APPENDIX K4

Uplands CHRMP

MISSION BAY PARK IMPROVEMENTS PROGRAM

Upland Habitat Expansion and Preservation
Conceptual Habitat Restoration and Monitoring Plan
City of San Diego, California

Prepared for:

The City of SAN DIEGO

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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
BCH	Beach
BMP	best management practice
BSA	Biological Study Area
BTR	Biological Technical Report
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
CFGC	California Fish and Game Code
CHRMP	Conceptual Habitat Restoration and Monitoring Plan
CLT	California Least Tern
COZ	Coastal Overlay Zone
DCSS	Diegan Coastal Sage Scrub
DEV	Developed
DH	Disturbed Habitat
dSCSM	disturbed Southern Coastal Salt Marsh
ESL	Environmentally Sensitive Lands
FE	federally endangered
FESA	federal Endangered Species Act
FP	California fully protected
MBPMP	Mission Bay Park Master Plan
MBTA	Migratory Bird Treaty Act
MHPA	Multi-Habitat Planning Area
MSCP	Multiple Species Conservation Program
NGVD 29	National Geodetic Vertical Datum of 1929
OW	Open Water
PEP	plant establishment period
PER	Preliminary Engineering Report
SAR	sodium adsorption ratio
SCSM	Southern Coastal Salt Marsh
SDBG	City of San Diego Biology Guidelines
SE	state endangered
SF	Southern Foredune

Acronym/Abbreviation	Definition
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service

1 INTRODUCTION

1.1 RESPONSIBLE PARTIES

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1.2 PROJECT BACKGROUND – PURPOSE

Proposition C was approved on November 4, 2008, which amended the City of San Diego (City) Charter by adding Section 55.2. Proposition C created the Mission Bay Park Improvement Fund for projects identified within the approximately 4,387-acre Mission Bay Park Improvement Zone (Improvement Zone). The Improvement Zone includes portions of Tecolote Creek, Cudahy Creek, and the San Diego River as it passes through the boundaries of Mission Bay Park. All upland restoration projects are being coordinated through the Mission Bay Park Improvements Program (Program).

A bay-wide assessment of upland and wetlands habitat opportunities was conducted to identify feasible restoration projects that may be implemented through the Program area (Dudek 2019). Following an evaluation of Mission Bay Park land and recreational uses, several upland restoration sites were identified where habitat restoration and enhancement would provide additional

biological resources for threatened and endangered species such as California gnatcatcher and Nuttal's lotus (Acmispon nuttallii). The following sections of this Plan outline the restoration workplan of the Project, including the restoration of coastal sage scrub, southern foredune, and coastal strand habitat.

1.3 RESTORATION PROJECT

The following are overall goals for the Mission Bay Park Improvements Program, which are based, in part, on the goals of Section 55.2 of Article V of the City of San Diego Charter:

1. Restoration of navigable waters within Mission Bay Park and elimination of navigational hazards. When depth conditions no longer support and ensure safe navigation, those areas that pose a danger or impede the passage of watercraft would be dredged in accordance with the Mission Bay Baseline Chart.
2. Wetland expansion and water quality improvements and the protection and expansion of eelgrass beds as identified in the Mission Bay Park Master Plan.
3. Restoration of shoreline treatments within the Mission Bay Park Improvement Zone including restoration of beach sand and stabilization of erosion control features.
4. Expansion of endangered or threatened species preserves and upland habitats on North Fiesta Island and along the levee of the San Diego River floodway as identified in the Mission Bay Park Master Plan.
5. Completion of bicycle and pedestrian paths and bridges as identified in the Mission Bay Park Master Plan, installation of sustainable lighting in the Mission Bay Park Improvement Zone, installation of signage and landscaping at points of entry to Mission Bay Park and the South Shores, and the repair, resurfacing and restriping of parking lots within the Mission Bay Park Improvement Zone.
6. Deferred maintenance that are also Capital Improvements hereunder on existing assets within the Mission Bay Improvement Zone as may be recommended by the Mission Bay Park Improvement Fund

The Project is designed with the primary goal of complying with the Mission Bay Park Improvements Program. The Mission Bay Park Master Plan (City of San Diego 2021a) broadly recognizes that the Park's economic and recreational future depends on the quality of the Bay's water. In response to fluctuating quality of the Bay waters, this Plan proposes a comprehensive set of measures involving state-of-the-art biological, mechanical, public education and recreation management programs. Biological measures include the establishment of upland habitat in support of endangered species.

More precisely, the objectives for the Project are as follows:

- Re-establish diverse upland communities that are self-sustaining.
- Provide increased habitat functions that benefit all trophic levels, from macroinvertebrate species on the low end of the food chain to diverse avian species that preferentially feed within specific upland habitat types.
- Provide appropriate upland erosion control on all upland areas surrounding the Project site.
- Prevent any impacts to threatened and endangered native wildlife species through appropriate minimization measures.
- Restore self-sustaining native upland communities that reduces the need for maintenance except at localized infrastructure features.

1.4 TARGET HABITAT TYPES TO BE ESTABLISHED

Implementation of this Plan would restore and/or enhance 71.29 acres of Diegan coastal sage scrub, 35.82 acres of Coastal strand, 31.52 acres of Southern Foredune, and 3.92 acres of non-tidal Southern Coastal Salt Marsh within seven separate restoration sites in the Improvement Zone. In addition, this plan would establish a new 28.8-acre CLT Nesting Preserve within the North Island subarea of Fiesta Island including 27.6 acres of beach/open sand, and 1.2 acres of vegetated Southern foredune habitat. While the nesting preserve is almost entirely non-vegetated by design, the nesting preserve would provide habitat for CLT breeding, with adjacent foraging habitat in the surrounding open waters of Mission Bap Park and the future North Fiesta Island wetlands restoration project, once established. Table 1 summarizes the size and acreage of each habitat type by restoration area.

Table 1. Target Habitat Types by Project Site

Project Name	Target Vegetation Communities (acres)					
	Coastal Strand	*Southern Foredune*	*Beach/ Open Sand*	*Southern Coastal Salt Marsh*	*Diegan Coastal Sage Scrub*	*Total*[a]
Fiesta Island Site No. 1	3.49	—	---	1.12	34.22	38.84
Fiesta Island Site No. 2	—	12.97	---	1.40	---	14.37
Fiesta Island Site No. 3	3.57	—	---	0.44	8.42	12.44
Fiesta Island Site No. 4: CLT Preserve	—	1.2	27.6	—	—	28.80
San Diego River Site 5a: Cloverleaf Restoration	10.09	6.33	—	0.96	—	17.38

Table 1. Target Habitat Types by Project Site

Project Name	Target Vegetation Communities (acres)					
	Coastal Strand	*Southern Foredune*	*Beach/ Open Sand*	*Southern Coastal Salt Marsh*	*Diegan Coastal Sage Scrub*	*Total*[a]
San Diego River Site 5b: Triangle Enhancement	—	—	—	—	6.76	6.76
San Diego River Site 5c: South Shores Restoration	18.67	11.02	—	—	21.89	51.57
Total[a]	**35.82**	**31.52**	**27.6**	**3.92**	**71.29**	**170.15**

Notes:

[a] Totals may differ from the summed values due to rounding errors.

1.5 PROJECT LOCATION

The project location includes four separate restoration sites on Fiesta Island, two restoration/enhancement sites along the San Diego River, and one restoration site at the South Shores recreation area (Figure 1, Project Location, and Figure 2 Project Sites).

1.6 RESTORATION OBJECTIVES

The goal of this proposed upland habitat expansion/preservation plan is to enhance and expand upland habitat biological resources and restore/enhance suitable upland habitat for listed plant and wildlife species known to occupy existing preserves and/or that occur within Mission Bay environs. Species such as the CLT have used preserves that were intended for nesting in the past, however in recent years, nesting at some locations has been sporadic or non-existent due in part to the degradation of suitable habitat for nesting. In addition, Nuttall's lotus (*Acmispon prostratus*) a sensitive plant species, is present within areas of Mission Bay Park where disturbance has left occupied areas in an ecologically unstable condition. The proposed upland habitat expansion/preservation program is intended to stabilize and increase Nuttall's lotus populations through native habitat establishment, enhancement, and improvement of existing habitat that is appropriate for this species.

Upland habitat expansion/preservation includes the following objectives:

- Provide appropriate soil substrate to support wildlife use and vegetation community establishment.
- Provide weed removal and control.
- Establish site access limitations to protect sites from long term adverse modification due to non-native weed population expansion and pedestrian traffic.
- Establish ecologically appropriate native vegetation communities as habitat for sensitive and listed species consistent with the Mission Bay Master Plan.
- Establish self-sustaining native vegetation communities that are adapted to current and future climatic conditions.

The preliminary recommendations outlined herein are based upon a review of existing biological resources information, observations through field reconnaissance and evaluations of current site conditions to identify potential opportunities for upland habitat expansion/preservation. The opportunities were determined while balancing the following constraints:

- Existing CLT preserve restrictions.
- Existing restoration/revegetation site restrictions.
- General constructability issues including equipment access and water source availability.
- Adjacency to existing native habitat resources.
- Existing and proposed recreational improvements and other land uses.
- Long-term habitat protection needs.
- Potential for functional habitat improvements that may be recognized by resource agencies

Specific increases in functions and services expected to benefit the upland areas are discussed below and support the following objectives:

Objective 1: Sensitive Plant Translocation. Translocate plants and/or seed-bearing topsoil where sensitive plant species are mapped within proposed restoration areas. Store and place sensitive species into appropriate sites within the post-construction restoration areas to avoid and minimize impacts to sensitive species.

Objective 2: Sensitive Plant Cuttings. For woody sensitive plant species where translocation is not feasible due to timing of construction and plant life cycle, collect plant tissue cuttings for nursery propagation to maintain local genetic stock.

Objective 3: Upland Habitat Restoration. The proposed restoration includes planting and seeding of native plant species to restore native plant communities and enhance existing habitat within the restoration area. Replacement of the non-native vegetation and associated debris with native vegetation would increase the vegetation structure and diversity and improve habitat functions for wildlife.

Objective 4: Invasive Plant Species Control. The proposed restoration would control non-native weed species that are listed as moderate to highly invasive by California Invasive Plant Council, and non-native grasses within the restoration area. Weed control would provide opportunity for native vegetation growth and colonization that is suited to the restoration area, and reduce propagules and seeds of non-native species that might otherwise become established within the restoration area. reduce propagules and seeds of non-native species that might otherwise become established within the restoration area.

Objective 5: Native Wildlife Habitat Restoration. The proposed restoration is designed to provide habitat for wildlife, including birds, invertebrates, amphibians, reptiles, rodents, and other mammals. The restoration area would also provide habitat for sensitive wildlife species, including special-status bird species, coastal California gnatcatcher (*Polioptila californica*) that may occur in the area.

Objective 6: Preservation of Native Habitat. The preservation objectives would be accomplished by protecting the restoration and preservation areas in-place.

2 REGULATORY SETTING

Federal, state, and local agencies enforce jurisdiction over portions of proposed restoration sites of in areas immediately adjacent to restoration sites, In addition, some sites support populations of listed species thar are regulated by federal and/or state agencies. In some cases, these species are covered under the City's MSCP. Where coverage is not provided, an informal consultation would be required with the potential for permit applications and permit acquisition prior to project implementation.

2.1 FEDERAL

2.1.1 FEDERAL ENDANGERED SPECIES ACT

The federal Endangered Species Act (FESA) of 1973 (16 USC 1531 et seq.), as amended, is administered by the U.S. Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration, and National Marine Fisheries Service. This legislation is intended to provide a means to conserve the ecosystems upon which endangered and threatened species depend and provide programs for the conservation of those species, thus preventing extinction of plants and wildlife. Under provisions of Section 9(a)(1)(B) of FESA, it is unlawful to "take" any listed species. "Take" is defined in Section 3(19) of FESA as, "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." FESA provides for designation of critical habitat for species designated as endangered, defined in Section 3(5)(A) as specific areas within the geographical range occupied by a species where physical or biological features "essential to the conservation of the species" are found and "which may require special management considerations or protection." Critical Habitat may also include areas outside the current geographical area occupied by the species that are nonetheless "essential for the conservation of the species."

The FESA allows for the issuance of "incidental take" permits for listed species under Section 7, which is generally available for components that also require other federal agency permits or other approvals, and under Section 10, which provides for the approval of habitat conservation plans on private property without any other federal agency involvement. Incidental take is defined as "take that results from, but is not the purpose of, carrying out an otherwise lawful activity" (50 CFR, Parts 17.22 and 17.32).

2.1.2 MIGRATORY BIRD TREATY ACT

The Migratory Bird Treaty Act (MBTA) prohibits the take of any migratory bird or any part, nest, or eggs of any such bird. Under the MBTA, "take" is defined as pursue, hunt, shoot, wound, kill trap, capture, or collect, or any attempt to carry out these activities (16 USC 703 et seq.). The number of bird species covered by the MBTA is extensive; the species are listed in Title 50 of the Code of

Federal Regulations, Part 10.13. The regulatory definition of "migratory bird" is broad and includes any mutation or hybrid of a listed species, and also includes any part, egg, or nest of such birds (50 CFR 10.12). The MBTA, which is enforced by USFWS, makes it unlawful "by any means or in any manner, to pursue, hunt, take, capture, [or] kill" any migratory bird or attempt such actions, except as permitted by regulation. The applicable regulations prohibit the take, possession, import, export, transport, sale, purchase, barter, or offering of these activities, except under a valid permit or as permitted in the implementing regulations (50 CFR 21.11). Additionally, Executive Order 13186, "Responsibilities of Federal Agencies to Protect Migratory Birds," requires that any component with federal involvement address impacts of federal actions on migratory birds with the purpose of promoting conservation of migratory bird populations (66 FR 3853–3856). The Executive Order requires federal agencies to work with USFWS to develop a memorandum of understanding. USFWS reviews actions that might affect these species.

Currently, birds are considered to be nesting under the MBTA only when there are viable eggs or chicks, which are dependent on the nest.

Local implementation of the MBTA typically involves a qualified biologist conducting a nesting bird survey prior to construction activities between February 1 and September 15. Such surveys are required in all construction areas where natural or ornamental trees, shrubs, and ground cover may provide suitable nesting habitat for protected species. A nest avoidance buffer, as determined by the qualified biologist, would be established and serve to protect active nests from direct and indirect disturbance until breeding activities have been completed.

2.1.3 COASTAL ZONE MANAGEMENT ACT OF 1972

The Coastal Zone Management Act of 1972 (16 USC Sections 1451–1464, Chapter 33) is administered by the National Oceanic and Atmospheric Administration's Office of Ocean and Resource Management and was established as a national policy to preserve, protect, develop, and – where possible – enhance or restore the coastal zone in the United States. The federal consistency provision, Section 307 of the Coastal Zone Management Act, encourages states to join the Coastal Zone Management Program, which takes a comprehensive approach to coastal resource management by balancing the competing and/or conflicting demands of coastal resource use, economic development, and conservation and allows states to issue the applicable permits. California has a federally approved Coastal Zone Management Program, and the Coastal Zone Management Act is administered by the California Coastal Commission (CCC). Therefore, the Coastal Zone Management Program and permit requirements are discussed further in the California Coastal Act section below.

2.2 STATE

2.2.1 CALIFORNIA ENVIRONMENTAL QUALITY ACT

The California Environmental Quality Act (CEQA) requires identification of a project's potentially significant impacts on biological resources and feasible restoration measures and alternatives that could avoid or reduce significant impacts. CEQA Guidelines Section 15380(b)(1) defines endangered animals or plants as species or subspecies whose "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" (14 CCR 15000 et seq.). A rare animal or plant is defined in CEQA Guidelines Section 15380(b)(2) as a species that, although not presently threatened with extinction, exists "in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens; or … [t]he 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." Additionally, an animal or plant may be presumed to be endangered, rare, or threatened if it meets the criteria for listing, as defined further in CEQA Guidelines Section 15380(c). CEQA also requires identification of a project's potentially significant impacts on riparian habitats (such as wetlands, bays, estuaries, and marshes) and other sensitive natural communities, including habitats occupied by endangered, rare, and threatened species.

2.2.2 CALIFORNIA COASTAL ACT

The CCC was established by voter initiative in 1972 and was made permanent by the California Legislature through the adoption of the California Coastal Act of 1976 (CCA; California Public Resources Code Section 30000 et seq.). The CCC, in partnership with coastal cities and counties, plans and regulates the use of land and water in the coastal zone. Under the CCA, cities and counties are responsible for preparing local coastal programs in order to obtain authority to issue coastal development permits for projects within their jurisdiction. Local coastal programs consist of land use plans, zoning ordinances, zoning maps, and other implementing actions that conform to the policies of the CCA. Until an agency has a fully certified local coastal program, the CCC is responsible for issuing coastal development permits.

Under the CCA, Section 30107.5, environmentally sensitive habitat areas are areas within the coastal zone that are "designated based on the presence of rare habitats or areas that support populations of rare, sensitive, or especially valuable species or habitats." In addition, the CCC regulates impacts to coastal wetlands defined in Section 30121 of the CCA as, "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." The CCA

requires that most development avoid and buffer coastal wetland resources in accordance with Sections 301231 and 30233, including limiting the filling of wetlands to certain allowable uses.

The Biological Study Area (BSA) is located entirely within the coastal zone.

2.2.3 CALIFORNIA ENDANGERED SPECIES ACT

The California Department of Fish and Wildlife (CDFW) administers the California Endangered Species Act (CESA; California Fish and Game Code [CFGC], Section 2050 et seq.), which prohibits the "take" of plant and animal species designated by the Fish and Game Commission as endangered or threatened in the State of California. Under CESA Section 86, "take" is defined as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." CESA Section 2053 stipulates that state agencies may not approve projects that would "jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat essential to the continued existence of those species, if there are reasonable and prudent alternatives available consistent with conserving the species or its habitat which would prevent jeopardy."

CESA Sections 2080 through 2085 address the taking of threatened, endangered, or candidate species by stating, "No person shall import into this state, export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the Commission determines to be an endangered species or a threatened species, or attempt any of those acts, except as otherwise provided in this chapter, the Native Plant Protection Act (CFGC, Sections 1900-1913), or the California Desert Native Plants Act (Food and Agricultural Code, Section 80001)." Take authorization for otherwise lawful activities may be obtained from CDFW under Section 2081 of the CFGC.

2.2.4 CALIFORNIA FISH AND GAME CODE

According to Sections 3511, 4700, 5050, and 5515 of the CFGC, which regulate birds, mammals, reptiles and amphibian, and fish, respectively, a "fully protected" species may not be taken or possessed without a permit from the CFGC, and, with few exceptions, take of these species is prohibited.

According to Section 3503, 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 states that 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. Section 3513 states that it is unlawful to take or possess any migratory nongame bird as designated in the MBTA.

The Native Plant Protection Act of 1977 (CFGC, Section 1900 et seq.) gives CDFW authority to designate state endangered, threatened, and rare plants, and provides specific protection measures for identified populations.

2.3 LOCAL REGULATIONS AND CONSERVATION PLANS

2.3.1 SAN DIEGO MULTIPLE SPECIES CONSERVATION PROGRAM

The City is a participant in the San Diego Multiple Species Conservation Program (MSCP), a comprehensive, regional long-term habitat conservation program designed to provide permit issuance authority for take of covered species to the local regulatory agencies. The MSCP addresses habitat and species conservation within approximately 900 square miles in the southwestern portion of San Diego County. It serves as an approved habitat conservation plan pursuant to an approved Natural Communities Conservation Plan in accordance with the state Natural Communities Conservation Planning Act.

The MSCP establishes a preserve system designed to conserve large blocks of interconnected habitat having high biological value that are delineated in Multi-Habitat Planning Areas (MHPAs). The City MHPA is a "hard line" preserve developed by the City in cooperation with the wildlife agencies, property owners, developers, and environmental groups. The MHPA identifies biological core resource areas and corridors targeted for conservation, in which only limited development may occur (City of San Diego 1997).

The MSCP identifies 85 plants and animals to be "covered" under the plan (termed Covered Species). Many of these Covered Species are subject to one or more protective designations under state and/or federal law and some are endemic to San Diego. The MSCP seeks to provide adequate habitat in the preserve to maintain ecosystem functions and persistence of extant populations of the 85 Covered Species while also allowing participating landowners "take" of Covered Species on lands located outside of the preserve. The purpose of the MSCP is to address species conservation on a regional level and thereby avoid component-by-component biological restoration, which tends to fragment habitat.

2.3.2 CITY OF SAN DIEGO MSCP SUBAREA PLAN

The City of San Diego MSCP Subarea Plan (Subarea Plan) (City of San Diego 1997) encompasses 206,124 acres within the MSCP Subregional Plan area. The proposed study area is located within the Urban areas of the Subarea Plan. The Urban habitat areas within the MHPA include existing designated open space such as Mission Bay, Tecolote Canyon, Marian Bear Memorial Park, Rose Canyon, San Diego River, the southern slopes along Mission Valley, Carroll and Rattlesnake Canyons, Florida Canyon, Chollas Creek, and a variety of smaller canyon systems. The Southern area includes

Otay Mesa, Otay River Valley, and Tijuana Estuary and Tijuana River Valley. The Eastern area includes East Elliott and Mission Trails Regional Park.

The Subarea Plan is characterized by urban land uses with approximately three-quarters either built out or retained as open space/park system. Portions of the BSA are located within and adjacent to MHPA boundaries (City of San Diego 1997, Figure 33, City of San Diego MSCP Subarea and MHPA). The MHPA is considered an urban preserve that is constrained by existing or approved development and is comprised of habitat linkages connecting several large core areas of habitat. The criteria used to define core and linkage areas involves maintaining ecosystem function and processes, including large animal movement. Each core area is connected to other core areas or to habitat areas outside of the MSCP either through common boundaries or through linkages. Core areas have multiple connections to help ensure that the balance in the ecosystem would be maintained (City of San Diego 1997). Critical habitat linkages between core areas are conserved in a functional manner with a minimum of 75% of the habitat within identified linkages conserved (City of San Diego 1997).

2.3.3 CITY OF SAN DIEGO LAND DEVELOPMENT CODE – ENVIRONMENTALLY SENSITIVE LANDS REGULATION AND BIOLOGY GUIDELINES

The City of San Diego Development Services Department (DSD) developed the City of San Diego Biology Guidelines (SDBG) presented in the Land Development Manual "to aid in the implementation and interpretation of ESL [Environmentally Sensitive Lands] Regulations, San Diego LDC [Land Development Code], Chapter 14, Division 1, Section 143.0101 et seq., and the Open Space Residential (OR-1-2) Zone, Chapter 13, Division 2, Section 131.0201 et seq." (City of San Diego 2018a). The guidelines also provide standards for the determination of impact and mitigation under CEQA and the CCA. Sensitive biological resources, as defined by ESL Regulations, include lands within the MHPA, as discussed in Section 1.3.3 of this report, as well as other lands outside of the MHPA that contain wetlands; vegetation communities classifiable as Tier I, II, IIIA, or IIIB; habitat for rare, endangered, or threatened species; or narrow endemic species. The San Diego Municipal Code ranks upland habitat values by rarity and sensitivity. The most sensitive habitats are Tier I, and the least sensitive are Tier IV. The varying restoration ratios and requirements that restoration be either in-tier or in-kind are based on the sensitivity of the habitat being affected.

The City's definition of wetlands is broader than the definition applied by the U.S. Army Corps of Engineers (USACE). According to the SDBG (City of San Diego 2018a), City wetlands include areas characterized by one or more of the following conditions:

1 All areas persistently or periodically containing naturally occurring wetland vegetation communities characteristically dominated by hydrophytic vegetation, including but not limited to salt marsh, brackish marsh, freshwater marsh, riparian forest, oak riparian forest, riparian woodlands, riparian scrub, and vernal pools;

2 Areas that have hydric soils or wetland hydrology and lack naturally occurring wetland vegetation communities because human activities have removed the historic wetland vegetation or catastrophic or recurring natural events or processes have acted to preclude the establishment of wetland vegetation as in the case of salt pannes and mudflats;

3 Areas lacking wetland vegetation communities, hydric soils, and wetland hydrology due to non-permitted filling of previously existing wetlands; or

4 Areas mapped as wetlands on Map C-713 as shown in Chapter 13, Article 2, Division 6 (Sensitive Coastal Overlay Zone).

Per the SDBG, areas that contain wetland vegetation, soils, or hydrology created by human activities in historically non-wetland areas do not qualify as wetlands under the City's definition unless they have been delineated as wetlands by the USACE and/or CDFW (City of San Diego 2018a). Artificially created wetlands consist of the following: wetland vegetation growing in brow ditches and similar drainage structures outside of natural drainage courses; wastewater treatment ponds; stock watering, desiltation, and retention basins; water ponding on landfill surfaces and road ruts created by vehicles; and artificially irrigated areas that would revert to uplands if the irrigation ceased. Previously dredged tidal areas, such as Mission Bay, should be considered wetlands under ESL Regulations (City of San Diego 2018a).

Guidelines that supplement the development regulation requirements described in this section are provided in the SDBG (City of San Diego 2018a). The Program is located entirely within the Coastal Overlay Zone (COZ), and therefore wetlands within the BSA would require adherence to the COZ wetland buffer regulations (City of San Diego 2018a). According to the SDBG, a wetland buffer is an area surrounding a wetland that helps protect the function and value of the adjacent wetland by reducing physical disturbance, provides a transition zone where one habitat phases into another, and acts to slow flood waters for flood and erosion control, sediment filtration, water purification, and groundwater recharge (City of San Diego 2018a). Within the COZ, wetland buffers should be provided at a minimum of 100 feet wide adjacent to all identified wetlands within the COZ. The width of the buffer may be either increased or decreased as determined on a case-by-case basis, in consultation with the CDFW, USFWS, and the USACE The width of the buffer is determined by factors such as type and size of development, sensitivity of the wetland resource to edge effects, topography, and the need for upland transition (City of San Diego 2018a). Per ESL Regulations, uses permitted in wetlands within the COZ are limited to aquaculture, wetlands-related scientific research and wetlands-related educational uses; wetland restoration components where the primary purpose is restoration of the habitat; and incidental public service components, where it has been demonstrated that there is no feasible less environmentally damaging location or alternative, and where restoration measures have been provided to minimize adverse environmental effects. Also per ESL Regulations, permitted uses in wetland buffer areas shall be limited to public access paths,

fences, restoration and enhancement activities, and other improvements necessary to protect wetlands. ESL Regulations also lists permitted uses and developmental regulations for steep hillsides, coastal bluffs, coastal beaches, and special flood hazard areas.

2.3.4 CITY OF SAN DIEGO GENERAL PLAN

The proposed component is located in the City of San Diego and therefore is subject to the goals and policies in the City's General Plan. The General Plan was adopted in March 2008, and was most recently amended in July 2024. The General Plan provides policy guidance to balance the needs of a growing city while enhancing the quality of life for current and future San Diegans. It includes the City of Villages strategy which outlines how the City can enhance its many communities and neighborhoods as growth occurs over time. The General Plan contains 11 elements that provide a comprehensive "blueprint" for the City's growth over the next 20 plus years. As shown in the General Plan land use map (City of San Diego 2024a, Figure LU-2), the component site is located in an area that is designated as Park, Open Space, and Recreation.

2.3.5 MISSION BAY PARK MASTER PLAN

The component site falls within the boundaries of Mission Bay Park—a regional park that serves the residents of and visitors to San Diego. The MBPMP was adopted on August 2, 1994, and was most recently updated on November 23, 2021 (City of San Diego 2021. The MBPMP serves as the local coastal program for this area of the City. The proposed component is subject to the goals and recommendations established in the MBPMP, and the proposed component would be incorporated into the MBPMP as an amendment. The MBPMP recommends that the proposed study area should serve regional recreation needs, including guest housing (recreational vehicles and other low cost camping facilities); improve the park's water quality, including creating additional wetlands; facilitate hydrologic improvements to safeguard the viability of marsh areas; provide a waterfront trail, viewing areas, and other passive recreational features to enhance public use of the component area; ensure leaseholds support the Mission Bay recreation use; improve access to recreational uses; and improve play areas for regional recreational needs.

2.3.6 THE "WHITEBOOK"

The City of San Diego published *The "Whitebook" Standard Specifications for Public Works Construction* (City of San Diego 2021b), which includes many standard practices that result in minimization of impacts to biological resources, including biological monitoring, materials suitability, safe construction methods, avian nest protection, tree protection, landscape standards, and stormwater protection measures. The "Whitebook" prescribed measures and standards are incorporated into the Program as Environmental Protocols.

3 SITE CONDITIONS

3.1 TOPOGRAPHY

The landforms and islands within Mission Bay are land features made of artificial fill from bay dredging that occurred in the 1940s, 1950s, and early 1960s. Fiesta Island was formed in this manner. The interior elevations at North Fiesta Island are relatively high with a maximum elevation of 25 feet National Geodetic Vertical Datum of 1929 (NGVD 29) and a mean elevation of 15 feet NGVD 29. By comparison, the exterior elevations of North Fiesta Island range from 0 feet NGVD 29 along the shoreline to 11 feet NGVD 29 along the back beach. An earthen containment dike/berm separates the exterior and low-lying beach areas from the higher interior elevations of the project area.

The perimeter access road around Fiesta Island ranges in elevation from 15 to 20 feet NGVD 29. Except for Site No. 3, all the proposed habitat expansion and preservation sites on Fiesta Island are adjacent to the existing earthen containment dike/berm that ranges in height from 18 to 25 feet NGVD 29, which is 3 to 5 feet high relative to the land surface elevation of the perimeter access road. (Note: This topographic information was interpolated from aerial topographic mapping for the Mission Bay Landfill, produced by SCS Engineers [2004]. This mapping shows topography at the very southern tip of Fiesta Island, near Site No. 1, which was used as a general elevation reference point.)

The general topography within the proposed Fiesta Island habitat expansion sites is relatively flat in most locations, with a few topographic depressions where drainage runoff collects and stands for short periods of time. Percolation appears to be rapid in most locations due to the sandy soil conditions. In locations where water ponds, it is suspected that a more impervious soil is present, which interrupts percolation. Those areas also tend to be more compacted than other areas.

Sites located along the San Diego River are generally flat with some localized, low mounding. No distinct landforms are present within the proposed restoration sites. Limited topographic map information was available at the time of the site evaluations along the San Diego River and Sea World Drive, except for the mapping of the Mission Bay Landfill (SCS Engineers 2004), which was based upon a 5-foot contour interval. On that map, the toe of the slope of the San Diego River is shown at an elevation of 5 feet NGVD 29. The top of the slope (i.e., bank) of the river ranges from 15 to 20 feet NGVD 29. The highest elevation within the San Diego River and Sea World Drive sites is 25 feet NGVD 29.

3.2 HYDROLOGY

No specific hydrologic analysis was completed for these site evaluations because all sites are situated within upland areas. Site observations indicate that only on-site drainage within each site is present due to the minor topographic variation and high soil percolation rates. There are several

low-lying areas, within Fiesta Island Sites No. 1, No. 2, and No. 4, where periodic ponding/standing water occurs during the winter rainy season, and observed conditions suggest that water retention occurs for brief periods. These low-lying areas are represented by changes in vegetation and the presence of salt pan areas, where salt has accumulated after water evaporates. There are a few patches of wetland species (e.g. willows, mule fat) present in Site No. 4, within the north central portion of Fiesta Island, which suggests that water retention is longer and has less salinity at this location, which allows these species to naturally colonize the area. Drainage retention is more prolonged at this location, resulting from on-site drainage accumulation at this low point. Some groundwater resources may be present to allow these wetland species to persist through dry summer months.

3.3 SOIL CONDITIONS

Soils throughout Fiesta Island are predominantly sand, identified as "Made Land" on the soils map in the Biological Technical Report for the Mission Bay Park Master Plan Update: Fiesta Island Amendment (2017 BTR; Alden Environmental 2017). In some locations where it appears that water may periodically pond for a short period of time, saline soil conditions have developed resulting from the accumulation of salts from evaporation, and inherent saline conditions of the soil. These areas also tend to be more compacted than at other locations. Where salt pan conditions limit plant growth because of hyper-saline conditions, only plants very tolerant of salt are able to survive.

Dudek collected soil samples from all proposed Fiesta Island habitat expansion/preservation sites that were evaluated. The samples were analyzed by Wallace Laboratories on May 15, 2019, for agricultural suitability and soils fertility, with recommendations provided for soil amending to support optimal plant growth. All soil samples varied in pH, alkalinity, salinity, sodium adsorption ratio (SAR), and the key soil chemicals (i.e. chloride, nitrate, phosphorus, potassium, sulfur, and zinc).

A summary of the soils analysis results is included in Table 2. The detailed results of the soils analysis are included in Appendix B.1.

Table 2. Soils Analysis Summary Data

Site	pH	Salinity	Chloride	SAR	Nitrate	Phosphorus	Potassium	Sulfur	Zinc
No. 1 – Fiesta Island South[a]	7.09	0.13	13	1.0	2	3.7	82	3	0.27
No. 2 – Fiesta Island North Central[a]	8.67	0.13	9	0.2	1	46.1	16	1	0.33

Table 2. Soils Analysis Summary Data

Site	pH	Salinity	Chloride	SAR	Nitrate	Phosphorus	Potassium	Sulfur	Zinc
No. 3 – Fiesta Island Near Youth Camping[a]	8.33	0.69	54	1.2	13	12.1	28	7	1.19
No. 4 – Fiesta Island CLT Preserve Area[a]	7.88	0.48	26	0.8	17	24.5	144	2	18.12

Notes: SAR = sodium adsorption ratio.
[a] Soil sample depth was typically 12 inches below ground surface.
Elements are expressed as milligrams per kilogram dry soil or milligrams per liter for saturation extract.
pH is measured in a saturation paste extract.
Analytical data determined on soil fraction passing a 2-millimeter sieve.

No soil samples were collected within the potential habitat expansion and enhancement sites along the San Diego River and Sea World Drive. These sites are optional areas that are considered for possible inclusion in the habitat expansion program. Soil within these areas would be evaluated later, once decisions are made regarding which candidate areas would be chosen for habitat expansion/preservation.

3.4 EXISTING VEGETATION

Native vegetation communities and land covers identified within, or immediately adjacent to, the proposed upland habitat expansion and preservation sites are summarized below. Detailed information regarding these vegetation communities/land covers are included in the 2017 BTR (Alden Environmental 2017).

There are 9 vegetation communities and land cover types recorded on the parcel boundary and are described in detail in the following subsections, their acreages are presented in Table 3, and their spatial distributions are presented on Figure 2, Existing Vegetation. Also included in Table 2 are the sensitivity designations of each vegetation community according to the Tiers described in the SDBG (City of San Diego 2018a).

Table 3. Vegetation Communities and Land Cover Types in the Project Parcel Boundary

Vegetation Community/Land Cover Type	SDBG Vegetation Community	San Diego Biology Guidelines	Project Area	Acreage [d]
Native Vegetation Communities				
Diegan Coastal Sage Scrub (including disturbed)	Coastal Sage Scrub (including disturbed)	II	Site No. 1 – Fiesta Island South	8.96
			Site No. 2 – Fiesta Island North Central	0
			Site No. 3 – Fiesta Island near Youth Camping	3.74
			Site No. 4 – Fiesta Island CLT Preserve Area	0
			Site No. 5a – Cloverleaf Restoration and Enhancement Area	0
			Site No. 5b – Triangle Enhancement Area	6.22
			Site No. 5c – South Shores Restoration and Enhancement Area	5.03
			Subtotal	*23.96*
Southern Foredunes	Southern Foredunes	I	Site No. 1 – Fiesta Island South	0
			Site No. 2 – Fiesta Island North Central	3.26
			Site No. 3 – Fiesta Island near Youth Camping	0
			Site No. 4 – Fiesta Island CLT Preserve Area	0
			Site No. 5a – Cloverleaf Restoration and Enhancement Area	0

Table 3. Vegetation Communities and Land Cover Types in the Project Parcel Boundary

Vegetation Community/Land Cover Type	SDBG Vegetation Community	San Diego Biology Guidelines	Project Area	Acreage [d]
			Site No. 5b – Triangle Enhancement Area	0
			Site No. 5c – South Shores Restoration and Enhancement Area	0
			Subtotal	*3.26*
			Native Vegetation Communities Total	**27.22**
Non-Native Vegetation Communities and Land Covers				
Beach		IV	Site No. 1 – Fiesta Island South	0
			Site No. 2 – Fiesta Island North Central	0
			Site No. 3 – Fiesta Island near Youth Camping	0
			Site No. 4 – Fiesta Island CLT Preserve Area	5.47
			Site No. 5a – Cloverleaf Restoration and Enhancement Area	0
			Site No. 5b – Triangle Enhancement Area	0
			Site No. 5c – South Shores Restoration and Enhancement Area	0
			Subtotal	*5.47*
Disturbed habitat	Disturbed land	IV	Site No. 1 – Fiesta Island South	29.88
			Site No. 2 – Fiesta Island North Central	11.19
			Site No. 3 – Fiesta Island near Youth Camping	8.82
			Site No. 4 – Fiesta Island CLT Preserve Area	20.06
			Site No. 5a – Cloverleaf Restoration and Enhancement Area	17.35

Table 3. Vegetation Communities and Land Cover Types in the Project Parcel Boundary

Vegetation Community/Land Cover Type	SDBG Vegetation Community	San Diego Biology Guidelines	Project Area	Acreage [d]
			Site No. 5b – Triangle Enhancement Area	0
			Site No. 5c – South Shores Restoration and Enhancement Area	45.65
			Subtotal	*132.95*
Urban/developed land	Disturbed land	IV	Site No. 1 – Fiesta Island South	0
			Site No. 2 – Fiesta Island North Central	0
			Site No. 3 – Fiesta Island near Youth Camping	0
			Site No. 4 – Fiesta Island CLT Preserve Area	0
			Site No. 5a – Cloverleaf Restoration and Enhancement Area	0.03
			Site No. 5b – Triangle Enhancement Area	0.07
			Site No. 5c – South Shores Restoration and Enhancement Area	0.89
			Subtotal	*0.99*
			Non-Native Vegetation Communities and Land Covers Total	**139.41**
Wetlands, including Non-Wetland Waters of the United States and State				
Beach[b]	Marine Habitats	Wetland	Site No. 1 – Fiesta Island South	0
			Site No. 2 – Fiesta Island North Central	0
			Site No. 3 – Fiesta Island near Youth Camping	0.01
			Site No. 4 – Fiesta Island CLT Preserve Area	3.47
			Site No. 5a – Cloverleaf Restoration and Enhancement Area	0
			Site No. 5b – Triangle Enhancement Area	0

Table 3. Vegetation Communities and Land Cover Types in the Project Parcel Boundary

Vegetation Community/Land Cover Type	SDBG Vegetation Community	San Diego Biology Guidelines	Project Area	Acreage [d]
			Site No. 5c – South Shores Restoration and Enhancement Area	0
			Subtotal	*3.48*
Disturbed Southern Coastal Salt Marsh[c]	Salt Marsh	Wetland	Site No. 1 – Fiesta Island South	0
			Site No. 2 – Fiesta Island North Central	0
			Site No. 3 – Fiesta Island near Youth Camping	0
			Site No. 4 – Fiesta Island CLT Preserve Area	0.05
			Site No. 5a – Cloverleaf Restoration and Enhancement Area	0
			Site No. 5b – Triangle Enhancement Area	0
			Site No. 5c – South Shores Restoration and Enhancement Area	0
			Subtotal	*0.05*
Open Water[b]	Marine Habitats	Wetland	Site No. 1 – Fiesta Island South	0
			Site No. 2 – Fiesta Island North Central	0
			Site No. 3 – Fiesta Island near Youth Camping	0
			Site No. 4 – Fiesta Island CLT Preserve Area	0.84
			Site No. 5a – Cloverleaf Restoration and Enhancement Area	0
			Site No. 5b – Triangle Enhancement Area	0
			Site No. 5c – South Shores Restoration and Enhancement Area	0
			Subtotal	*0.84*
Wetlands, including Non-Wetland Waters of the United States and State Total				**4.37**

Table 3. Vegetation Communities and Land Cover Types in the Project Parcel Boundary

Vegetation Community/Land Cover Type	SDBG Vegetation Community	San Diego Biology Guidelines	Project Area	Acreage [d]
			Overall Total	**171.00**

Notes: SDBG = City of San Diego Biology Guidelines.

[a] City of San Diego 2018a.

[b] Under the jurisdiction of the U.S. Army Corps of Engineers, Regional Water Quality Control Board, California Coastal Commission, and City of San Diego.

[c] Under the jurisdiction of the Regional Water Quality Control Board, California Coastal Commission, and City of San Diego.

[d] Totals may not sum precisely due to rounding

3.4.1 BEACH (BCH)

BCH is usually classified as a sandy area basically devoid of vegetation. The upper shoreline within Mission Bay is composed primarily of sand and transitional sandy-silt soils. Portions of the bay shoreline are regularly groomed and maintained by the Mission Bay Park and Recreation maintenance staff. The beach areas are also maintained to remove trash and debris. Most of the sand on Fiesta Island originated from dredged material from Mission Bay. In addition, the city maintains a sand replenishment maintenance area on Fiesta Island, in the location depicted on the figures in Section 4, Restoration Work Plan. Within these areas, imported sand materials are collected from other locations around the bay and stockpiled here for use in repairs on the island. Beach areas are located within Site No. 3 – Fiesta Island near Youth Camping and Site No. 4 – Fiesta Island CLT Preserve Area

3.4.2 DEVELOPED (DEV)

DEV areas mapped in the restoration areas include parking lots, paved roads, and built structures.

3.4.3 DIEGAN COASTAL SAGE SCRUB (DCSS)

According to Oberbauer et al. (2008), DCSS is composed of a variety of soft, low, aromatic shrubs, characteristically dominated by drought-deciduous species, such as coastal sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), and various sages (*Salvia* spp.), with scattered evergreen shrubs, including lemonadeberry (*Rhus integrifolia*) and laurel sumac (*Malosma laurina*). Specifically, within the Fiesta Island and Sea World Drive/San Diego River locations, dominant species of this community include coastal sagebrush, California buckwheat, bush sunflower (*Encelia californica*), bladderpod (*Peritoma arborea*), and various cactus (*Opuntia* sp.) species. DCSS is considered a Tier II sensitive vegetation community according to the SDBG (City of San Diego 2018a). DCSS occurs within some isolated locations within Fiesta Island and locations

adjacent to the San Diego River and Sea World Drive. In many areas mapped as Disturbed Habitat, there are some remnant native DCSS species present, but in such low numbers that the areas could not be mapped as DCSS.

3.4.4 DISTURBED HABITAT (DH)

DH are areas that have been physically disturbed through human activity and are no longer recognizable as a native or naturalized vegetation association (Oberbauer et al. 2008). These areas may continue to retain soil substrate. If vegetation is present, it is almost entirely composed of non-native vegetation, such as ornamentals or ruderal exotic species (i.e., weeds). Specifically, within the study area, DH consists mostly of filled soils to be utilized for recreation and development. These areas have recruited non-native plant species including, but not limited to, Russian thistle (*Salsola tragus*), fivehorn smotherweed (*Bassia hyssopifolia*), mustards (*Brassica* sp.), Australian saltbush (*Atriplex semibaccata*), hottentot fig (*Carpobrotus edulis*), various iceplants, fennel (*Foeniculum vulgare*), garland daisy (*Glebionis coronaria*), peppergrass (*Lepidium* sp.), wild radish (*Raphanus* sp.), tree tobacco (*Nicotiana glauca*), and many other herbaceous weeds. DH was also mapped in areas of bare ground and unpaved access roads . DH is considered a Tier IV land cover according to the SDBG (City of San Diego 2018a) and occurs throughout Site No. 1 – Fiesta Island South, Site No. 2 – Fiesta Island North Central, Site No. 3 – Fiesta Island near Youth Camping, Site No. 4 – Fiesta Island CLT Preserve Area, Site No. 5a – Cloverleaf Restoration and Enhancement Area, and Site No. 5c – South Shores Restoration and Enhancement Area. .

3.4.5 ORNAMENTAL

Torrey pine (*Pinus torreyana* ssp. *torreyana*) was detected during 2019 focused surveys as a planted ornamental tree located along the northern edge of Site No. 5a – Cloverleaf Restoration and Enhancement Area and along the western edge of Site No. 5c – South Shores Restoration and Enhancement Area.

3.4.6 SOUTHERN COASTAL SALT MARSH (SCSM) AND DISTURBED SOUTHERN COASTAL SALT MARSH (DSCSM)

SCSM is a native plant community composed of halophytes and persists primarily from tidal influence. In San Diego County this community persists within bays, lagoons, and estuaries where the soils have a broad range of salinities (i.e. saline, freshwater, brackish, hypersaline), based upon the environmental setting, such as tidal estuaries or closed lagoons. Elevation relative to sea level and seasonal conditions also plays a factor, influenced by dry or wet seasonal conditions. SCSM is found on the east side of Fiesta Island, within a few isolated non-tidal saline basins on Fiesta Island (Sites No. 1 and 2) and at the old Sea World Drive/Cloverleaf area (Site No. 5a).

High-elevation salt marsh areas are irregularly to intermittently inundated and typically occur from approximately +5.5 feet to +7.5 feet mean lower-low water. The dominant species include woolly sea-blite (*Suaeda taxifolia*), Parish's glasswort (*Arthrocnemum subterminale*), alkali weed (*Cressa truxillensis)*, alkali heath (*Frankenia salina*), salt grass (*Distichlis spicata*), shore grass (*Distichlis littoralis*), and western marsh-rosemary. SCSM is considered a wetlands community according to the SDBG (City of San Diego 2018a).

DSCSM is a previously existing SCSM area that has been disturbed by human activities and/or by natural events (e.g. fire, flood). The composition of native species in these disturbed areas is generally lower, less dense, and with a greater number of non-native exotic and weedy species present. Small remnant patches of dSCSM were observed within Site Nos. 1 and 2 on Fiesta Island, and within Site No. 5a (Cloverleaf Enhancement Area) at the Sea World Drive/San Diego River location.

3.4.7 SOUTHERN FOREDUNE (SF)

SF is a plant community dominated by succulent perennial herbs and subshrubs, with a higher proportion of suffrutescent plants up to 1 foot tall (Oberbauer et al. 2008). SF is found in areas of sand accumulation along the coast between Point Conception (Santa Barbara) and the U.S./Mexico International border. This habitat is characterized by a drier, warmer, and less strong and persistent onshore wind (Oberbauer et al. 2008). Characterized species include red sand-verbena (*Abronia maritima),* beach sand-verbena (*Abronia umbellata),* beach-bur (*Ambrosia chamissonis*)*,* beach saltbush (*Atriplex leucophylla),* sea rocket (*Cakile maritima),* beach morning glory (*Calystegia soldanella*), beach sun cup (*Camissoniopsis cheiranthifolia*), salt grass, and hottentot-fig (*Carpobrotus edulis*).

Species occurring within SF habitat include beach sun cup, beach-bur, coast goldenbush (*Isocoma menziesii*), and London rocket (*Cakile maritima*). SF is considered a Tier I sensitive vegetation community according to the SDBG (City of San Diego 2018a).

3.4.8 OPEN WATER (OW)

OW occurs away from the shoreline within Mission Bay and consists of a soft bottom that may be vegetated with eelgrass (*Zostera marina*) or be unvegetated. Open water occupies approximately 0.85 acres within Site No. 4 – Fiesta Island CLT Preserve Area. According to the Biological Resources Technical Report, there may be eelgrass located within the eastern footprint of the North Fiesta Island restoration area, but not within the open waters of the western edge (Dudek 2025a).

3.5 SPECIAL-STATUS WILDLIFE AND PLANT SPECIES

Special-status species, including plants and wildlife, identified within, or immediately adjacent to the proposed upland habitat expansion/preservation sites (Figure 3, Existing Sensitive Species and MHPA) are presented in Table 4 and in the descriptions that follow (note: detailed information regarding these special-status species is included in the 2017 BTR [Alden Environmental 2017]).

Table 4. Special-Status Species Site Occurrences

Site	Nuttall's Lotus	Coast Wooly-Heads	Robinson's Pepper-Grass	Oil Neststraw	Torrey Pine	CLT
No. 1 – Fiesta Island South	X	X	X			
No. 2 – Fiesta Island Near Youth Camping	X					
No. 3 – Fiesta Island Central	X (adjacent)	X (adjacent)				
No. 4 – Fiesta Island CLT Preserve Area	X					X
No. 5a – Cloverleaf Restoration Area	X				X	X
No. 5b – Triangle Restoration Area	X			X (adjacent)	X	
No. 5c – South Shores East Area	X			X (adjacent)	X	

Note: Refer to the 2025 BTR for more information (Dudek 2025a).

[b] Although individuals are present, they are considered ornamental occurrences and, therefore, are not considered special-status species.

Special-Status Plant Species

Special-status plant species detected within the overall Mission Bay park study area during biological resources reconnaissance surveys, conducted for the 2025 BTR, included the following: Nuttall's lotus (*Acmispon prostratus*), Palmer's frankenia (*Frankenia palmeri*), Robinson's pepper-grass (*Lepidium virginicum* var. *robinsonii*), coast woolly-heads (*Nemacaulis denudata* var. *denudata*), San Diego marsh-elder (*Iva hayesiana*), Torrey pine, and woolly sea-blite. (A detailed list of vascular plant species observed during the biological resources surveys and based upon research conducted is included in Appendix B.2).

Special-Status Wildlife Species

Focused wildlife surveys, conducted as part of the 2025 BTR surveys, resulted in the detection of the following special-status wildlife species in the overall Mission Bay park study area: Cooper's hawk (*Accipiter cooperii*), redhead (*Aythya americana*), brant (*Branta bernicla*), Costa's hummingbird (*Calypte costae*), black tern (*Chlidonias niger*), white-tailed kite (*Elanus leucurus*), American peregrine falcon (*Falco peregrinus anatum*), common loon (*Gavia immer*), Caspian tern (*Hydroprogne caspia*), California gull (*Larus californicus*), long-billed curlew (*Numenius americanus*), osprey (*Pandion haliaetus*), wandering skipper (*Panoquina errans*), Belding's savannah sparrow (*Passerculus sandwichensis beldingi*), double-crested cormorant (*Nannopterum auritum*), light-footed Ridgway's rail (*Rallus obsoletus levipes*), black skimmer (*Rynchops niger*), rufous hummingbird (*Selasphorus rufus*), California least tern (*Sternula antillarum browni*), elegant tern (*Thalasseus elegans*), northern harrier (*Circus hudsonius*), reddish egret (*Egretta rufescens*), and southern California legless lizard (*Anniella stebbinsi*). (A detailed list of wildlife species observed during the biological resources surveys and based upon research conducted is included in Appendix B.3).

Information included in the 2017 BTR (Alden Environmental 2017) describing CLT includes the following:

> California least tern, federally endangered (FE)/state endangered (SE), California fully protected (FP)/MSCP Covered
>
> CLT is a FE, SE, FP, and MSCP Covered Species. CLT breeds in April in southern California and May in northern California (Anderson and Rigney 1980; Massey 1971). The species breeds along marine and estuarine shores, and in abandoned salt ponds (Wilbur 1974). This species is a resident in lacustrine waters near the coast of southern California (Garrett and Dunn 1981). CLTs nest on barren to sparsely vegetated habitat with sandy or gravelly substrate near water (Zeiner et al. 1988-1990).
>
> CLT were observed in 2016 during a biological reconnaissance survey conducted by AECOM and NBC (AECOM 2016).

3.6 AQUATIC RESOURCES

A jurisdictional delineation was conducted within the approximately 4,387-acre Improvement Zone. A desktop analysis was performed followed by field analysis at 21 sampling sites. The sites were selected based on vegetation communities and aquatic resources provided from available GIS data, and were chosen to coincide with the projects outlined within the Improvement Zone. The sampling sites were surveyed to determine the presence or absence of wetland field indicators and jurisdictional resources within the Improvement Zone (SES 2025). Results of the jurisdictional

delineation are summarized in Table 5. For additional information, see the Biological Technical Report (Dudek 2025a)

Table 5. Proposed Jurisdictional Resources Within the North Fiesta Island Upland Project Sites

Existing Habitat	SDBG Wetland Vegetation Community	Agency Jurisdiction	Jurisdictional Delineation Acreage
*Wetlands Waters**			
Beach*	Marine Habitats	City of San Diego	3.48
Disturbed Coastal Saltmarsh	Salt Marsh	RWQCB, CCC, City of San Diego	0.05
Open Water*	Marine Habitats	City of San Diego	0.85
		Subtotal	*4.38*
*Non-Wetland Waters**			
Beach*	Marine Habitats	USACE, RWQCB, CCC	3.48
Open Water*	Marine Habitats	USACE, RWQCB, CCC	0.85
		Subtotal	*4.33*
		Total Jurisdictional Area*	**4.38**

Source: SES 2025.
Notes: CCC = California Coastal Conservancy; USACE = U.S. Army Corps of Engineers; RWQCB = Regional Water Quality Control Board.
* The wetland waters (as defined by the City of San Diego) and the non-wetland waters (as defined by USACE, RWQCB, and CCC) overlap.

The 3.47 acres of beach and 0.85 acres of open waters were mapped within the boundaries of upland restoration Site No. 4, CLT Preserve as part of the jurisdictional delineation. However, both resources are located outside of the likely active restoration area and would be avoided. The 0.05 acres of disturbed coastal salt marsh would be impacted as part of this restoration effort. These impacts are addressed in the North Fiesta Island Wetlands Restoration Project, Conceptual Habitat Restoration and Monitoring Plan (Dudek 2025b). An additional 0.01 acres of beach was mapped within the boundaries of upland restoration Site No. 3 as part of the jurisdictional delineation. Similarly, the resource would be avoided through the final design process.

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4 RESTORATION ROLES AND RESPONSIBILITIES

This chapter describes who would be responsible for each task and how the proposed restoration program would be accomplished.

4.1 PROJECT IMPLEMENTATION PERSONNEL

4.1.1 PERMITTEE/PROJECT MANAGER

As owner and permittee of the Mission Bay Park Improvements Plan, the City is financially responsible for implementation and management of each restoration project to be implemented under the Plan. Costs include planning and design, construction, and interim maintenance and monitoring throughout the 5-year maintenance and monitoring period..

4.1.2 PROJECT BIOLOGIST

The City would select a qualified Project Biologist to process environmental permit applications, prepare supporting documents and a final Upland CHRMP, and restoration construction documents. The Project Biologist would help to ensure that all site protections, pre-work bird surveys, and any other required items are adequately performed prior to restoration work implementation.

The Project Biologist would perform site monitoring during restoration implementation and throughout the 5-year maintenance and monitoring period. The Project Biologist would prepare annual reports with biological monitoring observations and data to be submitted to the Parks and Recreation Open Space Division,. The Project Biologist would have a degree in biology, ecology, or related field, and be able to demonstrate at least three successful similar restoration projects in San Diego County. The Project Biologist would possess at least 5 years of habitat restoration experience in Southern California.

4.1.3 RESTORATION CONTRACTOR

The City would select a qualified Restoration Contractor to implement the project installation work and provide subsequent restoration area maintenance in accordance with City of San Diego construction contract procurement policies and departmental regulations. Restoration installation and maintenance work would be performed by a contractor possessing a valid California landscape contractor's license (Class C-27) who has previous experience with native habitat restoration in San Diego County, can demonstrate at least three successful similar restoration projects in San Diego County, and is in good standing with the City of San Diego based on past performance. The Restoration Contractor must be able to supply knowledgeable crew members who can identify San Diego County native plants and common weed species and demonstrate knowledge of habitat restoration techniques.

The Restoration Contractor would be responsible for conformance to this Upland Restoration Plan and permit requirements for the project. The Restoration Contractor's responsibility for installation would continue until successful completion and final acceptance by City and the Project Biologist. The Restoration Contractor would not be released from contractual obligations for installation until written notification is received from City that all required installation tasks as defined in the installation contract, final plans and specifications, this Upland Restoration Plan, and the project permits have been successfully completed.

After initial installation and completion of implementation, a 5-year habitat maintenance program would be performed by a qualified Restoration Contractor who specializes in the maintenance and management of native habitat restoration and/or natural lands management. Maintenance work would be performed as indicated herein and per the Project Biologist's recommendations. The City may choose to hire a maintenance contractor that is separate from the installation contractor or replace a contractor that fails to perform work satisfactorily.

4.1.4 SEED SUPPLIER

Should seed need to be procured, the seed supplier must be a qualified commercial native plant seed supplier having collection sources from within the 25 miles of the restoration area and must have experience collecting seeds from native riparian and upland areas appropriate for the project. The seed supplier would also meet all the requirements as listed in Biology Guidelines, Landscape Standards, and the Whitebook (City of San Diego 2021b).

Seed collection would follow sound ecological restoration practices. Any seed within areas of permanent impact may be collected to 100%. However, should seed need to be collected from within adjacent open space areas, no more than 5% of the available seed would be taken on any given year. The Project Biologist may substitute plant species as appropriate should the species listed in this Upland Restoration Plan not be available at the time of collection or purchase. Seed collection would comply with all project permits and requirements.

5 RESTORATION WORK PLAN

5.1 PRELIMINARY DESIGN AND ENGINEERING

The MBPMP Fiesta Island Amendment identifies several areas for potential habitat preservation and upland habitat expansion (City of San Diego 2021). The proposed habitat expansion/preservation areas within Fiesta Island were identified at four locations that are shown on the MBPMP, Draft Fiesta Island Amendment (City of San Diego 2021; see Appendix A). An additional three restoration sites were identified along the San Diego River and in the South Shores area of Mission Bay Park. An overview of the restoration sites that are described in this CHRMP is provided in Figure 4, Habitat Expansion/Restoration Opportunities Site Reference Map.

This restoration work plan describes restoration approaches and techniques to restore and/or enhance target native vegetation communities within each designated restoration site. Each section provides a layout of proposed vegetation communities with conceptual grading designs where new landforms are proposed in support of the target native vegetation community.

5.2 RATIONALE FOR EXPECTING SUCCESS

Risk and uncertainty of the restoration outcome are factors that are considered in situations where mitigation is required to offset losses to aquatic functions and overall jurisdictional area. The risk and uncertainty of success would be largely dependent on the establishment of native plants with the desired vegetative cover and species diversity that would result in self-sustaining habitat. Aggressive treatment of invasive weeds is necessary to encourage the establishment of native annual and perennial species. Container plants would be installed to accelerate the establishment of native perennial species in the restoration area that are capable of in situ seed production to begin re-establishment of a native seed bank starting in the first year after installation. Similarly, a native seed mix would be applied to provide initial colonization of native species in bare areas and help to establish a native seed bank. Supplemental water applied through a temporary irrigation system within the proposed uplands restoration sites would reduce mortality and increase establishment of installed container plants, increase the potential for reproductive success in the early years of vegetation community establishment, and buffer the restoration effort from prolonged drought during the first three years of the monitoring program.

The selected plant palette and seed mix includes species that occur within and adjacent to the project impact areas. Seed and propagules would originate from within the local region to provide plant genetics that are adapted to site conditions. The implementation, maintenance, and monitoring tasks outlined in this CHRMP are anticipated to produce self-sustaining native vegetation communities that are site appropriate and compatible with nearby and adjacent intact native vegetation communities.

5.3 AVOIDANCE AND MINIMIZATION

Temporary fencing (with silt barriers) would be required at the limits of work for the restoration area to prevent inadvertent impacts to areas outside of the restoration area footprint. Impacts from fugitive dust that may occur during filling and grading activities adjacent to the restoration area would be avoided to the maximum extent practicable and minimized through watering and other appropriate measures.

The Project Biologist would be on site to oversee the installation of temporary fencing and any grading within 100 feet of existing wetland and non-wetland waters. Construction activities should avoid the bird nesting season (February 15–September 31). Pre-construction surveys should be conducted to verify that no sensitive species or nest birds are present onsite. If construction occurs during the nesting season and nesting birds are detected during the pre-construction survey, appropriate buffers would be established around nests in accordance with the MBTA to avoid any direct impact.

Equipment would be checked for leaks prior to operation and repaired as necessary. A spill kit for each piece of construction equipment would be on site and must be used in the event of a spill.

To avoid indirect impacts to sensitive resources, the project would be required to meet National Pollutant Discharge Elimination System regulations; incorporate best management practices (BMPs) during construction; install permanent BMPs in accordance with the City's Storm Water Standards Manual (City of San Diego 2018b), and be consistent with a Storm Water Quality Management Plan to be prepared for each project consistent with the City's Storm Water Standards (City of San Diego 2018b). All flows from impervious surfaces would be directed through a biofiltration basin prior to being carried downstream to ensure no toxins, chemicals, petroleum products, exotic plant materials or other harmful elements are allowed to enter the MHPA. All flows toward the MHPA would be minimized to the extent feasible.

In addition, the project would be required to adhere to all standard construction protection measures listed in the Program Environmental Impact Report Mitigation and Monitoring and Reporting Plan, which includes having a qualified biologist present to supervise flagging of sensitive resources prior to construction, provide environmental training and during construction to ensure no unauthorized impacts occur.

5.4 PLANT PALETTES

Plant palettes are proposed for each of the restoration site based on existing conditions and ecologically appropriate vegetation communities that are expected to successfully establish and become self-sustaining habitat that can be managed in perpetuity. Table 5 presents a summary of

the target native vegetation communities and acreage to be established on each restoration site. The plant palettes in Tables 6 through 9 present the native species intended to be sourced from container plant materials and/or seed mix for the habitat treatments at the various habitat restoration/enhancement areas within the Mission Bay Park Improvements Program upland expansion and preservation area.

Table 6a. Coastal Strand Restoration Plant Palette – Container Plants

Scientific Name	Common Name	Container Size	Spacing (feet on center)	Percent Composition	Plants/Acre[2]
Abronia maritima[1]	red sand-verbena	1 gallon	6	30	363
Abronia umbellata[1]	beach sand-verbena	1 gallon	6	30	363
Ambrosia chamissonis	beach-bur	1 gallon	6	20	242
Atriplex leucophylla	beach saltbush	1 gallon	8	52	34
Camissoniopsis cheiranthifolia	beach sun cup	1 gallon	4	2	54
Peritoma arborea	bladderpod	1 gallon	6	52	60
Oenothera californica ssp. *californica*	California evening-primrose	1 gallon	4	2	54
Limonium californicum	western marsh-rosemary	1 gallon	4	2	54
				Total	**1,224**

Notes:

1 Only species to be planted in CLT preserve.

2 The coastal strand species palette may be adapted during installation based on nursery availability and project budget.

Table 6b. Coastal Strand Restoration Plant Palette – Hydroseed Mix "A"

Scientific Name	Common Name	% Pure Live Seed (PLS)	Bulk Pounds per Acre
Abronia maritima	red sand-verbena	13	TBD/final design
Abronia umbellata	beach sand-verbena	15	TBD/final design

Table 6b. Coastal Strand Restoration Plant Palette – Hydroseed Mix "A"

Scientific Name	Common Name	% Pure Live Seed (PLS)	Bulk Pounds per Acre
Acmispon prostrates	Nuttall's lotus	(TBD/per collection)	TBD/final design
Ambrosia chamissonis	beach-bur	50	TBD/final design
Camissoniopsis cheiranthifolia	beach sun cup	86	TBD/final design
Nemacaulis denudata var. *denudata*	coast woolly-heads	(TBD/per collection)	TBD/final design
		Total Pounds per Acre	**TBD**

Table 7a. Southern Coastal Salt Marsh Restoration Plant Palette (Non-Tidal) – Container Plants

Scientific Name	Common Name	Container Size	Spacing (feet on center)	Percent Composition	Plants/Acre[1]
Cressa truxillensis	alkali weed	1 gallon	4	10	272
Distichlis spicata spicata	coastal salt grass	4-inch pots	3	5	242
Frankenia salina	alkali heath	1 gallon	6	15	181
Jaumea carnosa	salty susan	1 gallon	4	10	272
Suaeda californica	woolly sea-blite	1 gallon	6	20	242
				Total	**1,209**

[1] The southern coastal salt marsh species palette may be adapted during installation based on nursery availability and project budget.

Table 7b. Southern Coastal Salt Marsh Restoration Plant Palette (Non-Tidal) – Hydroseed Mix "B"

Scientific Name	Common Name	% Pure Live Seed (PLS)	Bulk Pounds per Acre
Cressa truxillensis	alkali weed	6	TBD/final design
Frankenia salina	alkali heath	31	TBD/final design
Suaeda californica	woolly sea-blite	10	TBD/final design
		Total Pounds per Acre	**TBD**

Table 8a. Southern Foredune Restoration Plant Palette – Container Plants

Scientific Name	Common Name	Container Size	Spacing (feet on center)	Percent Composition	Plants/Acre[1]
Abronia maritima	red sand-verbena	1 gallon	6	20	242
Abronia umbellatum	beach sand-verbena	1 gallon	6	20	242
Ambrosia chamissonis	beach-bur	1 gallon	10	10	44
				Total	**528**

Note:

[1] The southern foredune species palette may be adapted during installation based on nursery availability and project budget.

Table 8b. Southern Foredune Restoration Plant Palette – Hydroseed Mix "C"

Scientific Name	Common Name	% Pure Live Seed (PLS)	Bulk Pounds per Acre
Abronia maritima	red sand-verbena	13	TBD/final design
Abronia umbellatum	beach sand-verbena	15	TBD/final design
Ambrosia chamissonis	beach-bur	50	TBD/final design
Camissoniopsis cheiranthifolia	beach sun cup	86	TBD/final design
Nemacaulis denudata var. *denudata*	coast woolly-heads	(TBD/per collection)	TBD/final design
		Total Pounds per Acre	**TBD**

Note: TBD = to be determined.

Table 9a. Diegan Coastal Sage Scrub Restoration Plant Palette – Container Plants

Scientific Name	Common Name	Container Size	Spacing (feet on center)	Percent Composition	Plants/Acre
Artemisia californica	coastal sagebush	1 gallon	6	20	242
Cneoridium dumosum	bush-rue/spice bush	1 gallon	6	5	60
Encelia californica	coastal sunflower	1 gallon	6	15	181
Eriogonum parvifolium	seacliff buckwheat	1 gallon	6	20	242

Table 9a. Diegan Coastal Sage Scrub Restoration Plant Palette – Container Plants

Scientific Name	Common Name	Container Size	Spacing (feet on center)	Percent Composition	Plants/Acre
Rhus integrifolia	lemonadeberry	Deep 1 gallon	15	10	19
Salvia mellifera	black sage	1 gallon	8	15	102
				Total	**846**

[1] The Diegan coastal sage scrub species palette may be adapted during installation based on nursery availability and project budget.

Table 9b. Diegan Coastal Sage Scrub Restoration Plant Palette – Hydroseed Mix "D"

Scientific Name	Common Name	% Pure Live Seed (PLS)	Bulk Pounds per Acre
Artemisia californica	coastal sagebrush	18	TBD/final design
Bromus carinatus	California brome	86	TBD/final design
Encelia californica	coastal sunflower	14	TBD/final design
Eriogonum parvifolium	seacliff buckwheat	18	TBD/final design
Eriophyllum confertiflorum	golden yarrow	22	TBD/final design
Eschscholzia californica	California poppy	78	TBD/final design
Isocoma menziesii	coast goldenbush	7	TBD/final design
Lupinus succulentus	arroyo lupine	83	TBD/final design
Phacelia parryi	Parry's phacelia	76	TBD/final design
Salvia mellifera	black sage	43	TBD/final design
Stipa (Nassella) lepida (deawned)	foothill needle grass	64	TBD/final design
		Total Pounds per Acre	**TBD**

All seed mixes applied via hydroseed would incorporate the following slurry mix components:

- Seed mix at rates indicated per each seed mix above
- Virgin wood cellulose fiber mulch @ 2,200 pounds per acre
- Az-Tac binder-tackifier @ 100 pounds per acre (or approved equal), for installation between November and February of any given year
- Fertilizer 11-52-0 (diammonium phosphate) @ 250 pounds per acre
- Green slurry marker dye

5.5 FIESTA ISLAND RESTORATION SITES 1–3

Site preparation would be conducted at the direction of the City and the City's selected Project Biologist. Restoration site implementation tasks are outlined below. Fiesta Island sites 1–3 are in proximity with similar site conditions and implementation steps and considerations as described below (Figures 5–7).

5.5.1 SITE PREPARATION

Prior to site preparation, photo points would be identified, and pre-implementation photos taken to document site conditions prior to restoration implementation. Site preparation at each site would involve weed biomass removal and weed treatment if actively growing annual grasses and other non-native species are present. Demolition of relic features such as old concrete foundations, pads, and other infrastructure would be demolished and removed from the site. Compacted soils would be mechanically ripped to relieve soil compaction.

5.5.2 WEED CONTROL

To the maximum extent practicable, this restoration program should begin in the fall after nesting bird season. As part of site preparation, dead thatch, deadwood, and other organic litter would be removed. Weed control would be conducted. Maintenance crews would be trained to identify native plant species to avoid removal of native plant volunteers that recruit into the restoration area.

Weed control would include hand-pulling of weeds, use of hand tools, use of line-trimmers, and/or foliar treatments of appropriate herbicides as determined by the Project Biologist. Specific herbicide application rates and methods would be based on manufacturer specifications, and would follow the general guidelines summarized below:

- Application methods would follow manufacturer specifications regarding application and safety procedures. Herbicide applications would comply with state and local regulations. All application tasks would be performed by or under the supervision of a licensed applicator with the Pest Control Business License issued by the State of California Department of Parks and Recreation and registered with the County Agricultural Commissioner.
- Herbicide Application would consist of (1) spot applications to individual plants where weed coverage is sparse and (2) broadcast applications to dense patches of weed species where native species are not established. Applications would be uniform and complete. Contact with native species must be avoided; in the event of gusty winds or winds more than 5 miles per hour, application work would be temporarily discontinued to protect applicators and adjacent natural resources from herbicide drift. Treatment would not occur if rainfall is

predicted and would be temporarily discontinued in the event of rainfall since rainfall reduces the effectiveness of the herbicide.

- Sprayed vegetation would be left undisturbed for 7 days to allow the herbicide to be distributed throughout the entire plant. Visible effects of herbicide application consist of wilted foliage, brown foliage, and disintegrated root material.
- Excessive dead weed materials would be removed from the soil surface and disposed of off site.

5.5.3 PLANT SALVAGE AND TRANSLOCATION

In some instances, it may be necessary to salvage native plants or the seed bank of plants that are detected in pre-construction surveys. Perennial species may be excavated, transferred to nursery containers, and maintained in special plant nursery areas on Fiesta Island until the restoration site is ready for new plant installation. Such nursery areas would require a water source to maintain live plants under shade structures to reduce plant mortality. Annual species may be salvaged while dormant through topsoil collection where the latent seed bank is determined to exist. Salvage soil should be stored in paper or cloth bags in low humidity–low temperature environments until placement onsite.

5.5.4 TOPSOIL SALVAGE

The need for topsoil salvage should be evaluated during the site preparation stage. Most of the sites are dominated by non-native species and topsoil salvage is not recommended in these situations. In such situations, as determined by the Project Biologist, topsoil removal and disposal would be recommended to reduce the weed seed bank. In situations where intact native vegetation would be impacted by implementing the overall restoration plan, salvage of topsoil is advised to capture the beneficial seed bank and soil microbes that can support plant growth.

Salvaged topsoil should be kept dry and stockpiled no more than 4 feet deep and covered with opaque plastic or cloth that allows for air movement. Stockpiles should be located in designated stockpile soil areas (Figure 2) for the duration of storage until placement on the restoration site.

5.5.5 GRADING

Terrain modification is proposed for Sites #1 and #2 to cap existing perimeter berms with clean sandy soil to support establishment of coastal strand vegetation. The soil cap is needed only where exposed rock or concrete debris are present. The cap should provide a minimum of 24 inches of soil cover over rock/concrete debris to provide substrate for plant growth and vegetation establishment. Large openings between rock/concrete debris should be backfilled and jetted with water to settle

soil materials into all voids. Soil should be placed and lightly compacted to hold in place and provide a stable growth medium for installed plant and seed materials.

A portion of Restoration Site #3 is proposed to be reshaped to create coastal dune habitat above the beach. Placement of sand is proposed to a depth of 2 to 4 feet to create a dune profile (Figure 7). The sand would be sourced either from excavated material for the North Fiesta Island CLT nesting preserve or imported as suitable source material.

5.5.6 SOIL TESTING

In general, site soils appear to be suitable for the establishment of the target native vegetation communities that are identified for each restoration site. Soil testing for import soil is recommended to protect against the import of harmful compounds that may limit plant growth and establishment. Composite soil samples would be collected to obtain a representative sample of the soil in which native vegetation would be grown. The purpose of the soil testing is to identify soil conditions that are detrimental to plant growth and should not be used to increase soil nutrients that may cause rapid plant growth and imbalances in the root: shoot ratio of native plants. Such imbalances can increase plant dependence on supplemental irrigation and could result in increased plant mortality. A simple agricultural suitability test is sufficient to identify toxic conditions that might require specific amendments to neutralize concentrations of toxic compounds. In the unlikely event that a serious soil condition is identified, a soil scientist should be consulted to recommend either amendments to incorporate into the soil or the removal and disposal of the deleterious material.

5.5.7 SEED COLLECTION

Native seed would be collected and/or sourced from local coastal sources originating within 5 miles of the coast and within 25 miles of the restoration area, as practicable. It is unlikely that sufficient seed volume is available from onsite locations or within Mission Bay Park. Seeds would be collected for hydroseeding, hand broadcast, and/or raking, as well as for container plant propagation. Seed would be mixed, and container plants would be grown and propagated at a reputable native plant nursery.

The species proposed in Tables 6 through 9 are selected to provide for species diversity and appropriate functions and services for the target vegetation communities. The seed palettes have been designed to include a mixture of native grasses, forbs, and/or low-growing shrubs that are adapted to the target restoration area. Plants with different germination responses, water affinities, and growth forms have been chosen to provide plant growth under a wide range of conditions that may occur within each restoration area.

Seed collections should begin at least one growing season prior to project implementation under a separate standalone contract. Seed for some species may not be available at the time of initial installation based on wildland seed production within the collection zone. Seed may be obtained when available and installed later. Substitutions, other donor sites, or use of commercial material are acceptable as approved by the Project Biologist and the Environmental Designee.

Pure live seed recommendations are shown in Tables 6 through 9; however, if the delivered seed differs from specified purity and germination rates presented herein, the total pounds per acre rates would be adjusted accordingly to achieve the specified pounds of pure live seed.

5.5.8 EROSION CONTROL BEST MANAGEMENT PRACTICES

BMPs are schedules of activities, prohibitions of practices, general good housekeeping practices, pollution prevention, educational practices, maintenance procedures, and other management practices to prevent or reduce, to the maximum extent practicable, the discharge of pollutants directly or indirectly to receiving waters. It is the responsibility of the City of San Diego or the contracted Restoration Contractor to select, install, and maintain appropriate construction BMPs throughout construction and post-construction until the site terrain is stabilized by native vegetation. BMPs are used to effectively reduce the mobilization and transport of sediments from the restoration area during initial implementation and during the maintenance and monitoring period. Suitable BMPs would be installed based on site conditions in accordance with the approved Stormwater Pollution Prevention Plan and the City's Storm Water Standards (City of San Diego 2018b).

Although site topography is generally level and lacks steep erosive slopes, onsite soils may be erosive and easily transported by rain runoff. Threats to potential water pollution entering Mission Bay include perimeter construction area control, soil stockpile slope protection, and the side slopes of the proposed CLT nesting preserve. Onsite water quality protection may include covering barren soil surfaces until planting, use of temporary water quality basins to capture and collect stormwater runoff, and use of temporary geotechnical materials such as straw wattles, open jute netting, and similar products that protect soil surface integrity while promoting seed germination, plant growth, and vegetative cover.

5.5.9 IRRIGATION

During the 5-year maintenance and monitoring period for the restoration area, a temporary aboveground drip irrigation system would be designed and installed to supplement natural rainfall to facilitate container plant survival. The irrigation system would be used whenever there is insufficient or infrequent rainfall to support vegetation establishment, particularly if there is a dry winter and/or spring season.

The irrigation system would utilize drip irrigation equipment to conserve water and efficiently deliver water directly to the root zone of installed container plants. The system would include automatic, independently programmable valves or a central controller to operate the system on a pre-determined irrigation schedule as determined by the Restoration Contractor.

If a permanent water source is not available at the time the restoration plantings need to be implemented, then the irrigation system would be designed to be remotely supplied by a water truck, or the plants would be directly watered from a water truck using hoses. The temporary irrigation system would be removed prior to the end of the 5-year maintenance period or another method of irrigation (i.e. hand watering) would be employed as needed after removal of temporary irrigation system.

5.5.10 FENCING AND SIGNAGE

Temporary fencing along the perimeter of restoration area would be placed adjacent to sensitive vegetation communities or other biological resources as identified by the Project Biologist in accordance with restoration from the 2025 BTR (Dudek 2025a). All temporary fencing would be shown on grading plans and would serve as the boundary limits and to discourage pedestrian entry into restoration areas. The temporary fencing would remain in place for the duration of the 5-year maintenance and monitoring period and would be removed following successful completion restoration. Temporary fencing would consist of metal T-posts stakes with yellow nylon rope. Use of plastic construction fencing (snow fencing) is not permitted.

Signage would identify a contact person and a phone number for interested parties to call for more information. The language for the signage is included in the grading plans.

5.5.11 CONTAINER PLANT INSTALLATION

Implementation of this Upland CHRMP must be coordinated with the Restoration Contractor, applicant, and Project Biologist. Plant species and quantities would be confirmed upon arrival at the restoration area, and all container plants would be checked for viability and general health by the Project Biologist. Plant materials not meeting acceptable standards of health as determined visually by the Project Biologist would be rejected. Reasons for rejection of plant material may include plants that show signs of damaged foliage or stalks, diminutive stature or signs of disease or pests, and plants that are root-bound in the container.

Planting design and container plant layout would be randomly patterned (as opposed to rows) to create a natural patchiness that is typical within the target plant community. The Restoration Contractor would lay out container plants in groupings by species, ranging from three to six plants per grouping. Plant species that require more water would go into the areas that are wetter and are

located closer to the water table, and plant species that require less water would be placed in drier areas located farther from the water table. The Project Biologist would inspect the locations and adjust placement of groupings, if necessary.

Standard planting procedures would be employed for installing container plants, including holes approximately twice the width of the rootball of the plant and slightly deeper than rootball. If insufficient soil moisture is present, holes would be filled with water and allowed to drain immediately prior to planting. Backfill soil containing amendments (as defined by the landscape construction documents and as directed by the Project Biologist) would be placed in every planting hole following soaking. Container plants would be installed so that the rootball is below grade approximately 0.5 inches. Plants would be thoroughly watered to settle backfill around the plant rootball.

5.5.12 NATIVE SEED APPLICATION

The seed mixes shown in Tables 6–9 would be applied after initial container planting is complete. Labels for each seed delivered to the restoration area would be inspected and approved by the Project Biologist prior to mixing and application. Seed application would consist of hydroseeding, hand broadcast, and/or raking into the soil. If some species are not available at the time of seeding, they may be acquired when available and hand broadcast at a later date.

All seeds would be clearly labeled showing type of seed, test date, the name of the supplier, and percentages of the following: pure seed, crop seed, inert matter, weed seed, noxious weeds, and total germination content. All material would be delivered to the restoration area in original, unopened containers bearing the provider's guaranteed analysis. If seed needs to be stored temporarily, all seed mixes would be stored in a dark, cool, and dry storage location.

Application of seed from October to the end of December is ideal for allowing establishment during the cooler and wetter time of the year. However, seed application timing may be modified as directed by the Project Biologist to avoid loss in storm flow events or to take advantage of predicted rain events.

5.5.13 SCHEDULE

The timing and schedule for project implementation must consider multiple environmental and site factors to install plant materials at the optimal time of year that promote seed germination and plant establishment under ambient rainfall rather than being dependent upon supplemental irrigation. Schedule planning should consider the following factors:

- Up to 12 months lead time to propagate and deliver fully established container plants.

- Up to 12 months lead time to collect native seed from within the designated source area.
- City procurement and contracting process
- Planting during winter months when rainfall is greatest.
- Off-season recreation periods when public use adjacent to restoration areas is low.
- Nesting Bird Season (February 15-September 15).

5.6 NORTH FIESTA ISLAND CLT PRESERVE

The CLT Preserve (Preserve) on North Fiesta Island would be reconfigured to provide space for the North Fiesta Island Preserve and the North Fiesta Island wetlands restoration project (Figure 8, Habitat Expansion/Enhancement Site #4 [Fiesta Island North Central Portion]). The Fiesta Island Master Plan Update (City of San Diego 2024) designates the western side of North Fiesta Island as the nesting preserve area and the east side of the island for a new wetlands restoration project that is a component of the overall Wetland and Water Quality Improvements Element of the proposed Mission Bay Park Improvements Program. Details of the North Fiesta Island wetland project are available in the Preliminary Engineering Report (North Fiesta Island PER; Moffatt & Nichol 2025) and the North Fiesta Island Wetlands Conceptual Habitat Restoration and Monitoring Plan (Dudek 2025b).

The design of the Preserve was prepared using the best available science related to CLT biology, habitat preferences for forage and nesting, and known ecological stressors such as predators and human activities. The Preserve basis of design is presented in the North Fiesta Island Subarea California Least Tern Design Alternatives Memorandum (Schaefer Ecological Solutions 2024). Additional information is presented in the draft Upland Expansion Preliminary Engineering Report (Upland PER; Dudek 2025c).

Implementation of the Preserve involves the following construction elements:

- Removal of Fiesta Island Drive asphalt paving on the western side of North Fiesta Island within the Preserve footprint.
- Construction of a new section of Fiesta Island Drive that connects the west and east sides of the island road, south of the Preserve and the future North Fiesta Island wetland project.
- Grading the Preserve to create a flat-topped landform with a 20:1 slope down to the water on the west shoreline and a temporary 2:1 slope within the east side of the Preserve that daylights at existing land surface elevations.
- Planting and establishment of Southern Foredune vegetation on a small dune land feature to be located on the southern end of the Preserve.

- Construct a site protection fence consisting of a 6-foot-tall chain-link fence with anti-perching features.
- Construction of an at-grade maintenance road and access gate within the site protection fence.

A description of the design and construction elements for the Preserve are provided below.

5.6.1 SITE PREPARATION

The Fiesta Island Amendment to the Mission Bay Master Plan, including modifications adopted by CCC, requires removal of Fiesta Island Road within the newly configured Preserve to create a direct connection between the beach shoreline and nesting areas of the Preserve. A 1,320-linear-foot portion of Fiesta Island Road would remain along the eastern side of the island as seasonal pedestrian access to the beaches in that area. The sequencing of the road removal is discussed in Section 4.6.5. Approximately 4,000 linear feet of asphalt road section and the underlying road base material would be demolished in preparation for site grading. All asphalt would be disposed of offsite at an approved disposal location or recycled, if possible.

Other features to be demolished include fire rings in the beach, any utilities onsite, removal of the existing preserve fence, and other features that would otherwise impede landform grading. All debris from demolition activities would be disposed of offsite in a legal manner. No vegetation removal is required because soil would be stockpiled and stored for an indeterminate period and subsequently placed in the bay as fill for either the Tecolote Creek or Cudahy Creek wetland restoration projects.

5.6.2 SITE GRADING AND CONSTRUCTION

The basic landform of the project is a flat-topped CLT nesting area with 20:1 side slopes that connect the nesting area to the beach shoreline and open bay water on the west and to the future North Fiesta Island wetlands restoration project in the east (Figure 8). A small, approximately 1-acre dune feature is located at the southern end of the preserve nesting area. The dune feature is a raised area with a maximum elevation of approximately 3 feet above the nest Preserve area. The dune location is intended to interrupt sightlines from public beach areas to the south into the Preserve.

The elevation of the nesting area is set at 12 feet NGVD 29. This elevation is 2 feet above future estimated sea level rise and ensures that the Preserve would be protected from rising sea levels for the next 80 years or more. Site elevations would be over excavated 2 feet deep to allow for the placement of appropriate coarse-grained sand and shells that are specified in the Upland PER (Dudek 2025c).

The grading project would export approximately 100,000 cubic yards of soil. All soil would be hauled to one of three designated stockpile sites on Fiesta Island via a temporary two-way haul route located in the center of the island to avoid conflicts with traffic on Fiesta Island Road to the greatest extent possible. Following soil export, the Preserve would be capped with a 24-inch uniform layer of clean imported coarse-grained sand mixed with shell fragments to reach the final design elevations. Coarse-grained sand is essential for successful Preserve operation because the loose coarse grain sand inhibits recruitment of vegetation in general, and for non-native vegetation specifically. The total cap would require 84,668 cubic yards of sand import.

To maintain the road circulation across the north central portion of Fiesta Island, approximately 840 linear feet of new road would be constructed south of the new Preserve to connect the east and west sides of the island and looped connection for Fiesta Island Road. Road base from the demolished section of Fiesta Island Drive may be reused to build this new section of Fiesta Island Road.

A temporary Preserve boundary site protection fence would be installed after all site grading is complete and design elevations have been established (see Section 4.6.5 for the project phasing plan). The fence would be a 6-foot-tall chain-link fence with anti-perching devices to exclude raptors and other avian predators. An on-grade unpaved road and 12-foot-wide locking vehicular gate would be installed on the south boundary to allow for maintenance and monitoring access. The temporary site protection fence would follow the top of slope and extend 50 feet into the bay water or to a point where high tides cover 5 feet of the fence height. The end post of the fence would be painted with red and white color bands and fitted with a City-approved navigational device to warn boaters of a navigational hazard.

5.6.3 PLANTING PLAN

The small dune feature would be stabilized with Southern Foredune vegetation to reduce sand movement. Vegetation is limited to this area of the Preserve to maximize potential CLT nesting habitat and to limit the extent of vegetation that may be used for cover by predators. Approximately 0.69 acres of Southern Foredune would be installed on the dune feature per Table 8. Plant installation methods as described in Section 4.5.11 would be used. The planning layout would be provided by the Project Biologist on site.

5.6.4 IRRIGATION

Temporary irrigation would be provided by water truck and handheld hose. Plants would be irrigated weekly though the application of approximately 5 gallons of water per plant for the first 3 months post-installation. Thereafter, the Project Biologist and Contractor would determine the frequency and amount of water to be applied to each installed plant for the balance of the year. At

the end of the first-year post-construction, the Project Biologist would determine any further irrigation that is needed to establish those plants that are not self-sustaining.

5.6.5 SCHEDULE AND PHASED INSTALLATION

Due to the integrated design of the Preserve and North Fiesta Island wetlands restoration project areas and the likelihood that Preserve construction would occur in advance of the wetlands restoration area, the Preserve would be constructed in two construction phases:

Phase 1

Phase 1 would include Preserve grading. However, the Phase 1 limit of grading on the eastern project boundary would terminate at a 2:1 slope that connects to the higher existing elevations to the east and slopes into the Preserve. The toe of the temporary 2:1 slope would coincide with the top of the future 20:1 side slope that would be built in conjunction with the North Fiesta Island wetlands project.

Other phase 1 activities would include planting and establishment of southern foredune vegetation, construction of a temporary site protection fence, and maintenance road and access gate.

Phase 2

Phase 2 construction of the Preserve would happen concurrently with construction of the North Fiesta Island wetlands restoration project. During Phase 2 construction, the Easterly 20:1 side slope into the North Fiesta Island wetlands would be graded as part of the wetlands project. Phase 2 grading would remove the temporary 2:1 back slope of the Preserve to be replaced with the final 20:1 slope. Construction of the wetlands restoration project would include dredging a subtidal channel across Fiesta Island, south of the Preserve. Phase 2 construction would provide for a vehicular bridge over the tidal channel that is rated for H-20 loading for future replenishment of the sand cap.

The temporary Preserve protection fence would be removed and a permanent Preserve protection fence would be installed parallel to and south of the new tidal channel, immediately north of the realigned Fiesta Island Road. The new fence location would allow for a bike lane and road shoulder along Fiesta Island Road for cyclist safety. The permanent fence would be built with anti-perching devices and would extend into bay water at both ends like the original temporary fence with the same navigational warning devices. A chain link swing gate would be installed at the southerly end of the maintenance and monitoring access bridge. The gate would be normally locked. Signage would be placed on the fence and where the fence crosses the public beach on the west that identifies the site as a CLT Preserve – No Trespassing.

All the final graded 20:1 slopes into the wetland restoration site are planned to be open sand and would be over excavated and capped with appropriate coarse-grained sand and shell fragments to match the Preserve cap.

5.7 SAN DIEGO RIVER – SITE 5A CLOVERLEAF

The Cloverleaf site would restore 6.33 acres and enhance 5.18 acres of Coastal Strand habitat and enhance 0.96 acres of coastal salt marsh vegetation (Figure 9, Habitat Expansion/Enhancement Sites #5a [San Diego River/Sea World Drive]). Low-lying areas of the site currently present hyper-saline soil conditions with seasonal flooding that support unvegetated salt flats. The project would increase the elevation of low-lying areas through placement of appropriate sand material as substrate for Coastal Strand habitat. Existing degraded Coastal Strand habitat and salt (alkali) marsh vegetation would be enhanced through weed removal/control and planting/seeding with Coastal Strand and salt marsh plat/seed palettes.

5.7.1 SITE PREPARATION

All non-native vegetation would be removed to prepare the site for planting and seed installation. A portion of the existing chain link fence would be removed from across the middle of the site. A new perimeter fence would be installed to provide long-term site protection.

5.7.2 SITE GRADING

Areas of the project site have been identified for placement of excavated sandy soils from North Fiesta Island to elevate low-lying areas of the site that would limit seasonal inundation and interrupt evaporation that has resulted in hypersaline soils. Areas to receive sand placement would be gently scarified. Sand would be placed 1 to 4 feet thick within selected areas (Figure 9) as a gently undulating landform.

5.7.3 PLANTING PLAN

Plant palettes for Coastal Strand (Table 6) and coastal salt marsh (Table 7) would be installed on the site following site preparation and grading. The planting layout would be performed by the Project Biologist based on post site preparation conditions within enhancement areas. Enhancement would consist of installing container plants and seed only within areas where non-native vegetation was removed and soil disturbance occurred. No planting or seeding would occur where existing native vegetation is present. All graded areas would be restored through installation of container plants and the prescribed seed mix.

5.7.4 IRRIGATION

A temporary drip irrigation system would be installed to provide supplemental water through the first two years of post-construction monitoring. The system would use available nearby water mainlines as a water source. The system would have a central controller or battery-operated programmable irrigation valves. Main and lateral irrigation lines would be installed on-grade to minimize soil disturbance.

5.8 TRIANGLE ENHANCEMENT AREA

The triangle enhancement area is a former restoration site that has become degraded with non-native vegetation likely due to the lack of maintenance funding and a regulatory maintenance requirement (Figure 10, Habitat Expansion/Enhancement Sites #5b and #5c [San Diego River/Sea World Drive]). The area was previously restored by the San Diego Audubon Society as Diegan Coastal Sage Scrub. Enhancement of the triangle area would include weed removal and control and installation of a native Diegan Coastal Sage Scrub seed mix to promote native species recruitment (Table 9). Key to the successful enhancement of the area would be ongoing weed control maintenance and adaptive measures as generally described in Section 5.0. In addition to diligent weed control, reseeding would likely be required as an adaptive measure to achieve native vegetative cover that is resilient and resistive to non-native vegetation recruitment.

5.9 SOUTH SHORE RESTORATION SITE

The South Shores Restoration site supports the largest population of Nuttall's lotus (*Acmispon prostratus*) in Mission Bay Park. Two alternatives are presented in this CHRMP that respond to two potential scenarios for the South Shores site. Figure 10 depicts a broad habitat restoration and enhancement program that would restore and enhance 21.89 acres of Diegan Coastal Sage Scrub vegetation, restore 18.67 acres of new Coastal Strand vegetation, and enhance 11.02 acres of Southern foredune vegetation. A second scenario considers the potential for most of the western portion of the site to serve as recreational park amenities. In this scenario, only the area occupied by Nuttall's lotus and a 50-foot-wide buffer around this Nuttall's lotus population would be enhanced (Figure 11, Habitat Expansion/Enhancement Site #5c [South Shores Restoration Site] – Nuttall's Acmispon Preserve Option Only).

5.9.1 SITE PREPARATION

Prior to site preparation activities, the Project Biologist would flag in the field the full known extent of the Nuttall's lotus population and a 50-foot-wide buffer. Only workers on foot with hand tools would be allowed within this area to prepare the site for planting and seeding.

Site preparation would include weed biomass removal and treatment of non-native vegetation on the site. Areas to be graded would be lightly scarified no more than 4 inches deep due to the presence of an old landfill beneath this site. All non-native vegetation would be disposed of offsite at a legal location and facility.

5.9.2 SITE GRADING

Site grading would only occur in the first restoration scenario for the South Shores site. Site grading would involve the import of sandy soils from the North Fiesta Island stockpile areas and placement in a configuration that resembles low, gently undulating dune features. The site is a gateway for Mission Bay Park visitors that arrive via Interstate 5 and Sea World Drive. As such, the dune features are designed to be low profile landforms that do not block views of Mission Bay for motorists on Sea World Drive. Figure 10 presents a preliminary grading plan that shows the extent and height of grading. Approximately 75,302 cubic yards of sand are required to create a dune feature that is 1 to 4 feet above the existing land surface. The placement of soil would increase the landfill cap thickness and provide additional protection for the buried material. The design configuration of the landform acknowledges the westerly winds that sweep across Mission Bay to reach the restoration site.

5.9.3 PLANTING PLAN

Plant palettes for Coastal Strand (Table 6), Southern foredune (Table 8) , and Diegan Coastal Sage Scrub (Table 8) would be installed onsite to promote target vegetation community establishment and enhancement. Planting and seeding would occur over the entire area of graded restoration areas. Container planting and seed installation in enhancement areas would occur only where non-native vegetation removal and soil disturbance has occurred during site preparation activities. Container plant installation and seed applications would follow installation methods described in Sections 4.5.11 and 4.5.12, respectively. No planting is proposed within areas occupied by Nuttall's lotus. However, buffer areas around occupied sites would be fully restored to Diegan Coastal sage scrub to act as a buffer to potential edge effects that could diminish the population or create ecological stressors that may reduce reproductive success.

In the scenario where only the Nuttall's lotus population and a buffer area is adopted for the site, only the buffer area would receive container plan installation and a seed mix for Diegan Coastal Sage Scrub vegetation.

5.9.4 IRRIGATION

A temporary drip irrigation system would be installed to provide supplemental water through the first two years of post-construction monitoring. The system would use available nearby water

mainlines as a water source. The system would have a central controller or battery-operated programmable irrigation valves. Main and lateral irrigation lines would be installed on-grade to minimize soil disturbance.

6 MAINTENANCE PROGRAM

Maintenance activities would begin upon completion and approval of installation work. The Restoration Contractor's maintenance activities would be performed as indicated herein and as necessary to meet the established performance standards.

6.1 120-DAY PLANT ESTABLISHMENT PERIOD

During the first 120 days following completion of installation, the Restoration Contractor would be responsible for the health and mortality of the installed plant material. The Project Biologist would visit the restoration area at 30, 60, 90, and 120 days during this plant establishment period (PEP; Table 10). At the 90-day visit, the Project Biologist would observe site conditions and seed germination and would provide a punch-list of replacement plants for the Restoration Contractor. Generally, plants would be recommended for in-kind replacement; however, the Project Biologist may recommend alternative species if it is suspected that the site is unsuitable for certain species. Plants noted for replacement would be installed prior to the 120-day walk-through with the Project Biologist. Plants must be in the ground at least 30 days prior to completion of the PEP. At the 120-day PEP, the Restoration Contractor is responsible for guaranteeing that the installed plant material would have a 100% survival rate. As a part of this period, the Restoration Contractor who performs the installation is contractually obligated to guarantee their workmanship and perform remedial measures to fix any observed problems as necessary before the 120-day PEP is considered complete and the work transitions into the 5-year maintenance and monitoring period. The following criteria must be met for the 120-day PEP to be considered successful:

1. Areas should be relatively free of weeds (0% cover of California Invasive Plant Council Inventory weed species and less than 10% cover of all other weed species).
2. Areas free of debris.
3. No erosion or trash.
4. 100% survivorship of container plants.

Table 10. Plant Establishment Period Maintenance Schedule

Work Task	1–30 Days	31–60 Days	61–90 Days	91–120 Days
Weed abatement	X	X	X	X
Plant replacement	As needed	As needed	As needed	As needed
Supplemental water	X	X	X	X
Erosion control	X	X	X	X
Pest and herbivory control	X	X	X	X

Table 10. Plant Establishment Period Maintenance Schedule

Work Task	1–30 Days	31–60 Days	61–90 Days	91–120 Days
Site cleanup and maintenance	X	X	X	X

6.2 MAINTENANCE ACTIVITIES AND SCHEDULE

Maintenance activities would be directed by the Project Biologist to correct any deficiencies. Following the 120-day PEP, during the first year following completion of installation, general site maintenance visits would be conducted monthly; Years 2 and 3 would be conducted monthly for January through June and quarterly thereafter; and Years 4 and 5 would be quarterly maintenance (Table 11). Regardless of the schedule below, more frequent maintenance would be performed if needed to meet the performance standards indicated herein.

Table 11. Five-Year Maintenance Schedule

Task[a]	Year 1	Year 2	Year 3	Year 4	Year 5
Weed and Pest Control[b]	Monthly	Monthly (Jan–June); quarterly thereafter	Monthly (Jan–June); quarterly thereafter	Quarterly	Quarterly
Plant Replacement[c]	As Needed; conducted in Oct–Dec	As needed; conducted in Oct–Dec	As needed; conducted in Oct–Dec	As needed; conducted in Oct–Dec	As needed; conducted in Oct–Dec
Supplemental Water[c]	As needed	As needed	As needed	As needed[c]	As needed[c]
General Site Maintenance	Monthly	Monthly (Jan–June); quarterly thereafter	Monthly (Jan–June); quarterly thereafter	Quarterly	Quarterly
Erosion Control and Sedimentation	Monthly	Monthly (Jan–June); quarterly thereafter	Monthly (Jan–June; quarterly thereafter	Quarterly	Quarterly
Trash Removal	Monthly	Monthly (Jan–June); quarterly thereafter	Monthly (Jan–June); quarterly thereafter	Quarterly	Quarterly

Notes:

[a] Maintenance task schedule and frequency would be adjusted, as appropriate, depending on site conditions and in coordination with the Project Biologist. It is anticipated that more intensive maintenance would occur during the first few years and taper down as the work approaches Year 5.

[b] Any maintenance performed during the nesting season (January 15 through September 15) would be conducted under the direction of the Project Biologist.

[c] Only to be performed as needed during the first 3 years of the 5-year program, depending on site conditions. No supplemental watering would occur for 2 years prior to completion of the maintenance and monitoring period.

6.3 WEED MANAGEMENT

The Restoration Contractor would coordinate with the Project Biologist to identify weeds for removal as needed. The Project Biologist would flag areas and/or locations of individual sensitive plants such as Nuttall's lotus prior to any weed control activities.

Non-native plant control measures would primarily include the application of approved herbicides. Mechanical or hand control methods would be used where herbicide cannot be used, or the level of weeds does not warrant the use of herbicides. Should mechanical or hand control methods be used, weeds would be pulled and/or cut when plants are 6–12 inches tall or when they can be positively identified, and prior to the formation of seed heads.

Chemical herbicide control would be used for both annual and perennial species. Herbicide treatments must be pre-approved by the Project Biologist, and City Park and Recreation Department and applied by a licensed or certified pest control applicator. Application of herbicide would be suspended should precipitation be expected to occur within 24 hours of application and/or if wind exceeds 5 miles per hour. Specific herbicide application rates and methods would be based on manufacturer specifications and would follow the general guidelines summarized in Section 6.5.8, Weed Control.

Table 12 shows the non-native plant species that would be targeted during site preparation and maintenance, as well as potential methods for removal and control. The species list in Table 12 is not comprehensive, and other species may be added to the list by the Project Biologist during restoration.

Table 12. Non-Native Plant Target Species and Treatments

Weed Species			Potential Control Methods				
Botanical Name	*Common Name*	**Maintenance Goal**	*De-Thatch*	*Herbicide*	*Hand Pull*	*Mowing*	*Cut and Treat*
Amaranthus Albus	Prostrate Pigweed	Eliminate		X	X		
Brassica nigra	black mustard	Eliminate	X	X	X	X	
Bromus hordeaceus	softchess brome	Control	X	X	X	X	
Bromus madritensis	compact brome	Control	X	X	X	X	
Bromus rubens	red brome	Control	X	X	X	X	
Cakile maritima	*European sea rocket*			X	X	X	
Carpobrotus edulis	hottentot-fig	Eliminate		X	X		X
Centaurea melitensis	star-thistle	Control	X	X	X	X	
Cortaderia selloana	Pampas grass	Eliminate		X		X	X
Cynodon Dactylon	Bermudagrass	Control		X			
Emex spinosa	*Devil's thorn*			X	X	X	
Erodium botrys	broad leaf filaree	Control	X	X	X	X	
Eucalyptus spp.	eucalyptus	Eliminate		X	X		X
Euphorbia Maculata	Spotted Sandmat	Eliminate		X	X		
Foeniculum vulgare	sweet fennel	Eliminate		X	X		
Hypochaeris glabra	smooth cat's ear	Control	X	X	X	X	X
Lactuca Serriola	Prickly Lettuce	Eliminate		X	X		
Limonium Perezii	Perez's Sea Lavender	Eliminate		X	V		
Mesembryanthemum Crystallinum	Common Iceplant	Eliminate			X		

Table 12. Non-Native Plant Target Species and Treatments

Weed Species		Maintenance Goal	Potential Control Methods				
Botanical Name	*Common Name*		*De-Thatch*	*Herbicide*	*Hand Pull*	*Mowing*	*Cut and Treat*
Nicotiana glauca	tree tobacco	Eliminate		X		X	X
Salsola tragus	tumbleweed	Eliminate					
Schinus terebinthifolius	Brazilian pepper tree	Eliminate		X			X
Sonchus oleraceus	common sowthistle	Eliminate	X	X	X	X	X
Tamarix ramosissima	saltcedar	Eliminate		X			X

6.4 PEST AND HERBIVORY MANAGEMENT

If any plant diseases or pests become significant enough to warrant control, the Restoration Contractor would consult with the Project Biologist along with a licensed pest control adviser for specific control measures, which would be conducted following all applicable laws, regulations, label directions, and safety precautions, as well as in coordination with the citywide Integrated Pest Management Plan. Pest control would be performed by the Restoration Contractor using the least toxic method available, such as washing pests off plants with a strong stream of water, using insecticidal soap, or installing plant protection devices.

Some herbivory (grazing and browsing) is expected to occur within the restoration area. However, the Restoration Contractor would confer with the Project Biologist if significant plant mortality and/or reduction in overall cover occurs. Remedial measures, such as browse guards (plastic fencing/wire cages) or plant collars (collars made of plastic, peat, or paper), may be installed around the base of young shrub plants in affected areas to reduce plant mortality.

6.5 GENERAL SITE MAINTENANCE

Pruning or clearing of native vegetation would generally not be allowed within the restoration area except as directed by the Project Biologist. Native dead biomass and plant litter would not be removed and would be left in place unless its removal is required for a specific management objective. Native organic biomass and leaf litter provide valuable microhabitats for terrestrial invertebrates, reptiles, small mammals, and birds. In addition, the decomposition of plant material is essential for the replenishment of soil nutrients and minerals. Fertilizers would not be used unless deemed necessary by the Project Biologist to rectify a specific nutrient deficiency.

Trash would be removed from the restoration area by the Restoration Contractor on a regular basis. Trash consists of all anthropogenic materials, equipment, or debris dumped, thrown, washed, blown, or left within the restoration area.

6.6 EROSION AND SEDIMENTATION

BMPs are not anticipated to be needed after vegetation has established in the restoration area. However, temporary BMPs, such as burlap fiber rolls, silt fence, and burlap gravel bags, would be maintained as needed for proper function until the restoration area has reached Year 3, or until the Project Biologist has deemed the BMPs unnecessary. Once the restoration area is stabilized by native vegetation, the Restoration Contractor would remove and dispose of temporary BMPs. If, after Year 3, there is active erosion or sedimentation within or directly adjacent to the restoration area, the Project Biologist would use the methods and protocols set forth under Chapter 7, Adaptive Management Plan, of this Upland CHRMP.

6.7 FENCING AND SIGNAGE

Temporary fencing would be maintained along trails adjacent to the restoration area and any open space areas that would otherwise be accessible to the public for the duration of the 5-year maintenance and monitoring period. Permanent maintenance of the fence would be required as site protection for the restoration area. For most restoration areas, a rope and post fence with signage is sufficient indication to the public that entry is restricted. A 6-foot-tall chain-link fence with avian anti-perch devices would be maintained around the CLT preserve until the adjacent North Fiesta Island wetlands restoration project is complete. Maintenance to temporary and permanent fence and sign would require period annual monitoring to identify sections of degraded and/or vandalized fence that requires replacement. The Project Biologist and City Park and Recreation staff would monitor site protection fence and direct maintenance, as needed. Maintenance would include repair of fencing and signage, and replacement as needed. The Restoration Contractor would confer with the Project Biologist if it appears that maintenance needs of the restoration area indicate that changes in the specified location, materials, or methods of fencing need to be altered to meet their intent and to provide appropriate site delineation and protection.

6.8 IRRIGATION

Maintenance and operation of the temporary irrigation system would be the responsibility of the Restoration Contractor in consultation with the Project Biologist. All equipment would be maintained in optimum condition to provide uniform irrigation distribution across the irrigated area. Drip emitters and piping would be monitored for integrity and proper operation. Equipment would be replaced when not operating as designed.

Irrigation system operation would involve proper programming of irrigation controllers/valves to promote reliable system operation and delivery of supplemental water to each installed/irrigated plant. The Restoration Contractor would consult with the Project Biologist to discuss seasonal change to the irrigation program to promote plant survival and reproductive success.

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7 MONITORING PROGRAM

The Project Biologist would perform restoration area monitoring during implementation through Year 5 to ensure the restoration program requirements are adhered to, to document the restoration effort and progress toward the adopted annual performance standards and to ensure that site maintenance is adequately performed by the Restoration Contractor.

Monitoring would consist of qualitative monitoring and quantitative (transect) monitoring. The monitoring methods for the restoration program would be conducted as outlined below.

7.1 REFERENCE SITE

If restoration is implemented with the goal of compensatory mitigation, a reference site(s) would be identified from nearby habitat areas that are self-sustaining and are representative of the target vegetation community of the restoration site. Reference sites would be used to develop vegetative performance standards including vegetative cover and species diversity that would be used to guide the restoration project. Performance criteria values should be approximately 70% of reference site data to be met at the end of the 5-year monitoring period. The reference site may also be used to compare restoration site response to ambient environmental conditions with the response of the reference site to determine if changes at the restoration site are comparable to the reference site. A justification for the selected reference site(s) and limitations for comparisons to reference sites (relative, not direct, comparisons) would be provided in the first annual monitoring report. The reference site(s) would be used to determine if progress of the restoration area is consistent with response of the reference sites to prevailing weather and environmental conditions.

7.2 MONITORING AND REPORTING SCHEDULE

Monitoring would consist of monthly qualitative site visits for the 120-day PEP and Year 1, monthly for Years 2–3 for January through June; and quarterly for Years 4 and 5 (Table 13). Qualitative monitoring would be conducted by the Project Biologist to determine if the site is on trajectory to meet the annual performance standards. If restoration efforts fail to meet the performance standards in any given year, the Project Biologist would recommend remedial actions to bring the restoration area into alignment with the performance standards.

Table 13. Monitoring and Reporting Schedule

Task	120-Day PEP	Year 1	Year 2	Year 3	Year 4	Year 5
Qualitative Monitoring	At 30-, 60-, 90-, and 120-day PEP	Monthly	Monthly (Jan–June); quarterly thereafter	Monthly (Jan–June); quarterly thereafter	Quarterly	Quarterly

Table 13. Monitoring and Reporting Schedule

Task	120-Day PEP	Year 1	Year 2	Year 3	Year 4	Year 5
Quantitative (Transect) Monitoring	N/A	Annually in spring	Annually in spring	Annually in spring	Annually in spring	Annually in spring
Reporting	As-built; site observation; 120-day PEP	Site observation annual (Jan)	Site observation; annual (Jan)	Site observation; annual (Jan)	Site observation; annual (Jan)	Site observation; annual (Jan)

Note: PEP = plant establishment period; N/A = not applicable.

7.3 AS-BUILT REPORT

Within 45 days of successful completion of the project installation, the Project Biologist would submit a post-construction memorandum to the City of San Diego Environmental Designee and Parks and Recreation Open Space Division documenting the completion of the irrigation installation, container plant installation, and hydroseed application describing the "as-built" conditions of the restoration area. The report would include a copy of the reduced set of construction drawings and a figure showing the final "as-built" limits of the restoration area. Photographs would be included in the "as-built" report to document the site at the completion of the initial phase of implementation. The As-Built Report would include the following:

- Date(s) work was initiated and completed.
- Summary of compliance work completed during implementation.
- Color photographs (including maps of photo points) taken at the restoration area before and after construction.
- One copy of the "as-built" drawings for the restoration area.
- Schedule for future monitoring and reporting.

7.4 120-DAY PLANT ESTABLISHMENT PERIOD AND REPORT

Initial survival of the native plants installed within the restoration area would be evaluated after a 120-day PEP. This period would start after planting is completed and conclude after the 120-day period and upon the acceptance of successful establishment of the restoration area.

The Restoration Contractor would be responsible for the health and mortality of the installed plant material. The Project Biologist would visit the restoration area at 30, 60, 90, and 120 days during the PEP. The Project Biologist would coordinate with the Restoration Contractor to replace any native plants that have died during the PEP. Generally, plants would be recommended for in-kind

replacement; however, the Project Biologist may recommend alternative species if it is determined that the site is unsuitable for certain species. Plants noted for replacement would be installed prior to the 120-day walk-through with the Project Biologist. Plants must be in the ground at least 30 days prior to completion of the PEP.

The following criteria must be met for the 120-day PEP to be considered successful, the results of which would be documented in the 120-day PEP report:

- All target exotics removed or killed in place.
- Areas free of debris and trash.
- Areas free of erosion.
- 100% survivorship of container plants.

The 5-year maintenance and monitoring program would begin after the 120-day PEP has been accepted. Maintenance activities would be conducted concurrent with the installation, would continue throughout the initial PEP, and would conclude at the end of the 5-year maintenance and monitoring period.

7.5 QUALITATIVE MONITORING

Qualitative monitoring of the restoration area would include native container plant health and vigor, relative native and non-native vegetation cover, presence of invasive plant species, need for replacement planting, seed germination, adequacy and operation of the irrigation system, plant pests, level of non-native plant infestation, site disturbance, wildlife usage, need for erosion repair, and need for trash removal. Remedial measures recommended by the Project Biologist would be reported to City and the Restoration Contractor for immediate consideration and implementation.

Following each site visit, the Project Biologist would generate a brief Site Observation Report indicating the condition of the site and any maintenance and/or remedial actions needed to help ensure the restoration program meets its annual performance goals. Although no focused wildlife surveys would be conducted, wildlife usage would be documented. Copies of the Site Observation Report would be provided to City and the Restoration Contractor.

7.6 QUANTITATIVE MONITORING

Quantitative monitoring would be used to assess vegetation establishment within the restoration areas. Annual quantitative monitoring would be conducted in the spring of each monitoring year to record as many species as possible. Restoration and reference transect

locations would be established by the Project Biologist during the first year after installation completion in representative locations. The goal of the transect placement is to capture data "representative" of the larger context the transect results are meant to represent. The specific placement of the individual transect would be randomized within a given vegetation community to control for bias; however, the general representative area of the vegetation community would be determined by Project Biologist. At a minimum, two transects per acre of restoration area would be established, proportioned by as built restoration acreages.

When quantitative data is required, two permanent transects within the reference site would be used to sample vegetative data collection at the time of performance standard preparation. These transect data would form the basis of restoration site performance standards with adoption of approximately 70% of reference site quantitative data for vegetation cover and species diversity as the final performance standard for the end of the 5-year monitoring period. Additional data collection from the reference site would not be performed except in instances where meaningful change to reference site conditions in response to changes in environmental conditions may alter the final performance standards.

Transect beginning and end points would be permanently marked by two 4-foot-tall metal T posts driven into the ground, and GPS coordinates recorded for each position. Transects would be sampled using the point-intercept method, which is a modification of the line-intercept method (Canfield 1941). To collect data, a transect tape would be run between two posts 25 meters (82 feet) apart (or an appropriate length determined by the Project Biologist based on spatial feasibility of the polygon). A vegetative transect intercept line would be visually projected above and below the tape at every 0.5-meter (1.6-foot) mark for a total of 50 intercepts per transect for a 25-meter transect. Each herb, shrub, and tree that intercepts the projected line would be recorded by species. Due to the potential for vegetation to overlap in each strata layer at a given sample point, more than one plant may be recorded per sample point. This can result in a greater number of plant occurrences recorded than the total number of sampling points. To address this overlap, data would be recorded as "absolute cover" in addition to "relative cover." All species occurring within a 4-meter (13-foot) species richness belt, 2 meters (6.6 feet) on either side of the transect tape, would be recorded for inclusion in species richness data.

Native cover, non-native cover, and species richness would be calculated for the restoration area and compared to the success criteria annually. All data would be used to determine total percent plant cover, percent native cover, percent non-native cover, and overall species richness. Quantitative monitoring would be conducted once annually in the spring beginning in Year 1 and extending through Year 5 of the restoration program. Data regarding native cover for the restoration areas and reference sites would be averaged for the purpose of comparison. This would

allow the restoration areas to be compared to healthy native vegetation communities while accounting for natural fluctuations between years.

Permanent photo-documentation stations would be established along each transect to record the progress of quantitative data collection over the 5-year period. Additionally, photographs would be taken of any significant management issues or biological observations, including photographs of changing conditions within the restoration area. Photos from photo-documentation points and mapped locations would be included in annual reports.

7.7 ANNUAL RESTORATION MONITORING REPORTS

An annual biological monitoring report outlining the results of the progress of the restoration area would be prepared by the Project Biologist and submitted to the City and the City of San Diego Environmental Designee and the Parks and Recreation Open Space Division at the end of each year on the anniversary date of completion of installation. The annual monitoring reports would describe the existing conditions of the restoration area derived from qualitative and quantitative data, provide a comparison of annual performance standards with field conditions, identify all shortcomings of the restoration program, and recommend remedial measures and/or adaptive management necessary for the successful completion of the restoration program. Each annual report would provide a summary of the accumulated data.

7.8 PERFORMANCE STANDARDS

Performance standard for vegetation cover are regarded as interim objectives designed to achieve the final restoration goals and would be used to assess the annual progress of the restoration program. Annual performance standards are provided to serve as a benchmark toward achieving the final success criteria and restoration goals. These interim performance targets would be used to assess the progress of the restoration program each year.

Monitoring would be conducted qualitatively and quantitatively by the Project Biologist to determine if the restoration area is meeting the established criteria. Table 14 provides a summary of performance standards that would apply to each of the proposed upland restoration projects. Tables 15 through 18 summarize the annual performance standards criteria through Year 5. If the restoration area fails to meet the performance standard in any given year, the Project Biologist would recommend remedial actions to bring the restoration area into a level of satisfactory establishment.

Table 14. Project Site Performance Standard Requirements

Site ID	Assigned Performance Standards			
	Diegan Coastal Sage Scrub (Table 15)	*Coastal Strand (Table 16)*	*Southern Coastal Foredune (Table 17)*	*Non-Tidal Salt Marsh (Table 18)*
Site No. 1	X	X		X
Site No. 2			X	X
Site No. 3	X	X		X
Site No. 4 (CLT Preserve)			X	
Site No. 5a		X	X	X
Site No. 5b	X			
Site No. 5c	X	X	X	

Native cover of the restoration area is expected to be 70% or greater relative to the reference site by the end of Year 5, with native species richness of 10% or more, 10% or less absolute cover by general non-native species (such as annual weeds), and 0% absolute cover by perennial invasive species, as shown in Table 16. All non-native weed species would be controlled as part of the maintenance effort, including the high-ranked California Invasive Plant Council Inventory species. Transect data would be collected as absolute cover to capture density and stratum overlap, which can also be converted to relative cover for overall vegetation composition comparison.

Table 15. Diegan Coastal Sage Scrub Annual Performance Standards [a]

Year	Native Species Richness (Count)	Native Species Plant Cover (Relative to the Reference Site) (Percent)b	Container Plant Percent Survival[b]	Maximum Percent Total Non-Native Cover	Maximum Percent Perennial Invasive and Cal-IPC Inventory Species
1	5	20	100	20	0
2	6	30	90	20	0
3	7	50	80	10	0
4	9	60	80	10	0
5	10	70	80	10	0

Notes: Cal-IPC = California Invasive Plant Council.

[a] Higher performance standards may be required when compensatory mitigation is requested.

[b] In-kind natural recruitment of native vegetation through seedling germination can serve to compensate for container plant mortality.

Table 16. Coastal Strand Annual Performance Standards [a]

Year	Native Species Richness (Count)	Native Species Plant Cover (Relative to the Reference Site) (Percent)[b]	Container Plant Percent Survival[b]	Maximum Percent Total Non-Native Cover	Maximum Percent Perennial Invasive and Cal-IPC Inventory Species
1	3	10	100	10	0
2	4	15	90	10	0
3	5	25	80	5	0
4	5	35	80	5	0
5	6	45	80	5	0

Notes: Cal-IPC = California Invasive Plant Council.

[a] Higher performance standards may be required when compensatory mitigation is requested.

[b] In-kind natural recruitment of native vegetation through seedling germination can serve to compensate for container plant mortality.

Table 17. Southern Foredune Annual Performance Standards [a]

Year	Native Species Richness (Count)	Native Species Plant Cover (Relative to the Reference Site) (Percent)[b]	Container Plant Percent Survival[b]	Maximum Percent Total Non-Native Cover	Maximum Percent Perennial Invasive and Cal-IPC Inventory Species
1	3	10	100	10	0
2	4	15	90	10	0
3	5	20	80	5	0
4	5	20	80	5	0
5	6	20	80	5	0

Notes: Cal-IPC = California Invasive Plant Council.

[a] Higher performance standards may be required when compensatory mitigation is requested.

[b] In-kind natural recruitment of native vegetation through seedling germination can serve to compensate for container plant mortality.

Table 18. Non-Tidal Salt Marsh Annual Performance Standards [a]

Year	Native Species Richness (Count)	Native Species Plant Cover (Relative to the Reference Site) (Percent)[b]	Container Plant Percent Survival[b]	Maximum Percent Total Non-Native Cover	Maximum Percent Perennial Invasive and Cal-IPC Inventory Species
1	3	10	100	20	0
2	5	30	90	15	0
3	7	40	80	10	0
4	7	50	80	5	0
5	7	60	80	5	0

Notes: Cal-IPC = California Invasive Plant Council.

[a] Higher performance standards may be required when compensatory mitigation is requested.

[b] In-kind natural recruitment of native vegetation through seedling germination can serve to compensate for container plant mortality.

8 ADAPTIVE MANAGEMENT PLAN

An integral part of a successful restoration program is early detection of problems determining the cause(s) of those problems and attempting to correct those problems so that the restoration program achieves its objectives and ecological performance standards. If annual performance standards are not met for any given year in the 5-year restoration period and/or if the restoration program experiences a significant unexpected problem, the Project Biologist would prepare an analysis of the cause(s) of failure and would propose remedial actions in the annual report.

Adaptive management measures would include the use of qualitative data gathered in the field prior to and throughout the monitoring period to assess the effects of weeding maintenance, status of seed germination, and container plant health and cover within the restoration area. Following an event that causes damage to all or part of the restoration area, this data would be used in part to drive management considerations for the repair of damaged areas. Achieving the key goals of the restoration program and establishing a naturally functioning native habitat would be the focus of all adaptive management decisions.

If determined necessary, the Project Biologist, in consultation with City of San Diego staff, would prepare an analysis of the program's problems and propose remedial actions to correct the problems to meet the performance standards at the end of the 5-year maintenance and monitoring period. The maintenance and monitoring obligations would continue and/or alternative contingency measures and interim performance standards would be negotiated until the City of San Diego give final permit compliance/approval or approval.

Individual environmental stressors are discussed below, along with an anticipated range of management responses to correct any damage that may occur to the restoration area.

8.1 DROUGHT

Seasonal drought is a normal annual cycle in San Diego County. The seed mix has been designed with drought-tolerant plant species that are capable of withstanding seasonal fluctuations in available moisture. However, periods of extended drought could occur, including low seasonal rainfall and prolonged high temperatures that may negatively affect the restoration area (e.g., lower native cover, higher plant mortality, increased potential for pest infestations on site).

If drought conditions limit native vegetation development, an additional seed application may be considered to replenish the native seed bank to allow the restoration area to respond normally with the eventual return of rainfall and more favorable site conditions.

8.2 HERBIVORY

Some grazing and browsing by native herbivores is expected to occur. The plant palettes for each vegetation community have been designed to tolerate a moderate level of plant browsing. If browsing levels should become elevated (i.e., if significant plant mortality and cover reduction occurs) as indicated by qualitative monitoring of the restoration area, remedial measures would be implemented. Browse guards and plant collars may be installed around the base of trees and young shrub plants in affected areas to reduce plant mortality. In addition, remedial planting or seeding may be necessary, depending upon the stage of the restoration program.

8.3 FIRE

San Diego County experiences periodic wildfires on a regular basis. Vegetation communities native to the area are adapted to this periodic fire regime, with plant species possessing the ability to stump, sprout, or otherwise regenerate from underground plant material. Although fire is a co-evolutionary factor, it also presents the possibility for faster-growing, early successional non-natives to outcompete the recovering native species. In the event of fire affecting the restoration area, the Project Biologist would assess the post-fire conditions and provide adaptive management recommendations, including an increase in weed control management.

9 FINANCIAL ASSURANCES

The City is the owner and permittee of the Project and is financially responsible for implementation and management of the upland restoration area(s). Proposition C, which amended the City Charter by adding Section 55.2, designates the use of a portion of the lease revenue from Mission Bay Park for capital improvements in Mission Bay Park and for other regional parks. This fund is known as the Mission Bay Park Improvement Fund and would be used to fund this wetland restoration.

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10 COMPLETION OF RESTORATION

At the end of the fifth year, the final annual monitoring report would be submitted to the City of San Diego Environmental Designee and Parks and Recreation Open Space Division, including an evaluation of restoration program success. The report would determine if the performance standards of the restoration program have been achieved. Successful restoration would be considered to have been achieved when the restoration area is self-sustaining without supplemental irrigation or any substantial remedial activities for a minimum of 2 years. Following attainment of final performance standards, a vegetation mapping effort would be conducted to document site conditions and be included in the final annual report.

At the conclusion of the 5-year maintenance and monitoring period, or at such time that the restoration program has achieved the performance standards, the Project Biologist would inform the City of San Diego Environmental Designee and Parks and Recreation Open Space Division and request final sign-off/approval. A site review would be scheduled for all interested parties to review the restoration area to confirm final conditions. Upon written confirmation of restoration program success by the City of San Diego, the City would release all obligations associated with the project entitlements and long-term management by City of San Diego Parks and Recreation would commence, see section 10 for more details.

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11 MANAGEMENT ELEMENT

The Restoration site would be managed long-term by the City of San Diego Parks and Recreation Department in accordance with the MSCP Subarea Plan and/or a Long-Term Habitat Management Plan created as part of a subsequent project-specific restoration plan, and consistent with this Conceptual Habitat Restoration Monitoring Plan and future update to the Mission Bay Park Natural Resources Management Plan.

Prior to subsequent project-level approval and as part of the project-specific environmental review pursuant to CEQA, the conceptual habitat restoration and monitoring plan would be updated to reflect specific site protection, long term habitat management, and long-term habitat management funding mechanism.

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12 LONG-TERM MANAGEMENT

The overall goal of long-term management is to promote long-term viability of restoration area resources and surrounding habitat. Routine monitoring and minor maintenance tasks by City of San Diego Parks and Recreation personnel would be performed as part of Mission Bay Park normal operations, maintenance, and resource management to ensure the viability of the restoration area in perpetuity.

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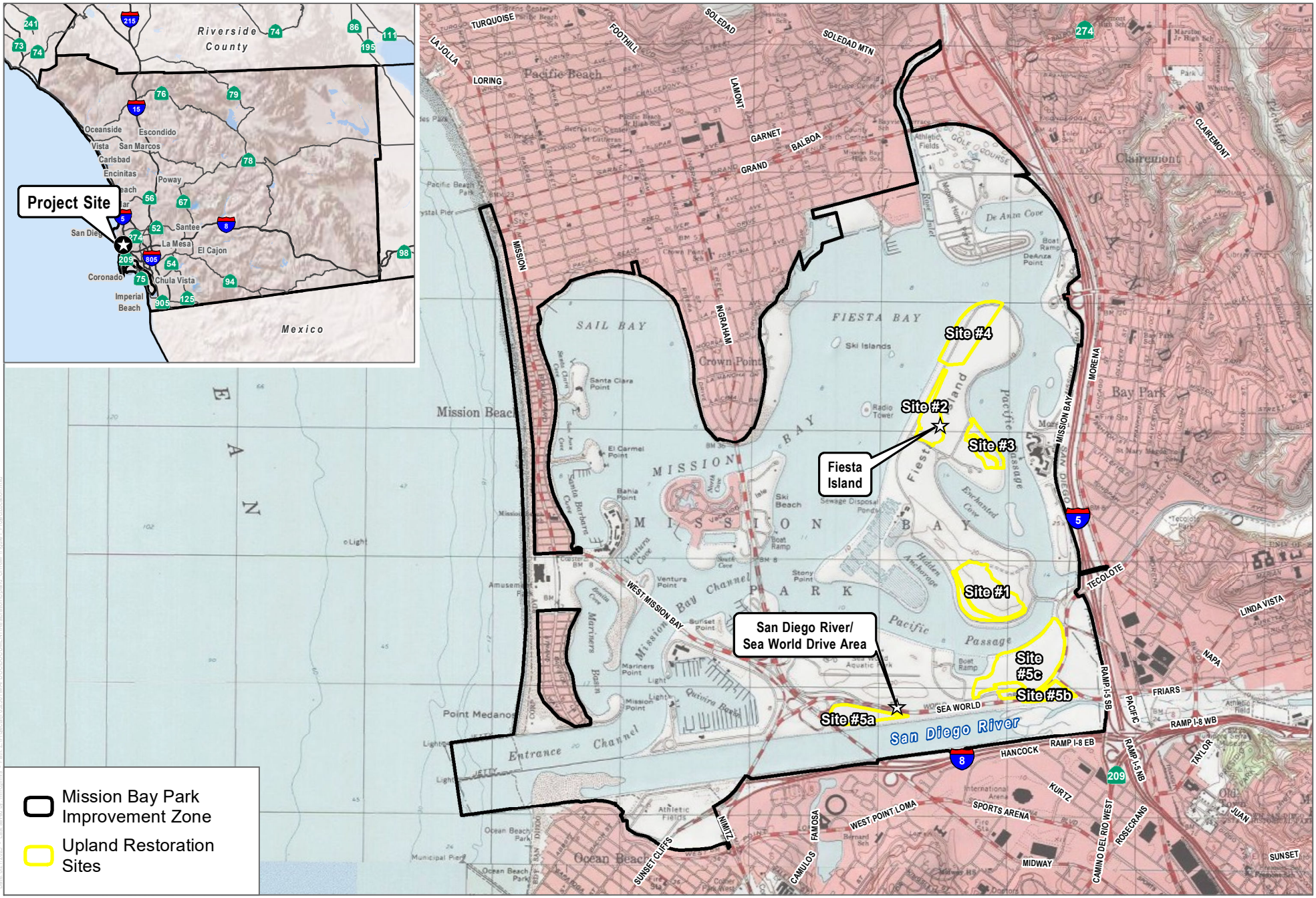

SOURCE: USGS 7.5-minute La Jolla Quadrangle

DUDEK

FIGURE 1

Project Location

Upland Conceptual Habitat Restoration and Monitoring Plan

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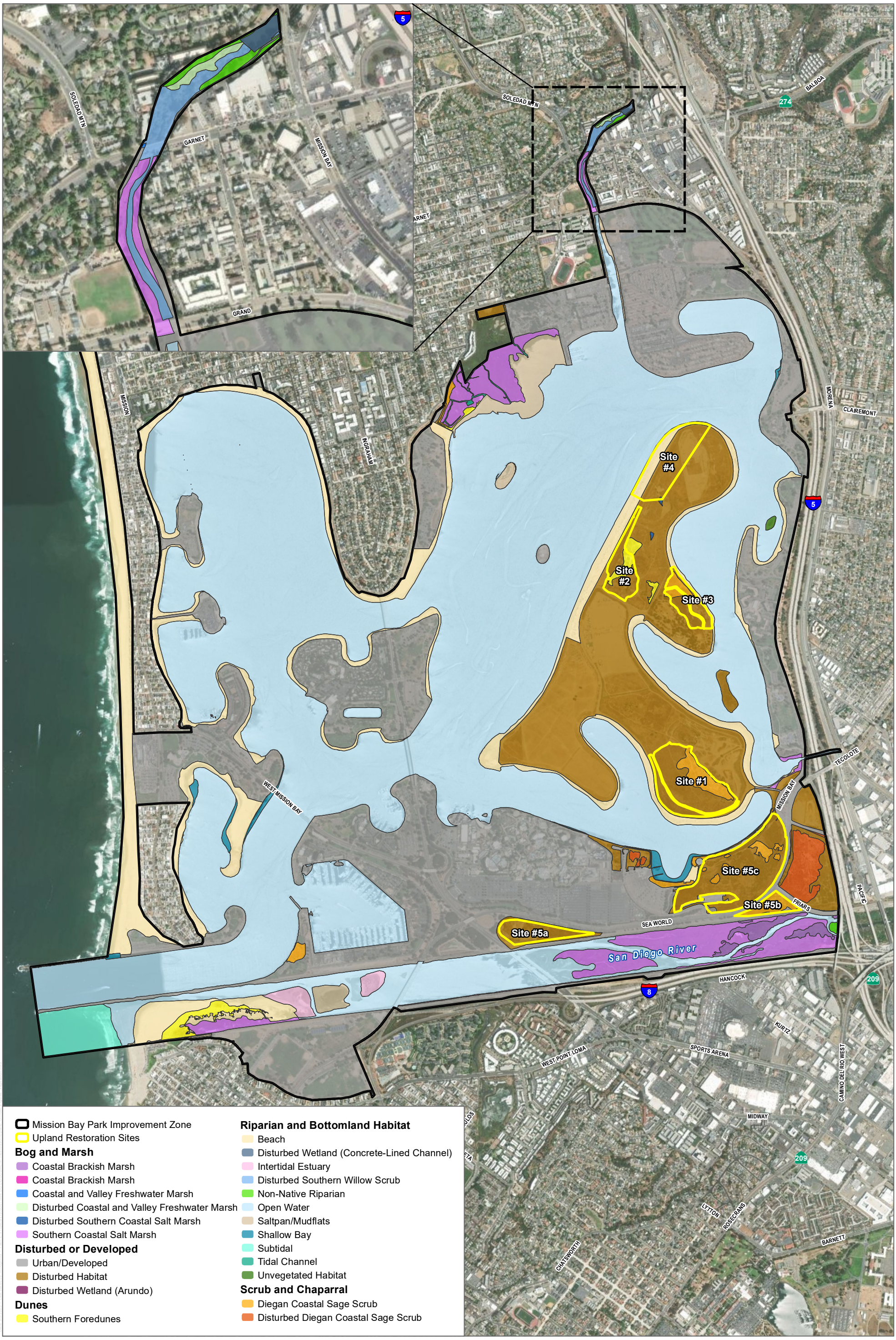

SOURCE: ESRI 2024; City of San Diego 2018

DUDEK

0 900 1,800 Feet

FIGURE 2

Existing Vegetation

Upland Conceptual Habitat Restoration and Monitoring Plan

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SOURCE: ESRI 2024; City of San Diego 2018; CNDDB 2025

DUDEK

0 900 1,800 Feet

FIGURE 3

Existing Sensitive Species and MHPA

Upland Conceptual Habitat Restoration and Monitoring Plan

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SOURCE: ESRI 2024; City of San Diego 2018

DUDEK

0 425 850 Feet

FIGURE 4

Habitat Expansion/Restoration Opportunities Site Reference Map

Upland Conceptual Habitat Restoration and Monitoring Plan

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Soil Sample Location

Informal Trails

Potential Haul Route

Original Proposed Upland Habitat Expansion Preserve Areas (Fiesta Island Concept Plan)

Existing Sand Replenishment Maintenance Area

Upland Habitat Expansion Restoration Treatments

Coastal Sage Scrub Restoration and Enhancement

Coastal Salt Marsh Enhancement

Coastal Strand Berm Revegetation

Vegetation Communities/Land Cover

BCH, Beach

DCSS, Diegan Coastal Sage Scrub

DEV, Urban/Developed

DH, Disturbed Habitat

OW, Open Water

SB, Shallow Bay

Special-status Plants

Lewis' evening-primrose

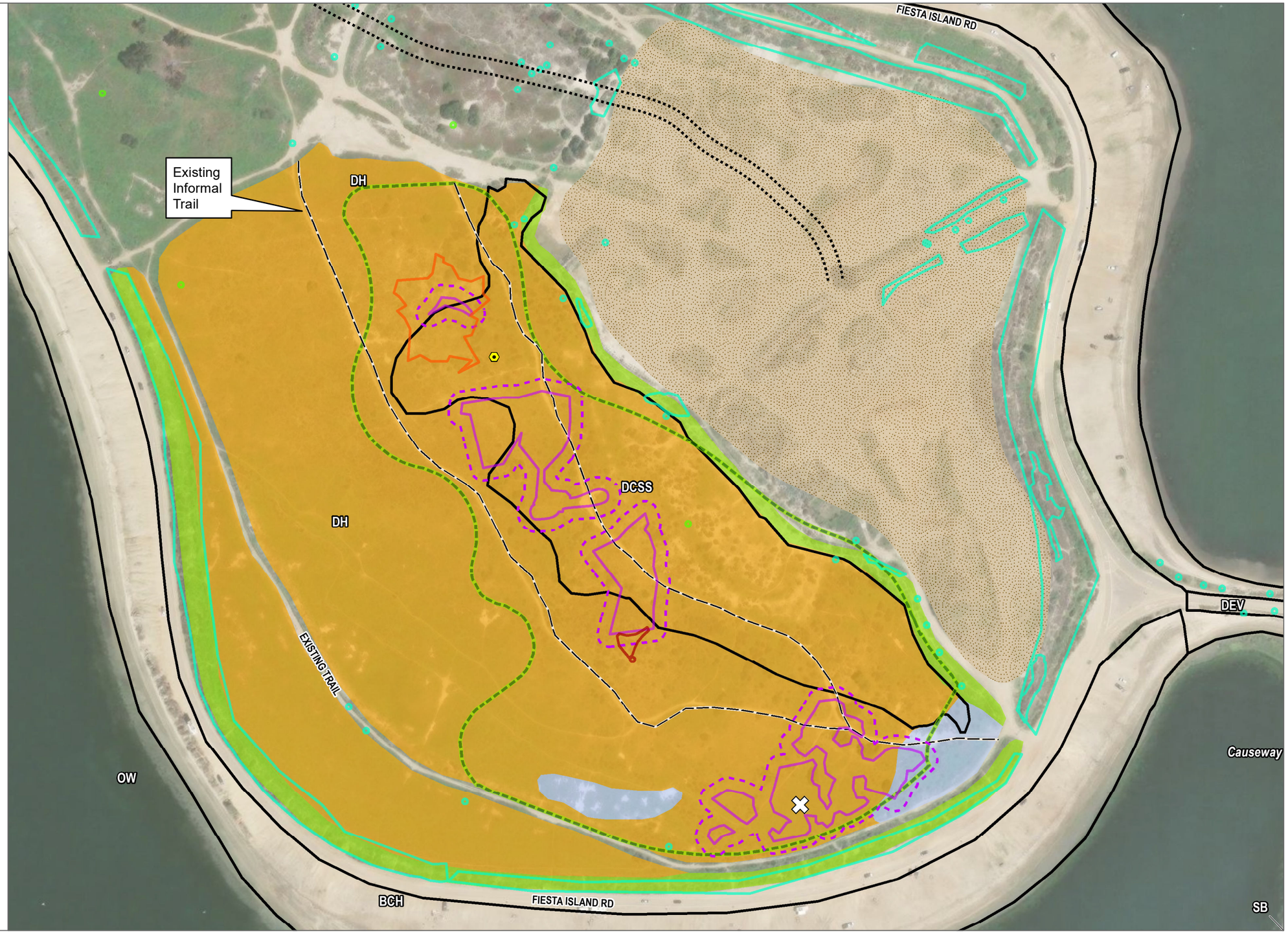
Robinson's pepper-grass

Coast woolly-heads

Woolly seablite

Nuttall's acmispon

Burrowing owl Location



SOURCE: ESRI 2024; City of San Diego 2018

DUDEK

0 100 200 Feet

FIGURE 5

Habitat Expansion/Enhancement Site #1 (Fiesta Island Southeast End)

Upland Conceptual Habitat Restoration and Monitoring Plan

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North Fiesta Island Stockpile Option 1

North Fiesta Island Wetland Restoration Project

Soil Sample Location

Proposed Grading Contours

Road

Informal Trails

Potential Haul Route

Toe of Berm

Original Proposed Upland Habitat Expansion Preserve Areas (Fiesta Island Concept Plan)

Upland Habitat Expansion Restoration Treatments

Coastal Sage Scrub Restoration and Enhancement

Non-Tidal Coastal Salt Marsh Enhancement and Revegetation

Coastal Salt Marsh/Wetland Revegetation and Enhancement

Sand Import/Coastal Strand Revegetation and Least Tern Enhancement

Southern Foredune Restoration

Vegetation Communities/Land Cover

BCH, Beach

DCSS, Diegan Coastal Sage Scrub

DH, Disturbed Habitat

OW, Open Water

SF, Southern Foredunes

dSCSM, Disturbed Southern Coastal Salt Marsh

Special-status Plants

Lewis' evening-primrose

San Diego Viguiera

Coast woolly-heads

Decumbent goldenbush

Red sand-verbena

Woolly seablite

Nuttall's acmispon

SOURCE: ESRI 2024; City of San Diego 2018

DUDEK

0 112.5 225 Feet

FIGURE 6

Habitat Expansion/Enhancement Site #2 (Fiesta Island North)

Upland Conceptual Habitat Restoration and Monitoring Plan

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North Fiesta Island Stockpile Option 1

Soil Sample Location

Proposed Grading Contours

Potential Haul Route

Original Proposed Upland Habitat Expansion Preserve Areas (Fiesta Island Concept Plan)

Upland Habitat Expansion Restoration Treatments

Coastal Sage Scrub Restoration and Enhancement

Non-Tidal Coastal Salt Marsh Enhancement and Revegetation

Sand Import/Coastal Strand Revegetation and Least Tern Enhancement

Vegetation Communities/Land Cover

BCH, Beach

DCSS, Diegan Coastal Sage Scrub

DEV, Urban/Developed

DH, Disturbed Habitat

OW, Open Water

SF, Southern Foredunes

Special-status Plants

Lewis' evening-primrose

Coast woolly-heads

Red sand-verbena

Woolly seablite

SOURCE: ESRI 2024; City of San Diego 2018

DUDEK 0 80 160 Feet

FIGURE 7

Habitat Expansion/Enhancement Site #3 (Fiesta Island North End Youth Camping Facility)

Upland Conceptual Habitat Restoration and Monitoring Plan

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North Fiesta Island Stockpile Option 1

North Fiesta Island Wetland Restoration Project

Soil Sample Location

Proposed Grading Contours

Temporary Down Slope

Road

CCC Approved Boundary/Temporary Site Protection Fence

Potential Haul Route

Toe of Berm

Coarse Sand with Shell Fragments

Upland Habitat Expansion Restoration Treatments

Southern Foredune Restoration

Vegetation Communities/Land Cover

BCH, Beach

DEV, Urban/Developed

DH, Disturbed Habitat

OW, Open Water

dSCSM, Disturbed Southern Coastal Salt Marsh

Special-status Plants

Lewis' evening-primrose

San Diego Viguiera

Woolly seablite

SOURCE: ESRI 2024; City of San Diego 2018

DUDEK

0 125 250 Feet

FIGURE 8

Habitat Expansion/Enhancement Site #4 (Fiesta Island North Central Portion)

Upland Conceptual Habitat Restoration and Monitoring Plan

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Proposed Grading Contours

Upland Habitat Expansion Restoration Treatments

- Non-Tidal Coastal Salt Marsh Enhancement and Revegetation
- Coastal Strand Revegetation and Enhancement
- Sand Import and Coastal Strand Enhancement Revegetation
- Vegetation Communities/Land Cover
  - DEV, Urban/Developed
  - DH, Disturbed Habitat
  - EST, Intertidal Estuary
  - OW, Open Water
  - SCSM, Southern Coastal Salt Marsh

SOURCE: ESRI 2024; City of San Diego 2018

DUDEK

0 120 240 Feet

FIGURE 9

Habitat Expansion/Enhancement Sites #5a (San Diego River/Sea World Drive)

Upland Conceptual Habitat Restoration and Monitoring Plan

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Soil Sample Location

Proposed Grading Contours

Informal Trails

Original Proposed Upland Habitat Expansion Preserve Areas (Fiesta Island Concept Plan)

San Diego Audubon Society Revegetation Area (San Diego River/Sea World Dr. Site #3a)

Upland Habitat Expansion Restoration Treatments

Coastal Sage Scrub Restoration and Enhancement

Coastal Salt Marsh Enhancement

Coastal Strand Berm Revegetation

Sand Import/Coastal Strand Revegetation and Least Tern Enhancement

Southern Foredune Restoration

Potential Nuttall's acmispon Expansion Area

Vegetation Communities/Land Cover

BCH, Beach

CBM, Coastal Brackish Marsh

DCSS, Diegan Coastal Sage Scrub

DEV, Urban/Developed

DH (Rip-Rap), Disturbed Habitat

DH, Disturbed Habitat

OW, Open Water

SB, Shallow Bay

SCSM, Southern Coastal Salt Marsh

dDCSS, Disturbed Diegan Coastal Sage Scrub

Special-status Plants

Lewis' evening-primrose

Torrey pine

Coast woolly-heads

Southwestern spiny rush

Woolly seablite

Nuttall's acmispon

SOURCE: ESRI 2024; City of San Diego 2018

DUDEK

0 125 250 Feet

FIGURE 10

Habitat Expansion/Enhancement Sites #5b and #5c (San Diego River/Sea World Drive)

Upland Conceptual Habitat Restoration and Monitoring Plan

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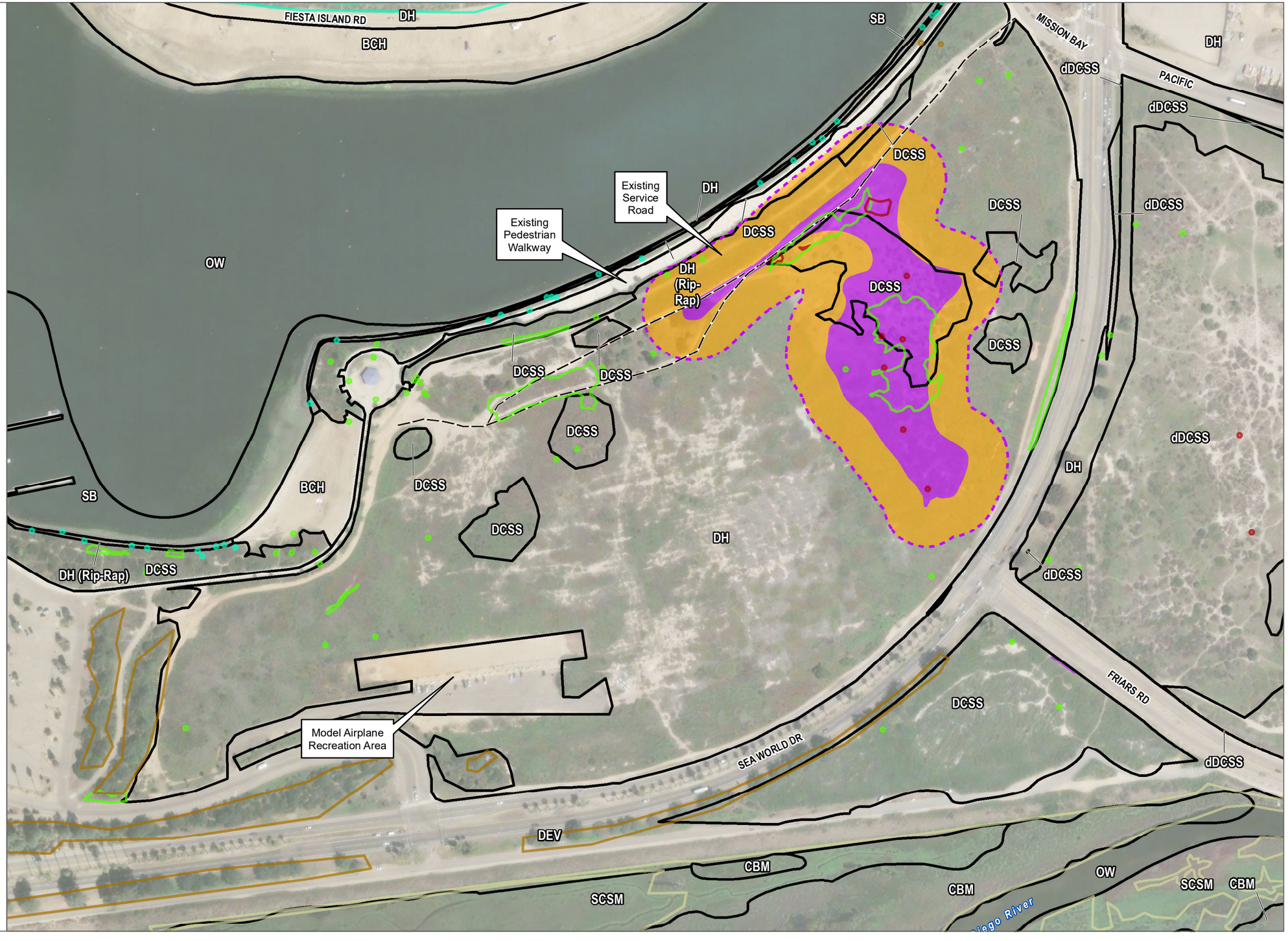
- Mission Bay Park Improvement Zone
- Informal Trails
- Potential Nuttall's acmispon Protection Buffer/Restoration Area (100')
- Coastal Sage Scrub Restoration and Enhancement
- Vegetation Communities/Land Cover
  - BCH, Beach
  - CBM, Coastal Brackish Marsh
  - DCSS, Diegan Coastal Sage Scrub
  - DEV, Urban/Developed
  - DH (Rip-Rap), Disturbed Habitat
  - DH, Disturbed Habitat
  - OW, Open Water
  - SB, Shallow Bay
  - SCSM, Southern Coastal Salt Marsh
  - dDCSS, Disturbed Diegan Coastal Sage Scrub

Special-status Plants

- Lewis' evening-primrose
- Torrey pine
- Coast woolly-heads
- Southwestern spiny rush
- Woolly seablite
- Nuttall's acmispon



SOURCE: ESRI 2024; City of San Diego 2018

DUDEK

0 125 250 Feet

FIGURE 11

Habitat Expansion/Enhancement Site #5c (South Shores Restoration Site) - Nuttall's acmispon Preserve Option Only

Upland Conceptual Habitat Restoration and Monitoring Plan

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