W. Ferrin & S. Whitmore	estuary seablite	S
Convolvulaceae - Morning-Glory Family		
Cressa truxillensis Kunth.	alkali weed	S
Fabaceae - Pea Family		
Astragalus trichopodus (Nutt.) A. Gray var. *lonchus* (M. E. Jones) Barneby	ocean locoweed	S, H,
Frankeniaceae - Frankenia Family		
Frankenia salina (Molina) I. M. Johnston	alkali heath	S
Geraniaceae - Geranium Family		
**Erodium moschatum* (L.)L'Hér.	white-stem filaree	C, H
Lamiaceae - Mint Family		
**Marrubium vulgare* L.	horehound	H

Scientific Name	Common Name	Habitat
Plumbaginaceae - Leadwort Family		
Limonium californicum (Boiss.) A.A. Heller	western marsh-rosemary	S
Polygonaceae - Buckwheat Family		
Eriogonum fasciculatum Benth. var. *fasciculatum*	coastal California buckwheat	C, H
Solanaceae - Nightshade Family		
Lycium californicum Nutt.	California desert thorn/ California box thorn	H
**Nicotiana glauca* Graham	tree tobacco	H, C
MONOCOTYLEDONS		
Poaceae - Grass Family		
**Bromus diandrus* Roth	ripgut grass	H, C
Distichlis littoralis (Engelm.) H.L. Bell & Columbus	shoregrass	S
Distichlis spicata (L.) Greene	saltgrass	S

APPENDIX 2. FAUNA SPECIES OBSERVED OR DETECTED WITHIN THE BSA

Habitat Types:

O = Open Water
B = Beach
S = Southern Coastal Salt Marsh
C = Diegan Coastal Sagescrub
Diegan Coastal Sagescrub – disturbed
Diegan Coasta Sagescrub – baccharis dominated
H = Disturbed Habitat
U = Urban/Developed
FO = fly over

* = denotes introduced species

Abundance Codes (birds only):

A = Abundant: Almost always encountered in moderate to large numbers in suitable habitat and the indicated season.
C = Common: Usually encountered in proper habitat at the given season.
U = Uncommon: Infrequently detected in suitable habitat. May occur in small numbers or only locally in the given season.
R = Rare: Applies to species that are found in very low numbers.

"Numbers" indicate the number of individuals observed during the field survey work.

Status Codes (birds only):

M= Migrant: Uses the site for brief periods of time, primarily during the spring and fall months.
R = Year-round resident: Probable breeder on-site or in the vicinity.
S = Spring/summer resident: Probable breeder on-site or in the vicinity unless combined with transient status.
T = Transient: Uses site irregularly in summer but unlikely to breed. Not a true migrant and actual status often poorly known
W = Winter visitor: Does not breed locally.
V = Casual vagrant: Not expected; out of normal geographic or seasonal range and by definition rare.

Common Name	Scientific Name	Habitat	Abundance	Status
BIRDS				
Ardeidae (Herons and Bitterns)				
snowy egret	*Egretta thula*	O, B, S	C	T, R
Anatidae (Swans, Geese, and Ducks)				
brant	*Branta bernicla*	B	C	M, W
Scolopacidae (Sandpipers and Relatives)				
marbled godwit	*Limosa fedoa*	B	C	M, W, T
Laridae (Gulls and Terns)				
western gull	*Larus occidentalis*	FO	A	R, T
Trochilidae (Hummingbirds)				
Anna's hummingbird	*Calypte anna*	H	C	R

APPENDIX 3. GENERAL OVERVIEW PHOTOS OF THE BIOLOGICAL STUDY AREA

Photo 1. Overview photo; taken from the western portion of the BSA and directed southeast. Photo taken on 3/9/2018.

Photo 2. Overview photo; taken from the same location as Photo 1 but directed westward toward the San Diego Bay. Photo taken on 3/9/2018.

Photo 3. Overview photo; taken from the eastern portion of the BSA and directed northward. Photo taken on 3/9/2018.

Clo

Photo 4. Photo taken from inside the eroding channel; just east of the proposed bridge span. Photo directed west toward San Diego Bay. Taken on 3/9/2018.

APPENDIX 4. JURISDICTIONAL WETLAND DELINEATION DATA FORMS AND PHOTO POINTS

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: CVB Sweetwater Urban Greening Grant Project City/County: CVBMP (Chula Vista) San Diego Sampling Date: 3/9/18

Applicant/Owner: San Diego Unified Port District State: CA Sampling Point: DP1

Investigator(s): Amanda Gonzales Section, Township, Range: unsectioned, T18S, R2W

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

Subregion (LRR): LRR-C Lat: 32.63216 Long: -117.10521 Datum: WGS 84

Soil Map Unit Name: Huerhuero loam, 2-9% slopes NWI classification: Upland

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

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

Are Vegetation N, Soil N, or Hydrology N 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 ✓	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks:

DP located within upland habitat.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ~4 x 10')	Absolute % Cover	Dominant Species?	Indicator Status
1. —	—		
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: ~4 x 10')			
1. —	—		
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: ~4 x 10')			
1. Bromus diandrus	40	Y	UPL
2. Salsola tragus	20	Y	FACU
3. Glebionis coronaria	20	Y	UPL
4. Frankenia salina	10	N	FACW
5. Mesembryanthemum crystallinum	10	N	FACU
6.			
7.			
8.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: ~4 x 10')			
1. —	—		
2.			
	0	= Total Cover	

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	1	x 2 =	2
FAC species	0	x 3 =	0
FACU species	2	x 4 =	8
UPL species	1	x 5 =	5
Column Totals:	4 (A)		15 (B)

Prevalence Index = B/A = 3.75

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 ✓

Remarks:

DP located outside the tidal influence, at the top of the bank. Hydrophytic vegetation not dominant.

SOIL

Sampling Point: DP 1

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
0-6	10YR 3/3	90	—				Sandy loam	

[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 ✓

Remarks:

Difficult to dig due to debris (encountered glass) & small rocks.

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 ✓ 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:

MHA topo & Duck 2015

Remarks:

DP located at the top of the channel bank outside the mean high water line and mean annual highest high tide.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: CVB Sweetwater Urban Greening Grant Project City/County: CVBMP (Chula Vista) San Diego Sampling Date: 3/9/18

Applicant/Owner: San Diego Unified Port District State: CA Sampling Point: DP2

Investigator(s): Amanda Gonzales Section, Township, Range: unsectioned, T18S, R2W

Landform (hillslope, terrace, etc.): Terrace/Beach Local relief (concave, convex, none): Slight convex Slope (%): 0 < 1%

Subregion (LRR): LRR-C Lat: 32.63240 Long: -117.10564 Datum: WGS84

Soil Map Unit Name: Huerhuero loam, 2-9% slopes NWI classification: Upland

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

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

Are Vegetation N, Soil N, or Hydrology N 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 ____	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks:

DP located above the mean annual highest high tide on a bench. Community dominated by hydrophytic veg, but hydric soils and wetland hydrology not present.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ~5x12)	Absolute % Cover	Dominant Species?	Indicator Status
1. —	—		
2.			
3.			
4.			
	Ø = Total Cover		
Sapling/Shrub Stratum (Plot size: ~5x12)			
1. —	—		
2.			
3.			
4.			
5.			
	Ø = Total Cover		
Herb Stratum (Plot size: ~5x12)			
1. Atriplex semibaccata	60	Y	FAC
2. Suaeda ~~taxifolia~~ esteroa	20	Y	FACW
3. Distichlis spicata	10	N	FAC
4. Frankenia salina	5	N	FACW
5. Glebionis coronaria	5	N	UPL
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: ~5x12)			
1. —	—		
2.			
	Ø = Total Cover		

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

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: 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:

✓ 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 ____

Remarks:

DP located on a bench, dominated by hydrophytic vegetation.

SOIL

Sampling Point: DP 2

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
0-6	10YR 3/3	90	—				Sandy loam	

[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 ✓

Remarks:

Similar conditions as DP 1. Hydric soils not 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)
- ___ 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:

DP located outside/above the annual highest high tide, on a bench. Wetland hydrology not present.

Photo Point 1. Overview photo of Wetland Data Point 1. Photo directed southeast. Photo taken on 3/9/2018. Data point located within upland habitat.

Photo Point 2. View photo of Wetland Data Point 1. Photo directed west toward San Diego Bay. Photo taken on 3/9/2018. Data point located within upland habitat.

Photo Point 3. View photo of Wetland Data Point 1. Photo directed south. Photo taken on 3/9/2018.

Photo Point 4. Close up view of the soil pit at Wetland Data Point 1. Photo taken on 3/9/2018.

Photo Point 5. Overview photo of Wetland Data Point 2 (red shovel). Photo directed southeast. Photo taken on 3/9/2018. Data point located within CCC only wetland habitat.

Photo Point 6. Close up view of the soil pit at Wetland Data Point 2. Photo taken on 3/9/2018.

APPENDIX 3. VEGETATION MAP, IMPACT AND MITIGATION UPDATE FOR THE COSTA VISTA RV RESORT PROJECT IN CHULA VISTA, CALIFORNIA (M&A 2018B)

Merkel & Associates, Inc.
5434 Ruffin Road, San Diego, CA 92123
Tel: 858/560-5465 • Fax: 858/560-7779
San Diego CA • San Rafael CA • Arcata CA • Nehalem OR • Tacoma WA

August 29, 2018
M&A #16-099-01

Mr. Kurt Beleck
Atwell, LLC
Two Towne Square, Suite 700
Southfield, MI 48076

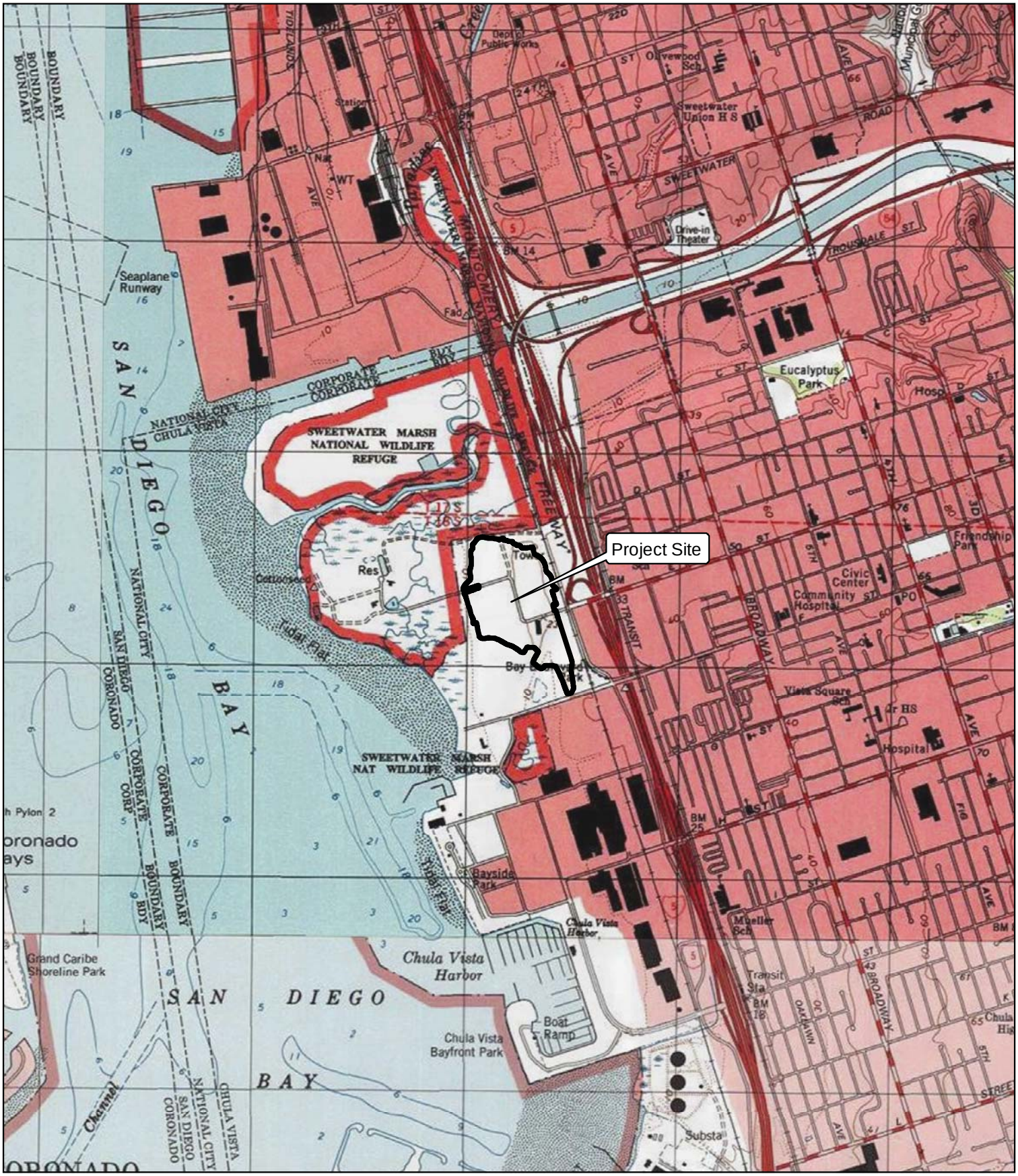
Re: Vegetation Map, Impact and Mitigation Update for the Costa Vista RV Resort Project in Chula Vista, California

Dear Kurt:

As requested by Austin Silva of the Port of San Diego, Merkel & Associates (M&A) has updated the biological resources/vegetation mapping for the Costa Vista RV Resort site (Figure 1). The attached Figure 2 depicts the biological resources identified on the site per surveys conducted by M&A biologists Kyle Ince and Amanda Gonzales. The work was performed using a combination of ultra-low altitude, high resolution aerial photography and site field reviews to verify vegetation boundaries.

Proposed project impacts to habitats per the recent mapping effort are summarized below in Table 1. It should be noted that the project boundary has been expanded to include the extension of E Street and an associated storm water detention basin that will be constructed along its southern edge to capture and treat runoff from the road. The evaluated limits now include parcels S-1, S-2, S-3 and the stormwater basin in SP 2. These include all of the shaded areas in the attached grading plan sheet (Appendix 1). Although the project boundary has been expanded, the actual impact to coastal sage scrub has decreased overall (previously 4.24 acres, now 2.376 acres). This is due to a reduction in habitat currently mapped for the site compared to the previous mapping effort (Dudek 2015). The decrease is likely related to multiple factors including drought, mapping resolution and accuracy improvements with newer technologies applied, and a reduction in the extent of generalization of boundaries between prior and current surveys. In prior work conducted for the Sweetwater Park Urban Greening Grant Project, we noted a similar reduction in sage scrub habitat associated with the recent mapping. This was contemplated to be related to the same factors.

The region has experienced prolonged drought conditions and there has been a gradual reduction in perennial upland plants in the Chula Vista Bayfront and elsewhere over this period. The drought has favored expansion of annual and hearty non-native species and a displacement of native species. This has occurred throughout southern California and not just within the Bayfront. Invasive weeds such as sweet fennel (*Foeniculum vulgare*), tree tobacco (*Nicotina glauca*), and short-pod mustard (*Hirschfeldia incana*) greatly out number native plants in several areas that were previously mapped as disturbed Diegan coastal sage scrub or disturbed broom baccharis scrub and



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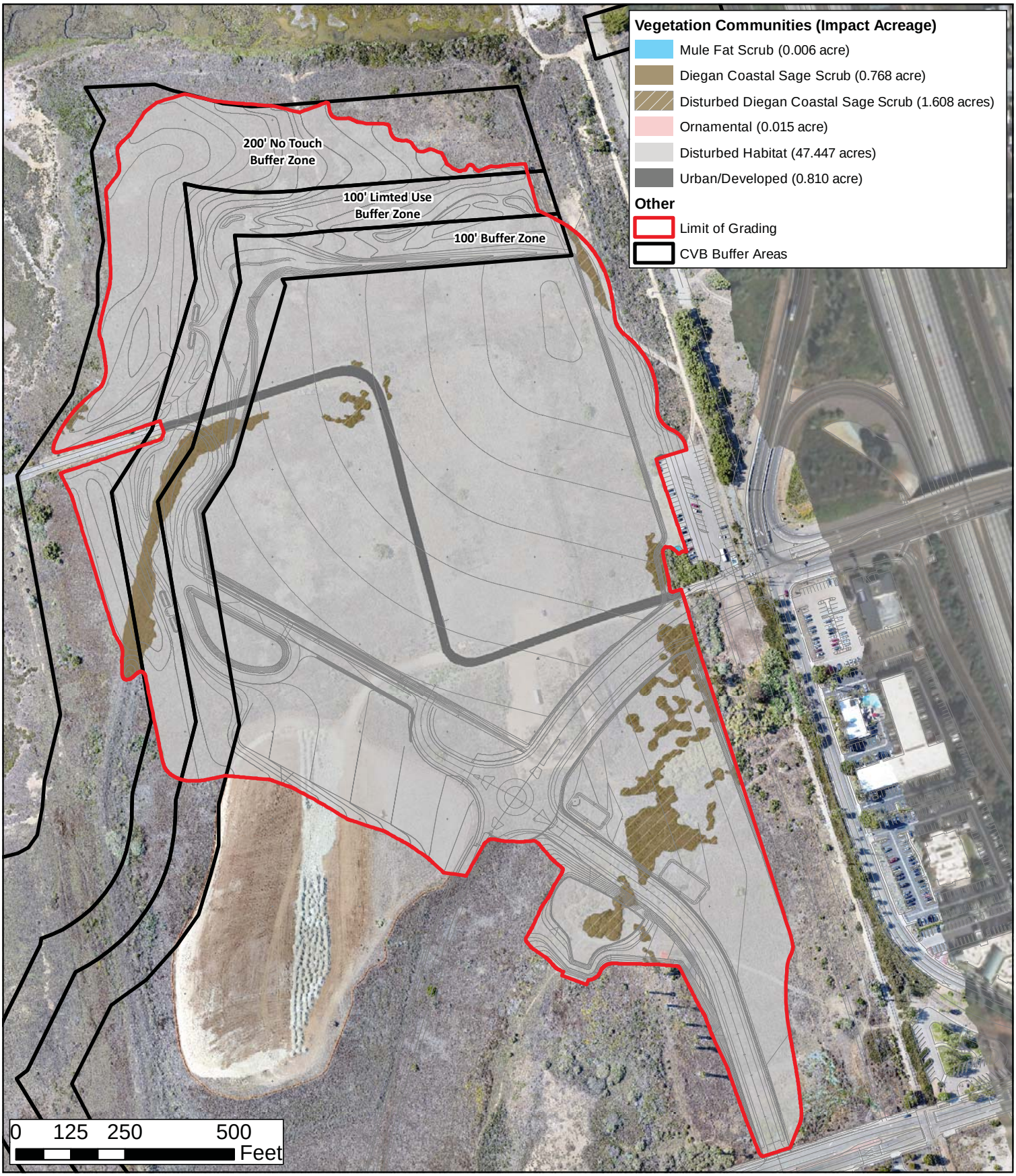
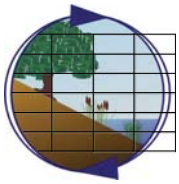
Project Vicinity Map

Costa Vista RV Park

Source: USGS 7.5' National City, CA Quadrangle

Figure 1





N
W E
S

Biological Impacts Map

Costa Vista RV Park

Aerial Source: Merkel & Associates 2018

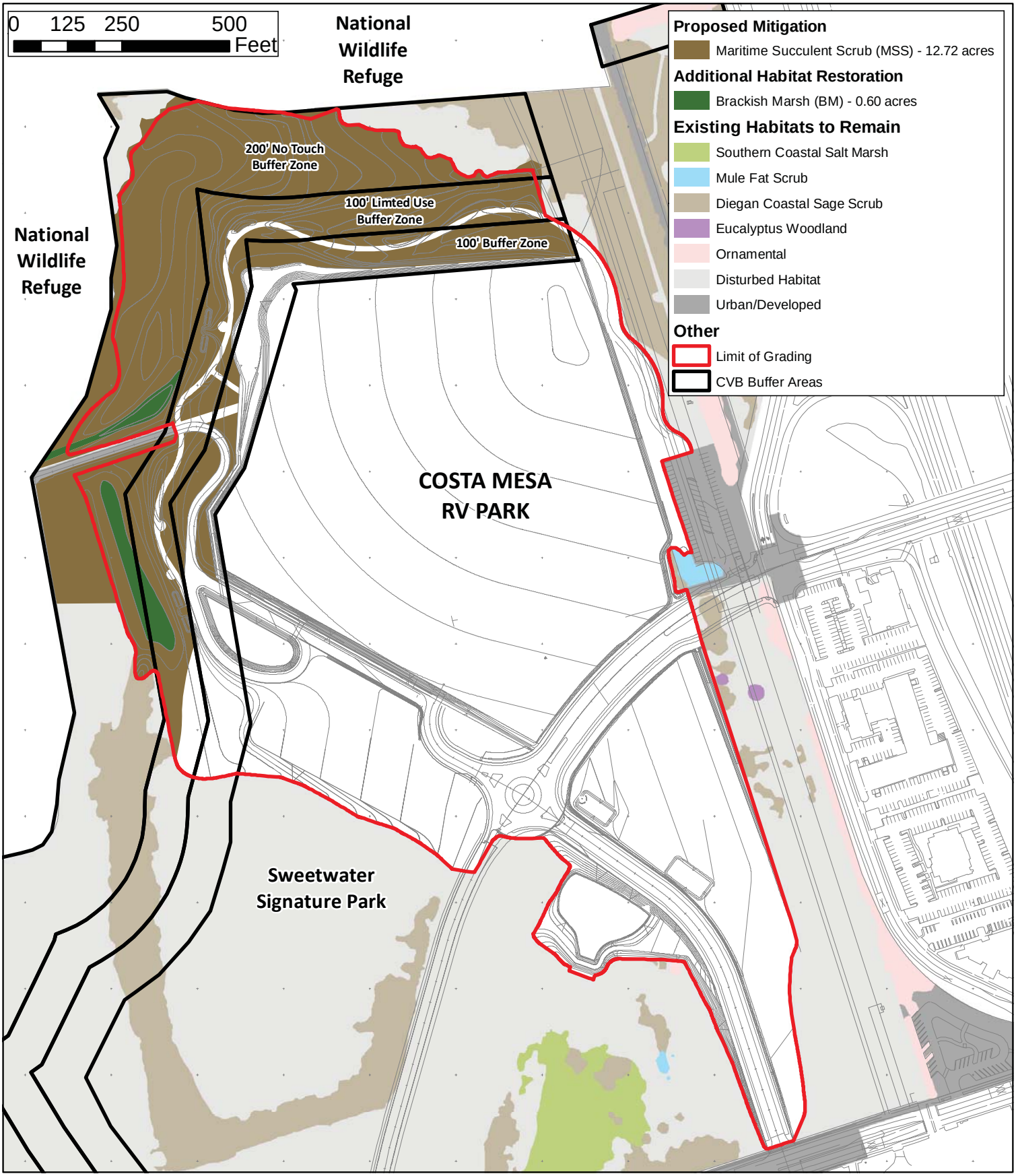
Figure 2

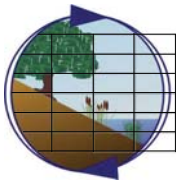
much of the area previously mapped as disturbed scrub no longer supports more than a few native shrubs. This is especially evident just south of Gunpowder Point Drive, in the areas that are just east and west of the dirt lot that is used for temporary bus parking. These areas, totaling 1.5 acres, were previously mapped as disturbed broom baccharis scrub (Dudek 2015) and are now dominated by non-native, opportunistic weeds.

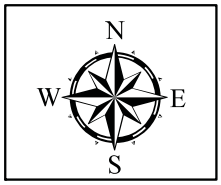
Because the most current site survey had the advantage of utilizing recently obtained high resolution aerial imagery of the site it is possible to determine shrubs by species rather than color or tone from aerial surveys. As a result, it is possible to extract native baccharis shrubs from similar appearing non-native weeds. This was especially helpful in mapping habitat and may also have contributed to some degree to the broader mapping in prior surveys.

The results of the biological update indicate a considerable decline in native coastal scrub upland habitats and a very minor expansion of the boundary of mule fat scrub habitat, regulated as a wetland habitat by the Coastal Commission. This expanded area of mule fat scrub is located within the basin at the southwest corner of the existing Discovery Center parking lot at the north end of the areas to be protected in place. We recommend minor alteration to grading in this area to remove this area from the limits of work. If it were not possible to avoid this area, it would be necessary to determine if the grading required for drainage improvements met with the allowable uses in wetlands. If so, the habitat mitigation would be accommodated within the habitat restoration plan presently existing for the site (Merkel & Associates 2018). The mitigation could either be derived from portions of the 0.60 acre of brackish wetland being developed on site in the buffer lands restoration (Merkel & Associates 2018), or it could be developed at the outlets of the retention ponds feeding the brackish marsh habitats.

The project proposes to provide on-site restoration of disturbed land and/or impacted land to achieve required mitigation for upland coastal scrub habitat impacts. Mitigation for impacts to sensitive upland vegetation will be at a 3:1 ratio as required by the CVBMP EIR and Mitigation Monitoring and Reporting Plan (MMRP) (Dudek 2010). Non-jurisdictional upland vegetation communities total 2.376 acres. Mitigation would then require development of 7.128 acres of maritime succulent scrub vegetation within lands adjacent to the project including buffer lands. The present habitat mitigation plan for the project includes development of 12.72 acres of maritime succulent scrub that was based on the prior quantification of habitat (Figure 3). The present mitigation need is substantially lower than the native scrub habitat to be restored under the mitigation plan (Merkel & Associates 2018). Additionally, mitigation habitat need is driven by sage scrub habitat impacts across the RV Park as well as the roadways, stormwater basin, and S-2 pad sites. While the Costa Vista RV Park project does not need the full amount of the upland habitat to be restored within the project area, the development of the Chula Vista Bayfront, in total still needs mitigation and the plan for restoration of the buffer areas in the northern portion of the Sweetwater District would remain unchanged from that illustrated in the habitat mitigation plan. For this reason, it is recommended that the mitigation plan remain unaltered, but that mitigation lands beyond the project needs be retained and earmarked for other mitigation needs in the Bayfront. This would likely require additional negotiations on cost sharing or reimbursements, but it would be more prudent than pulling the restoration back to the minimum necessary as this would increase the restoration complexity of a future mitigation action, and would increase the maintenance cost of the RV Park mitigation due to adjacent weed issues.







Habitat Mitigation Location Map

Costa Vista RV Park

Figure 3

Table 1. Impacts to Vegetation Communities and Proposed Mitigation

Habitat	Total Impacts from Proposed Development	Mitigation Ratio	Mitigation Requirement
Diegan Coastal Sage Scrub	0.768	3:1	2.304
Disturbed Diegan Coastal Sage Scrub	1.608	3:1	4.824
*Mule Fat Scrub	0.006	3:1	0.018
Disturbed Habitat	47.447	0:1	0.000
Ornamental	0.015	0:1	0.000
Urban/Developed	0.810	0:1	0.000
Total:	**50.654**	**--**	**7.146**

*Hydrophytic plant community regulated as a wetland by the Coastal Commission that is recommended to be excluded from the work limits.

If you have any questions regarding this letter, please do not hesitate to contact me at kince@merkelinc.com or (858) 560-5465.

Sincerely,

Kyle L. Ince
Senior Biologist

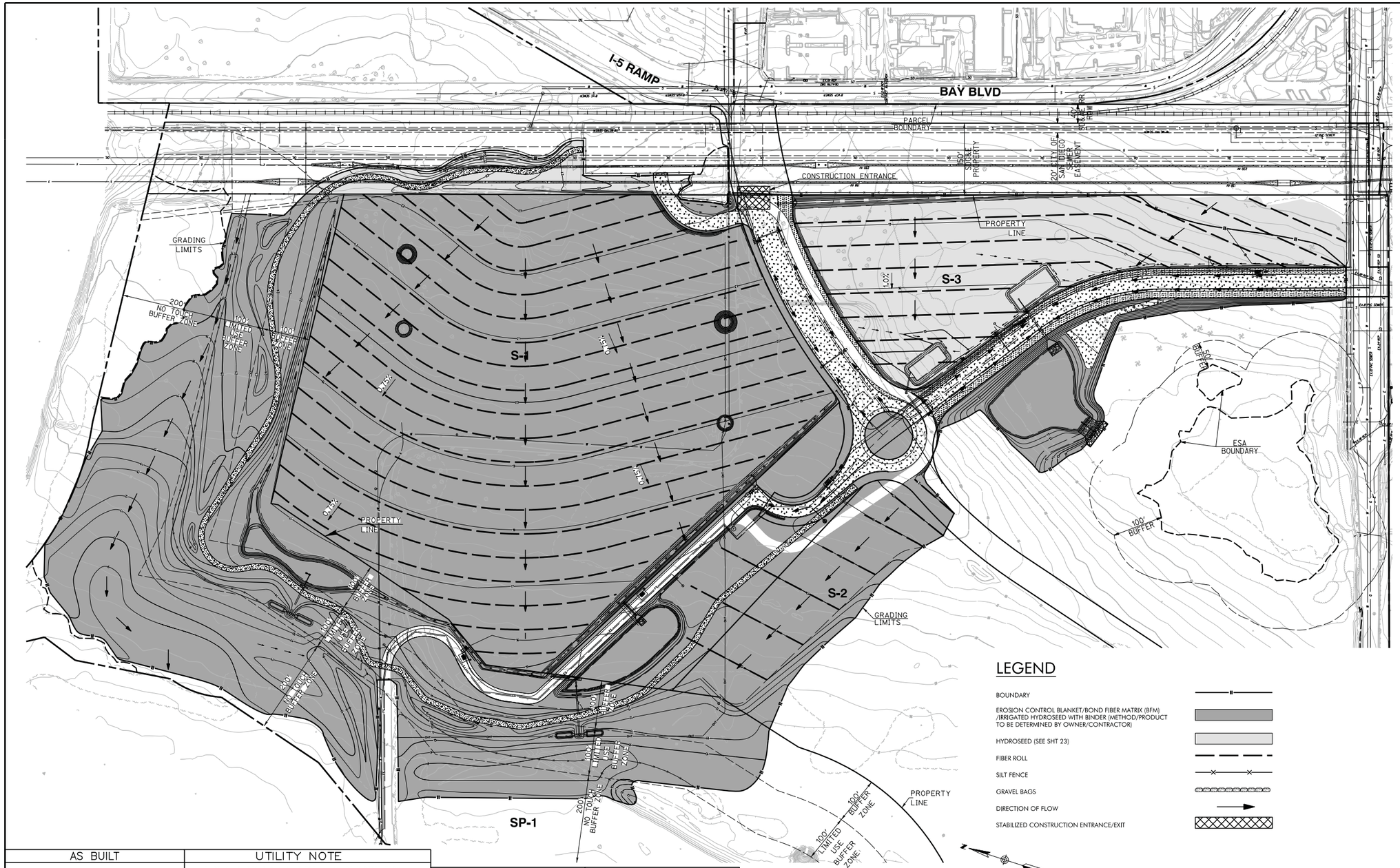
REFERENCES

Dudek. 2010 May. Final Environmental Impact Report for the Chula Vista Bayfront Master Plan. UPD #83356-EIR-658, SCH #2005081077. Prepared for the San Diego Unified Port District. Inclusive of the Mitigation Monitoring and Reporting Program (MMRP). Available from: https://www.portofsandiego.org/chula-vista-bayfront-master-plan.html

_____. 2015. Biological Resources Survey Report for the E Street Realignment in Chula Vista, Chula Vista Bayfront Master Plan. 39pp + Figures and Attachments.

Merkel & Associates. 2018. Habitat Mitigation Plan for the Costa Vista RV Park, Chula Vista California. February 2018.

90% SUBMITTAL GRADING PLANS



LEGEND

- BOUNDARY
- EROSION CONTROL BLANKET/BOND FIBER MATRIX (BFM) /IRRIGATED HYDROSEED WITH BINDER (METHOD/PRODUCT TO BE DETERMINED BY OWNER/CONTRACTOR)
- HYDROSEED (SEE SHT 23)
- FIBER ROLL
- SILT FENCE
- GRAVEL BAGS
- DIRECTION OF FLOW
- STABILIZED CONSTRUCTION ENTRANCE/EXIT

GRAPHIC SCALE 1" = 100'

AS BUILT

Date _____
SIGNATURE
P.E. No. _____
Printed Name
My Registration Expires _____ Discipline _____

UTILITY NOTE

ALL EXISTING UTILITIES SHOWN ON THESE PLANS ARE PLOTTED FROM RECORD DATA AT THEIR APPROXIMATE LOCATIONS. UNDERGROUND FACILITIES MAY EXIST WHICH HAVE NOT BEEN REPORTED OR ARE NOT OF RECORD. CONTRACTOR SHALL VERIFY THE LOCATION OF ALL PERTINENT UTILITIES IN THE FIELD PRIOR TO THE START OF CONSTRUCTION.

Submitted: _____
By: _____
Planning: | Landscape:

Approved: _____
For the City Engineer

RECORD DRAWING
REVIEWED BY:
ENGINEER OF RECORD
DATE:

NOTE:
THIS DRAWING MAY BE A REDUCED SCALE PRINT OF THE ORIGINAL DRAWING. UTILIZE GRAPHIC SCALES TO VERIFY IF DRAWING IS A REDUCTION, AND ADJUST SCALES ACCORDINGLY TO THE GRAPHIC SCALES SHOWN.

SPEC NO. 2015-13	WBS NO. P0460-2
REFERENCES SEE NOTE ON SHEET 1	
PROJECT ENGINEER	
CONTRACTOR	
CONSTRUCTION STARTED	
CONSTRUCTION COMPLETED	
COST	INSPECTOR

REVISIONS | DATE / APPROVED

San Diego Unified Port District
San Diego • California

DESIGNED | DRAWN | CHECKED

APPROVAL RECOMMENDED
DISTRICT PROJECT MANAGER
APPROVED
DISTRICT MANAGER-DESIGN

RICK ENGINEERING COMPANY
San Diego
5620 FRIARS ROAD
SAN DIEGO, CA 92110
619-291-0707
(FAX) 619-291-4165
J-17269
rickengineering.com
Riverside • Orange • Sacramento • San Luis Obispo • Phoenix • Tucson • Denver

WORK ORDER NO.

REGISTERED PROFESSIONAL ENGINEER
KRISTIN R. GIBSON
NO. 82295
EXP. 12/31/16
CIVIL
STATE OF CALIFORNIA

CITY OF CHULA VISTA DRAWING NO.
W.O. #PG.-872

DATE 1/4/2016
A/E NO.
SHEET 24 OF 25
DRAWING NO. CV-2015-01
REV. -

CHULA VISTA BAYFRONT
SWEETWATER DISTRICT GRADING

EROSION CONTROL PLAN

J:\17269\CAD\SHEETS\17269_GRAD_NG_PLANS\17269_GRD_24_Erosion_Control.dgn
J:\17269\CAD\SHEETS\17269_GRAD_NG_PLANS\GD Constrnt 2005.descript
Mon Jan 04 07:31:56 2016

DRAFT

APPENDIX 4. FLORA SPECIES NOTED WITHIN THE BSA

Habitat Types:

O = Open water, Beach, & Riprap
S = Southern coastal salt marsh
C = Diegan coastal sage scrub, includes forms of: baccharis dominated, isocoma dominated, disturbed, saltbush scrub
E = Eucalyptus woodland
M = Ornamental
G = Bare ground
H = Disturbed habitat
U = Urban/developed

* = Denotes non-native flora species.

Refer to the Literature Cited section of the report for recent biological investigations and the corresponding flora list.

DICOTYLEDONS

Aizoaceae – Fig-Marigold Family		
**Malephora crocea* (Jacq.) Schwantes	Crocea ice plant	H
**Mesembryanthemum crystallinum* L.	crystalline iceplant	H
**Mesembryanthemum nodiflorum* L.	slender-leaved iceplant	H
Anacardiaceae - Sumac Family		
Rhus integrifolia (Nutt.) Benth. & Hook. f. ex Rothr.	lemonade berry	C
Apiaceae - Carrot Family		
**Foeniculum vulgare* Miller	fennel	H
Asteraceae - Sunflower Family		
Artemisia californica Less.	California sagebrush	C, H
Baccharis sarothroides A. Gray	broom baccharis	C, H
**Centaurea melitensis* L.	tocalote, Maltese star-thistle	H
**Dittrichia graveolens* (L.) Greuter	stinkwort	H
** Glebionis coronaria* (L.) Spach	garland, crown daisy	
Isocoma menziesii (Hook. & Arn.) G. L. Nesom var. *decumbens* (Greene) G. L. Nesom	decumbent goldenbush	H
Isocoma menziesii (Hook. & Arn.) G. L. Nesom var. *menziesii*	Menzies's goldenbush	C, H
Jaumea carnosa (Less.) A. Gray	salty Susan, fleshy jaumea	S
Laennecia coulteri (A. Gray) G. L. Nesom	Coulter's fleabane	H
**Lactuca serriola* L.	prickly lettuce	H
Pseudognaphalium biolettii Anderb.	Bioletti's rabbit-tobacco	C
Xanthium strumarium L.	cocklebur	S
Bataceae - Saltwort Family		
Batis maritima L.	saltwort, beachwort	S
Boraginaceae - Borage Family		
Heliotropium curassavicum L. var. *oculatum*	seaside or alkali heliotrope	S
Brassicaceae - Mustard Family		
**Brassica nigra* (L.) Koch	black mustard	C, H
**Cakile maritima* Scop.	maritime sea-rocket	H
Descurainia pinnata (Walter)	tansymustard	C
**Hirschfeldia incana* (L.) Lagr.-Fossat	summer field mustard	C, H
**Sisymbrium irio* L.	London rocket	H
Cactaceae - Cactus Family		
Opuntia littoralis (Engelm.) Cockerell	coast prickly-pear	C

Chenopodiaceae --		
Arthrocnemum subterminale (Parish) Standl.	Parish's pickleweed	S
Atriplex lentiformis (Torrey) S. Watson	big saltbush	C,S,H
**Atriplex lindleyi* Moq.	Lindley's saltbush	S,H
**Atriplex semibaccata* R. Br.	Australian saltbush	H
**Atriplex suberecta* I. Verd.	Sprawling saltbush	H
**Bassia hyssopifolia* (Pall.) Kuntze	five-hook bassia	H
**Salsola tragus* L.	Russian thistle, tumbleweed	H
Salicornia pacifica (Standl.)	pacific pickleweed	S
Suaeda esteroa Ferren & S.A. Whitmore	estuary sea blite	S
Suaeda taxifolia (Standl.) Standle.	woolly sea blite	S,H
Convolvulaceae - Morning-Glory Family		
Cressa truxillensis Kunth.	alkali weed	S
Fabaceae - Pea Family		
**Acacia cyclops* G. Don	western coastal wattle	H
**Acacia redolens* Maslin	vanilla scented wattle	H
Acmispon glaber (Vogel) Brouillet var. *glaber*	dear lotus, deerweed	C
Astragalus trichopodus (Nutt.) A. Gray var. *lonchus* (M. E. Jones) Barneby	Santa Barbara milkvetch/ ocean locoweed	C,S,H
**Melilotus indicus* (L.) All.	sourclover	H
Frankeniaceae - Frankenia Family		
Frankenia salina (Molina) I. M. Johnst.	alkali heath	S
Geraniaceae - Geranium Family		
**Erodium moschatum* (L.)L'Hér.	white-stem filaree	C, H
Lamiaceae - Mint Family		
**Marrubium vulgare* L.	horehound	H
Malvaceae - Mallow Family		
**Malva parviflora* L.	cheeseweed, little mallow	H
Oleaceae - Olive Family		
**Olea europaea* L.	olive	M
Plumbaginaceae - Leadwort Family		
Limonium californicum (Boiss.) A.A. Heller	western marsh-rosemary	S
Polygonaceae - Buckwheat Family		
Eriogonum fasciculatum Benth. var. *fasciculatum*	coastal California buckwheat	S,C,H
**Rumex crispus* L.	curly dock	S

Salicaceae - Willow Family		
Salix lasiolepis Benth.	arroyo willow	S
Simmondsiaceae - Jojoba Family		
Simmondsia chinensis (Link) C. Schneider	goat-nut, jojoba	C
Solanaceae - Nightshade Family		
Lycium brevipes Benth. var. *brevipes*	common desert thorn	C
Lycium californicum Nutt.	California desert thorn	C,S,H
**Nicotiana glauca* Graham	tree tobacco	H, C

MONOCOTYLEDONS

Arecaceae - Palm Family		
**Phoenix canariensis* Chabaud	Canary Island palm	M
**Washingtonia robusta* H. Wendl.	Mexican fan palm	M
Cyperaceae - Sedge Family		
Schoenoplectus americanus (Pres.) Schinz & R. Keller	Olney's threesquare bulrush	S
Schoenoplectus californicus (C.A. Meyer) Soják	southern bulrush	S
Poaceae - Grass Family		
**Bromus diandrus* Roth	ripgut grass	H, C
**Bromus madritensis* L. ssp. *rubens* (L.) Husnot	red brome, foxtail chess	H
**Cynodon dactylon* (L.)Pers.	Bermuda grass	H
Distichlis littoralis (Engelm.) H.L. Bell & Columbus	shoregrass	S
Distichlis spicata (L.) Greene	saltgrass	S
Elymus triticoides Buckley	beardless wild rye grass	
**Hordeum murinum* L. ssp. *leporinum* (Link) Arcang.	hare barley	H
Spartina foliosa Trin.	California cord grass	S
* *Stipa miliacea* (L.) Hoover var. *miliacea*	smilo grass	H