Biological Resources Report for the San Diego River Park Foundation Discovery Center at Grant Park Project San Diego, California

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RECON Number 8219-1
August 7, 2018~~February 20, 2018~~

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ATTACHMENTS

Acronyms

ADD	Assistant Deputy Director
ASMD	Area-Specific Management Directives
BCME	Biological Construction Mitigation/Monitoring Exhibit
BLA	Boundary Line Adjustment
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
City	City of San Diego
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CSVR	Consultant Site Visit Record
dB(A)	A-weighted decibel
DSD	Development Services Department
ESA	Endangered Species Act
ESL	Environmentally sensitive land
Helix	Helix Environmental Planning, Inc.
HVAC	heating, ventilation, and air conditioning
L_{eq}	average sound level
MBTA	Migratory Bird Treaty Act
MHPA	Multi-Habitat Planning Area
MMC	City's Mitigation Monitoring Coordination
MSCP	Multiple Species Conservation Program
MSL	mean sea level
NRCS	Natural Resources Conservation Service
PA	public address system
project	San Diego River Park Foundation Discovery Center at Grant Park
RWQCB	Regional Water Quality Control Board
TNW	Traditionally Navigable Waterway
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

Summary

This report describes existing biological conditions within The San Diego River Park Foundation Discovery Center at Grant Park Project (project) site, the project's impacts to these biological resources, and the mitigation proposed. RECON Environmental, Inc. conducted a general biological survey of the approximately 17.51-acre project site.

The proposed project would have impacts to two sensitive upland vegetation communities: disturbed Diegan coastal sage scrub and baccharis scrub. Mitigation for these impacts would be achieved through a combination of on-site preservation, on-site habitat restoration (creation), and credits purchased from the Habitat Acquisition Fund. On-site preservation will occur through the approved Multi-Habitat Planning Area (MHPA) boundary line adjustment that would add approximately 3.13 acres of land to the MHPA via a conservation easement (a total net gain of 2.68 acres).

No impacts to sensitive plants are anticipated as a part of the project.

No direct impacts to sensitive wildlife species are anticipated from the project, as the project would comply with the Migratory Bird Treaty Act of 1918 and California Department of Fish and Wildlife (CDFW) Code 3503. Potential direct and indirect impacts to bird species would be avoided through implementation of pre-construction surveys if work were to be conducted during the breeding season and general construction monitoring during construction activities. If nesting birds are identified, then mitigation measures to avoid impacts to these breeding birds would be implemented.

Operational impacts, including those from guided tours and special events, to sensitive wildlife species, notably least Bell's vireo (*Vireo bellii pusillus*), would be minimized through project design features that reduce potential impacts from noise and lighting. These project design features would also conform with MHPA land-use adjacency guidelines.

U.S. Army Corps of Engineers (USACE), California Regional Water Quality Control Board (RWQCB), CDFW, and City of San Diego-defined wetlands that occur on-site include southern cottonwood willow riparian forest, freshwater marsh, mule fat scrub, southern riparian woodland, and southern willow scrub. A total of 1.00 acre of City of San Diego wetlands would be impacted by the project. Mitigation for these impacts includes on-site wetland creation and a parcel-wide enhancement program. No wetlands jurisdictional to USACE, RWQCB, or CDFW would be impacted by the project.

1.0 Introduction

1.1 Project Location

The San Diego River Park Foundation Discovery Center at Grant Park Project (project) site is in the city of San Diego, in the northeast quadrant of the intersection of Camino del Rio North and Qualcomm Way, within San Diego County Assessor's Parcel Numbers 438-052-016 and -017 (Figure 1). The project site is found on the U.S. Geological Survey (USGS) 7.5-minute topographical map series, La Jolla quadrangle, within unsectioned lands of the Pueblo of San Diego Land Grant, Township 16 South, Range 3 West (Figure 2; USGS 1975) and City of San Diego, Engineering and Development, City 800' scale map, Number 218-1725 (Figure 3). The site is bounded on the west by Qualcomm Way, on the south by Camino del Rio North, on the north by the San Diego Trolley line, and on the east by a U.S. Post Office facility and undeveloped land.

Regulations that apply to the project's development include the federal and state Endangered Species Act (ESA), Migratory Bird Treaty Act (MBTA), Clean Water Act, California Environmental Quality Act (CEQA), California Fish and Game Code 3503.5, and the City of San Diego (City) Multiple Species Conservation Program (MSCP), Land Development Code, Environmentally Sensitive Lands Ordinance, and San Diego River Park Master Plan. The project site occurs in the Mission Valley Community Planning Area and is subject to the general requirements of the Mission Valley Planned District Ordinance. The project site does not occur within the Coastal Overlay Zone. More detail on some of these regulations is provided below.

California Fish and Game Code 3503: Under Section 3503 of the California Fish and Game Code, 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 of the California Fish and Game Code prohibits take, possession, or destruction of any birds in the orders Falconiformes (raptors) or Strigiformes (owls), or of their nests and eggs (State of California 1991).

Migratory Bird Treaty Act: The MBTA was established to provide protection to the breeding activities of migratory birds throughout the U.S. The MBTA protects migratory birds and their breeding activities from take and harassment.

City of San Diego Regulations: As stated in the City of San Diego 2012 Biology Guidelines, a project site is considered to contain sensitive biological resources if:

- The site has been identified as part of the MHPA by the City's MSCP Subarea Plan.
- The site supports or could support (e.g., in different seasons/rainfall conditions, etc.) Tier I, II, or III-A & -B vegetation communities (such as grassland, chaparral, coastal sage scrub, etc.). The California Environmental Quality Act (CEQA) determination of significant impacts may be based on what was on the site (e.g., if illegal grading or vegetation removal occurred, etc.), as appropriate.

Project Location

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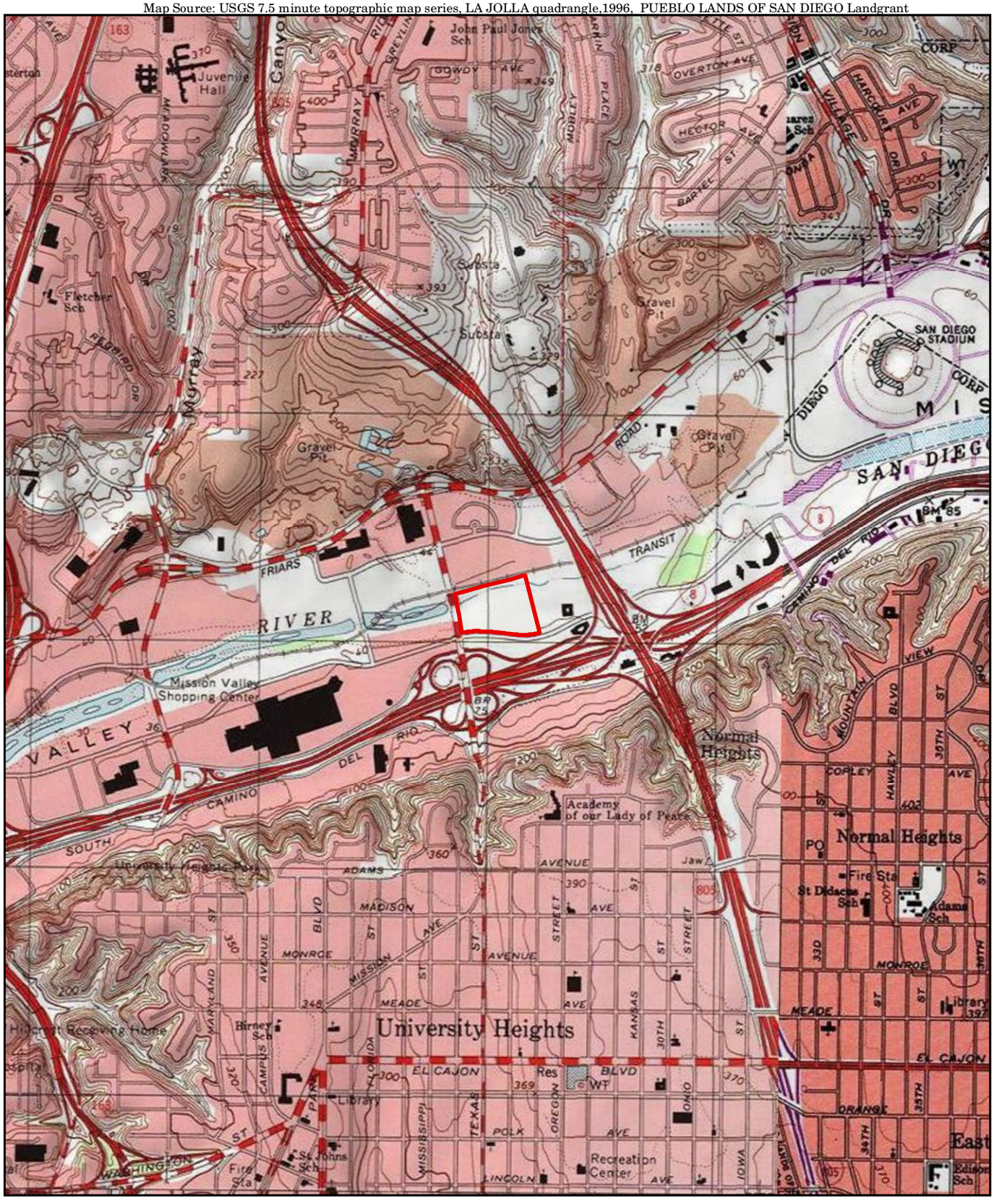
FIGURE 1

Regional Location

Map Source: USGS 7.5 minute topographic map series, LA JOLLA quadrangle,1996, PUEBLO LANDS OF SAN DIEGO Landgrant



Project Boundary

FIGURE 2
Project Location on USGS Map

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Map Source: City of San Diego, Engineering and Development Department, City 800' Maps, Number 218-1725

FIGURE 3

Project Location on City 800' Map

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- The site contains, or comes within 100 feet of a natural or manufactured drainage (determine whether it is vegetated with wetland vegetation). The site occurs within the 100-year flood plain established by the Federal Emergency Management Agency (FEMA) or the Flood Plain (FP)/ Flood Way (FW) zones.

- The site does not support a vegetation community identified in Tables 2a, 2b or 3 (Tier I, II, IIIA or IIIB) of the Biology Guidelines; however, wildlife species listed as threatened or endangered or other protected species may use the site (e.g., California least terns on dredge spoil, wildlife using agricultural land as a wildlife corridor, etc.).

Multi-Habitat Planning Area (MHPA) lands are those that have been included within the City's MSCP Subarea Plan for habitat conservation. These lands have been determined to provide the necessary habitat quality, quantity, and connectivity to sustain the unique biodiversity of the San Diego region. MHPA lands are considered by the City of San Diego to be a sensitive biological resource. Approximately 10.81 acres of the project site are located within the MHPA (Figure 4). The project includes a MHPA Boundary Line Adjustment.

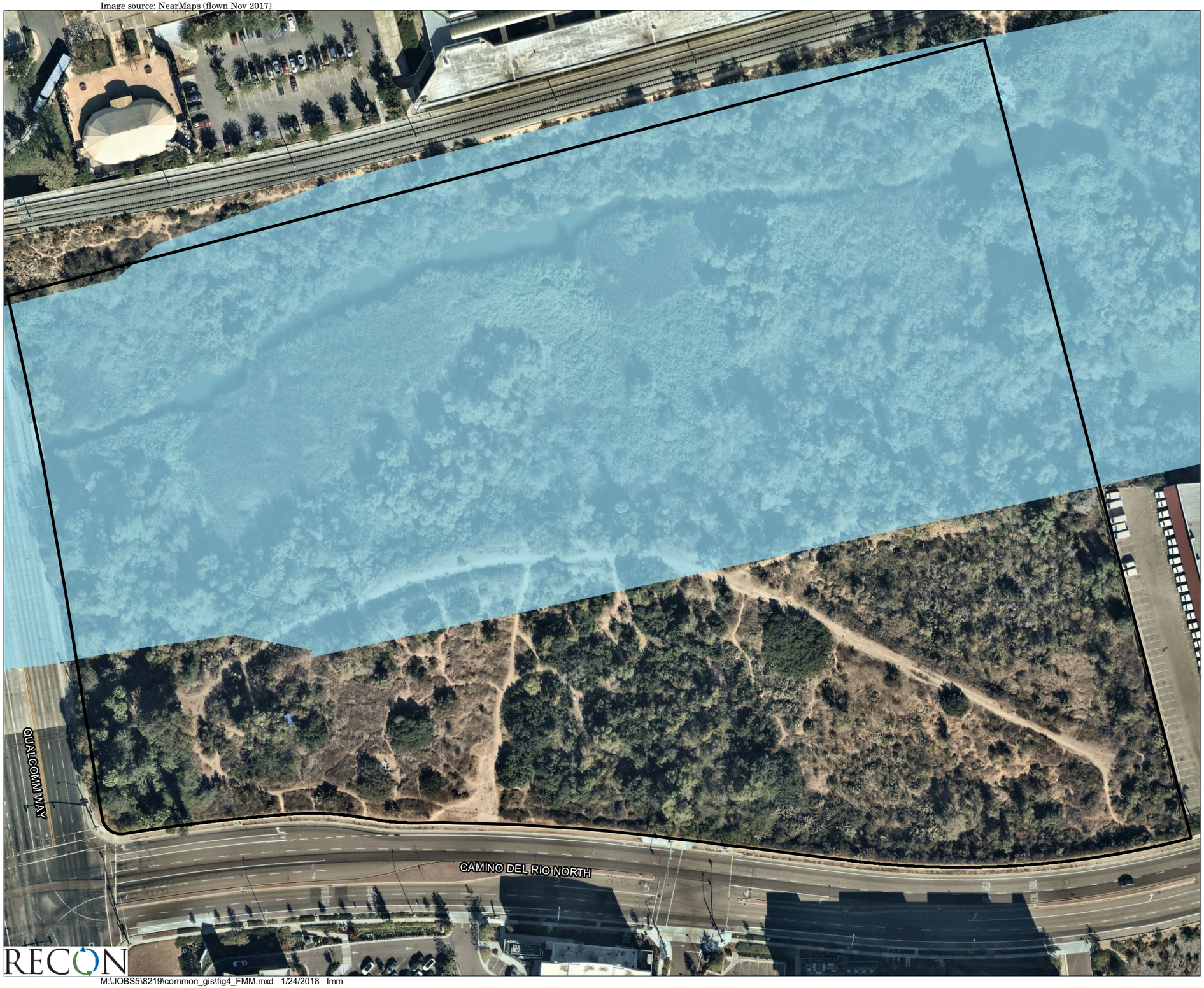
Prior biological surveys have been conducted on this site for this project by Helix Environmental Planning, Inc. (Helix), and a draft biological technical report summarizing the findings was prepared (Helix 2016a). A summary of these surveys is provided in Section 2.0.

1.2 Project Description

The project proposes the construction of a new 9,950-square-foot interpretive center that includes educational, meeting, and community facilities as well as a 1,200-square-foot concessions area with restrooms. Outdoor structures/spaces include educational areas, shade structures, volunteer staging areas, interpretive features, a sound wall, picnic areas, and an extension of the San Diego River Pathway through the project site. The project would also include underground site improvements, a new parking area, and native landscaping.

The project has been designed to support the recommendations and guidelines of the approved San Diego River Park Master Plan (SDRPMP). The project design also abides by the general requirements set forth in the Mission Valley Planned District Ordinance. In addition to the construction of the Discovery Center and associated facilities, the landscape plan includes grading of a portion of the berm in the southeastern portion of the site for habitat mitigation purposes. This graded area and adjacent areas would be converted from their current upland vegetation community to riparian vegetation as mitigation for impacts to City of San Diego wetlands resulting from construction of the Discovery Center. More details about these mitigation impacts and the mitigation approach are provided in Section 4.0 and in the project's On-site Mitigation Plan, which is being submitted concurrently with this report. In total, approximately 85 percent of the 17.51-acre project site is proposed to be preserved and/or restored. Grading of the project site would require approximately 7,500 cubic yards (cy) of cut and approximately 8,900 cy of fill.

Image source: NearMaps (flown Nov 2017)



Project Boundary

City of San Diego MHPA

0 Feet 100

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FIGURE 4

Project in Relation to MHPA

The San Diego River Pathway is proposed to be located on the south side of the river and to extend through the site in a way that takes pedestrians past the proposed Discovery Center and associated facilities. The western portion of the pathway would primarily consist of a 10-foot-wide porous concrete surface with a minimum 2-foot-wide decomposed granite shoulder area on each side. The eastern portion of the pathway would consist of a raised 10-foot-wide boardwalk, which would be raised an average of 4 feet above the natural grade. The pathway would extend southeast to connect to Camino del Rio North where it would become a new, widened sidewalk with continuous guardrails. Overlooks would be placed along key areas of the pathway and would include interpretive signs and/or seating.

In addition to the trail described above, proposed outdoor portions of the facility would include the 5,780-square-foot passive park and musician's performance area with sound control shell, a 1,481-square-foot covered view deck with an outdoor fireplace, a 1,470-square-foot outdoor classroom area, volunteer staging areas, picnic areas, and an interpretive water feature.

Anticipated project uses include: docent-guided (with portable personal battery-powered speakers) group walks along the River Pathway with instructive information about biology and river park features, use of the view deck area for educational presentations by the docents and/or small gatherings of guests/staff, and small personal music systems or acoustic live music (non-amplified) or educational presentations including viewing (TV or computer screen). The project concessions area will have a small public address (PA) system using a small pair of speakers mounted near the outer edges of the concessions under the eaves for weather protection, aimed downwards into the local area of the concessions.

Up to 12 events, hereafter referred to as "special events," are anticipated per year. These special events would include weddings, fundraisers, and volunteer and donor appreciation and recognition events. To support special events, the passive park will be developed with a musician's performance area and acoustic sound control shell, built around and over the musician's performance area. The passive park may also be used for art shows (which may include music) and up to four community movie presentations per year, scheduled outside of the breeding season.

The proposed attendance at special events is estimated to be between 120 to a maximum of 385 guests using the full project area at any time or event. Specific site loading considerations assume a typical outdoor maximum use occupancy of 15 square feet per person for the passive park and view deck, and 7 square feet per person in the outdoor classroom seating area, based on typical indoor occupancy standards. This provides the following maximum area use constraints:

- View Deck: 80 occupants maximum
- Passive Park: 385 occupants maximum
- Outdoor Classroom: up to 150 occupants maximum

During a special event there would be no docent-led tours scheduled nor would the view deck be used for educational presentations; however, guests (maximum of 385 people) would be assumed to use both areas for an event.

Special events would be controlled and supervised by facility staff including date, time, and duration of the event. Specific noise control measures requested during the nesting season would include, but are not limited to, noise monitoring, and the implementation of strict rules limiting the type of music or volume of music sources on the premises. Sound generating events would be controlled in compliance with the parameters described in Section 5.3.

Additional restrictions will be placed on special events to avoid disturbances to the river corridor from light, food waste, and litter. These restrictions are described further in Section 4.5 MHPA Land Use Adjacency Guidelines.

This report provides all the necessary biological data and background information required for environmental analysis according to guidelines set forth in the City of San Diego's MSCP Subarea Plan (1997) and the City of San Diego Biology Guidelines (2012).

2.0 Methods and Survey Limitations

Prior surveys on this project site were conducted by Helix between 2013 and 2015 for which the results were reported in a draft biological technical report (Helix 2016a). These included general biological surveys, jurisdictional delineation surveys, a rare plant survey, and least Bell's vireo protocol surveys. The results of these surveys have been incorporated into this report for analysis. Additionally, a general biological survey was conducted on October 17, 2017, by RECON Environmental, Inc. (RECON) biologists Andrew Smisek and Alex Fromer (Table 1).

Table 1
Survey Information

Date	Personnel	Time	Weather
10-17-2017	Andrew Smisek, Alex Fromer	9:00 A.M. – 12:00 P.M.	Clear skies, 89° Fahrenheit

Vegetation communities were mapped on a 1-inch-equals-100-feet aerial photograph of the survey area. Wildlife species were observed directly or detected from calls, tracks, scat, nests, or other sign. All plant species observed within the survey area were also noted, and plants that could not be identified in the field were identified later using taxonomic keys. Disturbance from human activity and trash were also noted within the site. Areas of the site that are excessively wet, such as the San Diego River and adjacent areas, were not accessed on foot. Rather, these areas were surveyed using binoculars. Additionally, the biological survey was limited by seasonal and temporal factors. Nocturnal animals were detected by sign, as the survey was performed during the day. In addition, because the survey was conducted during October, some seasonally migratory wildlife species (e.g., winter migrants) and annual plant species may not have been detected.

Floral nomenclature for common plants follows the Jepson Online Interchange (University of California 2014) and Jepson eFlora (Jepson Flora Project 2017) and for sensitive plants California Native Plant Society (CNPS; 2017). Vegetation community classifications follow Oberbauer et al. (2008), which is based on Holland's 1986 Preliminary Descriptions of the Terrestrial Natural Communities of California. Zoological nomenclature for birds is in accordance with the American Ornithologists' Union Checklist (2017) and Unitt (2004) and for reptiles with Crother et al. (2012). Determination of the potential occurrence for listed, sensitive, or noteworthy species is based upon known ranges and habitat preferences for the species (Jennings and Hayes 1994; Unitt 2004; CNPS 2017; Reiser 2001), and species occurrence records from the California Natural Diversity Database (CNDDB; State of California 2017a) and other sites near the survey area.

3.0 Survey Results/Existing Conditions

3.1 Topography and Soils

Elevations within the project site range from 26 feet above mean sea level (MSL) to 54 feet above MSL. Two soil types, Riverwash and Gravel Pits, as mapped by the U.S. Department of Agriculture (USDA; 1973), occur within the project site. The majority of the site is flat with an east–west berm dividing the northern half of the site from the southern half. A second berm splits from the first in the southeastern portion of the site creating a triangular-shaped basin (Figure 5).

Riverwash soils occur in intermittent stream channels and typically consist of sand, gravel, or cobble. This soil is rapidly permeable and excessively drained. Gravel Pits soils are restricted to approximately 10 percent of the site in the northwest corner, and Riverwash covers the remainder of the site. Due to prior disturbance, no natural landscape features, such as rock outcrops or bluffs, occur on the project site.

Image source: NearMaps (flown Nov 2017)

Project Boundary

Contour Lines

10-foot Contours

2-foot Contours

0 Feet 100

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FIGURE 5
Project Location and Topography
on Aerial Photograph

3.2 Habitats and Land Uses

The project site is composed of mostly undeveloped land that had been previously disturbed by sand mining activities prior to 1964. Approximately the southern 40 percent of the site is separated from the northern 60 percent by an east–west running berm (see Figure 5). This berm was likely used as a haul road after the conclusion of mining activities prior to 1980.

The northern portion of the site is composed of mostly riparian habitat associated with the San Diego River, which occurs as a perennial waterway running east–west through this portion of the site. A majority of the northern portion of the site is flat with slopes along the northern, western, and southern edges leading up to the San Diego Trolley, Qualcomm Way, and the aforementioned berm, respectively. The northern slope of this berm extends approximately 20 feet down to the mostly flat areas of the northern portion of the site (see Figure 5).

The northern 10.81 acres of the project site are within the City of San Diego MHPA (see Figure 4). The southern portion of the site comprises mostly disturbed and upland habitat with patches of riparian habitat that are isolated from the river floodplain by the berm and generally occur in areas of slightly lower elevation.

In the eastern portion of the site, the berm splits into two, with one berm continuing east and the other continuing southeast, both connecting in elevation to the parking lot of the U.S. Post Office along the eastern edge of the site. This creates a triangular-shaped basin approximately 10 feet below the surrounding berms (see Figure 5). In the southwest corner of the site, a small stream carries water from a storm drain north to the floodplain of the river.

Historically, the project site had been used for sand mining prior to 1964. Based on aerial photographs, as included in the draft biological technical report prepared by Helix (2016a), a majority of the project site was ponded and devoid of vegetation during mining activities. After mining operations had ceased, the existing berms and general topography were constructed within the site.

No approved land uses are currently associated with the project site. A number of transient encampments were observed in the southern portion of the site, and walking trails within the site seem to be heavily used. A substantial amount of trash was present within the southern portion of the site as well. The project site is also subject to traffic noise and night lighting associated with lands surrounding the project site. This includes noise and night lighting from Interstates 8 and 805, Camino del Rio North, Qualcomm Way, and the San Diego Trolley, as well as night lighting from surrounding development.

3.3 Environmentally Sensitive Lands/Critical Habitat

Environmentally sensitive lands on the project site include wetlands and Tier II uplands. Most of the northern portion of the project site, north of the berms, contains wetlands. Wetlands occur as patches in the southern portion of the site as well. Tier II uplands are restricted to the southern portion of the project site. The project site does not include any areas designated by the U.S. Fish and Wildlife Service (USFWS) as critical habitat for any species listed under the federal ESA.

3.4 Jurisdictional Waters

A jurisdictional delineation survey was conducted by Helix in February of 2014 followed by another survey to refine the mapping in September of that year. The results of those surveys were submitted in a jurisdictional delineation report (Helix 2015a) and included in the draft biological technical report (Helix 2016a). Those results are also presented below in this report. Wetland acreages have been updated based on current (2017) vegetation mapping done by RECON.

A description of the hydrophytic vegetation units observed and soil types encountered during the wetland delineation and a discussion of the local hydrology on the project site are presented below. The jurisdictional delineation report summarizing information collected during the routine wetland delineation on vegetation, soils, and hydrology observed is provided in Attachment 1. Jurisdictional waters were delineated on-site according to USACE, CDFW, Regional Water Quality Control Board (RWQCB), and City regulations, and are presented by jurisdiction below.

3.4.1 Vegetation

Hydrophytic vegetation is defined as "the sum total of macrophytic plant life growing in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content" (USACE 1987). The wetland indicator status of each species recorded on-site was determined by using the list of wetland plants for California provided by the USFWS (Lichvar et al. 2014). The wetland indicator status of a plant can be one of the following:

- Obligate (OBL) – Plants that have a 99 percent probability of occurring in wetlands under natural conditions. (No OBL species were observed.)

- Facultative-Wet (FACW) – Plants that occur in wetlands (67–99 percent probability) but are occasionally found in non-wetlands.

- Facultative (FAC) – Plants that are equally likely to occur in wetlands or non-wetlands (estimated probability 34–66 percent).

- Facultative Upland (FACU) – Plants that are most often found in upland sites (estimated probability 67–99 percent).
- Upland (UPL) – Plants that almost always occur in upland sites (estimated probability greater than 99 percent).
- No Indicator (NI) – Plants for which insufficient data are available to determine an indicator status for the local region.

The following vegetation communities within the project site are dominated by hydrophytic vegetation: freshwater marsh, southern cottonwood–willow riparian forest, southern willow scrub, and mule fat scrub. The patches of southern riparian woodland have a tree stratus dominated by tree willows (*Salix gooddingii, S. lasiolepis, S. lasiandra*; all FACW) and, therefore, are considered to be dominated by hydrophytic vegetation.

3.4.2 Soils

A hydric soil is a soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions that favor the accumulation of visible indicators of extended saturation (USACE 1987). Information on the soil types sampled in the project site is summarized from the Soil Survey for San Diego County (USDA 1973) and the March 2014 Hydric Soils list obtained from the Natural Resources Conservation Service (NRCS).

Riverwash soil is mapped within most of the project site as described above. It is listed as a hydric soil by NRCS. Gravel Pits soil is not listed as a hydric soil.

3.4.3 Hydrology

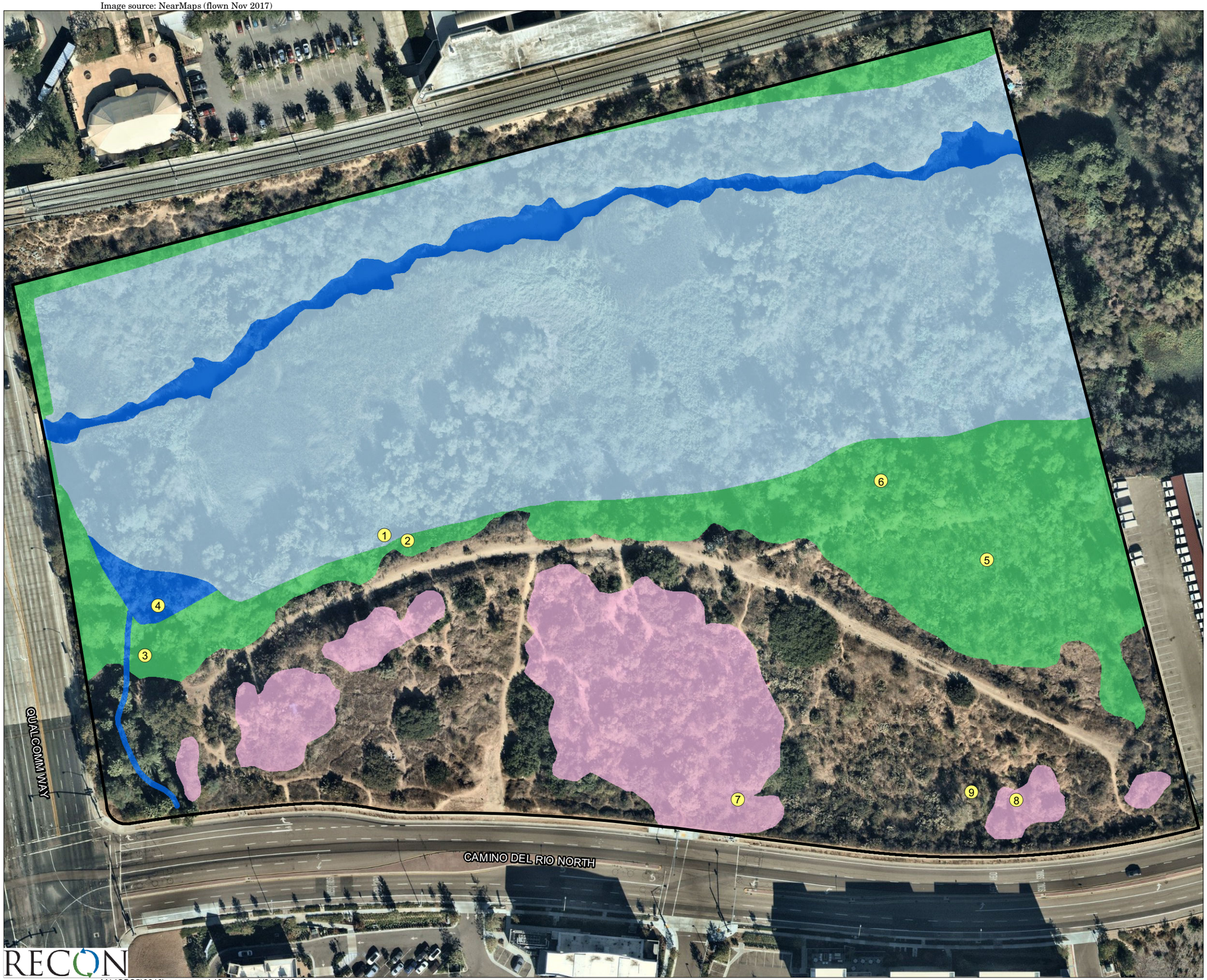
Wetland hydrology indicators are used to determine if inundation or saturation has occurred on a site. These indicators are features that suggest current or recent flows through an area, but do not provide information about the timing, duration, or frequency of the event. Hydrology features are generally the most ephemeral of the three wetland parameters (USACE 2008).

Hydrology indicators were observed at various sample points. These included the primary indicators: high water table and saturation. The secondary indicators were drift deposits and passing the FAC-neutral test (Helix 2015a).

3.4.4 Location of Jurisdictional Wetlands and Waterways

Figure 6 shows the locations of the jurisdictional waters identified on-site for each agency jurisdiction. USACE and RWQCB jurisdictional non-wetland waters occur within the drainage in the southwestern corner of the project site, within the streambed at the north end of that drainage, and within the unvegetated open water of the San Diego River.

Image source: NearMaps (flown Nov 2017)



Project Boundary

Jurisdictional Classification

USACE Non-wetland Waters of the U.S./RWQCB Non-wetland Waters of the State/CDFW Streambed

USACE Wetland Waters of the U.S./RWQCB Wetland Waters of the State/CDFW Riparian /City Wetlands

RWQCB/CDFW Wetland Waters of the State/City Wetland

City Wetland Only

Sample Point

0 Feet 100

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FIGURE 6

Jurisdictional Resources

USACE and RWQCB jurisdictional wetland waters occur within the vegetated habitat of the San Diego River floodplain. The habitat within this floodplain, as well as adjacent wetland vegetation communities directly associated with the San Diego River, are considered jurisdictionally as CDFW riparian. The unvegetated open water of the San Diego River would also be considered jurisdictionally as CDFW streambed. The isolated patches of southern cottonwood–willow riparian forest, southern riparian woodland, and southern willow scrub that occur south of the berm are considered City wetlands but would not be considered the jurisdiction of USACE, RWQCB, or CDFW. Acreages of jurisdictional resources for each of the jurisdictions are provided in Table 2.

Table 2
Jurisdictional Wetlands and Waters within the Project Site

Jurisdictional Waters	Existing on Project Site [acres (linear feet)]
USACE	
Wetland waters of the U.S.	8.05
Non-wetland waters of the U.S.*	0.63 (1,362)
USACE Total Jurisdiction	**8.67****
RWQCB	
Wetland waters of the State	10.75
Non-wetland waters of the State*	0.63 (1,362)
RWQCB Total Jurisdiction	11.38
CDFW	
Riparian wetland	10.75
Streambed*	0.63 (1,362)
CDFW Total Jurisdiction	**11.38**
City of San Diego Jurisdiction	
Wetlands	12.41
City of San Diego Total Jurisdiction	**12.41**

*Jurisdictional non-wetland waters for USACE, RWQCB, and CDFW overlap on the project site.
**Totals subject to rounding
USACE = U.S. Army Corps of Engineers
RWQCB = Regional Water Quality Control Board
CDFW = California Department of Fish and Wildlife

3.4.5 USACE Jurisdictional Waters

In accordance with Section 404 of the Clean Water Act, USACE regulates the discharge of dredged or fill material into waters of the U.S. USACE wetlands are delineated using three parameters: hydrophytic vegetation, wetland hydrology, and hydric soils. According to USACE, indicators for all three parameters must be present to qualify a wetland.

The USACE also requires the delineation of non-wetland jurisdictional waters. These waters must have strong hydrology indicators such as the presence of seasonal flows and an ordinary high watermark. Areas delineated as non-wetland jurisdictional waters may lack wetland vegetation or hydric soil characteristics. These types of jurisdictional waters are delineated by the lateral and upstream/downstream extent of the ordinary high watermark

of the particular drainage or depression and their connection to a Traditionally Navigable Waterway (TNW).

Based on the presence of an observable ordinary high water mark and connectivity to a TNW, a total of 0.63 acre (1,362 linear feet) of non-wetland waters of the U.S. under USACE jurisdiction was delineated within the project site (see Table 2 and Figure 6). These non-wetland waters include a drainage and streambed in the southwestern corner of the site and the open water of the San Diego River.

Vegetated areas within the floodplain of the San Diego River meet the criteria for wetland waters of the U.S., total 8.05 acres, and are characterized by wetland vegetation communities including freshwater marsh, southern cottonwood–willow riparian forest, southern willow scrub, and mule fat scrub.

3.4.6 RWQCB Waters of the State

The jurisdiction of RWQCB includes all waters of the state and all waters of the U.S. as mandated by both the federal Clean Water Act and the California Porter–Cologne Water Quality Control Act. State waters generally include, but are not limited to, all waters under the jurisdiction of USACE.

State waters under the jurisdiction of RWQCB on-site entirely overlap with CDFW jurisdiction (see Table 2 and Figure 6). RWQCB jurisdiction totals 0.63 acre (1,362 linear feet) of non-wetland waters of the state and 10.75 acres of wetland waters of the state.

3.4.7 CDFW Waters of the State

Under Sections 1600–1607 of the Fish and Game Code, CDFW regulates activities that would divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake that supports fish or wildlife. CDFW also has jurisdiction over riparian habitats associated with watercourses. Jurisdictional waters of the state are delineated by the outer edge of riparian vegetation or at the top of the bank of streams or lakes, whichever is wider.

State waters under the jurisdiction of CDFW within the project site total 0.63 acre (1,362 linear feet) of non-wetlands (CDFW streambed) and include the open water of the San Diego River and the streambed in the southwestern corner of the site.

Wetlands under the jurisdiction of CDFW (CDFW riparian) within the project site total 10.75 acres and include the wetland vegetation within the floodplain and adjacent wetland habitats directly associated with the San Diego River. The isolated patches of wetland vegetation south of the berm are not directly connected to the riparian of the San Diego River and, therefore, are not under CDFW jurisdiction (see Table 2 and Figure 6).

3.4.8 City of San Diego Wetlands

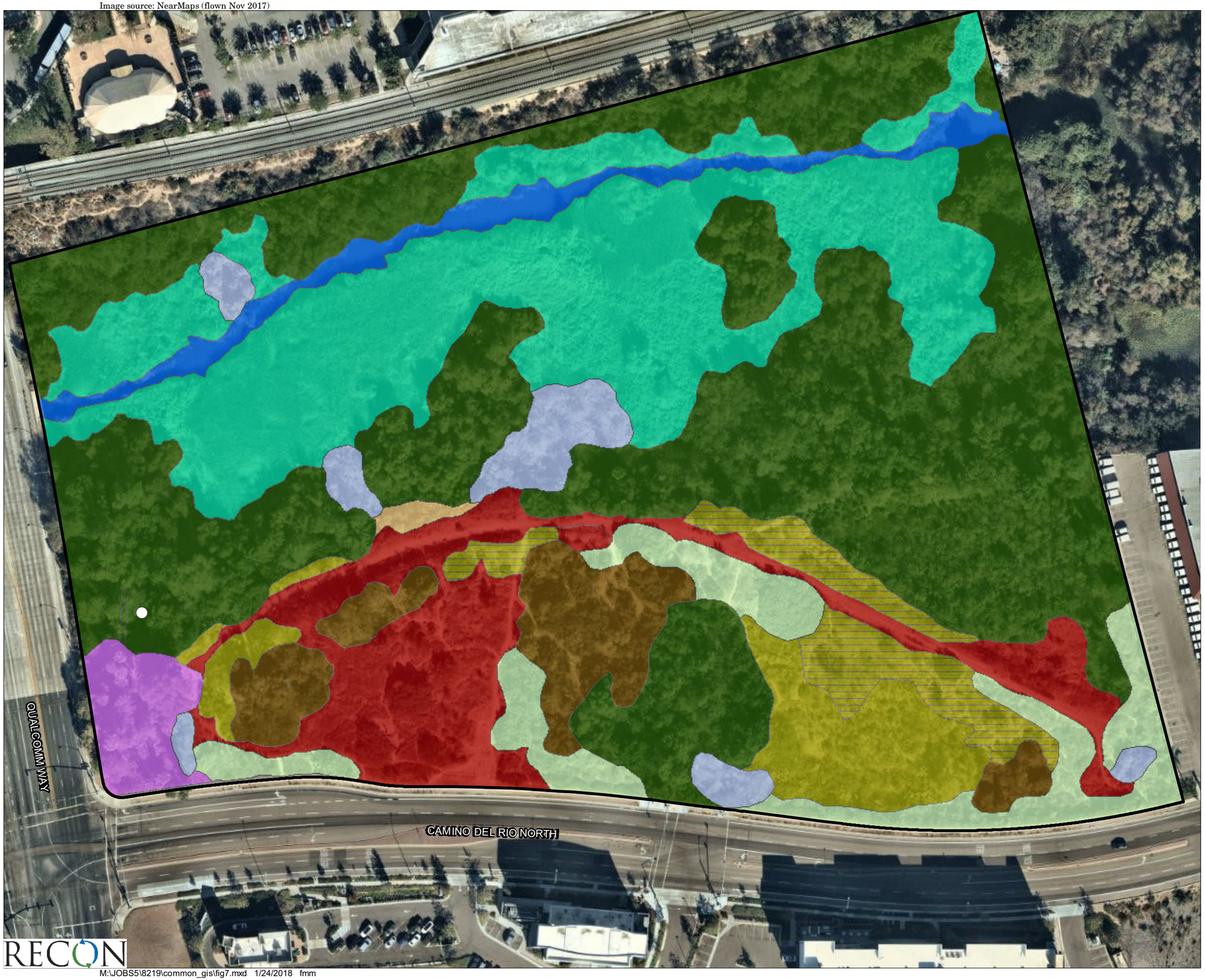
According to the City of San Diego's Biology Guidelines (City of San Diego 2012), wetlands are areas which are characterized by any of the following conditions: (1) all areas persistently or periodically containing naturally occurring wetland vegetation communities characteristically dominated by hydrophytic vegetation; (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 (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 No. C-713 as shown in Chapter 13, Article 2, Division 6 (Sensitive Coastal Overlay Zone).

City staff have determined that City wetland jurisdictional areas include all riparian habitats, including those located south of the east–west berm at a higher elevation and not directly connected to the San Diego River. Accordingly, the project site includes a total of 12.41 acres of City wetland habitats (see Table 2 and Figure 6).

3.5 Vegetation Communities and Land Cover Types

The vegetation communities observed within the project site include freshwater marsh, southern cottonwood–willow riparian forest, southern riparian woodland, southern willow scrub, mule fat scrub, Diegan coastal sage scrub, baccharis scrub, non-native woodland, disturbed habitat, and urban/developed land (Figure 7). Under the City of San Diego Biology Guidelines, the environmentally sensitive lands (ESL) regulations define sensitive biological resources into four tiers of sensitivity. Upland vegetation communities that are classified as Tier I (rare uplands), Tier II (uncommon uplands), or Tier III (common uplands) are considered sensitive by the City. Tier IV (other uplands) vegetation communities are not considered sensitive (City of San Diego 2012). Table 3 summarizes the vegetation communities and land cover types that occur on the project site inside and outside of the MHPA. Plant species observed are presented in Attachment 2.

Image source: NearMaps (flown Nov 2017)



Project Boundary

Vegetation Communities

- Non-native Woodland
- Mule Fat Scrub
- Southern Riparian Woodland
- Diegan Coastal Sage Scrub
- Baccharis Scrub
- Disturbed Baccharis Scrub
- Freshwater Marsh
- Open Water
- Southern Cottonwood-Willow Riparian Forest
- Southern Willow Scrub
- Disturbed Habitat
- Urban/Developed

Sensitive Species Observation

- Cooper's Hawk

0 Feet 100

RECON

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FIGURE 7

Existing Biological Resources

Table 3 Vegetation Communities and Land Cover Types (acres)				
Vegetation and Land Cover Types	ESL Tier	Outside MHPA	Inside MHPA	Total
Open water	Wetland	0.00	0.49	0.49
Freshwater marsh	Wetland	0.00	3.97	3.97
Southern cottonwood–willow riparian forest	Wetland	1.80	5.27	7.07
Southern riparian woodland	Wetland	0.83	0.09	0.92
Southern willow scrub	Wetland	0.13	0.38	0.51
Mule fat scrub	Wetland	0.00	0.05	0.05
Diegan coastal sage scrub	II	1.04	0.05	1.09
Baccharis scrub	II	1.27	0.14	1.41
Non-native woodland	IV	0.33	0.00	0.33
Disturbed habitat	IV	1.27	0.38	1.65
Urban/developed	N/A	0.02	0.00	0.02
TOTAL	**-**	**6.70***	**10.81***	**17.51**
*Totals subject to rounding.				

3.5.1 Freshwater Marsh and Open Water

Freshwater marsh communities are composed of perennial emergent monocots typically forming a closed canopy. This habitat occurs in open bodies of fresh water with little current flow, such as ponds, and to a lesser extent around seeps and springs. Freshwater marshes occur in areas of permanent inundation by freshwater without active stream flow. Freshwater marsh communities, as all wetland habitats, have been greatly reduced throughout their entire range and continue to decline because of urbanization. They are considered sensitive by state and federal resource agencies.

Freshwater marsh occurs in the northern portion of the project site adjacent to the open water of the San Diego River and totals 3.97 acres (see Figure 7). It is dominated by broad-leaf cattail (*Typha latifolia*) and California bulrush (*Schoenoplectus californicus*) with occasional mule fat (*Baccharis salisifolia*), desert wild grape (*Vitis girdiana*), and other native wetland species.

Open water occurs as the San Diego River, which runs from east to west through the northern portion of the site.

3.5.2 Southern Cottonwood–Willow Riparian Forest

Southern cottonwood–willow riparian forest is an open, seral type of riparian forest dominated by tall broad-leaved winter-deciduous trees, Fremont cottonwood and tree willows, with an understory of shrubby willows. This community typically occurs along sub-irrigated and frequently overflowed lands along perennially wet rivers and streams (Oberbauer et al. 2008).

Southern cottonwood–willow riparian forest occurs mostly in the northern portion of the site adjacent to freshwater marsh and the San Diego River and totals 7.07 acres (see Figure 7). It extends south to, and on the northern slope of, the east–west running berm

and between the first and second berms in the southeastern portion of the site within the triangular-shaped basin described above. The majority of southern cottonwood–willow riparian forest on site is dominated by Fremont cottonwood and tree willows. In the triangular-shaped basin, this vegetation community contains tree willows with slightly diminished canopies and a dense understory of mule fat.

3.5.3 Southern Riparian Woodland

Southern riparian woodland is a moderately dense riparian woodland community, which contains a majority of small trees and shrubs with a sparse density of tall riparian trees (Oberbauer et al. 2008). This vegetation community occurs in larger river and tributary systems in southern California. It has been observed throughout San Diego County and is characterized by western sycamore (*Platanus racemosa*), cottonwoods (*Populus* sp.), and various willows (*Salix* sp.).

Southern riparian woodland occurs in four patches in the southern portion of the site, south of the east–west running berm, and totals 0.92 acre (see Figure 7). The western two patches and the eastern patch contain mature tree willows and/or Fremont cottonwood that have spreading canopies that nearly touch the canopies of adjacent trees. In these patches, the understory is mostly open. The central patch of southern riparian woodland contains the same tree species but their canopies are diminished comparatively and the understory is dense with native shrubs, mostly lemonade berry (*Rhus integrifolia*) and toyon (*Heteromeles arbutifolia*).

3.5.4 Southern Willow Scrub

Southern willow scrub is considered a sensitive wetland habitat by CDFW and USACE. Southern willow scrub is a dense riparian community dominated by broad-leaved winter-deciduous trees such as willows (*Salix* sp.) and often scattered with Fremont cottonwoods and western sycamore. This plant community is typically found along major drainages but also occurs in smaller drainages. The density of the willows typically prevents a dense understory of smaller plants from growing. The representative species typically grow in loose, sandy, or fine gravelly alluvium deposited near stream channels during flood flows. This community requires repeated flooding to prevent succession to community dominated by sycamores and cottonwoods (Holland 1986).

Southern willow scrub occurs in small patches throughout the site occurring mostly adjacent to southern cottonwood-willow riparian forest and totaling 0.51 acre. A small patch in the southwestern corner of the site occurs adjacent to non-native woodland and near a storm drain outlet. A small patch in the southeastern corner of the site occurs adjacent to Diegan coastal sage scrub and disturbed habitat (see Figure 7). These patches of southern willow scrub are all dominated by arroyo willow (*S. lasiolepis*).

3.5.5 Mule Fat Scrub

Mule fat scrub is considered a sensitive wetland habitat by CDFW and USACE. Mule fat scrub is a tall, herbaceous riparian scrub strongly dominated by *Baccharis salicifolia.* This plant community is an early seral plant community that occurs along drainages with a fairly coarse substrate and a moderate depth to the water table. Mule fat scrub is developed and maintained from flooding or other disturbance but may change through successional processes to willow–cottonwood or sycamore-dominated riparian forest/woodland, in the absence of disturbance. The community can also occur where dominant riparian scrubs and woodlands are disturbed or open, and integrates with the willow scrub on-site.

Mule fat scrub occurs as a small patch in the central portion of the site on the north-facing slope of the east–west running berm (see Figure 7). It is dense with mule fat and totals 0.05 acre in size.

3.5.6 Diegan Coastal Sage Scrub

Diegan coastal sage scrub is a vegetation community considered sensitive by federal and state resource agencies, and a Tier II (Uncommon Upland) by the City of San Diego's MSCP (City of San Diego 1997). Diegan coastal sage scrub is the southern form of coastal sage scrub, is a plant community consisting of low-growing, aromatic, drought-deciduous soft-woody shrubs that have an average height of approximately three to four feet. The plant community is typically dominated by facultatively drought-deciduous species such as California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), laurel sumac (*Malosma laurina*), and white sage (*Salvia apiana*). The community is typically found on low moisture-availability sites with steep, xeric slopes or clay rich soils that are slow to release stored water. These sites often include drier south- and west-facing slopes and occasionally north-facing slopes, where the community can act as a successional phase of chaparral development.

Diegan coastal sage scrub occurs in the southern portion of the site, mostly along slopes adjacent to the sidewalk along Camino del Rio North, with a small patch along the south-facing slope of the east–west running berm (see Figure 7). The central patches are dominated by lemonade berry and laurel sumac. The eastern and western patches are dominated by California Encelia (*Encelia californica*). Diegan coastal sage scrub on-site totals 1.09 acres.

3.5.7 Baccharis Scrub

Baccharis scrub is a vegetation community that is a variation of coastal sage scrub that is dominated by *Baccharis* species (*B. sarothroides, B. pilularis*). Just like Diegan coastal sage scrub, it is considered a Tier II (Uncommon Upland) by the City of San Diego's MSCP (City of San Diego 1997). It often occurs adjacent to Diegan coastal sage scrub in areas with nutrient-poor soils or that have undergone disturbance (Oberbauer et al. 2008).

Baccharis scrub occurs as a large patch in the southeastern portion of the site and as small patches along the slopes of the berms, and totals 1.41 acres. The large patch occurs in the basin that is formed between a berm and the slope along the sidewalk of Camino del Rio North and is dominated by broom baccharis (*B. sarothroides*). It also contains scattered mule fat and an understory of non-native annuals. The smaller patches of baccharis scrub are also dominated by broom baccharis. Some portions of baccharis scrub are considered disturbed due to the more scattered distribution of native shrubs and an increased cover of non-native annuals.

3.5.8 Non-native Woodland

Non-native woodland is a woodland of exotic trees that are not maintained or artificially irrigated. On-site, it occurs as a 0.33-acre patch in the southwestern corner of the site and is dominated by shamel ash (*Fraxinus uhdei*), Mexican fan palm (*Washingtonia robusta*), Canary Island date palm (*Phoenix canariensis*), and river red gum (*Eucalyptus camaldulensis*). The understory is mostly open and contains trails that appear to be frequently used by people. The storm drain outlet described above occurs within this patch of non-native woodland.

3.5.9 Disturbed Habitat

Disturbed habitat is composed of areas that have been previously disturbed and no longer function as a native or naturalized vegetation community. Vegetation, if present, is dominated by opportunistic non-native species. Disturbed habitat can also include previously graded lands such as fire breaks, off-road vehicle trails, and construction staging sites (Oberbauer et al. 2008).

Disturbed habitat on-site occurs along the berms and as a large area dominated by non-native species such as crown daisy (*Glebionis coronaria*) and short-pod mustard (*Hirschfeldia incana*). Patches of unidentified non-native grasses also occur in some areas. The total area of disturbed habitat on-site is 1.65 acres.

3.5.10 Urban/Developed Land

Urban/developed land occurs within the project boundary as a sliver of the sidewalk along Camino del Rio North and totals 0.02 acre.

3.6 Wildlife

The wildlife species observed on-site are typical of riparian vegetation communities and urban/disturbed areas in San Diego County. Examples of common wildlife species detected within the project site are provided below. Attachment 3 provides a complete list of wildlife species observed within the project site.

Common bird species observed during the survey include Anna's hummingbird (*Calypte anna*), wrentit (*Chamaea fasciata henshawi*), mourning dove (*Zenaida macroura*

marginella), black phoebe (*Sayornis nigricans semiatra*), northern mockingbird (*Mimus polyglottos polyglottos*), and house finch (*Haemorhous* [=*Carpodacus*] *mexicanus frontalis*).

3.6.1 Wildlife Movement Corridor

Wildlife movement corridors are defined as areas that connect suitable wildlife habitat areas in a region otherwise fragmented by rugged terrain, changes in vegetation, or human disturbance. Natural features such as canyon drainages, ridgelines, or areas with vegetation cover provide corridors for wildlife travel. Wildlife movement corridors are important, because they provide access to mates, food, and water; allow the dispersal of individuals away from high population density areas; and facilitate the exchange of genetic traits between populations (Beier and Loe 1992). Wildlife movement corridors are considered sensitive by resource and conservation agencies.

The San Diego River and its associated floodplain provide a substantial wildlife corridor through the project site comprising open water within the river and adjacent wetland and riparian habitats. These habitats are connected to similar habitats east of the project site and connected via culverts under Qualcomm Way to similar habitats west of the project site. These habitats provide areas for native riparian wildlife species to forage, breed, and travel through to other off-site portions of this major corridor.

The portion of the site south of the east–west running berm has no connectivity to other areas of native vegetation or substantial habitats for native wildlife. This area is surrounded by development with the exception of the river corridor north of the berm.

3.7 Sensitive Biological Resources

3.7.1 Sensitivity Criteria

For purposes of this report, species will be considered sensitive if they are (1) covered species under the City of San Diego's MSCP Subarea Plan; (2) listed by state or federal agencies as threatened or endangered or are proposed for listing (State of California 2017b, 2017c, 2017d, 2017e); (3) on California Rare Plant Rank 1B (considered endangered throughout its range) or California Rare Plant Rank 2 (considered endangered in California but more common elsewhere) of CNPS Inventory of Rare and Endangered Vascular Plants of California (2017); or (4) designated by the City of San Diego as a narrow endemic species (City of San Diego 2012). Noteworthy plant species are considered to be those that are on California Rare Plant Rank 3 (more information about the plant's distribution and rarity needed) and California Rare Plant Rank 4 (plants of limited distribution) of the CNPS Inventory (2017). Sensitive vegetation communities are those identified by the City of San Diego (2012).

3.7.2 Sensitive Plants

No sensitive plant species were observed on the project site during the 2017 biological survey or during any surveys conducted by Helix (2016a) and none are expected to occur. Sensitive plant species known to occur within two miles of the project based on a CNDDB review (State of California 2017a) are presented and their potential for occurrence on-site evaluated in Attachment 4.

3.7.3 Sensitive Wildlife Species

One sensitive wildlife species, Cooper's hawk (*Accipiter cooperii*) was observed within southern cottonwood–willow riparian forest in a western portion of the project site during the 2017 survey. Six sensitive species have a moderate or high potential to occur/nest on-site. These include least Bell's vireo (*Vireo bellii pusillus*), yellow warbler (*Setophaga* [=*Dendroica*] *petechia*), yellow-breasted chat (*Icteria virens auricollis*), Belding's orange-throated whiptail (*Aspidoscelis hyperythra beldingi*), San Diegan tiger whiptail (*Aspidoscelis tigris stejnegeri*), and two-striped garter snake (*Thamnophis hammondii*). The potential for each of these species to occur is discussed below.

Sensitive wildlife species known to occur in the project vicinity (within two miles of the project site) and/or those that have potential to occur based on species range are evaluated in Attachment 5.

Least Bell's vireo (*Vireo bellii pusillus*). Least Bell's vireo is federally and state listed as endangered and an MSCP covered species (State of California 2017b; City of San Diego 1997). Its historical breeding range once extended from northwestern Baja California, Mexico, to interior northern California, as far north as Red Bluff in Tehama County, California (Franzreb 1989). The species is exclusively found in riparian habitats, including cottonwood–willow woodlands and forests, oak woodlands, and mule fat scrub, and requires dense canopy for foraging and a dense understory for nesting (Unitt 2004; USFWS 1998). Least Bell's vireos migrate to San Diego County arriving at the breeding grounds in mid-March and remain until September or October. Populations are concentrated in the coastal lowlands of the County and are scattered within the foothills (Unitt 2004).

Populations of least Bell's vireo have declined drastically due to extensive loss of riparian habitat from urban development, including flood control and damming, introduction of non-native invasive plant species such as giant reed (*Arundo donax*) and tamarix (*Tamarix ramosissima*), and nest parasitism by brown-headed cowbird (*Molothrus ater*; USFWS 2009). The population has increased as a result of extensive brown-headed cowbird trapping programs (Unitt 2004). Least Bell's vireos respond well to restored riparian woodland, especially if it is adjacent to mature riparian habitat, and also to cowbird trapping.

Least Bell's vireo has potential to occur in a variety of riparian habitats within the project site, especially areas of dense vegetation, such as southern willow scrub, where it has potential to nest. This species was observed in southern cottonwood–willow riparian forest

in the northeastern portion of the project site during previous surveys (Helix 2016a, 2015b). Least Bell's vireo is less likely to occur in the isolated patches of riparian habitat south of the east-west berm on-site.

Yellow warbler (*Setophaga* [=*Dendroica*] *petechia*). The yellow warbler is a CDFW species of special concern (State of California 2017b). Yellow warblers commonly breed in San Diego County and are considered to be a rare winter visitor (Unitt 2004). This species is an obligate riparian species, nesting and foraging almost exclusively in mature riparian corridors on the coastal slopes and within the desert in San Felipe Valley (Unitt 2004). Shuford and Gardali (2008) describe yellow warblers as showing a high degree of site fidelity, with 60 to 64.5 percent of males and 32 to 44 percent of females returning to their previous year's territory. They are often observed in riparian habitat where surface water is evident, although it is not necessary. Nesting occurs from April (Unitt 2004) through early August, and nests are typically three to five feet from the ground (Lowther et al. 1999). This species is declining due to the loss of riparian habitat and as a result of nest parasitism by brown-headed cowbirds (Unitt 2004; Zeiner et al. 2005).

Yellow warbler has potential to occur in riparian habitats within the project site, especially areas of mature riparian forest. This species is more likely to nest in secluded areas along the San Diego River as opposed to areas south of the east–west berm. This species was observed in multiple locations on-site along the San Diego River during previous surveys (Helix 2016a).

Yellow-breasted chat (*Icteria virens auricollis*). The yellow-breasted chat is a CDFW species of special concern (State of California 2017b). Yellow-breasted chats arrive in San Diego County to breed in March and April, and leave as early as August, with most departing in September (Unitt 2004). Breeding occurs within dense brush or scrub along streams or marshy areas with dense riparian woodlands (Eckerle and Thompson 2001) particularly in the shrubby understory (Shuford and Gardali 2008). Chats are typically found within the coastal slope, less than 1,500 feet in elevation (Unitt 2004). This species also occurs within the desert slope along large creeks such as Coyote Creek and San Felipe Creek (Unitt 2004). Destruction of riparian woodlands by development, other human activities, and brown-headed cowbird parasitism have contributed to the decline of the species (Shuford and Gardali 2008). Due to this species' preference to use the understory for its breeding grounds, the chat is also susceptible to grazing impacts.

Yellow-breasted chat may be found in a variety of shrubby and riparian vegetation within the site, especially dense areas of southern willow scrub and riparian forest, where it may nest along the San Diego River. This species was observed in riparian forest habitat within the project site during previous surveys (Helix 2016a).

Cooper's hawk (*Accipiter cooperii*). Cooper's hawk is a CDFW watch list species (nesting), and is an MSCP-covered species (State of California 2017b; City of San Diego 1997). Cooper's hawk's year-round range extends throughout most of the United States. Its wintering range extends south to Central America, and its breeding range extends north to southern Canada (Curtis et al. 2006). Breeding birds are widespread over San Diego County's coastal slope and most abundant in lowland and foothill canyons and in urban

areas. It is a common breeder in both oak and willow riparian woodlands and urban environments, with eucalyptus trees used nearly as often as oaks (Unitt 2004). Additionally, this species has been known to nest within planted trees including pine, redwood, and avocado (Unitt 2004). Breeding occurs from March to June, and nests are typically located high in the tree, but under the canopy. This hawk forages primarily on medium-sized birds, but is also known to eat small mammals such as chipmunks and other rodents (Curtis et al. 2006). Although urbanization and loss of habitat have contributed to the decline of this species, the Cooper's hawk's adaption to city living over the last 20 years has generously increased their numbers (Unitt 2004).

One Cooper's hawk was observed during 2017 survey flying through southern cottonwood–willow riparian forest habitat within the site. This species has potential to forage and nest within the project site, especially within the tall trees along the San Diego River floodplain. Cooper's hawk is unlikely to nest in the trees south of the east–west berm on-site due to the diminished and exposed canopies of most of the trees in this area.

Belding's orange-throated whiptail (*Aspidoscelis* [=Cnemidophorus] *hyperythra beldingi*). Belding's orange-throated whiptail is a CDFW species of special concern and an MSCP covered species. This species ranges from the coast to the Peninsular mountain ranges from Orange and southwestern San Bernardino counties to the tip of Baja California, Mexico (Stebbins 2003). It occurs in a variety of habitats and is most common in sandy areas of low, open sage scrub or chaparral, particularly where there is California buckwheat, sage (*Salvia* spp.), or chamise (*Adenostoma fasciculatum*; Lemm 2006). This species feeds primarily on the western subterranean termite (*Reticulitermes hesperus*), which comprises 86 percent or more of the lizard's stomach contents (Bostic 1966). It is active during spring and summer, but is largely dormant during the fall and winter when temperatures drop (Jennings and Hayes 1994). Breeding occurs from May through July. The decline of this species is attributed to habitat loss and fragmentation (McGurty 1980).

Belding's orange-throated whiptail has potential to occur within the sage scrub, riparian habitats, and disturbed areas throughout the project site. Although this species would generally flee from human activity, it may occur along the human-used trails within the site and/or near the sidewalks around the site.

San Diegan tiger whiptail =[coastal western whiptail] (*Aspidoscelis tigris stejnegeri* [=*Cnemidophorus tigris multiscutatus*]). The San Diegan tiger whiptail has no official state or federal status but was formerly a federal candidate for listing (USWFS 1994). The San Diegan tiger whiptail ranges predominantly on the coastal slope from Santa Barbara County south into northwestern Baja California, Mexico (Stebbins 2003). In San Diego County, the whiptail occurs in coastal sage scrub and chaparral, as well as in woodlands and streamsides. Its diet consists of a wide variety of insects, spiders, scorpions, and other lizards. The decline of populations of San Diegan tiger whiptail is attributed to habitat loss and fragmentation.

San Diegan tiger whiptail has potential to occur in sage scrub, riparian habitats, and disturbed areas throughout the project site. This species may occur on-site near the human-used trails and/or the sidewalks around the site.

Two-striped garter snake (*Thamnophis hammondii*). The two-striped garter snake is a CDFW species of special concern. It ranges from San Luis Obispo County south to El Rosario in Baja California, Mexico, from sea level to 8,000 feet (Jennings and Hayes 1994). They are normally found in or near permanent fresh water, inhabiting streams, ponds, and lakes throughout their range (Stebbins 2003) and can even be found in temporary bodies of water such as vernal pools. The two-striped garter snake inhabits riparian areas during spring and summer and moves to adjacent coastal sage scrub and grasslands during the winter (Jennings and Hayes 1994). The two-striped garter snake begins breeding in April and continues throughout the summer months. Adults feed on tadpoles, toads, insect larvae, fish, fish eggs, and earthworms. Population declines in the two-striped garter snake are generally attributable to impacts related to the loss of natural wetlands and increased development near and within suitable habitat.

Suitable wetland habitat exists within the project site, especially north of the berm where this two-striped garter snake has potential to occur within the freshwater marsh habitat and other wet locales along the San Diego River. This species may be found south of the east–west berm on-site but may be deterred from using these areas as they are adjacent to roadways and frequently used by people traveling through the project site.

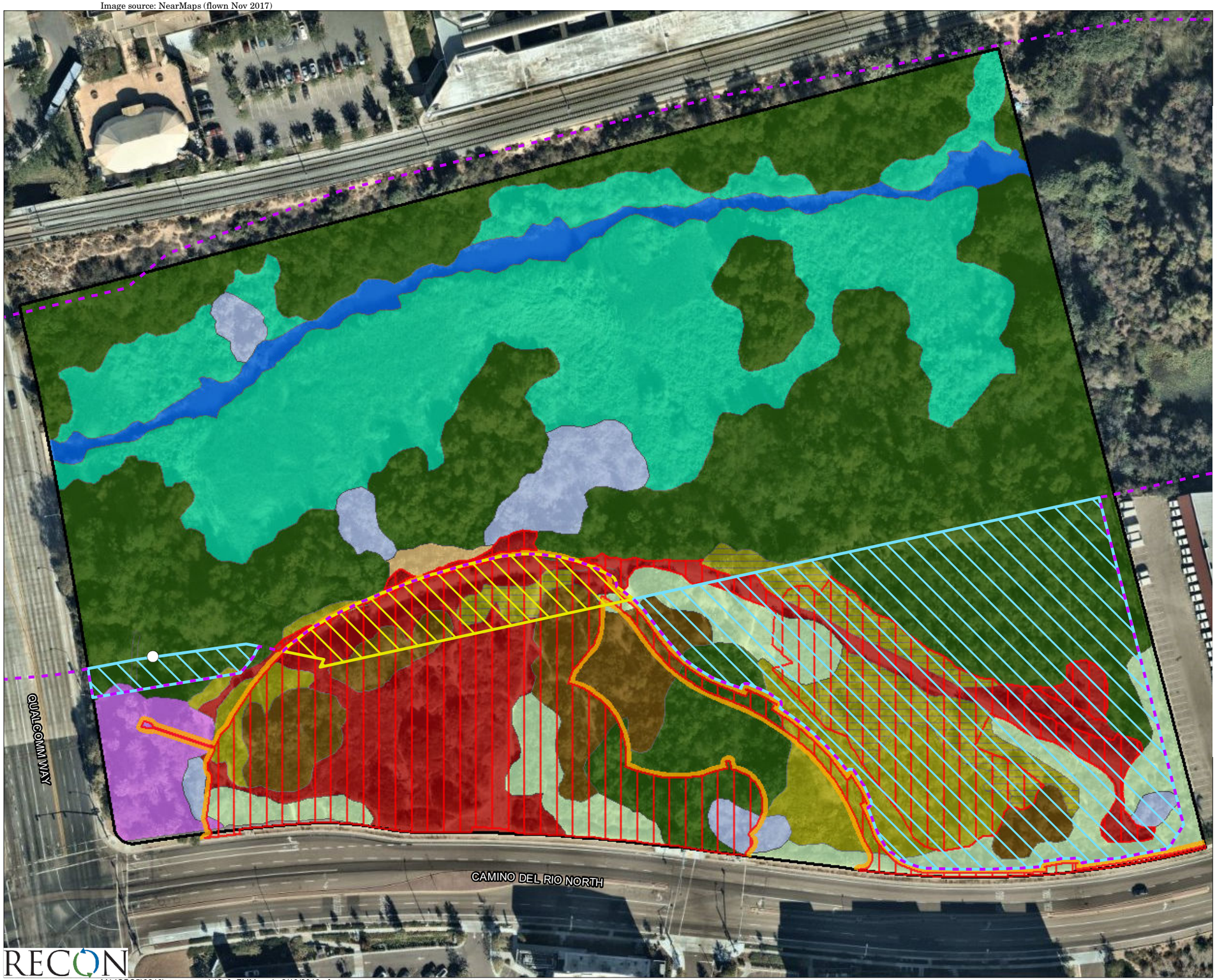
3.8 Multiple Species Conservation Program

3.8.1 Multi-Habitat Planning Area Boundary Line Adjustment

This project proposes an MHPA Boundary Line Adjustment (BLA) that removes portions of the proposed impact area currently within the MHPA and adds areas of natural habitat currently outside the MHPA (Figure 8). Because the new MHPA boundary preserves an area of equivalent or greater biological value, adjustments to the MHPA boundary may be made without amending the City's MSCP Subarea plan or the MSCP Plan.

The proposed MHPA BLA removes 0.09 acre of wetlands, 0.09 acre of sensitive uplands, and 0.27 acre of non-sensitive uplands from the MHPA and replace them with 1.31 acres of wetlands, 1.45 acres of sensitive uplands, and 0.37 acre of non-sensitive uplands within the project site (Table 4). The added areas are adjacent to existing areas of similar habitat within the MHPA (see Figure 8). An MHPA BLA for the proposed project was previously prepared based on conditions existing at the time of a draft biological technical report prepared by Helix (2016a). A determination regarding the biological value of the proposed boundary change was made in accordance with the MSCP Plan and with concurrence of the City, USFWS, and CDFW. That BLA was approved on August 21, 2015. The BLA currently proposed incorporates the most recent vegetation mapping described in this report and the proposed changes to the existing vegetation acreages resulting from project-related on-site mitigation within the BLA addition area. Acreages from both the previous BLA and the BLA currently proposed are provided in Table 4.

Image source: NearMaps (flown Nov 2017)



- Project Boundary
- Permanent Impacts
- Temporary Impacts
- Revised MHPA Boundary
- MHPA Addition
- MHPA Subtraction

Vegetation Communities

Wetlands

- Freshwater Marsh
- Mule Fat Scrub
- Open Water
- Southern Cottonwood-Willow Riparian Forest
- Southern Willow Scrub
- Southern Riparian Woodland

Tier II

- Diegan Coastal Sage Scrub
- Baccharis Scrub
- Disturbed Baccharis Scrub

Tier IV

- Non-native Woodland
- Disturbed Habitat

Other Cover

- Urban/Developed

Sensitive Species Observation

- Cooper's Hawk

0 Feet 100

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FIGURE 8

Approved MHPA
Boundary Line Adjustment

Table 4
Proposed Subtractions and Additions to the MHPA (acres)

Vegetation and Land Cover Types	ESL Tier	Previous BLA[a]			Updated BLA		
		Subtraction	Addition	Net Gain/ (Loss)	Subtraction	Addition	Net Gain/ (Loss)
Southern cottonwood–willow riparian forest	Wetland	0.02	1.06	1.04	-	1.14	1.14
Southern willow scrub	Wetland	-	0.02	0.02	-	0.03	0.03
Mule fat scrub	Wetland	0.01	-	(0.01)	-	-	-
Southern riparian woodland	-	0.08	0.20	0.12	0.09	0.14	0.05
Wetland subtotal		**0.11**	**1.28**	**1.17**	**0.09**	**1.31**	**1.22**
Diegan coastal sage scrub	II	-	0.29	0.29	0.01	0.53	0.43
Baccharis scrub (including disturbed)	II	0.10	0.97	0.87	0.08	0.92	0.14
Sensitive upland subtotal		**0.10**	**1.26**	**1.16**	**0.09**	**1.45**	**0.56**
Non-native woodland	N/A	-	0.20	0.20	-	0.01	0.01
Disturbed habitat	N/A	0.35	0.55	0.20	0.27	0.36	(0.23)
Urban/developed	N/A	-	-	-	-	-	-
Non-sensitive upland subtotal		**0.35**	**0.75**	**0.40**	**0.27**	**0.37**	**(0.22)**
TOTAL		**0.56**	**3.29**	**2.73**	**0.45**	**3.13**	**2.68**

[a]~~Vegetation community classifications in the Helix draft report were adapted to the classifications used in this report for comparison.~~

NOTE: Vegetation community classifications in the Helix draft report were compared and adapted to the classifications used in this report, which reflect the most current 2017 survey. Consequently, the vegetation acreages existing in and out of the MHPA changed since the BLA was originally approved in 2016. The updated BLA is based on current vegetation mapping. Considering this mapping change and adjustments to project design including a reduction in the development footprint and the proposal to restore and enhance wetlands and uplands on-site, the MHPA net gain/loss has changed by approximately 0.05 acre.

In order for a BLA to be approved, six findings must be made in accordance with Section 5.4.2 of the Final MSCP Plan (City of San Diego 1997). These six findings are discussed below.

1. Effects on significantly and sufficiently conserved habitats (i.e., the exchange maintains or improves the conservation, configuration, or status of significantly and sufficiently conserved habitats, as defined in Section 3.4.2 [of the MSCP Plan]).

   The proposed boundary line adjustment would improve the conservation value of the MHPA, as it would result in a net gain of 2.68 acres of primarily wetland or sensitive upland habitat. This includes the addition of 1.14 acres of southern cottonwood-willow riparian forest, 0.14 acre of southern riparian woodland with potential for habitat conversion, 0.03 acre of southern willow scrub, 0.53 acre of Diegan coastal sage scrub, and 0.92 acre of baccharis scrub. Most of the area subtracted from the MHPA (0.27 acre) consists of disturbed habitat.

2. Effects on covered species (i.e., the exchange maintains or increases the conservation of covered species).

   The areas proposed for addition would increase the amount of covered species habitat adjacent to the project site. These include riparian habitat for least Bell's vireo and Cooper's hawk. No covered plant species are presumed present in the areas proposed for subtraction. There is a potential for covered wildlife species, such as Belding's orange-throated whiptail and San Diegan tiger whiptail, to occur within the areas proposed for subtraction; however, the habitat proposed for addition would be at least equally as suitable for these species.

3. Effects on habitat linkages and function of preserve areas (i.e., the exchange maintains or improves any habitat linkages or wildlife corridors).

   The proposed MHPA boundary results in an overall net gain in wetland and sensitive upland habitats. Thus, the BLA would facilitate the increase of the value of the MHPA as a habitat linkage or wildlife corridor that could be used by riparian bird species and other wildlife. The subtraction and addition areas are peripheral to the main riparian corridor. The acreage added to the MHPA is approximately seven times the acreage subtracted. In addition, the additional area has potential for habitat connectivity with the river corridor. Proposed improvements to these areas through on-site mitigation are discussed in Sections 4.1, 4.2.1, and 5.1 below.

4. Effects on preserve configuration and management (i.e., the exchange results in similar or improved management efficiency and/or protection of biological resources).

   The proposed MHPA BLA is not anticipated to have a negative effect on the management efficiency of the preserve as the MHPA addition is adjacent to existing MHPA.

5. Effects on ecotones or other conditions affecting species diversity (i.e., the exchange maintains topographic and structural diversity and habitat interfaces of the preserve).

   The area proposed for subtraction from the MHPA currently contains an ecotone where upland habitats and riparian woodland on an elevated berm interface with wetland habitats at the lower elevation of the floodplain of the river. The areas proposed for addition to the MHPA contain areas of this same interface where riparian habitat occurs adjacent to elevated upland habitat. As described above, additional ecotone diversity is anticipated following habitat creation and enhancement discussed in greater detail in Sections 4.1, 4.2.1, and 5.1 below.

6. Effects on species of concern not on the covered species list (i.e., the exchange does not significantly increase the likelihood that an uncovered species will meet the criteria for listing under either the federal or state ESA).

The proposed BLA would not significantly increase the likelihood that an uncovered species would meet the criteria for listing under federal or state ESA. The proposed subtraction area consists of low-quality disturbed habitats that do not significantly contribute to the conservation of and are unlikely to support any species of concern.

3.9 MHPA Adjacency Guidelines

As stated in the MSCP Section 1.4.3 (1997), land uses adjacent to the MHPA are to be managed to ensure minimal impacts to the MHPA. The MSCP establishes adjacency guidelines to be addressed on a project-by-project basis to minimize direct and indirect impacts and maintain the function of the MHPA. The guidelines listed in Section 1.4.3 of the MSCP (1997) are outlined below with corresponding project action. Compliance with these guidelines would avoid and/or minimize potential indirect impacts to the adjacent MHPA along the northern and eastern limits of construction. Implementation of these compliance measures would be required as a condition of project approval.

A. Drainage – All new and proposed parking lots and developed areas in and adjacent to the preserve must not drain directly into the MHPA. All developed and paved areas must prevent the release of toxins, chemicals, petroleum products, exotic plant materials and other elements that might degrade or harm the natural environment or ecosystem processes within the MHPA. This can be accomplished using a variety of methods including natural detention basins, grass swales, or mechanical trapping devices. These systems should be maintained approximately once a year, or as often as needed, to ensure proper functioning. Maintenance should include dredging out sediments if needed, removing exotic plant materials, and adding chemical-neutralizing compounds (e.g., clay compounds) when necessary and appropriate.

All project areas are designed to drain away from the MHPA and into bio-retention basins where water is treated before being released into the existing storm drain system.

B. Toxics – Land uses, such as recreation and agriculture, that use chemicals or generate by-products such as manure, that are potentially toxic or impactive to wildlife, sensitive species, habitat, or water quality need to incorporate measures to reduce impacts caused by the application and/or drainage of such materials into the MHPA. Such measures should include drainage/detention basins, swales, or holding areas with non-invasive grasses or wetland-type native vegetation to filter out the toxic materials. Regular maintenance should be provided. Where applicable, this requirement should be incorporated into leases on publicly-owned property as leases come up for renewal.

The Discovery Center would not use any chemicals that are potentially toxic to wildlife, sensitive species, habitat, or water quality. Additionally, the project hardscape drains away from the MHPA line and into bio-retention basins where drainage is treated before being released into the existing storm drain system.

C. Lighting – Lighting of all developed areas adjacent to the MHPA should be directed away from the MHPA. Where necessary, development should provide adequate shielding with non-invasive plant materials (preferably native), berming, and/or other methods to protect the MHPA and sensitive species from night lighting.

The proposed project lighting is low intensity and designed to avoid introducing lighting into the MHPA and adjacent habitat areas.

Outdoor lighting will be limited at all times to what is shown on the project plans: 1) areas north of the building to the MHPA line include low-level, directional pathway bollards and pedestrian-scaled lighting (directional/supports dark sky requirements), and 2) parking areas, along Camino del Rio North, and main entries from public streets will include pole lighting and pedestrian-scaled (directional/supporting dark sky requirements) lighting. Outdoor events will not introduce additional lighting beyond what is shown on the project plans during the breeding season.

Outside of the breeding season, the passive park would be used for community movie presentations. Four movie events per year are anticipated with a maximum attendance of up to 250 people. The proposed movie setup includes a 12-foot by 6.75-foot inflatable screen set up in front of the acoustical shell that would show movies from a high definition Optoma EH341 Projector. Lighting from the movie projector is designed to be shielded away from the MHPA, and additional lighting beyond what is shown on the project plans is not required. Speakers for the movies would be operated under the same specifications as for amplified music described in the noise report and later in this report.

D. Barriers – New development adjacent to the MHPA may be required to provide barriers (e.g., non-invasive vegetation, rocks/boulders, fences, walls, and/or signage) along the MHPA boundaries to direct public access to appropriate locations and reduce domestic animal predation.

The San Diego River Pathway would help separate people using the facility from the MHPA. The steep slopes and dense vegetation north of the western portion of the pathway leading down into the San Diego River floodplain and MHPA would provide a physical barrier to deter access. The eastern portion of the pathway would consist of 10-foot-wide boardwalk raised an average of 4 feet above the natural grade which would deter people from accessing the adjacent MHPA.

E. Invasives – No invasive non-native plant species shall be introduced into areas adjacent to the MHPA.

All landscaped areas would be planted with native plant material, and non-native plants would be controlled and/or removed. On-site mitigation discussed in Section 5.0 and in the project's On-site Mitigation Plan (RECON 2017) includes invasive plant control within the project site.

The Discovery Center and associated facilities would promote a variety of methods to reduce the presence of nuisance and non-native animals. All outdoor areas would be maintained to keep them free of trash and food waste in order to minimize attracting non-native rodents and bird species. Animal-resistant trash receptacles would be strategically placed throughout the Discovery Center property. All trash and food waste resulting from an event would be immediately deposited in these receptacles following the event. During the breeding season, large events during which guests park off-site would require that Discovery Center staff (or hired security staff) patrol the river path to keep those areas free of all trash and food waste. Additional receptacles would be provided during large events as well.

Additionally, guests would be exposed to educational materials such as signage, printed materials, and docents, all of which would provide information about the ecological effects of trash and food waste.

F. Brush Management – New residential development located adjacent to and topographically above the MHPA (e.g., along canyon edges) must be set back from slope edges to incorporate Zone 1 brush management areas on the development pad and outside of the MHPA. Zones 2 and 3 will be combined into one zone (Zone 2) and may be located in the MHPA upon granting of an easement to the City (or other acceptable agency) except where narrow wildlife corridors require it to be located outside of the MHPA. Zone 2 will be increased by 30 feet, except in areas with a low fire hazard severity rating where no Zone 2 would be required. Brush management zones will not be greater in size that is currently required by the City's regulations. The amount of woody vegetation clearing shall not exceed 50 percent of the vegetation existing when the initial clearing is done. Vegetation clearing shall be done consistent with City standards and shall avoid/minimize impacts to covered species to the maximum extent possible. For all new development, regardless of the ownership, the brush management in the Zone 2 area will be the responsibility of a homeowners association or other private party.

No brush management zones would extend into the MHPA as Brush Management Zone 1 would be included in the proposed impact area. Brush Management Zone 2 activities are not conducted in wetland habitats; and therefore, Zone 2 does not extend into the MHPA.

G. Noise – Uses in or adjacent to the MHPA should be designed to minimize noise impacts. Berms or walls should be constructed adjacent to commercial areas, recreational areas, and any other use that may introduce noises that could impact or interfere with wildlife utilization of the MHPA. Excessively noisy uses or activities adjacent to breeding areas must incorporate noise reduction measures and be curtailed during the breeding season of sensitive species. Adequate noise reduction measures should also be incorporated for the remainder of the year.

The Discovery Center would provide outdoor areas for group activities, including volunteer staging areas, outdoor classroom space, viewing platforms, deck overlooks, refreshment stand, passive park, and a public recreational trail (see Project

Description in Section 1.2). Figure 9 provides a detailed analysis of all the planned outdoor uses. Following is an analysis of potential noise impacts from all potential operational noise sources. Please refer to the project Noise Study (Helix 2016b) for more information. Operational noise at least Bell's vireo occupied habitat areas that exceeds 60 A-weighted decibel average sound level (dB(A) L_{eq}) or the ambient noise level would be considered significant.

Known and anticipated project-related operational noise sources that were analyzed separately and cumulatively in the Noise Study included the following:

1. *The building heating, ventilation, and air conditioning (HVAC) systems;*

2. *Passive park area with presentation area and acoustic shell;*

    a) *With maximum group occupancy (human voice only)*
    b) *Limited amplified sound system*

3. *Battery-powered personal amplifiers which may be used by the docents along the river walk paths;*

4. *Multi-purpose view deck area; and*

    a) *With maximum group occupancy (human voice only)*
    b) *Limited amplified sound system*

5. *Refreshment stand order announcement speakers.*

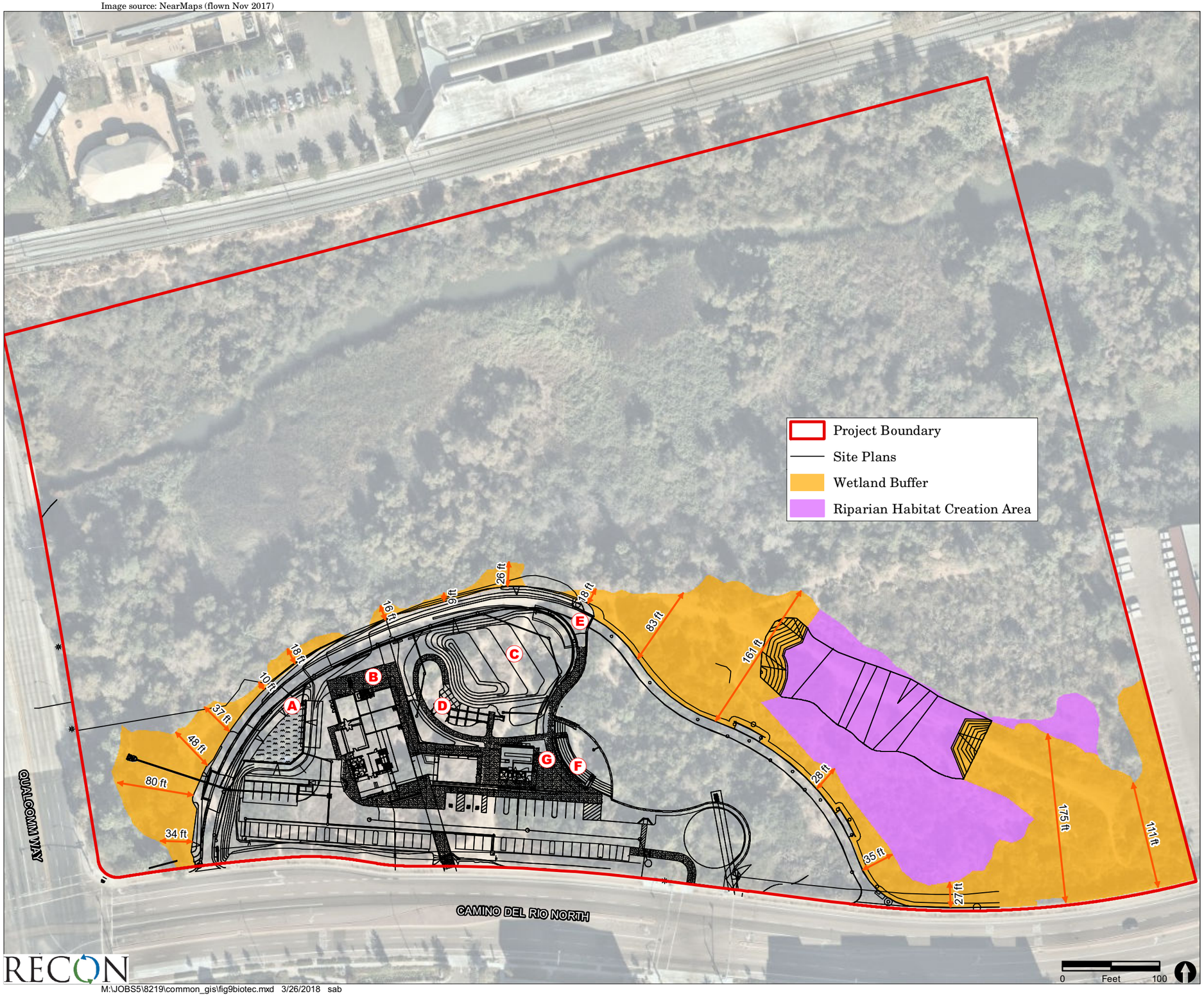
Three sources that were not analyzed because they did not have potential to cause significant impacts included the following:

1. *The outdoor classroom area has lesser capacity than the passive park and is at a greater distance from the habitat than the passive park;*

2. *The indoor uses are not anticipated to have any significant impacts at the habitat; and*

3. *The parking area is more distant from the habitat and would be shielded by the project buildings.*

Image source: NearMaps (flown Nov 2017)



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A VOLUNTEER STAGING AREA

The Volunteer Staging Area is an informal outdoor gathering space for small groups (up to 20 people). Activities include volunteers preparing got water quality monitoring and other citizen science activities, volunteers taking a break from docent and other activities, and staff and volunteers preparing for events such as planting and river trash removal. A small native plant nursery may also be incorporated into the site.

B BUILDING VIEW DECK

The view off of the main building is planned to be used primarily for a variety of small group activities. Except when used for private events, the deck will be open to the public during regular business hours to view the river and associated habitat. Spotting scopes and interpretive information may be displayed. Small social events may also be held on the deck.

C PASSIVE PARK

The passive park is planned to be used as a multi-function outdoor space with the majority use as a daytime community open space for the health and well-being of the local community. Envisioned passive activities examples include reading a book, meeting friends, art shows or simply a place to relax. The parkwill also be used for students to sit in circles or do education activities such as drawing, trust building activities and other activities as part of an organized group activity. On limited occasions, the park may be used for weddings and other organized events which could include gatherings of 120 or more people with a maximum capacity of 385 individuals. In these cases, noise mitigation measures for amplified sounds will apply.

D RIVER PLAY

The River Play exhibit area will be an active learning exhibit for children between the ages of 5 to 12. The majority of River Play area is located more than 100’ away from the wetlands boundary and will be located in a lower finish surface elevation than the surrounding passive park. An earthen berm separates a portion of the River Play and park. No impacts to wetlands are expected. The area is designed to engage children in play while learning about how the San Diego River functions.

E COMMUNITY DECK OVERLOOK

The community deck is a small gathering area designed for social interaction and a resite space along the river pathway. Noise and activity impacts are ecpected to be minimal.

F OUTDOOR CLASSROOM

The outdoor classroom will seat approximately 80 people and will be used primarily for wildlife and river education events. Working with partners such as Project Wildlife, the classroom will provide opportunities for participants to see first-hand local animals and to gain an appreciation and understanding of San Diego’s biodiversity. Due to the use by animal experts with live animal exhibits, the area is separated from the river pathway boardwalk by a minimum of 50’. This is a minimum distance required to reduce any disturbance to live animals so they remain comfortable and secure. The outdoor classroom may also be used for other gatherings.

G REFRESHEMENT STAND / PICNIC AREA

The refreshment stand and picnic area is designated as the primary outdoor eating area for the facility. It is adjacent to the public restrooms and has tables and chairs. The outdoor classroom sits between the natural vegetation and this area. It is separated from the wetland buffer by more than 100’. Waste and recycle containers will be available that are wildlife tamper proof. The area will be an active area and well maintained.

FIGURE 9

Wetland Buffer and Outdoor Uses

Following is a brief summary of the various noise sources that were considered. Please refer to the Noise Study (Helix 2016b) for more information.

Building HVAC systems: *The Noise Study anticipated that three HVAC units would be required. Combined, these units would have a sound power of 85 dBA, which would generate a noise level of 52 dBA at 50 feet (approximately 35 dBA after noise reduction from a mechanical roof screen).*

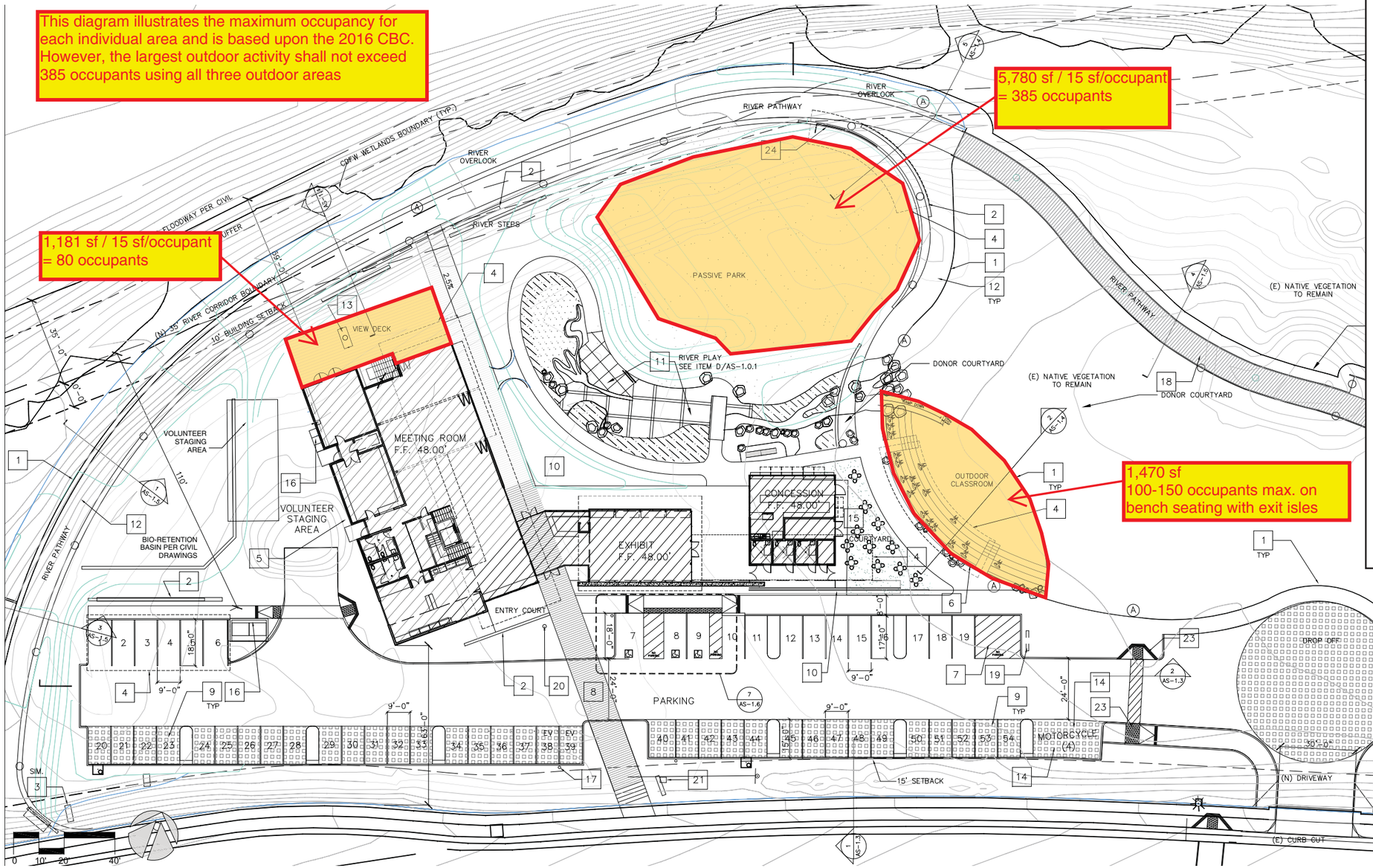
Human Occupancy in Passive Park: *The maximum area occupancy for the passive park is 385 people based on a 15 sf per person occupancy of the 5,780 sf park area. Normal human conversation is in the range of 58 to a maximum of 65 dBA at 3-feet. In addition to creating noise, humans provide both noise absorption and noise shielding (when standing), which was considered in the Noise Study model (Helix 2016b). Event attendance will be conditioned to allow the maximum occupancy only if the occupancy does not result in noise levels which exceed 60 dBA L_{eq} or the ambient noise level as verified through event monitoring.*

Limited Amplified Sound in Passive Park: *A permanent performance and movie area with an acoustic shell structure (described below) is planned for the outdoor passive park. This area would be positioned near the northeastern potion of the site away from and facing back into the building and outdoor use area (Figure 10). The acoustic shell would be constructed with a wall, built up from a low, 2- to 3-foot high cast-in-place concrete seat wall and footing with 3/8- thick glass (or similar material) panels to a height of 6 feet. The set-up area would be under a permanent structural shade covering that would include a noise control awning system within the stage covering. The top of the acoustic shell would be created by using a portion of the permanent structural shade covering constructed with an (opaque) noise control awning system and side panels connecting to the glass.*

Use of the performance area would be strictly limited to a maximum of two self-powered (internal amplifier 115-volt AC) speaker systems with a single large speaker (12-inch or less size) per unit. The speakers would be required to be positioned on the stage area below the noise awning (within the coverage area of the awning and glass wall). These requirements would be incorporated into any facility lease agreements. Based on the two speakers for the performance area at the Discovery Center, the sound volume cannot be distributed over a large area and would become self-limiting.

Docent Portable Amplifier: *As previously noted, the docent may use a personal amplifier during guided tours to allow them a normal speech level that may be heard by the tour group. Additionally, docent use of amplifiers would occur while moving around the site, thus further limiting the noise exposure at any one location. A personal amplifier used for a guided tour has a normal usage factor of less than 10 to 15 minutes out of the hour and only 2 to 3 minutes (or less total usage) at any given location.*

Map Source: ROESLING NAKAMURA TERADA ARCHITECTS Inc.



Specific Musician's Performance Area Notes & Requirements

The musician's performance area must provide a permanent noise control structure (with removable lass awning panels) on the north and northwest side of the area;

The musician's performance area will consist of a dedicated on-grade space that optimizes the use of a sound wall to minimize sound in habitat areas;

The musician's performance area shall provide a permanent back wall structure;

TThe musician's performance area shall provide a permanent noise control awning system including 1 PSF loaded vinyl layer;

The musician's performance area will always include the use of noise control flaps extending from the awning to the top (or overlapping the top) of the glass during use that requires amplified music;

TThe musician's performance area shall provide an enclosure when used so that there are no gaps overhead, to the north or northwest, in the shell structure;

The musician's performance area shall provide a permanent power system for lights and amplifiers;

Use of the musician's performance area shall always be limited to the use of not more than two (single large speaker) self-powered speaker amplifier systems to be positioned on the set-up area only;

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FIGURE 10
Maximum Occupancy for Outdoor Areas

View Deck Area with Fireplace: *Similar to the passive park the deck would have two potential noise sources: amplified sound and human occupancy. The maximum area occupancy for the deck is 80 people based on a 15 square feet per person occupancy of the 1,181-square-foot deck area. The deck is not intended for large group entertainment; the amplified sound use would be limited to a small portable system (typically Bluetooth wireless battery-powered speakers for music from a cell phone or iPod and educational presentations from a TV or computer systems with internal speakers).*

Concession PA: *The facility will utilize a small local public address system at the concession building to provide patrons with announcements such as when orders are ready. This is typically done by a small pair of speakers mounted near the outer edges of the concessions under the roof eaves for weather protection and aimed downwards into the local area of the concessions.*

Calculated Operational Noise Impacts: *The calculated noise impacts at five receiver locations with all of the assumed HVAC equipment in operation and live music are shown in Table 5. As shown in the table, any of the individual noise sources is well below the allowable levels and when all noise sources are combined, the cumulative noise level is also below significant. The receiver locations are also shown on Figure 11, along with the predicted noise contours for the combined noise source condition. Receivers R2 and R3 represent the worst-case impacts to the MHPA. As shown in Table 5, estimated operational noise levels at these locations would be well below the 60 dBA L_{eq} noise threshold. Therefore, potential project-related operational impacts to least Bell's vireo-occupied areas from all noise sources (combined) would be less than significant.*

In order to ensure that the noise study modeling and assumptions are accurate, the mitigation measures detailed below require: 1) a pre-event sound test and certification to document that potential noise from events would be kept at acceptable levels; 2) monitoring during a full or nearly full events prior to the breeding season to document that the noise attenuation features of the project successfully reduced noise to acceptable levels; and 3) monitoring of a minimum of four events during the breeding season to document that noise attenuation features continue to be successful during a variety of event types and sizes. If a failure occurs, additional testing would be required to determine a method to control noise levels to less than 60.5 dBA L_{eq}, which was identified as the ambient noise level at the edge of the habitat. The proposed project features and mitigation measures would ensure that potential operational noise impacts are less than significant.

Table 5 Calculated Noise Levels from All Individual and Combined Sources [dB(A) L_{eq}]									
Receiver	Location	HVAC Equipment	Passive Park Amplified Noise	Passive Park Human Noise	Docent Personal Speaker	Deck Amplified Noise	Deck Human Noise	Concession PA	Combined Noise
R1	MHPA Area South	29.4	45.9	46.9	48.5	49.7	48.6	38.1	55.3
R2	MHPA Area South Central	29.5	50.2	49.6	42.2	50.1	48.1	40.5	56.0
R3	MHPA Area Central	29.3	48.5	51.2	41.2	48.1	46.3	41.0	55.3
R4	MHPA Area North Central	29.2	46.4	53.3	44.0	44.7	43.4	41.8	55.5
R5	MHPA Area North	28.6	45.8	50.3	53.0	40.8	42.4	40.5	55.9

Image source: NearMaps (flown Nov 2017) Noise data from Helix (2016)

Project Boundary

Site Plans

Receiver Locations

Noise Contours

- 45 dBA
- 50 dBA
- 55 dBA
- 60 dBA
- 65 dBA
- 70 dBA

Vegetation Community

- Freshwater Marsh
- Mule Fat Scrub
- Open Water
- Southern Cottonwood-willow Riparian Forest
- Southern Riparian Woodland
- Southern Willow Scrub

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FIGURE 11

Noise Contour Map with Receiver Locations

Calculated and Cumulative Operational Noise Impacts

For the Noise Study (Helix 2016b), on-site noise measurements at five receiver locations which were recorded and assessed using modeling software to estimate the potential noise levels from the proposed project, including the five operational noise sources described above. A summary of those findings are presented in Table 5. The ambient noise level at the edge of the habitat on-site was measured at 60.5 dB(A) L_{eq}. Each individual noise source assessed was estimated well below this threshold and, therefore, below a level of significance. The cumulative noise level for all of these sources combined is below a level of significance as well. Therefore, potential project-related operational impacts to least Bell's vireo-occupied areas from all noise sources (combined) would be below a level of significance. Figure 11 shows the receiver locations, along with the predicted noise contours for the cumulative noise levels.

As mentioned above, noise levels would be monitored prior to and during the breeding season. Specifically, a pre-event sound test and certification would be conducted; noise levels would be monitored during a full or nearly full event prior to the breeding season, and noise levels would be measured during a minimum of four events during the breeding season to document a variety of event types and sizes. The goal of this noise monitoring schedule is to verify that project noise attenuation features successfully reduce noise levels to an acceptable level during large events and a variety of events during the breeding season. If noise levels are not attenuated to below a level of significance [60.5 dB(A) L_{eq}] during any monitoring conducted, additional testing would be required and a method to further reduce noise levels would be implemented.

H. **Grading/Land Development** – Manufactured slopes associated with site development shall be included within the development footprint for projects within or adjacent to the MHPA.

Construction limits include manufactured slopes and are outside the MHPA boundary.

3.9.1 Project Impacts in the MHPA

The project proposes direct impacts to land within the MHPA as a result of mitigation-related grading and vegetation conversion. Implementation of these activities would require biological monitoring as described in the mitigation discussion (Section 5.0) below. The mitigation would result in an increase in the acreage of native habitats and an increase in the functions and values of these habitats within the MHPA on-site.

4.0 Project Impacts

This project proposes direct impacts, including permanent and temporary impacts, to 4.10 acres (impact area) of the project site as a result of construction-related grading, development of the San Diego River Pathway, and mitigation activities. Indirect impacts may occur to other portions of the project site. All impacts to biological resources as a result of this project would occur on-site. The following discussion analyzes the direct, indirect, and cumulative impacts that may result from this project.

4.1 Impacts to Sensitive Habitats

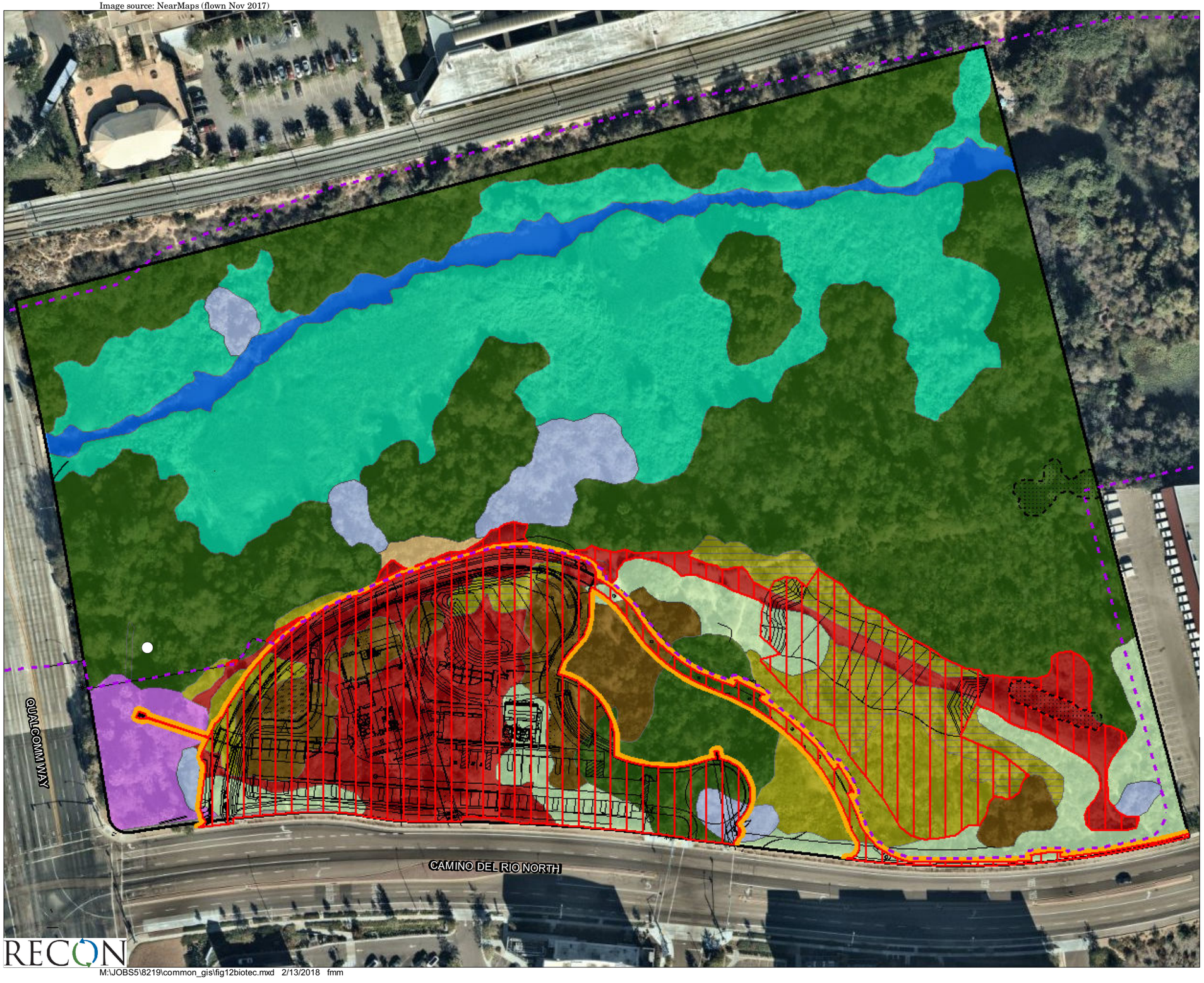
Permanent impacts to 3.82 acres would result from project site construction, including on-site habitat conversion required for mitigation. This acreage would include 0.26 acre of southern cottonwood–willow riparian forest, 0.58 acre of southern riparian woodland, 0.05 acre of southern willow scrub, 0.44 acre of Diegan coastal sage scrub, 0.92 acre of baccharis scrub, 1.54 acre of disturbed habitat, 0.01 acre of non-native woodland, and 0.02 acre of urban/developed land (Table 6; Figure 12). Of these impacts, 1.21 acres would occur within the MHPA including 0.40 acre of disturbed habitat, 0.72 acre of baccharis scrub, and 0.09 acre of Diegan coastal sage scrub as a result of on-site mitigation.

Table 6
Impacts To Vegetation Communities and Land Cover Types
(acres)

Vegetation and Land Cover Types	ESL Tier	Existing	Permanent Impacts	Temporary Impacts	**Total Impacts**
Open water	Wetland	0.49	0.00	0.00	**0.00**
Freshwater marsh	Wetland	3.97	0.00	0.00	**0.00**
Southern cottonwood-willow riparian forest	Wetland	7.07	0.26	0.06	**0.32**
Southern riparian woodland	Wetland	0.92	0.58	0.04	**0.62**
Southern willow scrub	Wetland	0.51	0.05	0.01	**0.06**
Mule fat scrub	Wetland	0.05	0.00	0.00	**0.00**
Diegan coastal sage scrub	II	1.09	0.44[a]	0.05	**0.49**
Baccharis scrub	II	1.41	0.92[b]	0.06	**0.98**
Non-native woodland	N/A	0.33	0.01	0.02	**0.03**
Disturbed habitat	N/A	1.65	1.54[c]	0.04	**1.58**
Urban/developed	N/A	0.02	0.02	0.00	**0.02**
TOTAL	**-**	**17.51**	**3.82**	**0.28**	**4.10**

[a]Includes mitigation impacts to 0.09 acre within MHPA
[b]Includes mitigation impacts to 0.72 acre within MHPA
[c]Includes mitigation impacts to 0.40 acre within MHPA

Image source: NearMaps (flown Nov 2017)



Project Boundary
Site Plans
Revised MHPA Boundary
Permanent Impacts
Temporary Impacts
Previous Mitigation Area

Vegetation Communities

Wetlands

Freshwater Marsh
Mule Fat Scrub
Open Water
Southern Cottonwood-Willow Riparian Forest
Southern Willow Scrub
Southern Riparian Woodland

Tier II

Diegan Coastal Sage Scrub
Baccharis Scrub
Disturbed Baccharis Scrub

Tier IV

Non-native Woodland
Disturbed Habitat

Other Cover

Urban/Developed

Sensitive Species Observation

Cooper's Hawk

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FIGURE 12
Impacts to Biological Resources

Temporary impacts would result from equipment in a construction buffer that would vary from 5 to 10 feet in width (see Figure 12). No grading or grubbing (ground-breaking activities) would occur in the temporary impact buffer. Activities within this buffer are expected to result in temporary impacts to 0.06 acre of southern cottonwood–willow riparian forest, 0.04 acre of southern riparian woodland, 0.01 acre of southern willow scrub, 0.05 acre of Diegan coastal sage scrub, 0.06 acre of baccharis scrub, 0.02 acre of non-native woodland, and 0.04 acre of disturbed habitat (see Table 6 and Figure 12). According to the City's Significance Determination Guidelines (2012), permanent and temporary direct impacts to wetland and Tier II habitats would be considered significant.

4.2 Impacts to Jurisdictional Waters

Project site construction would result in 0.89 acre of permanent impacts and 0.11 acre of temporary impacts to City wetlands (Table 7; Figure 13). No permanent impacts are expected to occur to CDFW riparian and no permanent or temporary impacts are expected to occur to CDFW streambed, or wetlands and non-wetland waters under the jurisdiction of USACE and RWQCB.

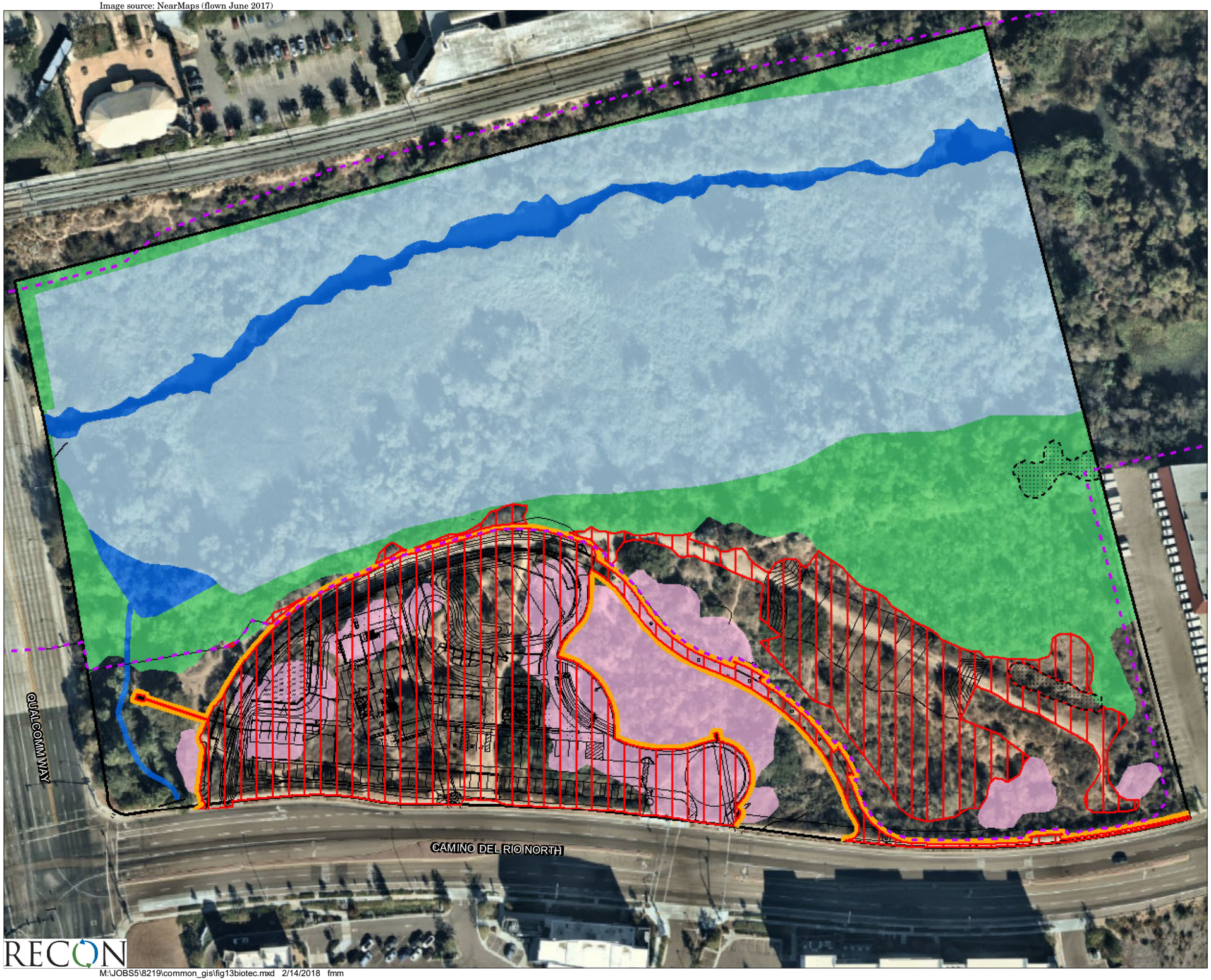
Table 7
Jurisdictional Wetlands and Waters within the Project Site

Jurisdictional Waters	Existing on Project Site [acres (linear feet)]	Permanent Impacts	Temporary Impacts
USACE			
Wetland waters of the U.S.	8.05	0.00	0.00
Non-wetland waters of the U.S.*	0.63 (1,362)	0.00	0.00
USACE Total Jurisdiction	**8.67**	**0.00**	**0.00**
RWQCB			
Wetland waters of the State	10.75	0.00	0.00
Non-wetland waters of the State*	0.63 (1,362)	0.00	0.00
RWQCB Total Jurisdiction	**11.38**	**0.00**	**0.00**
CDFW			
Riparian wetland	10.75	0.00	0.00
Streambed*	0.63 (1,362)	0.00	0.00
CDFW Total Jurisdiction	**11.38**	**0.00**	**0.00**
City of San Diego Jurisdiction			
Wetlands	12.41	0.89	0.11
City of San Diego Total Jurisdiction	**12.41**	**0.89**	**0.11**

*Jurisdictional non-wetland waters for USACE, RWQCB, and CDFW overlap on the project site.
USACE = U.S. Army Corps of Engineers
RWQCB = Regional Water Quality Control Board
CDFW = California Department of Fish and Wildlife

No indirect impacts to wetlands/waters and wetland functions and values are expected as a result of this project. The project is designed such that all runoff drains into a City-approved storm water retention system. The long-term management of exotic species within the wetland areas are expected to avoid/minimize potential indirect impacts to wetlands or waters.

Image source: NearMaps (flown June 2017)



Project Boundary
Site Plans
Permanent Impacts
Temporary Impacts
Previous Mitigation Area
Revised MHPA Boundary

Jurisdictional Classification

USACE Non-wetland Waters of the U.S./RWQCB Non-wetland Waters of the State/CDFW Streambed

USACE Wetland Waters of the U.S./RWQCB Wetland Waters of the State/CDFW Riparian /City Wetlands

RWQCB/CDFW Wetland Waters of the State/City Wetland

City Wetland Only

0 Feet 100

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FIGURE 13
Impacts to Jurisdictional Resources

4.2.1 Deviation from Wetland Regulations

The City Biology Guidelines (2012) and the ESL Regulations state that impacts to wetlands should be avoided and unavoidable impacts should be minimized to the maximum extent practicable. A wetland buffer shall be maintained around all wetlands as appropriate to protect the functions and values of the wetland.

The project proposes impacts to wetlands outside the Coastal Overlay Zone. Impacts to wetland habitat require a deviation from the wetland regulations. Deviations from the wetland regulations shall not be granted unless the development qualifies to be processed as one of these three options: Essential Public Projects Option, Economic Viability Option, and Biologically Superior Option.

The proposed project does not qualify as an essential public project and this project is not proposed as the Economically Viability Option. However, the proposed project, including the on-site mitigation, does represent the Biologically Superior Option as described below.

In order to qualify as the Biologically Superior Option, a project deviating from wetland regulations must: (1) fully describe and analyze a no project alternative, a wetlands avoidance alternative, and a biologically superior alternative demonstrating that the proposed project would result in the conservation of a biologically superior resource compared to strict compliance with the provisions of the ESL; (2) demonstrate that the wetland resources being impacted by the project shall be limited to wetlands of low biological quality; (3) demonstrate that the project and associated mitigation conform to the requirements for this option that include avoidance, minimization, and compensatory measures which would result in a biologically superior net gain in overall function and values of the type of wetland resource being impacted and/or the biological resources to be conserved; and (4) obtain concurrence from the USFWS and the CDFW (Wildlife Agencies).

4.2.1.1 No Project Alternative

Under the no project alternative, the project proposed in this report would not be constructed nor would the MHPA BLA occur. The site would remain undeveloped but would likely continue to undergo regular human disturbance through encampments and trails in the southern portion of the site. Additionally, the on-site wetland enhancement and creation proposed as mitigation for this project would not occur and non-native species would likely continue to invade native habitats on-site.

4.2.1.2 Wetlands Avoidance Alternative

Under the wetlands avoidance alternative, the project would be designed to avoid all City wetlands as shown on Figure 6 above. The area of disturbed habitat in the southwestern portion of the site and the area of baccharis scrub in the southeastern portion of the site could be developed without impacting wetland habitats. However, each of these areas would be too small for any viable version of the Discovery Center.

Recent development on Camino del Rio North, including road improvements, has created a potential ingress/egress location along the southern portion of the project site. This includes a gap in the road median, a curb cut, and a traffic light. These elements require utilizing this location as the driveway for the proposed project. However, this ingress/egress location is adjacent to existing City wetlands, including southern willow scrub and southern cottonwood–willow riparian forest. Therefore, this wetlands avoidance alternative would require that the project driveway be placed in a different location and would result in additional traffic and safety considerations.

Due to constrained space and access, the wetland avoidance alternative would be infeasible. The smaller developable area would eliminate critical project components, such as the visitor center building, outdoor facilities, parking, and river trail.

4.2.1.3 Demonstration of the Proposed Project as a Biologically Superior Option

Conservation of a Biologically Superior Resource

Project development would impact approximately 20 percent of the property and would preserve and/or enhance the equivalent of 2.31 acres within the remaining approximately 13 acres of native habitats, including the San Diego River corridor, within the parcel.

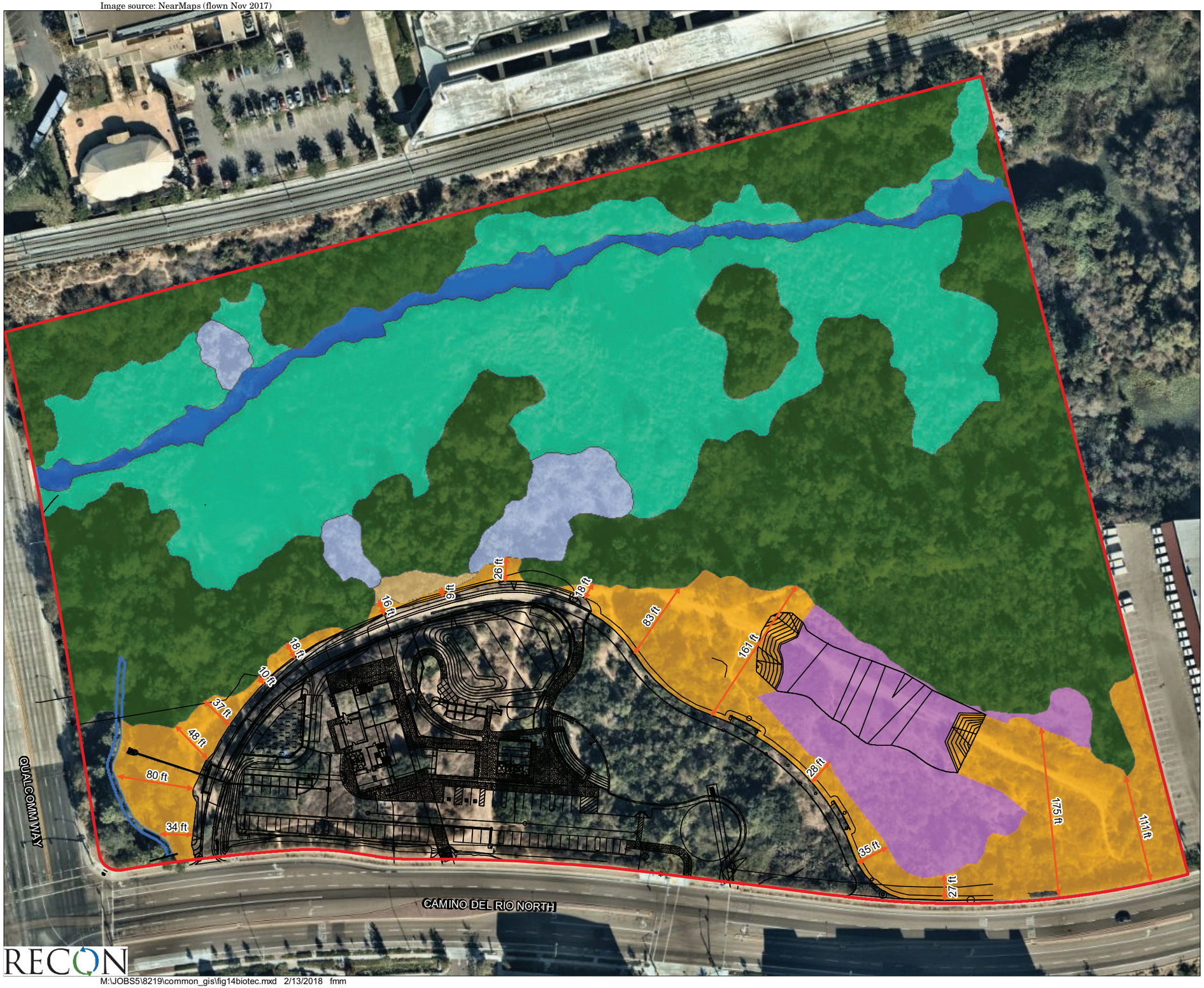
As described previously in Section 3.8.1, the project design includes an MHPA BLA that would result in a 2.68 net-acre addition to the MHPA, the majority of which would be sensitive vegetation communities including southern cottonwood–willow riparian forest (1.14 acres), southern riparian woodland (0.05 acre), and Diegan coastal sage scrub (0.43 acre).

Wetland Buffer

As the biologically superior option, the project would provide a buffer from the river path or road to the wetland habitat that varies from 0 to more than 100 feet (Figure 14). This buffer would be comprised of upland habitat, including areas to be restored as Diegan coastal sage scrub that provide habitat protection for riparian habitat occurring on-site. Additionally, riparian creation within the wetland buffer would increase the amount of sensitive habitat available to support foraging wildlife that utilize the river corridor.

Although some portions of the river path do not have a wetland buffer because riparian habitat exists directly adjacent to the proposed path, these areas are separated from the river floodplain by approximately 20 feet of elevation. The proposed river path would occur on the top of a steep slope that leads down to the floodplain of the river, approximately 20 feet below. This slope separates the riparian habitat within the river corridor from the elevated areas in the southern portion of the site. The riparian trees are generally rooted at the bottom of the slope although their canopies may extend up the slope and adjacent to the berm and proposed path location. The steepness and length of the slope in these areas would provide an adequate buffer that would protect the wetland habitat within the river corridor.

Image source: NearMaps (flown Nov 2017)



- Project Boundary
- Site Plans
- Wetland Buffer
- Riparian Habitat Creation Area
- Channel

Vegetation Communities and Land Cover

- Freshwater Marsh
- Mule Fat Scrub
- Open Water
- Southern Cottonwood-willow Riparian Forest
- Southern Willow Scrub

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FIGURE 14

Wetland Buffer Analysis

Along the river path in areas where the wetland buffer would be less than 15 feet in width, the landscaping would include plantings of large native shrubs along the north side of the trail to provide more screening from the path to the wetland habitat along the river below (Figure 15). This would also deter people from accessing the wetland's edge.

The eastern portion of the river path would be constructed on piers instead of using fill. This would elevate the path which would deter humans from leaving the path to access the habitat below, and therefore decrease the potential for impacts. This method of construction also would increase the potential for wildlife movement under the suspended trail platform from the habitat west of the path to the more extensive habitat along the river.

Wetland Quality

According to the City's Biology Guidelines (2012), in order to determine if a project is the Biologically Superior Option, it should be demonstrated that the wetlands proposed to be impacted are of low biological quality. The guidelines specify that the biological quality of all wetlands is assessed using the criteria listed below. Corresponding project details follow each criterion below.

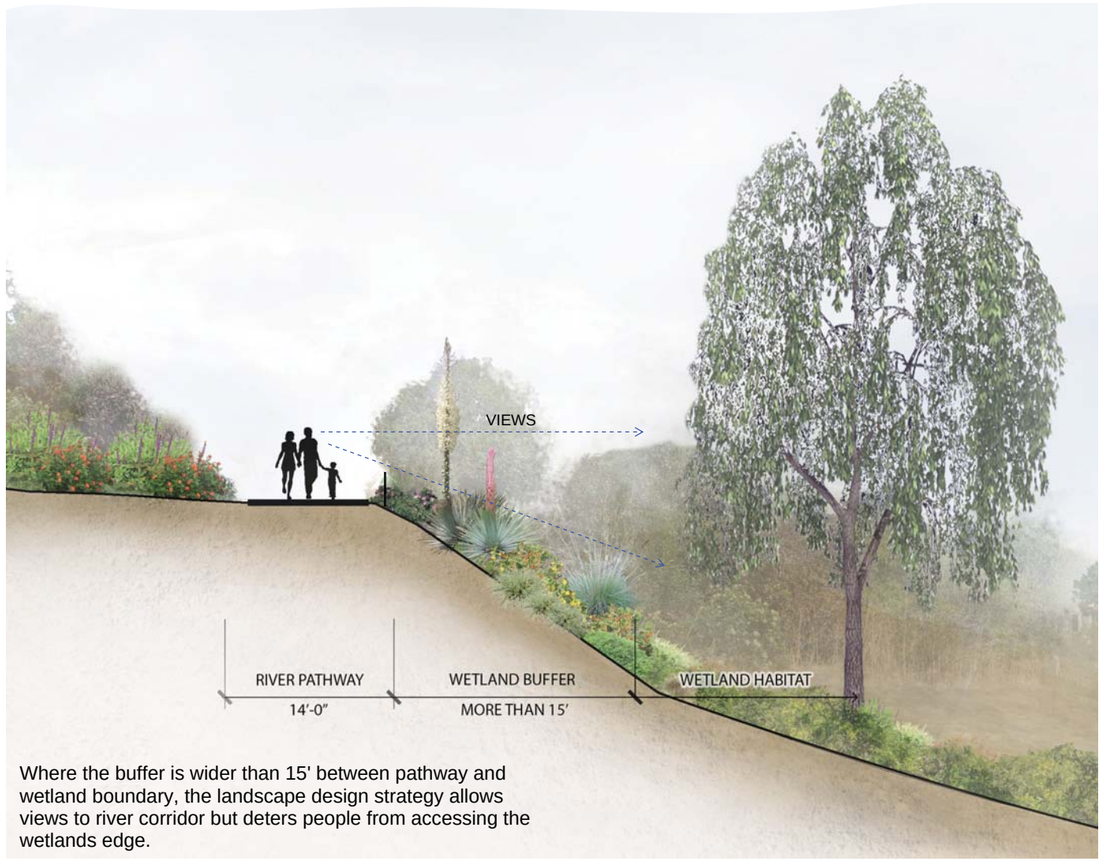
1. Use of the wetland by federal and/or state endangered, threatened, sensitive, rare and/or other indigenous species.

   The wetlands proposed to be impacted are not substantially used by federally endangered species. During surveys conducted by Helix between 2013 and 2015 (Helix 2016a), least Bell's vireo was observed within the property but was not observed in the area south of the east-west berm where the project proposes impacts to City wetlands. Additionally, the wetlands proposed to be impacted are less suitable for least Bell's vireo than the riparian habitats within the river corridor due to their species composition and structure. These City wetlands are also separated from the riparian habitats of the river corridor by elevation and the occurrence of upland vegetation between. Least Bell's vireo would be less likely to utilize these areas.

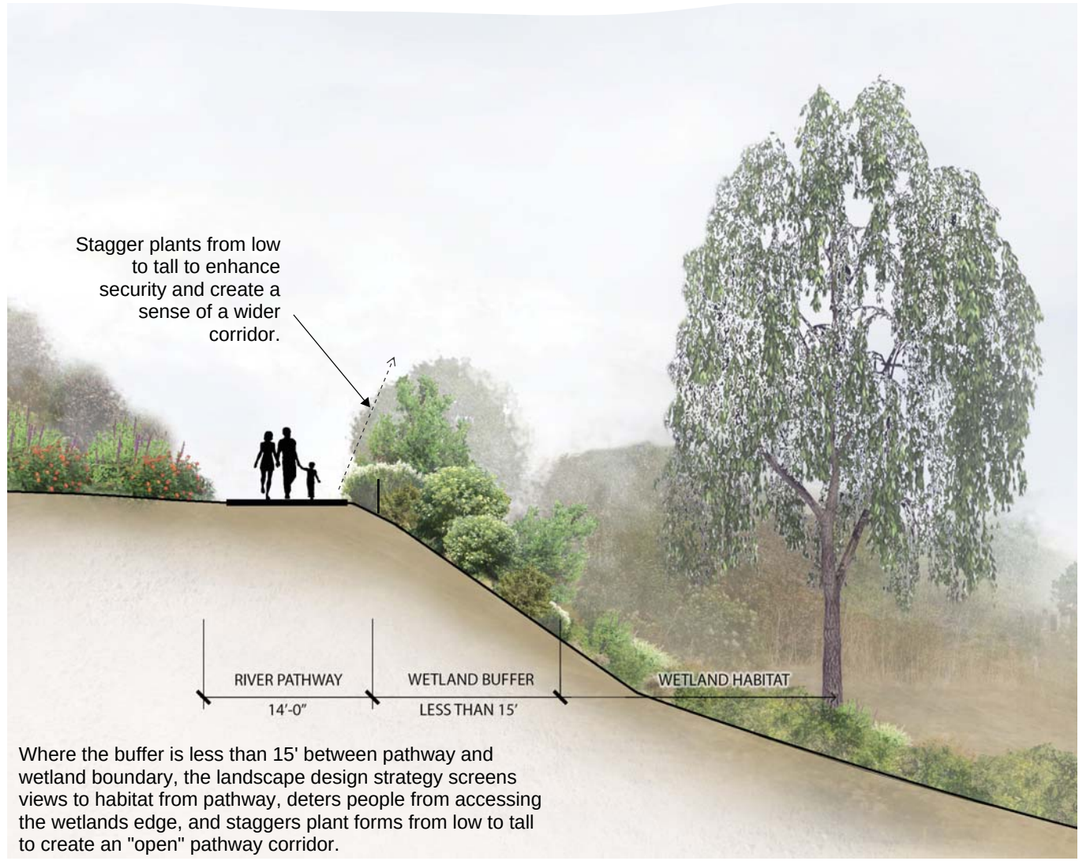
2. Diversity of native flora and fauna present (characterizations of flora and fauna must be accomplished during the proper season, and surveys must be done at the most appropriate time to characterize the resident and migratory species).

   Surveys (Helix 2016a, RECON 2017) found that the majority of bird species observed on-site, including sensitive species, utilize the river corridor compared to the wetland habitat south of the berm where impacts are proposed. One observation of a sensitive riparian bird (yellow warbler) was detected south of the berm and no sensitive plant species were observed on-site (Helix 2016a). The habitat north of the berm contains fewer areas where non-native species have a substantial presence and likely contains more diversity of native flora and fauna because it is composed of more mature and higher functioning riparian habitat. The wetlands south of the berm contain a high proportion of non-wetland species and the riparian trees present have diminished canopies. These factors suggest that these wetlands are in decline and possibly transitioning to non-wetlands.

Map Source: ROESLING NAKAMURA TERADA ARCHITECTS Inc.



Where the buffer is wider than 15' between pathway and wetland boundary, the landscape design strategy allows views to river corridor but deters people from accessing the wetlands edge.



Where the buffer is less than 15' between pathway and wetland boundary, the landscape design strategy screens views to habitat from pathway, deters people from accessing the wetlands edge, and staggers plant forms from low to tall to create an "open" pathway corridor.

YUCCA WHIPPLEI

BACCHARIS PILULARIS

CAREX PANSA

MIMULUS AURANTI

MUHLENBERGIA RIGENS

ROSA CALIFORNIA

BACCHARIS SKY

BACCHARIS PILULARIS

RHUS INTEGRIFOLIA

SAMBUCUS MEXICANA

NOTE: LANDSCAPING AT BUFFERS VARY IN WIDTH DEPENDING ON SITE CONDITIONS. ON AVERAGE THEY ARE APPROX. 10' WIDE MAX. AND ONLY APPLY AT AT AREAS WHERE OVERALL WIDTHS BETWEEN THE RIVER PARTHWAY AND WETLANDS ARE 20' OR LESS.

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FIGURE 15
Wetland Buffer Plantings

Additionally, these wetlands south of the berm undergo regular disturbance from homeless encampments, trails, and trash. These areas are also adjacent to and at elevation with developed areas including roads and sidewalks which decreases the suitability for a number of native fauna.

3. Enhancement or restoration potential.

   The wetlands proposed for impact are currently separated by a berm and a steep slope with approximately 20 feet of elevation change down to the bottom of the river corridor. Grading the berm would remove a habitat barrier, but the steep slope would continue to function as a habitat barrier. Removal of a large amount of soil would be require to create a more gradual slope and a habitat connection between the wetlands proposed for impacts and the river corridor. This amount of grading would be an infeasible alternative. Without this connection to the river corridor, the wetlands proposed for impact would remain isolated and of low quality.

   In contrast, the basin in the southeastern portion of the site proposed for riparian creation is situated at an elevation between 10 and 15 feet above the bottom of the river corridor. This area is currently separated from the river by a berm and another basin that is slightly lower in elevation with habitat connectivity to the main river corridor. Removal of the berm here would require removal of relatively less soil and provide the connectivity due to the gradual transition of grade and existing habitat from this area to the river corridor. The subsequent implementation of deep-rooting techniques proposed for riparian habitat creation would facilitate the development of high-quality riparian habitat in this location. Grading to remove the berm in this location would be a feasible option for this project. Thus, considering both feasibility and likelihood of success, this southeastern basin has greater enhancement and restoration potential than the proposed area of wetland impact.

4. Habitat function/ecological role of the wetland in the surrounding landscape, considering − the current functioning of the wetland in relation to historical functioning of the system; and − rarity of the wetland community in light of the historic loss and remaining resource.

   These relictual wetlands likely do not provide a similar habitat resource to native fauna, particularly birds, when compared to the mature riparian habitat of the main river corridor. The wetlands proposed to be impacted provide relatively low-quality habitat for native flora and fauna, and this area serves primarily as a buffer to the main river corridor. This wetland habitat contains a high proportion of non-wetland plant species and many of the remaining wetland trees (cottonwood and willow) have diminished canopies. The extensive human disturbance in this area also contributes significant edge effects to wildlife and limits the suitability of native habitat.

   Historically, the San Diego River likely meandered through a large floodplain spanning Mission Valley. This river system would have been subject to a large variation in water flow based on hydrologic input into the river's watershed. However, multiple dams, channelization, and urbanization have substantially changed the dynamics of this river.

The current grade of the site is a result of the property being used for mining activities. The wetlands proposed to be impacted occur at higher elevation than wetlands that had historically occurred on-site, leading them to be hydrologically isolated from the main river corridor.

Riparian habitat is considered a sensitive habitat. Due to the development of Mission Valley, riparian habitat in this area is particularly limited and constrained. In this way, the wetlands proposed to be impacted are a valuable resource; however, they would still be considered low-quality habitat due to their lack of well-developed riparian vegetation, the regular human disturbance, and their adjacency to developed land.

5. Connectivity to other wetland or upland systems (including use as a stopover or stepping stone by mobile species), considering − proximity of the wetland resource to larger natural open spaces, and − long-term viability of resource, if avoided and managed.

   As described above, the wetlands proposed to be impacted are hydrologically isolated from the main river corridor due to a 20-foot elevation difference and separated from the riparian habitat of the river corridor by a berm and steep slope. These areas may support transient wildlife species as well as species commonly found in urbanized environments. However, these wetland are not expected to serve as a local or regional wildlife corridor because they are relatively isolated from other areas of riparian habitat. Additionally, the poorly developed structure of these wetlands do not provide ideal habitat to riparian wildlife.

   Due to the declining appearance of the riparian trees and the substantial cover of upland plant species, the long-term viability of the wetlands proposed to be impacted is unlikely. If the proposed wetland impact area were avoided and managed, the area would remain unconnected to the habitat of the river corridor unless the berm and slope were graded as described above.

   In comparison, the southeastern portion of the site has potential for enhancement despite its hydrologic isolation. Habitat connectivity between this area and the river corridor could be successfully established due to the lower elevation and existing gradual habitat transition.

6. Hydrologic function, considering − whether the volume and retention time of water within the wetland is sufficient to aid in water quality improvements, and − whether there is significant flood control value or velocity reduction function; and − whether there is an opportunity to restore the hydrologic functions.

   The wetlands proposed to be impacted are hydrologically isolated from the main river corridor. At approximately 20 feet above the elevation of the river bottom, they would receive direct water flow from the river only during a large flood event. Instead, the water supply in this area is sourced from street run-off from Camino del Rio North and rainfall. This runoff occurs as sheet flow and does not form a streambed on-site.

Due to the isolated nature of these wetlands, they do not provide any water quality improvements for the San Diego River, nor do they have significant flood control value or velocity reduction function.

As described above, restoration would involve substantial grading to provide hydrologic connectivity and would be infeasible.

7. Status of watershed considering whether the watershed is partially developed, irrevocably altered, or inadequate to supply water for wetland viability.

   The watershed of the San Diego River is partially developed, with a majority of development occurring in the lower half of the watershed, including within Mission Valley. The water supply of the river is adequate to support the well-developed riparian habitat occurring in the main river corridor. As described above, restoration would involve substantial grading to provide hydrologic connectivity and would be infeasible.

8. Source and quality of water, considering − whether the urban runoff is from a partially developed watershed; − whether the water source is in part or exclusively from human-caused runoff which could be eliminated by diversion; and − whether there is an opportunity to restore the water quality or flood control value.

   Urban runoff from Camino Del Rio North provides the main water source for the proposed wetland impact area. The water quality of this source is, therefore, assumed to be poor. This human-caused water source would be eliminated by diversion due to future changes in the storm water infrastructure of this area or a general reduction in surrounding artificial water sources, such as landscape irrigation. The proposed project provides an opportunity to improve water quality by updating the storm water infrastructure on-site but water quality or flood control value of the proposed wetland impact area could not be otherwise improved.

Concurrence from Wildlife Agencies

The argument for a deviation from wetland regulations based on the proposed project being a Biologically Superior Option described above would be submitted to and reviewed by the Wildlife Agencies and require their concurrence for project approval.

4.3 Impacts to Sensitive Plant Species

No direct, indirect, or cumulative impacts are expected to occur to sensitive plant species as a result of this project.

4.4 Impacts to Sensitive Wildlife Species

Sensitive wildlife observed or with a moderate or high potential to occur on-site include the federally and state-listed endangered and MSCP covered least Bell's vireo; the Cooper's hawk, a CDFW watch list and MSCP covered species; Belding's orange-throated whiptail, a

CDFW species of special concern and an MSCP covered species; and San Diegan tiger whiptail, yellow-breasted chat, yellow warbler, and two-striped garter snake, all CDFW species of special concern. Direct and/or indirect impacts would potentially occur to sensitive wildlife species as a result of this project.

CDFW Species of Special Concern and MSCP Covered Species. Direct impacts are anticipated to occur to the San Diegan tiger whiptail, Belding's orange-throated whiptail, and two-striped garter snake, if present, during grading activities. Although suitable habitat is present, the site is not expected to support a significant population of these species as they were not observed during surveys of the site. These species are considered adequately covered given the habitat conserved within the MHPA and the MSCP Subarea Plan Appendix A conditions of coverage that would be incorporated as mitigation, any potential impacts to these species are not expected to reduce these species' overall populations below self-sustaining levels; thus, project impacts would be considered less than significant. Potential indirect impacts to these species are addressed in the Area-Specific Management Directives for each species and MHPA Land Use Adjacency Guidelines (Section 4.5) discussion below.

Direct or indirect impacts to the CDFW species of special concern and MSCP covered species, Cooper's hawk, would be considered significant. However, impacts to individuals or potentially occurring nests of this species would be avoided through implementation of the mitigation measures described in Section 5.3. The removal of habitat for this species, riparian forest and woodland habitat, on-site is discussed in Sections 4.1 and 5.2. .

General Wildlife. Direct impacts are anticipated to occur to small mammals and reptiles with low mobility during grading of the project site. A biological monitor would be required to be present on-site during grading to preclude any avoidable/known impacts. Birds that are not nesting are expected to be able to avoid being impacted. Impacts to general wildlife are, therefore, considered less than significant.

Area-Specific Management Directives. The MSCP includes area-specific management directives (ASMDs) for covered species (City of San Diego 1997). Those species that have designated ASMDs are discussed in more detail in the following paragraphs.

The ASMDs for Belding's orange-throated whiptail must address edge effects.

All of the development footprint is outside of the MHPA, and signage would be installed along the project boundary to prohibit entry into the MHPA; therefore, the proposed project should not increase edge effects in the MHPA. Impacts within the MHPA only include habitat mitigation, which would result in an increase in acreage of native habitats and is not expected to result in indirect impacts to this species.

The ASMDs for Cooper's hawk include a 300-foot impact avoidance area around active nests, and minimization of disturbance in oak woodlands and oak riparian forests.

Should an active Cooper's hawk, or raptor nest be detected within the MHPA during the pre-grading survey, as discussed in Section 5.0, appropriate construction setback of 300 feet would be implemented until the fledglings are independent of the nest.

The ASMD for least Bell's vireo must include measures to provide appropriate successional habitat, upland buffers for all known populations, cowbird control, and specific measures to protect against detrimental edge effects to this species. Any clearing of occupied habitat must occur between September 15 and March 15 (MSCP 1998: Table 3-5).

Least Bell's vireo habitat would be enhanced and created within the MHPA. In addition, successional habitats, such as Diegan coastal sage scrub and sparse riparian woodlands, would be created as well as an invasive species removal program.

San Diegan tiger whiptail, two-striped garter snake, yellow warbler, and yellow-breasted chat are all CDFW species of special concern but are not covered by the MSCP. No ASMDs have been developed for these species. However, it is anticipated that indirect impacts to coastal whiptail would be avoided through the implementation of the ASMD for Belding's orange-throated whiptail which uses similar habitats. Additionally, it is anticipated that indirect impacts to yellow warbler, yellow-breasted chat, and to two-striped garter snake would be avoided through the implementation of the ASMD for least Bell's vireo.

Migratory and Nesting Birds

The project has potential to result in direct impacts, due to loss of habitat, to sensitive nesting birds such as least Bell's vireo, yellow-breasted chat, yellow warbler, and Cooper's hawk, within the project site. Indirect impacts are anticipated to occur to sensitive nesting birds due to increase access of the area by humans and their pets and excessive noise and lighting generated by project construction and operation of the completed Discovery Center.

5.0 Mitigation

5.1 Mitigation for Impacts to Sensitive Vegetation Communities

Mitigation is required for project impacts that are considered significant under CEQA (City of San Diego 2011). All impacts to sensitive biological resources should be avoided to the maximum extent feasible, and minimized prior to proposing mitigation whenever possible. Mitigation is intended to reduce the impacts to below a level of significance. Proposed mitigation for impacts to sensitive vegetation communities and jurisdictional resources is provided in Table 8.

Table 8
Sensitive Habitat and Jurisdictional Resource Mitigation (acres)[a]

Biological Resource	ESL Tier	Permanent Impacts (inside MHPA)	Temporary Impacts	Mitigation Ratio	Mitigation Required		Mitigation Proposed: Habitat Restoration/ Creation	Mitigation Proposed: Habitat Enhancement/ Preservation	Mitigation Proposed: Habitat Acquisition Fund
Vegetation Communities									
Southern cottonwood–willow riparian forest	Wetland	0.26	-	3:1	0.78	Total wetland required = 3.00 acres	1.00[c] acre	2.31 acres credit of on-site riparian habitat enhancement[d]	-
		-	0.06	3:1	0.18				-
Southern riparian woodland	Wetland	0.58	-	3:1	1.74				-
		-	0.04	3:1	0.12				-
Southern willow scrub	Wetland	0.05	-	3:1	0.15				-
		-	0.01	3:1	0.03				-
Diegan coastal sage scrub	II	0.44 (0.09)	-	1:1[e]	0.44	Total sensitive upland required = 1.47 acres	0.43[c] acre Diegan coastal sage scrub	0.44 acre[f]	0.48 acre credits[i]
		-	0.05	1:1[g]	0.05				
Baccharis scrub	II	0.92 (0.72)	-	1:1[e]	0.92			0.12 acre[f]	
		-	0.06	1:1[g]	0.06				
Non-native woodland	IV	0.01	0.02	0:1	0.00		-	-	-
Disturbed habitat	IV	1.54 (0.40)	0.04	0:1	0.00		-	-	-
Urban/developed	N/A	0.02	0.00	0:1	0.00		-	-	-
TOTAL	-	**3.82**	**0.28**						
Jurisdictional Resources[h]									
City wetlands	-	0.89	-	3:1	2.67		0.89[b]	-	-
		-	0.11	3:1	0.33		-	2.31	-

[a]Totals subject to rounding.
[b]On-site riparian habitat creation.
[c]Includes restoration of temporary impact areas.
[d]See riparian enhancement restoration credit discussion.
[e]Impacts both inside and outside MHPA will be mitigated inside MHPA.
[f]On-site preservation.
[g]Revegetated to original condition.
[h]Unimpacted vegetation communities and jurisdictional resources omitted from table.
[i]In order to accomplish all required upland mitigation that could not be accommodated on-site, the remaining mitigation obligation will be satisfied through contribution to the Habitat Acquisition Fund.

On-site mitigation is proposed for all project impacts to City wetlands (southern cottonwood-willow riparian forest, southern riparian woodland, and southern willow scrub) in accordance with the project's On-site Mitigation Plan (RECON 2017). Mitigation will be provided at a 3:1 mitigation ratio for temporary and permanent impacts to these vegetation communities through a combination of habitat restoration creation and enhancement. The total mitigation required is 3.00 acres. To achieve no-net-loss of wetlands, temporary impacts to 0.11 acre of southern cottonwood-willow riparian forest, southern riparian woodland, and southern willow scrub would be restored to their original condition. Creation of an additional 0.89 acre of riparian habitat provides partial (1:1) mitigation for permanent impacts to 0.89 acres of City wetlands (Figure 16).

The remaining 2:1 mitigation requirement for impacts to City wetlands would be accomplished through 2.31 acres of riparian habitat enhancement credit from the enhancement of 11.97 acres of riparian habitat of varying weed densities on-site (Figure 17). The weed density of these areas was assessed as a coverage percentage. These credits were calculated by multiplying these percentages by the acreage of each enhancement area. The total of 2.31 acres of enhancement credit exceeds the required wetland mitigation by 0.31 acre. More details regarding the on-site mitigation can be found in the project's On-Site Mitigation Plan (RECON 2017).

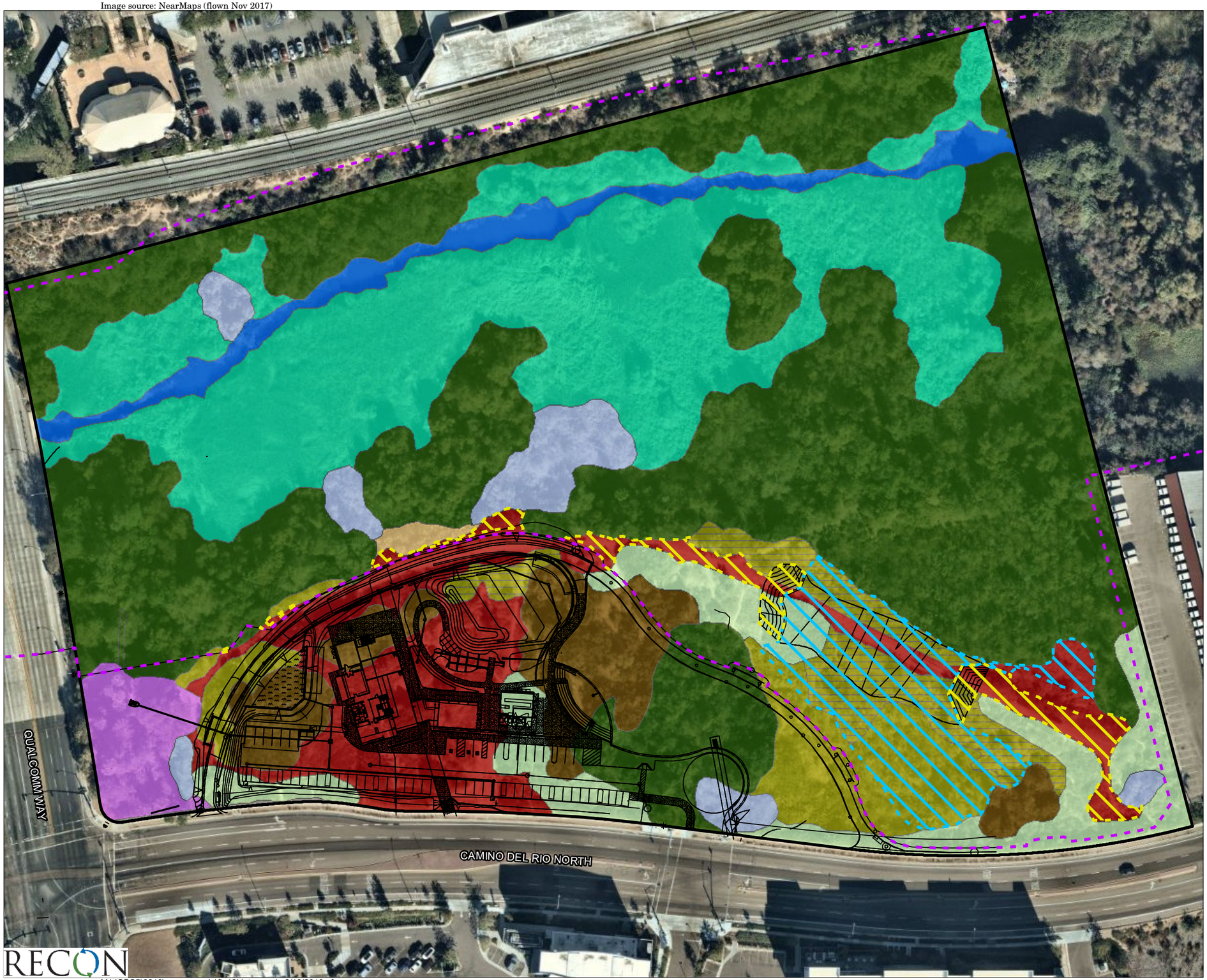
A combination of on-site and off-site mitigation is proposed for all impacts to sensitive uplands (Diegan coastal sage scrub and baccharis scrub). Mitigation would be provided at a 1:1 mitigation ratio for temporary and permanent impacts to sensitive uplands, totaling 1.47 acres required.

Mitigation for permanent impacts to sensitive uplands both inside and outside the MHPA would be accomplished at a 1:1 ratio inside the MHPA. Specifically, creation of 0.32 acre of Diegan coastal sage scrub inside the MHPA is proposed for partial mitigation for permanent impacts to 1.36 acres of Diegan coastal sage scrub and baccharis scrub (see Figure 16). Of this 0.32 acre, 0.24 will occur within the MHPA BLA Addition Area (see Section 3.8.1) and 0.08 acre will occur within the existing MHPA.

Temporary impacts to 0.05 acre of Diegan coastal sage scrub and 0.06 acre of baccharis scrub would be restored to their original condition. Revegetation of these areas would be accomplished according to the on-site mitigation plan. Because landforms will not be permanently altered 1:1 revegetation is sufficient (page 14, City of San Diego Biology Guidelines).

To account for the remaining 1.04 acres of sensitive upland mitigation required, 0.44 acre of Diegan coastal sage scrub and 0.12 acre of baccharis scrub would be preserved on-site, also in the MHPA, and 0.48 acre of mitigation credit for similar habitat would be purchased off-site through contribution into the Habitat Acquisition Fund. This is necessary because the required acreage is not available and cannot be created on-site.. More details regarding the on-site mitigation can be found in the projects On-Site Mitigation Plan (RECON 2017).

Image source: NearMaps (flown Nov 2017)



Project Boundary
Site Plans
Revised MHPA Boundary
Riparian Habitat Creation Area
Diegan Coastal Sage Scrub Restoration Area

Vegetation Communities

Emergent Wetland
Freshwater Marsh
Mule Fat Scrub
Open Water
Southern Cottonwood-Willow Riparian Forest
Southern Willow Scrub
Southern Riparian Woodland
Diegan Coastal Sage Scrub
Baccharis Scrub
Disturbed Baccharis Scrub
Non-native Grassland
Non-vegetated Channel or Floodway
Non-native Woodland
Disturbed Habitat
Coast Live Oak Woodland
Mixed Oak Woodland
Native Grassland
Urban/Developed

0 Feet 100

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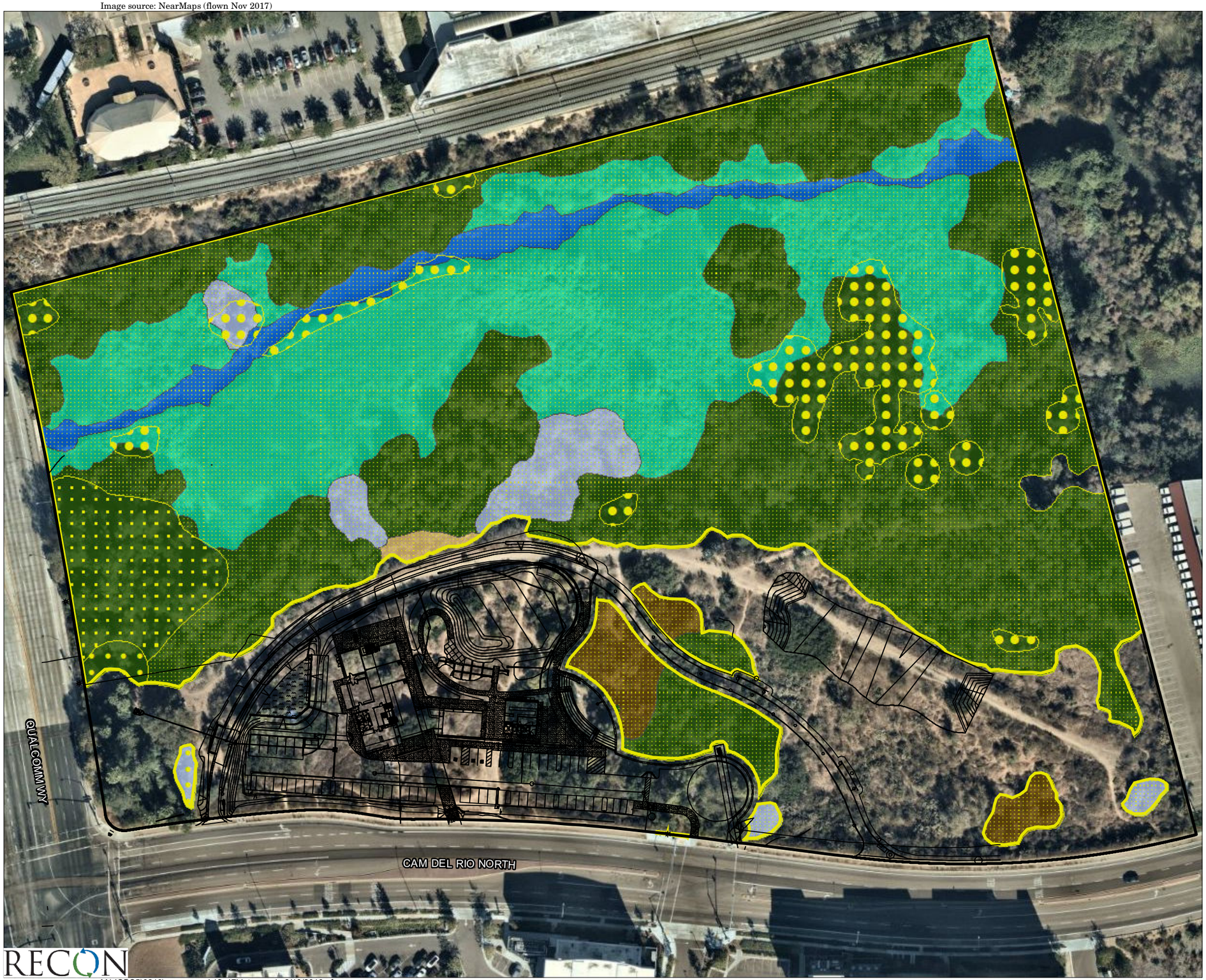
FIGURE 16
On-site Riparian and Diegan Coastal Sage Scrub Habitat Creation Areas

Image source: NearMaps (flown Nov 2017)



Project Boundary
Site Plans
Wetland Enhancement
Wetland Enhancement Invasive %
10%
70%
80%
100%
Vegetation Communities
Southern Cottonwood-Willow Riparian Forest
Southern Riparian Woodland
Southern Willow Scrub
Freshwater Marsh
Mule Fat Scrub
Open Water

0 Feet 100

RECON

M:\JOBS5\8219\common_gis\fig17biotec.mxd 2/13/2018 fmm

FIGURE 17
Habitat Enhancement
and Invasive Species

Mitigation for general impacts to biological resources would be incorporated via standard measures including general mitigation measures and biological protections during construction (includes monitoring, preconstruction meetings, and development of a Biological Condition Monitoring Exhibit, etc.) as described below.

5.2 Mitigation for Biological Resources

The following City standard mitigation would be included in the environmental document:

I. Prior to Construction

A. Biologist Verification – The owner/permittee shall provide a letter to the City's Mitigation Monitoring Coordination (MMC) section stating that a Project Biologist (Qualified Biologist) as defined in the City of San Diego's Biological Guidelines (2012), has been retained to implement the project's biological monitoring program. The letter shall include the names and contact information of all persons involved in the biological monitoring of the project.

B. Preconstruction Meeting – The Qualified Biologist shall attend the preconstruction meeting, discuss the project's biological monitoring program, and arrange to perform any follow up mitigation measures and reporting including site-specific monitoring, restoration or revegetation, and additional fauna/flora surveys/salvage.

C. Biological Documents – The Qualified Biologist shall submit all required documentation to MMC verifying that any special mitigation reports including but not limited to, maps, plans, surveys, survey timelines, or buffers are completed or scheduled per City Biology Guidelines, MSCP, ESL Ordinance, project permit conditions; CEQA; endangered species acts (ESAs); and/or other local, state or federal requirements.

D. BCME – The Qualified Biologist shall present a Biological Construction Mitigation/Monitoring Exhibit (BCME), which includes the biological documents in C above. In addition, include: restoration/revegetation plans, plant salvage/relocation requirements (e.g., coastal cactus wren plant salvage, burrowing owl exclusions, etc.), avian or other wildlife surveys/survey schedules (including general avian nesting and USFWS protocol), timing of surveys, wetland buffers, avian construction avoidance areas/noise buffers/ barriers, other impact avoidance areas, and any subsequent requirements determined by the Qualified Biologist and the City ADD/MMC. The BCME shall include a site plan, written and graphic depiction of the project's biological mitigation/monitoring program, and a schedule. The BCME shall be approved by MMC and referenced in the construction documents.

E. Avian Protection Requirements – To avoid any direct impacts to sensitive bird species such as least Bell's vireo, yellow-breasted chat, yellow warbler, and Cooper's hawk, removal of habitat that supports active nests in the proposed area of

disturbance should occur outside of the breeding season for these species (February 1 to September 15). If removal of habitat in the proposed area of disturbance must occur during the breeding season, the Qualified Biologist shall conduct a pre-construction survey to determine the presence or absence of nesting birds on the proposed area of disturbance. The pre-construction survey shall be conducted within 10 calendar days prior to the start of construction activities (including removal of vegetation). The applicant shall submit the results of the pre-construction survey to City DSD for review and approval prior to initiating any construction activities. If nesting birds are detected, a letter report or mitigation plan in conformance with the City's Biology Guidelines and applicable State and Federal Law (i.e., appropriate follow up surveys, monitoring schedules, construction and noise barriers/buffers, etc.) shall be prepared and include proposed measures to be implemented to ensure that take of birds or eggs or disturbance of breeding activities is avoided. The report or mitigation plan shall be submitted to the City for review and approval and implemented to the satisfaction of the City. The City's MMC Section or RE, and Biologist shall verify and approve that all measures identified in the report or mitigation plan are in place prior to and/or during construction.

F. Resource Delineation – Prior to construction activities, the Qualified Biologist shall supervise the placement of orange construction fencing or equivalent along the limits of disturbance adjacent to sensitive biological habitats and verify compliance with any other project conditions as shown on the BCME. This phase shall include flagging plant specimens and delimiting buffers to protect sensitive biological resources (e.g., habitats/flora & fauna species, including nesting birds) during construction. Appropriate steps/care should be taken to minimize attraction of nest predators to the site.

G. Education – Prior to commencement of construction activities, the Qualified Biologist shall meet with the owner/permittee or designee and the construction crew and conduct an on-site educational session regarding the need to avoid impacts outside of the approved construction area and to protect sensitive flora and fauna (e.g., explain the avian and wetland buffers, flag system for removal of invasive species or retention of sensitive plants, and clarify acceptable access routes/methods and staging areas, etc.).

II. During Construction

A. Monitoring – All construction (including access/staging areas) shall be restricted to areas previously identified, proposed for development/staging, or previously disturbed as shown on "Exhibit A" and/or the BCME. The Qualified Biologist shall monitor construction activities as needed to ensure that construction activities do not encroach into biologically sensitive areas, or cause other similar damage, and that the work plan has been amended to accommodate any sensitive species located during the pre-construction surveys. In addition, the Qualified Biologist shall document field activity via the Consultant Site Visit Record (CSVR). The CSVR shall

be e-mailed to MMC on the 1st day of monitoring, the 1st week of each month, the last day of monitoring, and immediately in the case of any undocumented condition or discovery.

B. Subsequent Resource Identification – The Qualified Biologist shall note/act to prevent any new disturbances to habitat, flora, and/or fauna onsite (e.g., flag plant specimens for avoidance during access, etc.). If active nests or other previously unknown sensitive resources are detected, all project activities that directly impact the resource shall be delayed until species specific local, state or federal regulations have been determined and applied by the Qualified Biologist.

III. Post Construction Measures

A. In the event that impacts exceed previously allowed amounts, additional impacts shall be mitigated in accordance with City Biology Guidelines, ESL and MSCP, CEQA, and other applicable local, state and federal law. The Qualified Biologist shall submit a final BCME/report to the satisfaction of the City ADD/MMC within 30 days of construction completion.

5.3 Mitigation for Impacts to Wildlife Species

5.3.1 Migratory and Nesting Birds

To avoid impacts to potentially occurring least Bell's vireo, yellow-breasted chat, yellow warbler, or Cooper's hawk, no grading activities shall occur during the breeding season for these species (February 1 through September 15). If construction activities are anticipated to occur during this breeding season, then pre-grading nest surveys should be conducted to determine if birds/raptors are nesting in trees on the site. If active Cooper's hawk nests are present, appropriate construction setbacks of a minimum of 300 feet would be required until young are completely independent of the nest. If active yellow-breasted chat or yellow warbler nests are present, the standard measures described above in the Avian Protection Requirements would be implemented. If no nesting birds/raptors are detected during the pre-construction survey, no mitigation is required.

Mitigation for potential construction-related impacts to least Bell's vireo is included below and is consistent with the MHPA Land Use Adjacency Mitigation Noise Requirement. Potential impacts to least Bell's vireo and other sensitive wildlife from regular operations of the completed Discovery Center are minimized through the project design features described in Section 4.5 above.

<u>Least Bell's vireo (Federally Endangered)</u>

Prior to the issuance of any grading permit (for public utility projects: prior to the preconstruction meeting), the City Manager (or appointed designee) shall verify that the MHPA boundaries and the following project requirements regarding the least Bell's vireo are shown on the construction plans:

No clearing, grubbing, grading, or other construction activities shall occur between March 15 and September 15, the breeding season of the least Bell's vireo, until the following requirements have been met to the satisfaction of the City Manager:

I. Between March 15 and September 15, no clearing, grubbing, or grading of occupied least Bell's vireo habitat shall be permitted. Areas restricted from such activities shall be staked or fenced under the supervision of a qualified biologist; and

II. Between March 15 and August 15, no construction activities shall occur within any portion of the site where construction activities would result in noise levels exceeding 60 dB(A) hourly average at the edge of occupied gnatcatcher habitat. An analysis showing that noise generated by construction activities would not exceed 60 dB(A) hourly average at the edge of occupied habitat must be completed by a qualified acoustician (possessing current noise engineer license or registration with monitoring noise level experience with listed animal species) and approved by the City Manager at least two weeks prior to the commencement of construction activities. Prior to the commencement of construction activities during the breeding season, areas restricted from such activities shall be staked or fenced under the supervision of a qualified biologist; or

III. At least two weeks prior to the commencement of construction activities, under the direction of a qualified acoustician, noise attenuation measures (e.g., berms, walls) shall be implemented to ensure that noise levels resulting from construction activities will not exceed 60 dB(A) hourly average at the edge of habitat occupied by the least Bell's vireo. Concurrent with the commencement of construction activities and the construction of necessary noise attenuation facilities, noise monitoring* shall be conducted at the edge of the occupied habitat area to ensure that noise levels do not exceed 60 dB(A) hourly average. If the noise attenuation techniques implemented are determined to be inadequate by the qualified acoustician or biologist, then the associated construction activities shall cease until such time that adequate noise attenuation is achieved or until the end of the breeding season (September 16).

*Construction noise monitoring shall continue to be monitored at least twice weekly on varying days, or more frequently depending on the construction activity, to verify that noise levels at the edge of occupied habitat are maintained below 60 dB(A) hourly average or to the ambient noise level if it already exceeds 60 dB(A) hourly average. If not, other measures shall be implemented in consultation with the biologist and the City Manager, as necessary, to reduce noise levels to below 60 dB(A) hourly average or to the ambient noise level if it already exceeds 60 dB(A) hourly average. Such measures may include, but are not limited to, limitations on the placement of construction equipment and the simultaneous use of equipment.

Mitigation for Construction Noise Impacts to Least Bell's Vireo

Implementation of the following mitigation measures would reduce potential noise impacts from construction to below the level of significance.

The Noise Study for this project (HELIX 2016b) determined that noise levels for site rough grading and for building construction would generate potentially significant noise levels if these activities occur during the least Bell's vireo breeding season if the habitat is occupied. Construction noise mitigation as discussed below is provided in two phases: first for the rough grading and second for the building construction. As will be seen in the following information, if rough grading were to occur during the least Bell's vireo breeding season, it would require much more substantial mitigation for areas occupied by least Bell's vireo than would the building construction. If installed during rough grading and left in place during the building construction, this same mitigation would fully mitigate the building construction noise. However, because there are several construction scenarios, which could include rough grading outside the breeding season, the barrier systems are described separately for each phase of the construction as though they were independent from each other.

Between March 15 and September 15, no construction activities shall result in noise levels exceeding 60 dB(A) L_{eq} or the ambient noise level at the edge of occupied least Bell's vireo habitat. If construction must occur during the breeding season, it is anticipated that a survey would be conducted by a qualified biologist to determine occupied least Bell's vireo areas, and if necessary, measures (such as temporary noise barriers or reductions in equipment operation) that are verified by a qualified noise specialist and a qualified biologist would be required to ensure that noise does not significantly impact breeding activities.

The text that follows describes one potential method to achieve compliance if construction occurs during the breeding season and adjacent habitat is determined to be occupied. This method would eliminate the need for future bird surveys and noise analysis to identify required temporary attenuation requirements. If project-related construction is conducted outside of the vireo breeding season, no associated significant noise impacts would occur within the adjacent MHPA habitat (or to related sensitive species), and no mitigation would be required.

- To attenuate rough grading equipment noise levels during the least Bell's vireo breeding season (if proposed), a temporary 10-foot-tall barrier erected along the top of the slope at the edge of the river corridor would reduce rough grading noise impacts to less than 60 dB(A) L_{eq} or the ambient noise level. A 6-foot barrier in the same location would reduce other construction noise to less than 60 dB(A) L_{eq} or to the ambient noise level.

  The 10-foot-tall rough grading noise barrier would need to extend at least 30 feet beyond the extent of the site grading along the habitat, or as a "return" along the site property line, to provide complete control of the rough grading noise. The noise barrier to attenuate building construction noise would need to be

approximately 135 feet long, centered on the edge of the building closest to the habitat (extending approximately 30 feet in each direction beyond where an extension of the north-south corner lines of the building [close to the habitat] would intersect the habitat lines). In addition, the following parameters should be incorporated into the barrier design:

- Sound attenuation barriers should be a single, solid sound wall.
- The sound attenuation barriers should be constructed of masonry, wood, plastic, fiberglass, steel, or a combination of those materials, with no cracks or gaps through or below the wall. Any seams or cracks should be filled or caulked.
- If wood is used, it can be tongue-and-groove design and should be at least one-inch thick or have a surface density of at least 3.5 pounds per square foot. Sheet metal of minimum 18-gauge may also be used, if it meets the other noted criteria and is properly supported and stiffened so that it does not rattle or create noise from vibration or wind.

Mitigation for Operational Noise Impacts to Occupied Least Bell's Vireo Habitat

Project design features have been incorporated to maintain noise levels at acceptable levels during operation of the project. Implementation of these mitigation measures would ensure that that potential noise impacts from operation of the project are below the level of significance.

Establish Acceptable Noise Levels

During the non-breeding season, prior to the first outdoor event with an anticipated attendance of between 188 and 385 (where on-site parking capacity is exceeded), the Owner/Permittee shall engage a qualified acoustical engineer to perform and certify a sound test with the parameters shown below. The qualified acoustical engineer shall submit a post-test certification report documenting the setup (with pictures as needed) and the results of the testing to the City's Environmental Designee (ED), MSCP, and MMC section. MMC, ED, MSCP shall review the test methods and findings to confirm to their satisfaction that sound attenuation results in a maximum sound level of 60.5 dB(A) L_{eq} (ambient noise level per Helix 2016 noise report) at the boundary of the MHPA. The test and report parameters shall be as follows:

1. MMC, ED, and MSCP shall be notified in advance of the planned testing date, time, and acoustical engineer qualifications.

2. The test shall be based on the two installed 12-inch amplified speakers within the Sound Control Shell.

3. A pink noise source shall be used to generate continuous pink noise through the speakers, which shall be a total noise level of 85 dB(A) at 25 feet in front of the

Sound Control Shell, which is anticipated to result in noise levels below or at 60.5 dB(A) L_{eq} at the edge of the MHPA.

4. The noise shall then be measured at four locations at the edge of the MHPA. Monitoring locations shall be recorded on an aerial photograph of the site. Photographs of each monitoring location shall be provided.

5. If any noise level at the edge of the habitat exceeds 60.5 dB(A) L_{eq}, the noise volume shall be reduced until the impact is within compliance. The noise level at a distance of 25 feet in front of the sound control shell shall be noted and the maximum volume level of the speakers shall be identified in Discovery Center standard operating procedures and all event contracts.

Test Noise Levels During Non-breeding Season Event

During the first non-breeding season event with anticipated attendance of 188 to 385 persons, noise monitoring shall be conducted according to similar testing and reporting parameters described above, with the exception of the pink noise source. Noise levels shall remain at or below 60.5 dB(A) L_{eq}, and shall be reduced until compliance is achieved. A post-test monitoring report shall be submitted to the City's ED, MSCP and MMC documenting the setup (with pictures as needed) and testing results within one week following the event. No outdoor events shall be held during the breeding season until acceptance of the report.

Test Noise Levels During Breeding Season Event

For any subsequent events held during the breeding season, noise monitoring of each event shall be conducted according to similar testing and reporting parameters described above. For these events, the Owner/Permittee shall engage a qualified acoustical engineer to measure, report, and control the event noise levels. The event test parameters are shown below. A post-event monitoring report documenting the number of attendees and setup (with pictures as needed) and results shall be submitted to the City's Environmental Designee, MSCP, and MMC within one week following the event. No additional outdoor events shall be held during the breeding season until acceptance of the report.

1. MMC, ED, MSCP shall be notified in advance of the planned event, date, time, and acoustical engineer and biologist with qualifications.

2. An initial sound check (prior to the start of the event) with the two 12-inch speaker system not to exceed 60.5 dB(A) L_{eq} at the edge of the MHPA.

3. Monitoring will be conducted at the habitat boundary at the same locations as established during the initial test and at previous successfully monitored events. Monitoring locations shall be identified on a map and verified through photo documentation and shall be performed in accordance with the pre-event noise calibration).

4. If at any time the noise in the habitat exceeds 60.5 dB(A) L_{eq} at any of the monitoring locations, adjustments will be made immediately to control noise levels to less than 60.5 dB(A) L_{eq}. The noise level needed to ensure compliance shall be noted and the maximum volume level of the speakers shall be identified in Discovery Center standard operating procedures and future event contracts.

A "successful" event would be defined as an event during which noise monitoring results indicate that appropriate noise levels have been achieved. Following acceptance of five successful monitoring reports by the ED, MSCP, and MMC, indicating that the target 60.5 dB(A) L_{eq} is achievable, the attendance level identified in Exhibit "A" of the Site Development Permit shall be adjusted to reflect the maximum attendance level (up to 385 persons) demonstrated through successful monitoring results.

This minimum of five successful monitoring events where noise does not exceed 60.5 dB(A) L_{eq} also would provide justification for the City's Environmental Designee, MSCP, and MMC to allow conclusion of monitoring requirements for outdoor events held during the breeding season (with the maximum capacity determined through monitoring success), provided that the noise measures to ensure avoidance of impacts have been addressed to the satisfaction of the Environmental Designee, MSCP, and MMC and reflected in Exhibit "A" to the Site Development Permit. Specifically, the measures will be incorporated in the standard operating procedures for the Discovery Center, including a description of the allowable noise levels, methods of noise control, and other standard practices necessary to achieve allowable noise levels. The standard operating procedures will require that these measures will also be reflected in all event contracts. Any future revisions to the standard operating procedures must be approved by the Environmental Designee, MSCP, and MMC and may require additional monitoring efforts prior to approval. Thus, these procedures are incorporated in the requirements of the Site Development Permit, whereby violation could result in revocation of the permit.

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ATTACHMENTS

ATTACHMENT 1

Jurisdictional Delineation Report (Helix 2015)

HELIX
Environmental Planning

San Diego River Park Foundation Discovery Center Project

Jurisdictional Delineation Report

March 21, 2014

Prepared for:

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San Diego River Park Foundation Discovery Center Project
Jurisdictional Delineation Report

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I. INTRODUCTION

This report presents the results of a jurisdictional delineation of the San Diego River Park Foundation's Discovery Center Project (Discovery Center), located in the City of San Diego (City), California. The delineation was conducted to identify and map existing waters of the U.S. (WUS) under U.S. Army Corps of Engineers (USACE) jurisdiction pursuant to Section 404 of the federal Clean Water Act (CWA; 33 USC 1344), wetland and waters of the State (WS) under California Department of Fish and Wildlife (CDFW) jurisdiction pursuant to Section 1600 of the California Fish and Game Code, and City of San Diego wetlands pursuant to Biological Guidelines of the Land Development Code. This information is necessary to evaluate jurisdictional impacts and permit requirements associated with development of the property. This report presents HELIX Environmental Planning, Inc.'s (HELIX's) best efforts to quantify the extent of WUS, WS, and City wetlands within the property using the current regulations, written policies, and guidance from regulatory agencies. The jurisdictional boundaries provided here are subject to verification by the USACE, CDFW, and City.

The approximately 17.51-acre project site is located in the Mission Valley neighborhood of the City, in the northeastern quadrant of Qualcomm Way and Camino del Rio North (Figure 1). It is located on unsectioned land that is part of the Pueblo Land Grant of San Diego (Figure 2).

II. METHODS

Prior to beginning fieldwork, aerial photographs (1"=100' scale) and topographic maps (1"=100' scale) were reviewed to determine the location of potential jurisdictional areas that may be affected by the proposed project. Data were collected in areas that were suspected to be jurisdictional habitats on February 24 and 26, 2014. HELIX Principal Biologist W. Larry Sward conducted the field work on each of these days and is the primary author of this report.

Waters of the U.S. wetland boundaries were determined using the three criteria (vegetation, hydrology, and soils) established for wetland delineations, as described within the Wetlands Delineation Manual (Environmental Laboratory 1987) and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 2008).

The results presented here are also discussed in light of court decisions (i.e., Rapanos v. United States, Carabell v. United States, and Solid Waste Agency of Northern Cook County v. USACE), as outlined and applied by the USACE (USACE 2007; Grumbles and Woodley 2007), USACE and Environmental Protection Agency (EPA; 2007), and EPA and USACE (2007). These publications explain that the EPA and USACE will assert jurisdiction over traditional navigable waters (TNW) and tributaries to TNWs that are relatively permanent water bodies (RPWs), which have year-round or continuous seasonal flow. For water bodies that are not RPWs, a significant nexus evaluation must be conducted to determine whether the non-RPW is jurisdictional. An overview of USACE wetlands and jurisdictional WUS definitions is presented in Appendix A.

Plants were identified according to Baldwin et al. (2012), and Rebman and Calflora (2013) was used to augment common names. Wetland affiliations of plant species follows The National Wetland Plant List (Lichvar 2012). Vegetation was mapped according to Holland (1986).

Soils information was taken from Knecht (1971) and the NRCS (2013). Soil samples were evaluated for hydric soil indicators (e.g., hydrogen sulfide [A4], sandy redox [S5], depleted matrix [F3], redox dark surface [F6], and depleted dark surface [F7]). Soil chromas were identified according to Munsell's Soil Color Charts (Kollmorgen 1994).

Sample points were inspected for primary wetland hydrology indicators (e.g., surface water [A1], saturation [A3], water marks [non-riverine, B1], sediment deposits [non-riverine, B2], drift deposits [non-riverine, B3], surface soil cracks [B6], inundation visible on aerial imagery [B7], salt crust [B11], aquatic invertebrates [B13], hydrogen sulfide odor [C1], and oxidized rhizospheres along living roots [C3]) and secondary wetland hydrology indicators (e.g., water marks [riverine, B1], sediment deposits [riverine, B2], drift deposits [riverine, B3], drainage patterns in wetlands [B10], shallow aquitard [D3], and positive FAC neutral test [D5]).

Areas were determined to be non-wetland WUS if there was evidence of regular surface flow (e.g., bed and bank), but neither the vegetation nor soils criterion was met. Jurisdictional limits for these areas were defined by the ordinary high water mark (OHWM), which is defined in 33 CFR Section 329.11 as "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank; shelving; changes in the character of the soil; destruction of terrestrial vegetation; the presence of litter or debris; or other appropriate means that consider the characteristics of the surrounding areas." The USACE has issued further guidance on the OHWM (Riley 2005; Lichvar and McColley 2008), which also has been used for this delineation. The OHWM widths were measured to the nearest foot at various locations along mapped drainages.

Waters of the State jurisdictional boundaries were determined based on the presence of riparian vegetation or regular surface flow. Streambeds within CDFW jurisdiction were delineated based on the definition of streambed as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supporting fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports riparian vegetation" (Title 14, Section 1.72). This definition for CDFW jurisdictional habitat allows for a wide variety of habitat types to be jurisdictional, including some that do not include wetland species (e.g., oak woodland and alluvial fan sage scrub). Definitions of CDFW jurisdictional areas are presented in Appendix B. Streambed widths were measured to the nearest foot at various locations along the channel. The CDFW publication on dryland watersheds (Vyverberg 2010) was used as an aid to map streambeds.

City wetland boundaries were determined based primarily on the presence of wetland vegetation. There are certain instances where City wetlands occur without wetland vegetation (where present and past human activities have removed wetland vegetation). There are also situations where wetland vegetation created by human activities are not considered wetlands. Please refer to Appendix C for a full definition of City wetlands.

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Regional Location Map

SAN DIEGO RIVER DISCOVERY CENTER

HELIX Environmental Planning

N 0 8 Miles

Figure 1

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Project Vicinity Map

SAN DIEGO RIVER DISCOVERY CENTER

HELIX Environmental Planning

N 0 2,000 Feet

Figure 2

Nine sample points were studied. Standard data forms were completed for each sample point in the field and are included in Appendix D. Photographs were taken of the sample points and are included in Appendix E.

III. RESULTS

A. SITE DESCRIPTION

The Discovery Center project site is situated along the San Diego River. Currently, the river and adjacent floodplain are between 27 and 30 feet elevation (Figure 3). Two berms exist on the site. The larger of the two is higher (49 to 53 feet in elevation over most of its length), and extends in an arc from the southeast corner of the project site to near the southwest corner. The smaller of the two is 50 to 53 feet in elevation, but has a notch near its western end that is 41 feet in elevation and approximately 15 feet wide. This berm extends approximately 300 feet to the eastern project site boundary and connects to the larger berm. These berms create 2 basins. One is south of the large berm and north of Camino del Rio North. The lowest point of this basin is near the southeastern edge of the project site. The elevation here is 35 feet. The second basin is triangular in shape and formed by the two berms and grading for the pad offsite to the east. This basin has a more level bottom and is at an elevation of 36 feet. A small streambed exists along the west side of the project site, extending from a culvert outlet at the edge of Camino del Rio North and draining north to the river. The upper elevation in this streambed is 40 feet. A second culvert outlet releases water onto site near the middle of the southern boundary.

The project site has been subject to ongoing human disturbance for at least 60 years. A review of historical aerial photos (Appendix F) revealed the following.

- 1953. Approximately 75 percent of the site was vegetated, although all of the surrounding vegetation was absent. These areas were farmed, cleared, or subject to sand mining.
- 1964. The entire site had been mined for sand and approximately 70 percent of the site was ponded.
- 1980. The two berms were constructed-effectively separating the southern part of the site from the river. Land to the south supported surface streets and the interstate, and what was to become Qualcomm Way was built. The gas station on the opposite corner of Qualcomm Way and Camino del Rio North was present, but otherwise the surrounding land was undeveloped.
- 1981. The pad to the east, which now has a post office, had been constructed.
- 1989. Present day land uses around the site were either present, or grading to make them possible had been initiated.

Diegan coastal sage scrub, baccharis scrub, and non-native grassland comprise most of the upland parts of the site. Wetland vegetation present on site includes southern cottonwood-willow riparian forest (including disturbed), southern riparian woodland, southern willow scrub, freshwater marsh, riparian scrub-freshwater marsh ecotone, mule fat scrub, and Arundo

dominated riparian. Eucalyptus woodland, non-native vegetation, disturbed habitat, and developed areas also occur on site.

Two soil types are mapped at the Discovery Center project site (Figure 4). Most of the site is mapped as Riverwash and a small part (roughly 5 to 8 percent) of the site is mapped as gravel pits. Neither of these soil types was encountered; most of the soil pits contained loams and clays. Given the history of sand mining and subsequent filling on this site it is difficult to know where the soils came from or how they should be classified.

Wetlands are dominated by hydrophytic plants, and have wetland hydrology and hydric soils. Wetland plant species on site (Table 1) include species such as willows (*Salix* spp.), watercress (*Nasturtium officinale*), southern cattail (*Typha domingensis*), rush (*Juncus* spp.), saltgrass (*Distichlis spicata*), western goldenrod (*Euthamia occidentalis*), yerba mansa (*Anemopsis californicus*), hastate orache (*Atriplex prostrata*), dock (*Rumex* spp.), tamarisk (*Tamarix* sp.), Red River gum (*Eucalyptus camaldulensis*), and Mexican fan palm (*Washingtonia robusta*).

Table 1
PLANT SPECIES OBSERVED AT SAMPLING POINTS

FAMILY	SPECIES	COMMON NAME	INDICATOR STATUS†
Anacardiaceae	*Schinus terebinthifolius**	Brazilian pepper tree	FAC
Arecaceae	*Phoenix canariensis**	Canary Island date palm	FAC$^{\gamma}$
	*Washingtonia robusta**	Mexican fan palm	FACW
Asteraceae	*Baccharis salicifolia*	mule fat	FAC
	Baccharis sarothroides	broom baccharis	FACU
	*Carduus pycnocephalus**	Italian thistle	UPL
Cyperaceae	*Schoenoplectus californicus*	California bulrush	OBL
Euphorbiaceae	*Euphorbia peplus**	petty spurge	UPL
	*Ricinus communis**	castor bean	FACU
Fabaceae	*Melilotus albus**	white sweetclover	UPL
Myrtaceae	*Eucalyptus camaldulensis**	Red-river gum	FAC
Oleaceae	*Fraxinus uhdei**	shamel ash	FAC
Passifloraceae	*Passiflora sp.**	passion flower	FAC$^{\alpha}$
Poaceae	*Bromus madritensis* ssp.*rubens**	red brome	UPL
	*Stipa miliaceia**	smilo grass	UPL
Salicaceae	*Populus fremontii*	western cottonwood	FAC
	Salix gooddingii	black willow	FACW
	Salix laevigata	red willow	FACW
	Salix lasiolepis	arroyo willow	FACW

* Floodway and floodplain mapping based on adaptation of FEMA mapping to site specific topography.

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Aerial Photograph

SAN DIEGO RIVER DISCOVERY CENTER

HELIX Environmental Planning

0 100 Feet

Figure 3

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Soils

SAN DIEGO RIVER DISCOVERY CENTER

HELIX Environmental Planning

0 100 Feet

Figure 4

Table 1 (cont.) **PLANT SPECIES OBSERVED AT SAMPLE POINTS**			
FAMILY	**SPECIES**	**COMMON NAME**	**INDICATOR STATUS†**
Tropaeolaceae	*Tropaeolum majus**	garden nasturtium	UPL
Tamaricaceae	*Tamarix parviflora**	Salt-cedar	FAC

† OBL=obligate wetland species; FACW=facultative wetland species, FAC=facultative species, FACU=facultative upland species, and UPL=obligate upland species. Please also see Appendix A.

[v]Best professional judgment of delineator.

*Indicates non-native species.

[q]Passion flower not identified to species. This taxa assigned FAC, which is for the only passion flower (*P. arizonica*) listed in the Arid West List of wetland plants.

The National Wetland Inventory (NWI) indicates a freshwater emergent and freshwater forested/shrub wetlands along the river (U.S. Fish and Wildlife Service [USFWS] 2013; Figure 5). The mapping done as part of this report generally agrees with the NWI mapping.

B. SAMPLING POINTS

Nine wetland delineation points were sampled within the project site (Figures 6 and 7). A summary of these samples is provided below.

Sampling Point 1. This Sampling Point was located near the southern edge of the San Diego River floodplain, in southern cottonwood-willow riparian forest. Only wetland plants were dominant at this location, including western cottonwood (*Populus fremontii*), arroyo willow (*Salix lasiolepis*), mule fat (*Baccharis salicifolia*) and California bulrush (*Schoenoplectus californicus*), thus meeting the Dominance Test for wetland vegetation. A soil pit excavated to a depth of 18 inches revealed a depleted matrix (F3), a hydric soil indicator. Wetland hydrology was indicated by the presence of two primary indicators: high water table (A2), saturation (A3), and one secondary indicator: FAC-neutral test (D5). This location is considered a WUS, WS, and City wetland.

Sampling Point 2. This Sampling Point was located on the side of a berm at the south edge of the San Diego River floodplain. The soil pit for this sampling point was approximately 3 feet above Sampling Point 1. The vegetation here was mule fat scrub. Only one plant was dominant at this location (mule fat) and it is a wetland plant, thus meeting the Dominance Test for wetland vegetation. A soil pit was excavated to a depth of 15 inches did not reveal any hydric soil indicators. No wetland hydrology indicators were noted. The data shows that the FAC-neutral test (D5) was not met. The only dominant species was FAC, so the test was run with non-dominant species, which at this location was just 1 FACU species. This location is considered a WS and City wetland (mule fat scrub).

Sampling Point 3. This Sampling Point was located along a streambed. The bottom of the streambed was unvegetated. Disturbed southern cottonwood-willow riparian forest was rooted on the terraces above the low-flow channel. Dominant species include three wetland plants

(Mexican fan palm [*Washingtonia robusta*], Red River gum [*Eucalyptus camaldulensis*], and one arroyo willow, which met the Dominance Test for wetland vegetation. A soil pit excavated to a depth of 16 inches did not reveal any hydric soil indicators. Wetland hydrology was indicated by the presence of two secondary indicators: drift deposits (B3; riverine), and the FAC-neutral test (D5). This location is considered a non-wetland WUS, and a WS and City wetland.

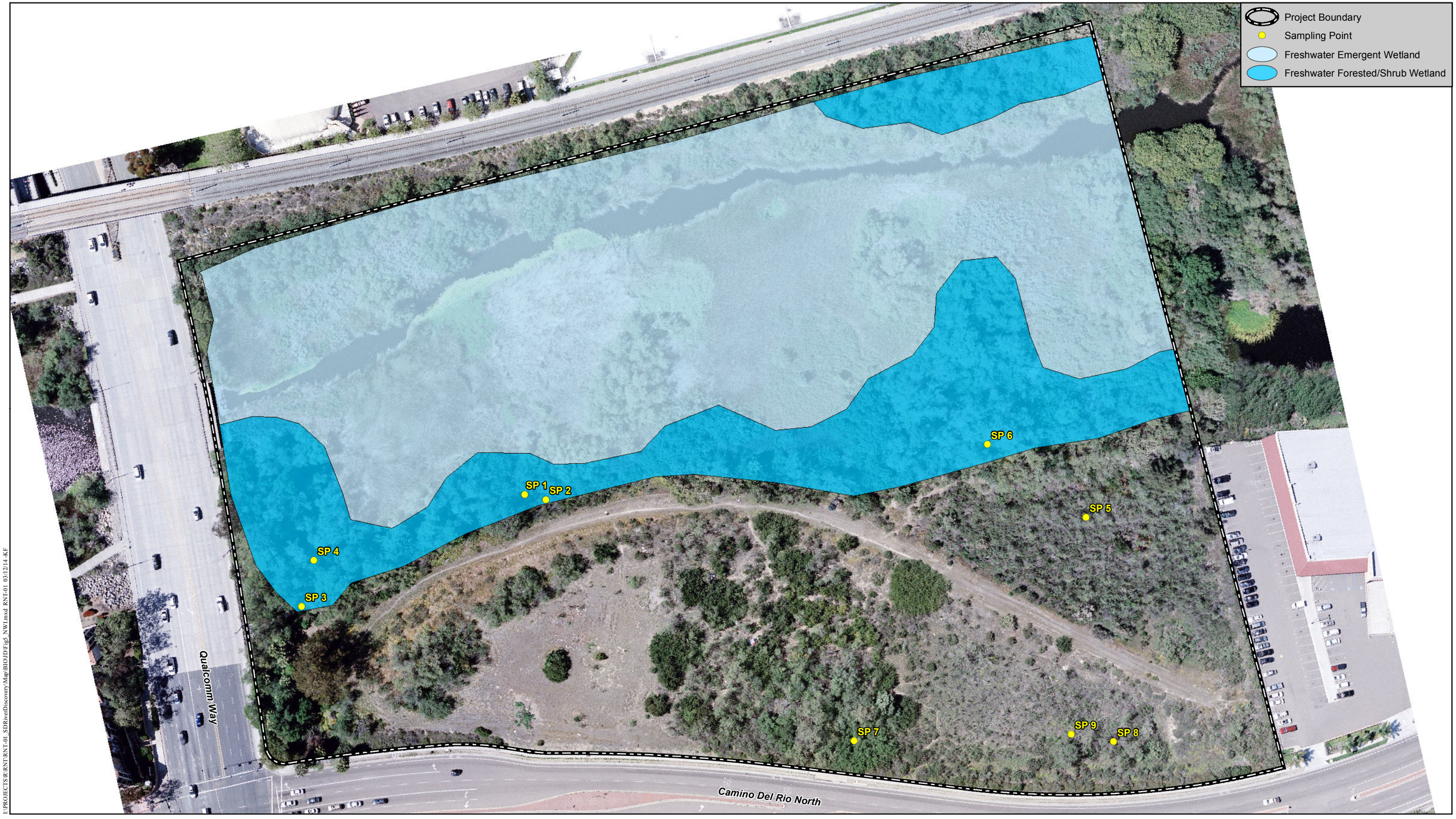
Sampling Point 4. This Sampling Point was located near the southern edge of the San Diego River floodplain in the western part of the project site. The vegetation here is southern cottonwood-willow riparian forest. Only wetland plants were dominant at this location, including arroyo willow and shamel ash (*Fraxinus uhdei*), thus meeting the Dominance Test for wetland vegetation. A soil pit excavated to a depth of 20 inches did not reveal any hydric soil indicators. Wetland hydrology was indicated by the presence of two secondary indicators: drift deposits (B3; riverine), and the FAC-neutral test (D5). This location is considered a non-wetland WUS, and a WS and City wetland.

Sampling Point 5. This Sampling Point was located in a basin that is separated from the San Diego River floodplain by a berm. There is a notch in the berm, which is 11 feet above the riverbed. The bottom of the basin is 6 feet below the notch. Southern cottonwood-willow riparian forest exists in the basin, although it is different than the habitat that exists in the riverbed. Overall the biomass of the forest is lower in the basin than in the riverbed. The habitat in the basin also has fewer and smaller trees. Only wetland plants were dominant at this location, including western cottonwood, red willow (*Salix laevigata*), and mule fat, thus meeting the Dominance Test for wetland vegetation. A soil pit excavated to 16 inches did not reveal the presence of any hydric soil indicators. Wetland hydrology was indicated by the presence of one secondary indicator: FAC-neutral test (D5), which does not satisfy the wetland hydrology criterion. This location is not considered a WUS but is considered a WS and City wetland.

Sampling Point 6. This Sampling Point was located near the southern edge of the San Diego River floodplain, in southern cottonwood-willow riparian forest. Only wetland plants were dominant at this location, including red willow (*Salix laevigata*), Brazilian pepper tree (*Schinus terebinthifolius*), and mule fat, thus meeting the Dominance Test for wetland vegetation. A soil pit excavated to 18 inches did not reveal any hydric soil indicators. Wetland hydrology was indicated by the presence of one secondary indicator: FAC-neutral test (D5), which does not satisfy the wetland hydrology criterion. This location is not considered a WUS but is considered a WS and City wetland.

Sampling Point 7. This Sampling Point was located in southern cottonwood-willow riparian forest, near Camino del Rio North and below a culvert outlet. Arroyo willow, a wetland plant was the only dominant and occurred in two layers, thus meeting the Dominance Test for wetland vegetation. A soil pit excavated to 17 inches did not reveal the presence of any hydric soil indicators. Wetland hydrology was indicated by the presence of two secondary indicators: drift deposits (B3; riverine), and the FAC-neutral test (D5).

Ostensibly this location should be non-wetland WUS, and a WS and City wetland. It is isolated, however, which forms the basis for it being non-jurisdictional, pursuant to the SWANCC court decision and subsequent USACE implementing regulations. Water apparently flows into this



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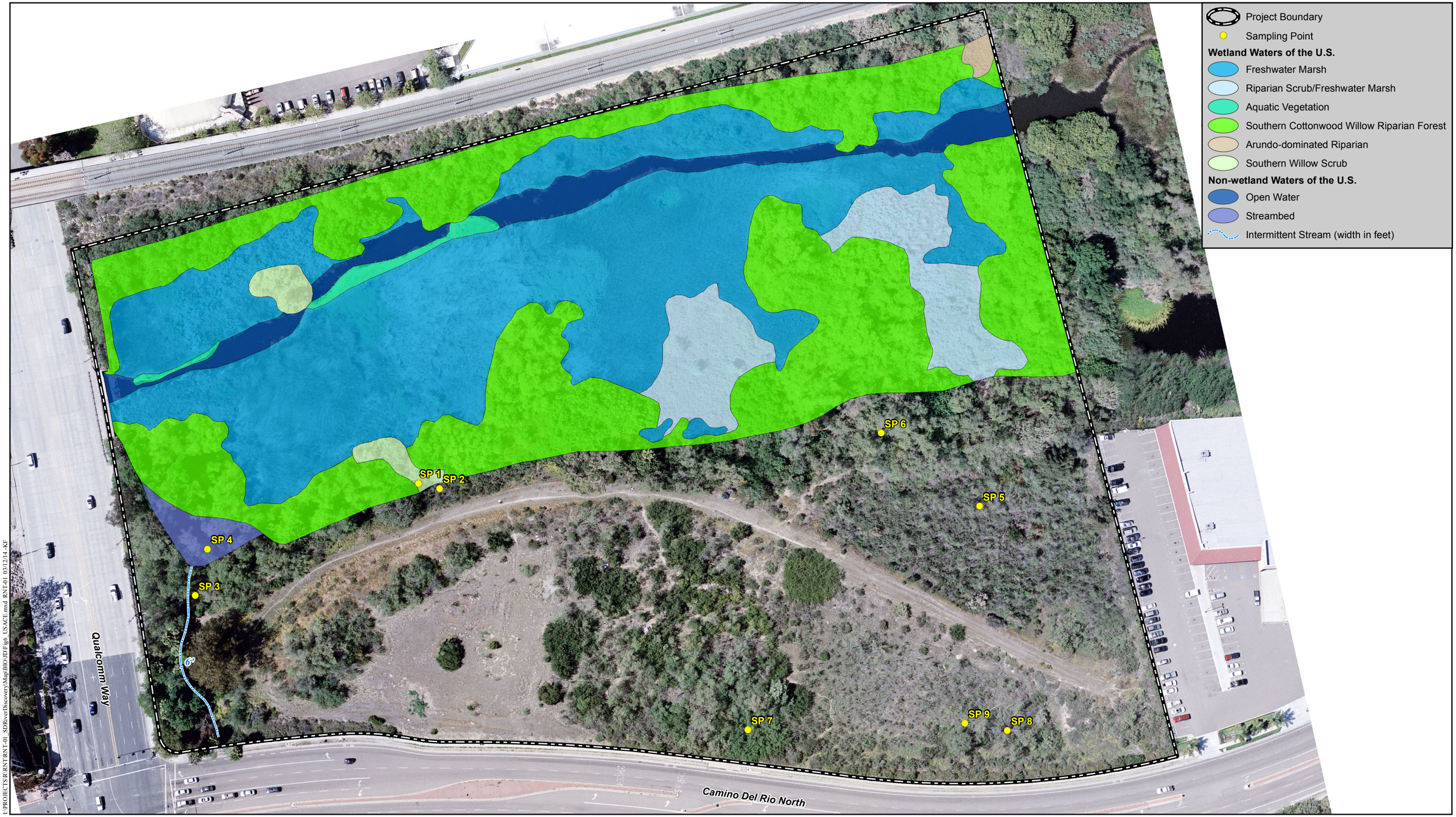
National Wetlands Inventory

SAN DIEGO RIVER DISCOVERY CENTER

HELIX Environmental Planning

0 100 Feet

Figure 5



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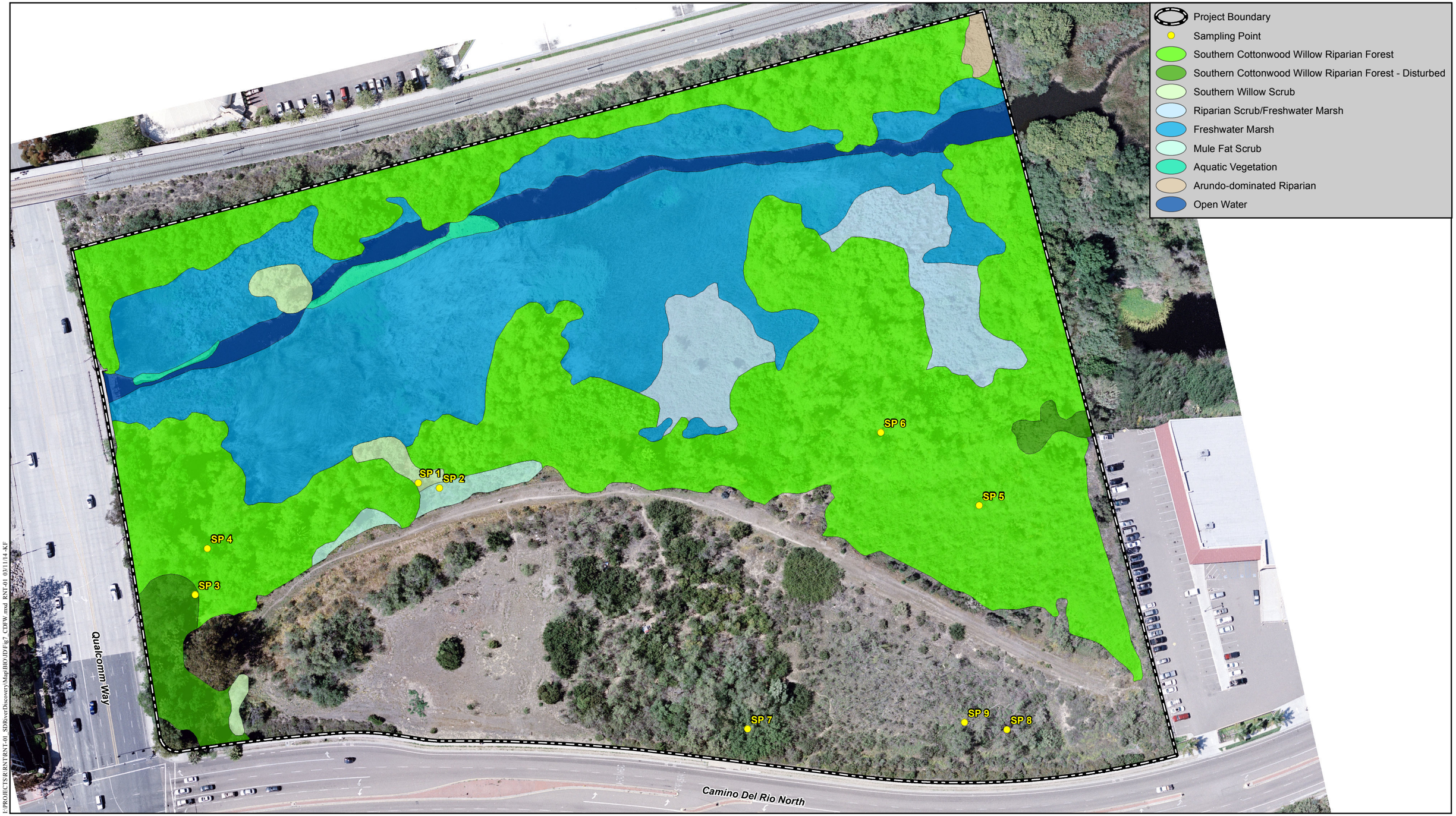
Waters of the U.S.

SAN DIEGO RIVER DISCOVERY CENTER

HELIX Environmental Planning

0 100 Feet

Figure 6



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Waters of the State and City Wetlands

SAN DIEGO RIVER DISCOVERY CENTER

HELIX Environmental Planning

0 100 Feet

Figure 7

area, as evidenced by the trash that apparently flowed onto the site from the culvert outlet. Flows from this culvert are best characterized as sheet flow, as there is no channel, streambed, or indication of an OHWM other than the trash. Given the lack of a streambed or plausible connection to one, this location is also non-jurisdictional pursuant to Section 1602 of the state Fish and Game Code. Vegetation at this location appears to be supported by runoff from Camino del Rio North. The artificial hydrology source excludes vegetation in this area from consideration as a wetland pursuant to the City's definition of what constitutes a wetland. This location is not jurisdictional.

Sampling Point 8. This Sampling Point was located on the floor of a basin in the southeastern part of the project site. The habitat at this location is southern riparian woodland, although the trees in this patch of habitat appear to be in decline. This is evidenced by canopies that are thin and appear much too small to have been responsible for the trunks that support them. Three of 4 dominant species at this location were wetland plants, thus meeting the Dominance Test. Those 3 species include black willow (*Salix gooddingii*), salt cedar, and mule fat. The dominant upland species at this location is Italian thistle (*Carduus pycnocephalus*). A soil pit dug to 18 inches did not reveal any hydric soil indicators and neither were any wetland hydrology indicators observed. This location is not jurisdictional.

Sampling Point 9. This Sampling Point was located on a low ridge above Sampling Point 8, in disturbed baccharis scrub and near riparian woodland. Two wetland plants (black willow and mule fat) were dominant and 2 upland plants (Italian thistle and red brome [*Bromus madritensis* ssp. *Rubens*]) were dominant at this location, which is insufficient to meet the Dominance Test for wetland vegetation. The Prevalence Index for this location was also too high (4.3) to conclude wetland vegetation was present. No morphological adaptations or other circumstances at this location indicated this locale was dominated by wetland vegetation. A soil pit excavated to 18 inches did not reveal the presence of any hydric soil indicators nor were any wetland hydrology indicators present. This location is regarded as an upland.

C. POTENTIALLY JURISDICTIONAL HABITATS

The following potentially jurisdictional habitats occur at the Discovery Center, including southern cottonwood-willow riparian forest, southern riparian woodland, southern willow scrub, riparian scrub/freshwater marsh, freshwater marsh, mule fat scrub, aquatic vegetation, Arundo-dominated riparian, and open water along the San Diego River and streambed (Figure 8). All or some of each of these habitats are regarded as WUS, WS and City wetlands except for southern riparian woodland. Portions of the southern cottonwood-willow riparian forest and southern willow scrub are also not jurisdictional. The reasons for what is and is not jurisdictional is provided below (Section III. D). The extent of WUS on site tends to be smaller because of the more restrictive parameters for WUS.

Southern Cottonwood-willow Riparian Forest. Southern cottonwood-willow riparian forests are composed of winter-deciduous trees that require water near the soil surface. Willow (*Salix* sp.), cottonwood (*Populus* sp.), and western sycamore (*Platanus racemosa*) form a dense, medium height canopy along rivers and in mesic canyons and streambeds. Associated understory species include mule fat (*Baccharis salicifolia*), stinging nettle (*Urtica dioica* ssp.

holosericea), and wild grape (*Vitis girdiana*). On site these occur along the San Diego River and between the large berm and Camino del Rio North.

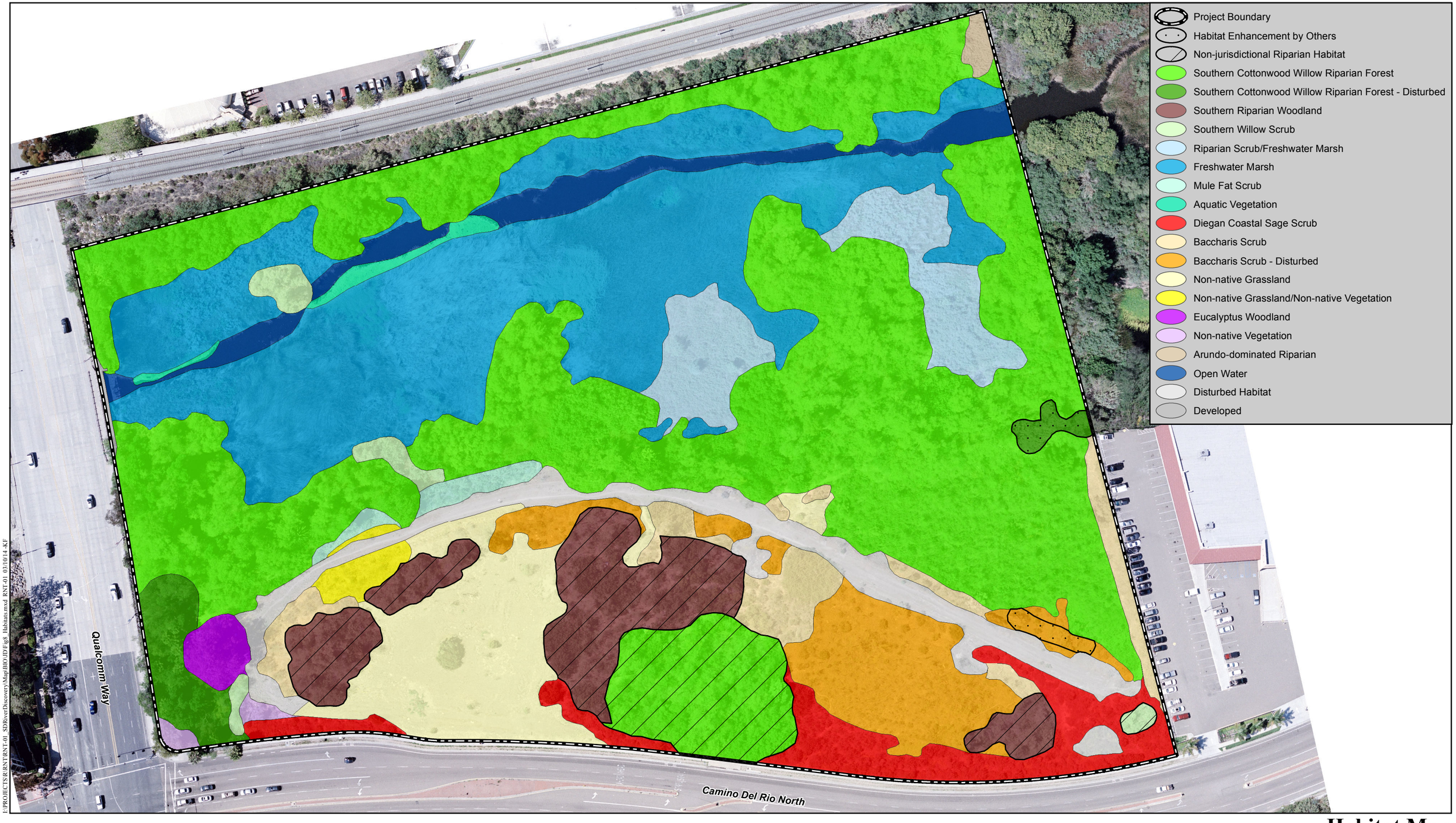
Southern Riparian Woodland. The southern riparian woodland is typically similar to southern riparian forest. The differences between woodlands and forests are physiognomic rather than compositional. Woodlands have less canopy cover than forests. In forests, the canopies of individual tree species do overlap so that a canopy cover exceeding 100 percent may occur in the upper tree stratum. In woodlands, there may be large canopy gaps within the upper tree stratum. At the Discovery Center, however, it is unusual in its landscape position and composition. It does not occur along in a streambed and, in places, supports an upland species (e.g., *Heteromeles arbutifolia*, *Rhus integrifolia*, and *Malosma laurina*). Willows in portions of the riparian woodland appear to be in decline, based on their sparse canopy.

Southern Willow Scrub. Southern willow scrub consists of dense, broadleaved, winter-deciduous stands of trees dominated by shrubby willows (*Salix* sp.) in association with mule fat (*Baccharis salicifolia*), and with scattered emergent cottonwood (*Populus fremontii*) and western sycamores (*Platanus racemosa*). This vegetation community appears as a single layer; it lacks separate shrub and tree layers and generally appears as a mass of short trees or large shrubs. It occurs on loose, sandy or fine gravelly alluvium deposited near stream channels during flood flows. Frequent flooding maintains this early seral community, preventing succession to a riparian woodland or forest (Holland 1986). In the absence of periodic flooding, this early seral type would be succeeded by southern cottonwood or western sycamore riparian forest, provided the requisite hydrology is present to support the greater water needs of those habitats.

Riparian Scrub/Freshwater Marsh. Areas supporting primarily bulrushes (*Schoenoplectus* and *Bolboschoenus* spp.) with an overstory of shrubby willows exist along the San Diego River. The establishment of willows in these areas appears to be a relatively recent occurrence based on a review of aerial photographs taken over the last decade or so. It may be that these areas have silted in, creating less saturated conditions, which is suitable for willow establishment.

Freshwater Marsh. Coastal and valley freshwater marsh is dominated by perennial, emergent monocots, 5 to 13 feet tall, forming incomplete to completely closed canopies. This vegetation type occurs along the coast and in coastal valleys near river mouths and around the margins of lakes and springs, freshwater or brackish marshes. These areas are semi- or permanently flooded yet lack a significant current (Holland 1986). Dominant species include cattails (*Typha* sp.) and bulrushes, along with umbrella sedges (*Cyperus* sp.), rushes (*Juncus* sp.), and spike-sedge (*Eleocharis* sp.).

Mule Fat Scrub. Mule fat scrub is a depauperate, shrubby riparian scrub community dominated by mule fat and interspersed with small willows. This vegetation community occurs along intermittent stream channels with a fairly coarse substrate and moderate depth to the water table. This early seral community is maintained by frequent flooding, the absence of which would lead to a cottonwood or sycamore dominated riparian woodland or forest (Holland 1986), provided the requisite hydrology is present to support the greater water needs of those habitats.



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Habitat Map

SAN DIEGO RIVER DISCOVERY CENTER

HELIX Environmental Planning

0 100 Feet

Figure 8

Aquatic Vegetation. Aquatic vegetation exists in permanent and semi-permanent freshwater, and typically in areas with minimal current. Typical species include water-primrose (*Ludwigia* spp.), duckweed (*Lemna* spp.), and water-meal (*Wolffia* spp.).

Arundo-dominated Riparian. Arundo-dominated riparian are thickets of dense vegetation comprised almost exclusively of giant reed (*Arundo donax*). This riparian habitat exists in loose, sandy or fine gravelly alluvium along the major rivers of coastal southern California.

Streambed and Open Water. The San Diego River is a perennial system. The drainage along Qualcomm Way is intermittent.

D. JURISDICTIONAL HABITAT SUMMARY

Jurisdictional areas within the study area occur along the San Diego River and the streambed that flows north in the southwest corner of the project site. There are habitats that are dominated by wetland species that are not jurisdictional. These habitats occur south of the large berm that hydrologically isolates these habitats from the river. Habitats found in this area include southern cottonwood-willow riparian forest, southern riparian woodland, and southern willow scrub.

The area south of the large berm supports habitats that are sometimes jurisdictional. In this case they are not, primarily due to their hydrological and topographical isolation from jurisdictional waters, and artificial hydrology source. The hydrological isolation of the area south of the large berm is reflected in the fact that the river's floodway and floodplain do not extend into this area (Figure 3).

Water that does flow into the area south of the berm is runoff from Camino del Rio North. There are no streambeds associated with this flow as the runoff comes from a paved surface and does not coalesce into a streambed on site. Runoff from the road enters this part of the site from a culvert outlet (Figure 3). Water from the culvert appears to sheet flow into the site. The water that enters this isolated area does so only because of the development that created Camino del Rio North. Runoff from landscaping and rainfall is collected on the road, concentrated, and then released at a culvert outlet. Without these artificial circumstances the area south of the berm would receive much less water.

Large scale wetland mapping does not include the area south of the berm. The NWI maps show no wetlands outside of the San Diego River Floodway (Figure 5).

A significant portion of the riparian woodland in this area is not subject to inundation: they occur in an upland landscape position. These areas occur at elevations higher than any potential wetland hydrology source. Other areas that conceivably could receive flows (i.e., the basin in the southeast part of the project site) do not appear to be doing so judging by the declining state of the willows there. The trees in this part of the site have relatively small canopies relative to the size of the trunks and major branches.

The potentially jurisdictional habitats between the large berm and Camino del Rio North are not regarded as jurisdictional for a variety of reasons including, their hydrological isolation from

other waters; are not part of a streambed flowing into or across the site; what water does enter this area flows from developed areas; significant parts of this area are not subject to inundation; and wetland vegetation in parts of this area appears to be hydrologically stressed based on the declining state of the riparian trees. Furthermore, this area has not been included in any regional wetland mapping.

1. Federal Jurisdiction

Federal (WUS) jurisdictional areas at the Discovery Center project site include 8.71 acres of wetland and 0.61 acre of non-wetland WUS (Figure 6; Table 2). The length of jurisdictional areas on site totals 1,270 linear feet. This includes the length of the river through the project site and the streambed along Qualcomm Way.

Table 2
WATERS OF THE U.S.

JURISDICTIONAL AREAS	AREA[1] (acres)
Wetlands	
Southern Cottonwood-willow Riparian Forest	3.45
Southern Willow Scrub	0.12
Riparian Scrub/Freshwater Marsh	0.71
Freshwater Marsh	3.70
Aquatic Vegetation	0.09
Arundo-dominated Riparian	0.03
Subtotal	8.10
Non-wetland	
Open Water	0.47
Streambed	0.14
Subtotal	0.61
TOTAL	8.71

[1]Rounded to nearest one-hundredth.

2. State and City Jurisdiction

At this site the state and City jurisdictional areas are sympatric. State (WS) and City wetland jurisdictional areas at the Discovery Center project site include 11.24 acres of wetland and 0.47 acre of non-wetland (Figure 7; Table 3). The length of jurisdictional areas on site totals 1,270 linear feet. This includes the length of the river through the project site and the streambed along Qualcomm Way.

Table 3 WATERS OF THE STATE AND CITY WETLANDS	
JURISDICTIONAL AREAS	**AREA[1]** (acres)
Wetlands	
Southern Cottonwood-willow Riparian Forest	6.45
Southern Willow Scrub	0.14
Riparian Scrub/Freshwater Marsh	0.71
Freshwater Marsh	3.70
Mule Fat Scrub	0.11
Aquatic Vegetation	0.09
Arundo-dominated Riparian	0.04
Subtotal	**11.24**
Non-wetland	
Open Water	0.47
TOTAL	**11.71**

[1]Rounded to nearest one-hundredth.

IV. CONCLUSION

A. FEDERAL PERMITTING

Impacts to WUS are regulated by the USACE under Section 404 of the CWA (33 USC 401 et seq.; 33 USC 1344; USC 1413; and Department of Defense, Department of the Army, Corps of Engineers 33 CFR Part 323). A federal CWA Section 404 Permit would be required for the project to place fill in WUS. A CWA Section 401 Water Quality Certification, which is administered by the State Water Resources Control Board, must be obtained prior to the issuance of any 404 Permit.

B. STATE PERMITTING

Impacts to WS (i.e., streambeds and lakes) are regulated by CDFW under California Fish and Game Code 1602. The CDFW requires a Streambed Alteration Agreement (SAA) for projects that will divert or obstruct the natural flow of water; change the bed, channel, or bank of any stream; or use any material from a streambed. The SAA is a contract between the applicant and CDFW stating what activities can occur in the riparian zone and stream course (California Association of Resource Conservation Districts 2002).

C. CITY PERMITTING

Impacts to wetlands, which area regarded by the City as an Environmentally Sensitive Lands (ESL), require a Site Development Permit. The ESL requires that impacts to wetlands be avoided. Unavoidable impacts should be minimized to the maximum extent practicable, and mitigated as follows:

As part of the project-specific environmental review pursuant to CEQA, all unavoidable wetlands impacts (both temporary and permanent) will need to be analyzed and mitigation will be required in accordance with the City's Biology Guidelines; mitigation should be based on the impacted type of wetland habitat and project design. Mitigation should prevent any net loss of wetland functions and values of the impacted wetland.

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Appendix A

FEDERAL JURISDICTIONAL INFORMATION

Appendix A
FEDERAL JURISDICTIONAL INFORMATION

Waters of the U.S.

The official definition of "Waters of the U.S." and their limits of jurisdiction (as they may apply) are defined by the Corps' Regulatory Program Regulations (Section 328.3, paragraphs [a] 1-3 and [e], and Section 328.4, paragraphs [c] 1 and 2) as follows:

> All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; all waters including interstate wetlands, all other waters such as interstate lakes, rivers, streams [including intermittent streams], mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate commerce including any such water, which are or could be used by interstate travelers for recreation or other purposes; or from which fish or shellfish are or could be taken and sold in interstate commerce; or which are or could be used for industries in interstate commerce; or wetlands adjacent to waters [other than waters that are themselves wetlands].
>
> Non-tidal Waters of the U.S. The limits of jurisdiction in non-tidal waters: In the absence of adjacent wetlands, the jurisdiction extends to the ordinary high water mark, or when adjacent wetlands are present, the jurisdiction extends to the limit of the adjacent wetlands.
>
> The term ordinary high water mark means that line on the shore established by the fluctuation of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation (scouring), the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

The U.S. Army Corps of Engineers (Corps; Federal Register 1982) and the Environmental Protection Agency (Federal Register 1980) jointly define wetlands as "[t]hose areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (Environmental Laboratory 1987).

Waters of the U.S. must exhibit an ordinary high water mark (OHWM) or other evidence of surface flow created by hydrologic physical changes. These physical changes include (Riley 2005):

- Natural line impressed on the bank
- Shelving
- Changes in the character of soil
- Destruction of terrestrial vegetation
- Presence of litter and debris
- Wracking
- Vegetation matted down, bent, or absent
- Change in plant community
- Sediment sorting
- Leaf litter disturbed or washed away
- Scour
- Deposition
- Multiple observed flow events
- Bed and banks
- Water staining

Jurisdictional areas also must be connected to Waters of the U.S. (Guzy and Anderson 2001; U.S. Supreme Court 2001).

As a consequence of the U.S. Supreme Court decision in Rapanos v. United States, a memorandum was developed regarding Clean Water Act jurisdiction (Grumbles and Woodley 2007). The memorandum states that the EPA and the Corps will assert jurisdiction over traditional navigable waters (TNW), wetlands adjacent to TNW, tributaries to TNWs that are a relatively permanent water body (RPW), and wetlands adjacent to TNW. An RPW has year round flow or continuous seasonal flow (i.e., typically for three months or longer). Jurisdiction over other waters (i.e., non TNW and RPW) will be based on a fact specific analysis to determine if they have a significant nexus to a TNW.

Pursuant to the Corps Instructional Guidebook (Corps and EPA 2007), the significant nexus evaluation will cover the subject reach of the stream (upstream and downstream) as well as its adjacent wetlands (Illustrations 2 through 6, Corps and EPA 2007). The evaluation will include the flow characteristics, annual precipitation, ability to provide habitat for aquatic species, ability to retain floodwaters and filter pollutants, proximity of the subject reach to a TNW, drainage area, and the watershed.

Wetland Criteria

Wetland boundaries are determined using three mandatory criteria (hydrophytic vegetation, wetland hydrology, and hydric soil) established for wetland delineations and described within the Wetlands Delineation Manual (Environmental Laboratory 1987) and the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Corps 2006). Following is a brief discussion of the three criteria and how they are evaluated.

Vegetation

"Hydrophytic vegetation is defined herein as the sum total of macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present" (Environmental Laboratory 1987).

The wetland indicator status (obligate upland, facultative upland, facultative, facultative wetland, obligate wetland, or no indicator status) of the dominant plant species of all vegetative layers is determined. Species considered to be hydrophytic include the classifications of facultative,

facultative wetland, and obligate wetland as defined by the U.S. Fish and Wildlife Service (1988; Table A-1). The percent of dominant wetland plant species is calculated. The hydrophytic vegetation criterion is considered to be met if it meets the "Dominance Test," "Prevalence Index," or the vegetation has morphological adaptations for prolonged inundation.

Table A-1
DEFINITIONS OF PLANT INDICATOR CATEGORIES

INDICATOR CATEGORIES	ABBREVIATION	PROBABILITY OF OCCURRING IN WETLANDS
Obligate wetland	OBL	Occur almost exclusively in wetlands
Facultative wetland	FACW	Usually found in wetlands (66 to 99 percent probability) but occasionally in uplands
Facultative	FAC	Equally likely to occur in wetland (34 to 66 percent probability) or non-wetland
Facultative upland	FACU	Usually occur in non-wetlands but occasionally found in wetlands
Obligate upland	UPL	Occur almost exclusively in non-wetlands
No indicator	NI	Inconclusive status

Hydrology

The term "wetland hydrology" encompasses all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface at some time during the growing season. Areas with evident characteristics of wetland hydrology are those where the presence of water has an overriding influence on characteristics of vegetation and soils due to anaerobic reducing conditions, respectively" (Environmental Laboratory 1987).

Hydrologic characteristics must indicate that the ground is saturated to within 12 inches of the surface for at least 5 percent of the growing season during a normal rainfall year (approximately 18 days for most of low-lying southern California). Hydrology criteria are evaluated based on the characteristics listed below (Corps 2006). Where positive indicators of wetland hydrology are present, the limit of the OHWM (or the limit of adjacent wetlands) is noted and mapped. Evidence of wetland hydrology is met by the presence of a single primary indicator or two secondary indicators.

Primary

- surface water (A1)
- high water table (A2)
- saturation (A3)
- water marks (B1; non-riverine)
- sediment deposits (B2; non-riverine)
- drift deposits (B3; non-riverine)
- surface soil cracks (B6)
- inundation visible on aerial imagery (B7)
- water-stained leaves (B9)
- salt crust (B11)
- biotic crust (B12)
- aquatic invertebrates (B13)
- hydrogen sulfide odor (C1)
- oxidized rhizospheres along living roots (C3)
- preserve of reduced iron (C4)
- recent iron reduction in tilled soils (C6)
- thin much surface (C7)

Secondary

- watermarks (B1; riverine)
- sediment deposits (B2; riverine)
- drift deposits (B3; riverine)
- drainage patterns (B10)
- dry-season water table (C2)
- crayfish burrows (C8)
- saturation visible on aerial imagery (C9)
- shallow aquitard (D3)
- FAC-neutral test (D5)

In the absence of all other hydrologic indicators and in the absence of significant modifications of an area's hydrologic function, positive hydric soil characteristics are assumed to indicate positive wetland hydrology. This assumption applies unless the site visit was done during the wet season of a normal or wetter-than-normal year. Under those circumstances, wetland hydrology would not be present.

Soils

"A hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part" (Natural Resource Conservation Service [NRCS] 2004).

Soils must exhibit physical and/or chemical characteristics indicative of permanent or periodic saturation. Soil matrix and mottle colors are identified at each sampling plot using a Munsell soil color chart (Kollmorgen 1994). Generally, an 18-inch deep pit is excavated with a shovel at each sampling plot unless refusal occurs above 18 inches, although hydric soil indicators begin within 12 inches of the soil surface.

Soils in each area are closely examined for hydric soil indicators, including the characteristics listed below. Hydric soil indicators are presented in three groups. Indicators for "All Soils" (A) are used in any soil regardless of texture, indicators for "Sandy Soils" (S) area used in soil layers with USDA textures of loamy fine sand or coarser, and indicators for "Loamy and Clayey Soils" (F) are used with soil layers of loamy very fine sand and finer (Corps 2006).

- histosols (A1)
- histic epipedons (A2)
- black histic (A3)
- sulfidic odor (A4)
- stratified layers (A5)
- 1 cm muck (A9)
- depleted below dark surface (A11)
- thick dark surface (A12)
- sandy mucky mineral (S1)
- sandy gleyed matrix (S4)
- sandy redox (S5)
- stripped matrix (S6)
- loamy mucky mineral (F1)
- loamy gleyed matrix (F2)
- depleted matrix (F3)
- redox dark surface (F6)
- depleted dark surface (F7)
- redox depressions (F8)
- vernal pools (F9)
- 2 cm muck (A10)
- reduced vertic (F18)
- red parent material (TF2; indicator is currently being tested by NRCS).

Hydric soils may be assumed to be present in plant communities that have complete dominance of obligate or facultative wetland species. In some cases, there is only inundation during the growing season and determination must be made by direct observation during that season, recorded hydrologic data, testimony of reliable persons, and/or indication on aerial photographs.

Non-wetland Waters of the U.S.

The non-wetland Waters of the U.S. designation is met when an area has periodic surface flows but lacks sufficient indicators to meet the hydrophytic vegetation and/or hydric soils criteria. For purposes of delineation and jurisdictional designation, the non-wetland Waters of the U.S. boundary in non-tidal areas is the OHWM as described in the Section 404 regulations (33 CFR Part 328). Further guidance on the OHWM (Riley 2005; Lichvar and McColley 2008),

USGS Mapping

The USGS Quad maps are one of the resources used to aid in the identification and mapping of jurisdictional areas. Their primary uses include understanding the subregional landscape position of a site, major topographical features, and a project's position in the watershed.

In our experience, the designation of watercourse as a blue-line stream (intermittent or perennial) on USGS maps has been unreliable and typically overstates the hydrology of most streams. This has also been the experience of others, including the late Dr. Luna Leopold. Dr. Leopold was a hydrologist with USGS from 1952 to 1972, Professor in the Department of Geology and Geophysics, and Department of Landscape Architecture, University of California, Berkeley from 1972 to 1986, and Professor Emeritus from 1987 until his death in 2006. In regard to stream mapping on USGS maps, Dr. Leopold (1994) opined that "...blue lines on a map are drawn by nonprofessional, low-salaried personnel. In actual fact, they are drawn to fit a rather personalized aesthetic."

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Appendix B

STATE JURISDICTIONAL INFORMATION

Appendix B
STATE JURISDICTIONAL INFORMATION

California Department of Fish and Wildlife Regulations

The California Department of Fish and Wildlife (CDFW; Department) regulates alterations or impacts to streambeds or lakes (wetlands) under Fish and Game Code Sections 1600 through 1616 for any private, state, or local government or public utility-initiated projects. Section 1602 of the Fish and Game Code requires any entity to notify the Department before beginning any activity that will do one or more of the following: (1) substantially obstruct or divert the natural flow of a river, stream, or lake; (2) substantially change or use any material from the bed, channel, or bank of a river, stream, or lake; or (3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake. Fish and Game Code Section 1602 applies to all perennial, intermittent, and ephemeral rivers and streams as well as lakes in the state.

In order to notify the Department, a person, state, or local governmental agency or public utility must submit a complete notification package and fee to the Department regional office that serves the county where the activity will take place. A fee schedule is included in the notification package materials. Under the Permit Streamlining Act (Government Code Sections 65920 et seq.), the Department has 30 days to determine whether the package is complete. If the requestor is not notified within 30 days, the application is automatically deemed to be complete.

Once the notification package is deemed to be complete, the Department will determine whether the applicant will need a Lake or Streambed Alteration Agreement (SAA) for the activity, which will be required if the activity could substantially adversely affect an existing fish and wildlife resource. If an SAA is required, the Department will conduct an on-site inspection, if necessary, and submit a draft SAA that will include measures to protect fish and wildlife resources while conducting the project. If the applicant is applying for a regular SAA (less than five years), the Department will submit a draft SAA within 60 calendar days after notification is deemed complete. The 60-day time period does not apply to notifications for long-term SAAs (greater than five years).

After the applicant receives the SAA, the applicant has 30 calendar days to notify the Department whether the measures in the draft SAA are acceptable. If the applicant agrees with the measures included in the draft SAA, the applicant will need to sign the SAA and submit it to the Department. If the applicant disagrees with any measures in the draft SAA, the applicant must notify the Department in writing and specify the measures that are not acceptable. Upon written request, the Department will meet with the applicant within 14 calendar days of receiving the request to resolve the disagreement. If the applicant fails to respond in writing within 90 calendar days of receiving the draft SAA, the Department may withdraw that SAA. The time periods described above may be extended at any time by mutual agreement.

After the Department receives the signed draft SAA, the Department will make it final by signing the SAA; however, the Department will not sign the SAA until it both receives the notification fee and ensures that the SAA complies with the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000 et seq.). After the applicant receives the final agreement, the applicant may begin the project the agreement covers, provided that the applicant has obtained any other necessary federal, state and/or local authorizations.

Water Resource Control Board Regulations

Section 401 Water Quality Certification

Whenever a project requires a federal Clean Water Act (CWA) Section 404 permit or a Rivers and Harbors Act Section 10 permit, it must first obtain a CWA Section 401 Water Quality Certification. The Regional Water Quality Control Board (RWQCB) administers the 401 Certification program. Federal CWA Section 401 requires that every applicant for a Section 404 permit must request a Water Quality Certification that the proposed activity will not violate state and federal water quality standards.

Porter-Cologne Water Quality Control Act

The State Water Resource Control Board (SWRCB) and the RWQCB regulate the discharge of waste to Waters of the State via the 1969 Porter-Cologne Water Quality Control Act (Porter-Cologne) as described in the California Water Code (SWRCB 2008). The California Water Code is the State's version of the Federal CWA. Waste, according to the California Water Code, includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal. State waters that are not federal waters may be regulated under Porter-Cologne. A Report of Waste Discharge must be filed with the RWQCB for projects that result in discharge of waste into waters of the State. The RWQCB will issue Waste Discharge Requirements (WDRs) or a waiver. The WDRs are the Porter-Cologne version of a CWA 401 Water Quality Certification.

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Date unknown. Streambed/Lake Alteration Notification Guidelines.

Appendix C

CITY OF SAN DIEGO JURISDICTIONAL INFORMATION

Appendix C
CITY OF SAN DIEGO WETLANDS
LAND DEVELOPMENT CODE, BIOLOGICAL GUIDELINES; SECTION I.A.2.

Wetlands support many of the species included in the MSCP (i.e. Covered Species). The definition of wetlands in Environmentally Sensitive Lands (ESL) is intended to differentiate uplands (terrestrial areas) from wetlands, and furthermore to differentiate naturally occurring wetland areas from those created by human activities. Except for areas created for the purposes of wetland habitat or resulting from human actions to create open waters or from the alteration of natural stream courses, it is not the intent of the City to regulate artificially created wetlands in historically non-wetland areas unless they have been delineated as wetlands by the Army Corps of Engineers, and/or the California Department of Fish and Game. For the purposes of the ESL, artificially created lakes such as Lake Hodges, artificially channeled floodways such as the Carmel Valley Restoration and Enhancement Project (CVREP) and previously dredged tidal areas such as Mission Bay should be considered wetlands under ESL. The following provides guidance for defining wetlands regulated by the City of San Diego under the Land Development Code.

Naturally occurring wetland vegetation communities are typically characteristic of wetland areas. Examples of wetland vegetation communities include saltmarsh, brackish marsh, freshwater marsh, riparian forest, oak riparian forest, riparian woodland, riparian scrub and vernal pools. Common to all wetland vegetation communities is the predominance of hydrophytic plant species (plants adapted for life in anaerobic soils). Many references are available to help identify and classify wetland vegetation communities; Holland (1986), revised Holland (Oberbauer 2005 and 2008), Cowardin et al. (1979), Sawyer and Keeler-Wolf (1996), and Zedler (1987). The U.S. Army Corps of Engineers Wetland Delineation Manual (1987) provides technical information on hydrophytic species.

Problem areas can occur when delineating wetlands due to previous human activities or naturally occurring events. Areas lacking naturally occurring wetland vegetation communities are still considered wetlands if hydric soil or wetland hydrology is present and past human activities have occurred to remove the historic vegetation (e.g., agricultural grading in floodways, dirt roads bisecting vernal pools, channelized streambeds), or catastrophic or recurring natural events preclude the establishment of wetland vegetation (e.g., areas of scour within streambeds, coastal mudflats and salt pannes that are unvegetated due to tidal duration). The U.S. Army Corps of Engineers Wetland Delineation Manual (1987) provides technical information on hydric soils and wetland hydrology.

Seasonal drainage patterns that are sufficient enough to etch the landscape (i.e. ephemeral/intermittent drainages) may not be sufficient enough to support wetland dependent vegetation. These types of drainages would not satisfy the City's wetland definition unless wetland dependent vegetation is either present in the drainage or lacking due to past human activities. Seasonal drainage patterns may constitute "waters of the United States" which are regulated by the Army Corps of Engineers and/or the California Department of Fish and Game.

Areas lacking wetland vegetation communities, hydric soils and wetland hydrology due to non-permitted filling of previously existing wetlands will be considered a wetland under the ESL and regulated accordingly. The removal of the fill and restoration of the wetland may be required as a condition of project approval.

Areas that contain wetland vegetation, soils or hydrology created by human activities in historically non-wetland areas do not qualify as wetlands under this definition unless they have been delineated as wetlands by the Army Corps of Engineers, and/or the California Department of Fish and Game. 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, road ruts created by vehicles and artificially irrigated areas which would revert to uplands if the irrigation ceased. Areas of historic wetlands can be assessed using historic aerial photographs, existing environmental reports (EIRs, biology surveys, etc.), and other collateral material such as soil surveys.

Some coastal wetlands, vernal pools and riparian areas have been previously mapped. The maps, labeled C-713 and C-740 are available to aid in the identification of wetlands. Additionally, the 1":2000' scale MSCP vegetation maps may also be used as a general reference, as well as the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory maps. These maps, available for viewing at the Development Services Department, should not replace site-specific field mapping.

Appendix D

DATA FORMS

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Discovery Center City/County: San Diego/San Diego Sampling Date: 24 Feb 2014

Applicant/Owner: San Diego River Park Foundation State: CA Sampling Point: 1

Investigator(s): W.L. Sward Section, Township, Range: LANDGRANT PUEBLO LANDS OF SAN DIEGO

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 3-4

Subregion (LRR): C Lat: 32.773005 Long: -117.139077 Datum: WGS 1984

Soil Map Unit Name: Riverwash NWI classification: See Summary Remarks

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

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

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

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

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

Remarks:

Sampling point located at the toe of large berm. Berm is at southern edge of river floodplain.
NWI Classification: Freshwater Forested/Shrub Wetland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20 X 60)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus fremontii	4	Yes	FAC
2. Salix lasiolepis	6	Yes	FACW
3.			
4.			
	10	= Total Cover	
Sapling/Shrub Stratum (Plot size: 20 X 20)			
1. Salix lasiolepis	45	Yes	FACW
2. Baccharis salicifolia	25	Yes	FAC
3.			
4.			
5.			
	70	= Total Cover	
Herb Stratum (Plot size: 10 X 10)			
1. Schoenoplectus californicus	20	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	20	= Total Cover	
Woody Vine Stratum (Plot size: 15 X 15)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Southern cottonwood-willow riparian forest.
Abundant leaf litter.

SOIL

Sampling Point: 1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/2	10					SiL	
3-18	10YR 4/1	90	7.5YR 4/6				SiL	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes ✔ No ___ Depth (inches): 10

Saturation Present? (includes capillary fringe) Yes ✔ No ___ Depth (inches): 2.5

Wetland Hydrology Present? Yes ✔ No ___

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

Remarks:

FAC-neutral Test; W:U=3:0

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Discovery Center City/County: San Diego/San Diego Sampling Date: 24 Feb 2014

Applicant/Owner: San Diego River Park Foundation State: CA Sampling Point: 2

Investigator(s): W.L. Sward Section, Township, Range: LANDGRANT PUEBLO LANDS OF SAN DIEGO

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 30

Subregion (LRR): C Lat: 32.77299 Long: -117.139 Datum: WGS 1984

Soil Map Unit Name: Riverwash NWI classification: See Summary Remarks

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

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

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

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

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

Remarks:

Sampling point located on a steep slope 3 feet above terrace (that is wetland based on Sample Point 1). Sampling point is within CDFW habitat. NWI Classification: Freshwater Forested/Shrub Wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 12 X 60)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 12 X 20)			
1. Baccharis salicifolia	70	Yes	FAC
2. Baccharis sarothroides	10	No	FACU
3.			
4.			
5.			
	80 = Total Cover		
Herb Stratum (Plot size: 10 X 10)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: 12 X 15)			
1.			
2.			
	0 = Total Cover		

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Mule fat scrub

SOIL

Sampling Point: 2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/2	100					SiL	
3-15	10YR 3/2	100					SiL	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

Sampling point very cobbly.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✔

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

Remarks:

FAC-neutral Test; W:U=0:1

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Discovery Center City/County: San Diego/San Diego Sampling Date: 24 Feb 2014

Applicant/Owner: San Diego River Park Foundation State: CA Sampling Point: 3

Investigator(s): W.L. Sward Section, Township, Range: LANDGRANT PUEBLO LANDS OF SAN DIEGO

Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): None Slope (%): 50

Subregion (LRR): C Lat: 32.772653 Long: -117.139923 Datum: WGS 1984

Soil Map Unit Name: Riverwash NWI classification: See Summary Remarks

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

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

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

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

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

Remarks:

Sampling point is located along a drainage next to Qualcomm Way. No vegetation is present in the channel bottom. Soil pit dug on side of drainage where plants are rooted. Unable to dig in channel bottom due to rocks, trash, and rip-rap on slope on west side of drainage. NWI Classification: Freshwater Forested/Shrub Wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20 X 60)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus fremontii	15	No	FAC
2. Washingtonia robusta	40	Yes	FACW
3. Eucalyptus camaldulensis	25	Yes	FAC
4.			
	80	= Total Cover	
Sapling/Shrub Stratum (Plot size: 20 X 20)			
1. Salix lasiolepis	10	Yes	FACW
2.			
3.			
4.			
5.			
	10	= Total Cover	
Herb Stratum (Plot size: 10 X 10)			
1. Melilotus albus	+	No	UPL
2. Stipa miliaceia	2	No	UPL
3.			
4.			
5.			
6.			
7.			
8.			
	_____	= Total Cover	
Woody Vine Stratum (Plot size: 15 X 15)			
1.			
2.			
	0	= Total Cover	

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Disturbed southern cottonwood-willow riparian forest

SOIL

Sampling Point: 3

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/2	100					SaL	
4-16	10YR 2/1	100					CL	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ___ **No** ✔

Remarks:

Pit located at edge of streambed. Profile taken on the side of the pit (not the deepest or shallowest part of the pit).

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

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

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

Remarks:

FAC-neutral Test; W:U=2:0

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Discovery Center City/County: San Diego/San Diego Sampling Date: 24 Feb 2014

Applicant/Owner: San Diego River Park Foundation State: CA Sampling Point: 4

Investigator(s): W.L. Sward Section, Township, Range: LANDGRANT PUEBLO LANDS OF SAN DIEGO

Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR): C Lat: 32.772799 Long: -117.139836 Datum: WGS 1984

Soil Map Unit Name: Riverwash NWI classification: See Summary Remarks

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

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

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

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

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

Remarks:

Sampling point is in a drainage north of Qualcomm Way. Soil pit is located north of a berm. Non-wetland WUS/CDFW habitat. NWI Classification: Freshwater Forested/Shrub Wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 X 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Phoenix canariensis	10	No	FAC*
2. Fraxinus uhdei	25	Yes	FAC*
3. Salix laevigata	50	Yes	FACW
4. Populus fremontii	20	No	FAC
	105	= Total Cover	
Sapling/Shrub Stratum (Plot size: 20 X 20)			
1. Fraxinus uhdei	10	Yes	FAC*
2.			
3.			
4.			
5.			
	10	= Total Cover	
Herb Stratum (Plot size: 10 X 10)			
1. Euphorbia peplus	1	No	UPL
2. Stipa miliaceia	3	No	UPL
3.			
4.			
5.			
6.			
7.			
8.			
	4	= Total Cover	
Woody Vine Stratum (Plot size: 15 X 15)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 65% % Cover of Biotic Crust _____

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Southern cottonwood-willow riparian forest.
*Best professional judgment.

SOIL

Sampling Point: 4

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/1	100					LSa	
2-7	10YR 2/2	100					SaL	
7-20	10YR 2/1	100					SaL	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ **No** ✔

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ✔ **No** _____

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

Remarks:

FAC-neutral Test; W:U=1:0

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Discovery Center City/County: San Diego/San Diego Sampling Date: 24 Feb 2014

Applicant/Owner: San Diego River Park Foundation State: CA Sampling Point: 5

Investigator(s): W.L. Sward Section, Township, Range: LANDGRANT PUEBLO LANDS OF SAN DIEGO

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

Subregion (LRR): C Lat: 32.77295 Long: -117.13705 Datum: WGS 1984

Soil Map Unit Name: Riverwash NWI classification: None

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

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

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

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

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

Remarks:

Sampling Point is located in a basin that is isolated from the San Diego River.
Not WUS. CDFW habitat.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 40 X 40)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus fremontii	17	Yes	FAC
2. Salix laevigata	30	Yes	FACW
3.			
4.			
	47 = Total Cover		
Sapling/Shrub Stratum (Plot size: 20 X 20)			
1. Baccharis salicifolia	60	Yes	FAC
2. Baccharis sarothroides	10	No	FACU
3.			
4.			
5.			
	70 = Total Cover		
Herb Stratum (Plot size: 10 X 10)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: 15 X 15)			
1.			
2.			
	0 = Total Cover		

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Southern cottonwood-willow riparian forest (xeric)

SOIL

Sampling Point: 5

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/3	100					C	
2-16	10YR 4/4	100					C	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ **No** ✔

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ **No** ✔

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

Remarks:

FAC-neutral Test; W:U=1:0

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Discovery Center City/County: San Diego/San Diego Sampling Date: 24 Feb 2014

Applicant/Owner: San Diego River Park Foundation State: CA Sampling Point: 6

Investigator(s): W.L. Sward Section, Township, Range: LANDGRANT PUEBLO LANDS OF SAN DIEGO

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 1-2

Subregion (LRR): C Lat: 32.77317 Long: -117.137408 Datum: WGS 1984

Soil Map Unit Name: Riverwash NWI classification: See Summary Remarks

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

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

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

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

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

Remarks:

NWI Classification: Freshwater Forested/Shrub Wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 X 40)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix laevigata	60	Yes	FACW
2.			
3.			
4.			
	60	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30 X 20)			
1. Schinus terebinthifolius	10	Yes	FAC
2. Baccharis salicifolia	25	Yes	FAC
3. Ricinus communis			FACU
4.			
5.			
	35	= Total Cover	
Herb Stratum (Plot size: 10 X 10)			
1. Tropaeolum majus	+	no	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	_____	= Total Cover	
Woody Vine Stratum (Plot size: 15 X 15)			
1. Passiflora sp.	3	No	FAC?
2.			
	3	= Total Cover	

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Abundant leaf litter.

SOIL

Sampling Point: 6

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

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

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✔

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

Remarks:

FAC-neutral Test; W:U=1:0

Sampling Point located on river side of large berm, yet no OHWM signs evident.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Discovery Center City/County: San Diego/San Diego Sampling Date: 26 Feb 2014

Applicant/Owner: San Diego River Park Foundation State: CA Sampling Point: 7

Investigator(s): W.L. Sward Section, Township, Range: LANDGRANT PUEBLO LANDS OF SAN DIEGO

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

Subregion (LRR): C Lat: 32.772262 Long: -117.137881 Datum: WGS 1984

Soil Map Unit Name: Riverwash NWI classification: None

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

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

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

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

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

Remarks:

Sampling point isolated from San Diego River floodplain.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 X 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiolepis	20	Yes	FACW
2.			
3.			
4.			
	20 = Total Cover		
Sapling/Shrub Stratum (Plot size: 20 X 20)			
1. Salix lasiolepis	70	Yes	FACW
2.			
3.			
4.			
5.			
	70 = Total Cover		
Herb Stratum (Plot size: 10 X 10)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: 15 X 15)			
1.			
2.			
	0 = Total Cover		

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Southern cottonwood-willow riparian forest.
Dense leaf litter.

SOIL

Sampling Point: 7

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/1	100					SiL	
6-17	10YR 4/3	90					C	
	10YR 2/1	10						

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ___ **No** ✔

Remarks:

Second color in bottom layer appears to be soils that have been mixed into layer from the surface layer.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

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

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

Remarks:

Primary source of hydrology is a nearby culvert outlet. Drift deposits consist of cans and plastic cups. There is no organic matter deposited on the tree trunks.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Discovery Center City/County: San Diego/San Diego Sampling Date: 26 Feb 2014

Applicant/Owner: San Diego River Park Foundation State: CA Sampling Point: 8

Investigator(s): W.L. Sward Section, Township, Range: LANDGRANT PUEBLO LANDS OF SAN DIEGO

Landform (hillslope, terrace, etc.): Basin floor Local relief (concave, convex, none): None Slope (%): 0-1

Subregion (LRR): C Lat: 32.772267 Long: -117.136943 Datum: WGS 1984

Soil Map Unit Name: Riverwash NWI classification: None

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

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

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

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

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

Remarks:

Sampling point located on the floor of the basin.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 X 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix gooddingii	5	Yes	FACW
2. Tamarix parviflora	2	Yes	FAC
3.			
4.			
	7	= Total Cover	
Sapling/Shrub Stratum (Plot size: 20 X 20)			
1. Baccharis salicifolia	60	Yes	FAC
2.			
3.			
4.			
5.			
	60	= Total Cover	
Herb Stratum (Plot size: 10 X 10)			
1. Carduus pycnocephalus	40	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	40	= Total Cover	
Woody Vine Stratum (Plot size: 15 X 15)			
1.			
2.			
	0	= Total Cover	

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Southern riparian woodland. Abundant stick mulch on ground surface. Trees appear to be in decline.

SOIL

Sampling Point: 8

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 4/3.5	95						
	10YR 2/2	5						
5-12	10YR 4/4	100						
12-18	10YR 4/4	60	7.5YR 4/6	1	C	PL	C	Redox in 10YR 4/4
	7.5YR 5/2	39						

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

Redox features too deep to qualify as a hydric soil indicator. Soil colors at depth may be from wetter hydrological regime. Or, basin may have silted in burying wetter soils and increasing distance of surface soils from wetland hydrology.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✔

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

Remarks:

FAC-neutral Test; W:U=1:1.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Discovery Center City/County: San Diego/San Diego Sampling Date: 26 Feb 2014

Applicant/Owner: San Diego River Park Foundation State: CA Sampling Point: 9

Investigator(s): W.L. Sward Section, Township, Range: LANDGRANT PUEBLO LANDS OF SAN DIEGO

Landform (hillslope, terrace, etc.): Ridge in basin Local relief (concave, convex, none): Mpme Slope (%): 3

Subregion (LRR): C Lat: 32.772288 Long: -117.137097 Datum: WGS 1984

Soil Map Unit Name: Riverwash NWI classification: None

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

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

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

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

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

Remarks:

Sampling point located on small ridge 3 feet above Sampling Point 8.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 X 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix gooddingii	10	Yes	FACW
2.			
3.			
4.			
	10 = Total Cover		
Sapling/Shrub Stratum (Plot size: 10 X 20)			
1. Baccharis salicifolia	15	Yes	FAC
2.			
3.			
4.			
5.			
	15 = Total Cover		
Herb Stratum (Plot size: 5 X 10)			
1. Carduus pycnocephalus	40	Yes	UPL
2. Euphorbia peplus	1	No	UPL
3. Bromus madritensis	20	Yes	UPL
4.			
5.			
6.			
7.			
8.			
	61 = Total Cover		
Woody Vine Stratum (Plot size: 10 X 15)			
1.			
2.			
	0 = Total Cover		

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 0	x 1 = 0
FACW species 10	x 2 = 20
FAC species 15	x 3 = 45
FACU species 0	x 4 = 0
UPL species 61	x 5 = 305
Column Totals: 86 (A)	370 (B)

Prevalence Index = B/A = 4.3

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Baccharis scrub disturbed

SOIL

Sampling Point: 9

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 4/3	70					SiL	
	10YR 2/2	30						
7-18	10YR 4/4	89	7.5YR 4/6	1			C	
	7/5YR 5/2	10						

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

Redox features insufficient to qualify as a hydric soil indicator.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✔

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

Remarks:

FAC-neutral Test; W:U=1:2

Appendix E

SAMPLING POINT PHOTOGRAPHS

Sampling Point 1 was located at the southern edge of the San Diego River floodplain, in southern cottonwood-willow riparian forest. Wetland vegetation, soils, and hydrology were present. This location is a waters of the U.S. (WUS), waters of the State (WS), and City wetland.

Sampling Point 2 was located on berm, approximately 3 feet higher than Sampling Point 1. The habitat at this location is mule fat scrub. Wetland vegetation was present, but this sampling point lacked wetland soils and hydrology. This location is not a WUS, but is a WS and City wetland.

Sampling Point 3 was located along a drainage at the western edge of the project site. No vegetation was rooted in the channel bottom at this location and efforts to dig a pit in the channel bottom proved futile due to the presence of rip-rap, trash, and rocks. This pit was located on the eastern side of the channel just above the channel bottom. The habitat at this location is disturbed southern cottonwood-willow riparian forest. Wetland vegetation and hydrology were observed here but there was no indication of hydric soils. This location is a non-wetland WUS, and a WS and City wetland.

Sampling Point 4 was located north of, and in the same drainage as, Sampling Point 3. The location is north of the large berm that separates the river from the southern part of the project site, at a place where the drainage fans out. Wetland vegetation and hydrology were observed here but there was no indication of hydric soils. This location is regarded as a non-wetland WUS, and a WS and City wetland.

Sampling Point 5 was located in a basin formed by two berms and a graded pad to the east. This location appears to be isolated from the river floodplain. The vegetation was noted as southern cottonwood-willow riparian forest, but it is a more xeric expression of this habitat type than that growing along the river. This is reflected in the relative lower cover provided by trees and less mesic wetland vegetation. Wetland vegetation was present, but the sampling point lacked wetland soils and hydrology. This location is not a WUS, but is a WS and City wetland.

Sampling Point 6 was located at the southern edge of the San Diego River floodplain, in southern cottonwood-willow riparian forest. Wetland vegetation was present, but the sampling point lacked wetland soils and hydrology. This location is not a WUS, but is a WS and City wetland.

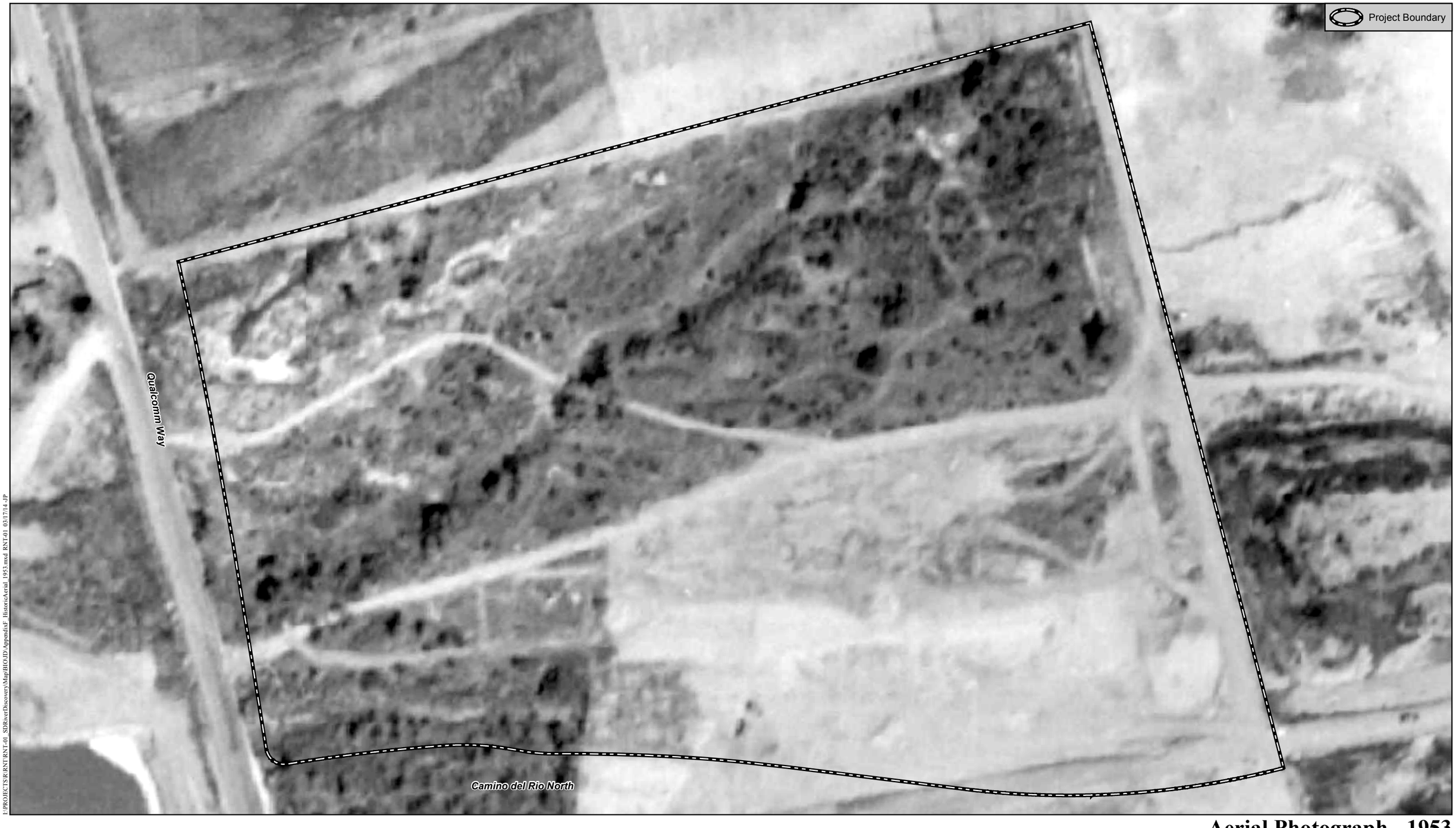
Sampling Point 7 was located along Camino del Rio North, just below a storm drain outlet. The habitat at this location is southern cottonwood-willow riparian forest. Wetland vegetation and hydrology were observed here but there was no indication of hydric soils. This location, however, is isolated from the San Diego River and therefore not regarded as either WUS, WS, or a City wetland.

Sampling Point 8 was located in the bottom of a large isolated basin. Riparian woodland, a wetland vegetation, was present, but the sampling point lacked wetland hydrology. The soils did not exactly meet any hydric soil indicator, but did contain redox features, albeit too deep to qualify as a hydric soil indicator. This location is also isolated from the San Diego River and therefore not WUS, WS, or a City wetland.

Sampling Point 9 was located on a small ridge near Sampling Point 8, in disturbed baccharis scrub. This location is about 3 feet higher than Sampling Point 8, and is near the boundary between the riparian woodland and disturbed baccharis scrub. The soils did not exactly meet any hydric soil indicator, but did contain redox features. These features were insufficient to qualify as a hydric soil indicator. This location is also isolated from the San Diego River and therefore not WUS, WS, or a City wetland.

Appendix F

HISTORIC AERIAL PHOTOGRAPHS



I:\PROJECTS\R\RNT\RNT-01_SDRiverDiscoveryMap\BIO\JD\AppendixF_HistoricAerial_1953.mxd RNT-01 03/17/14 JP

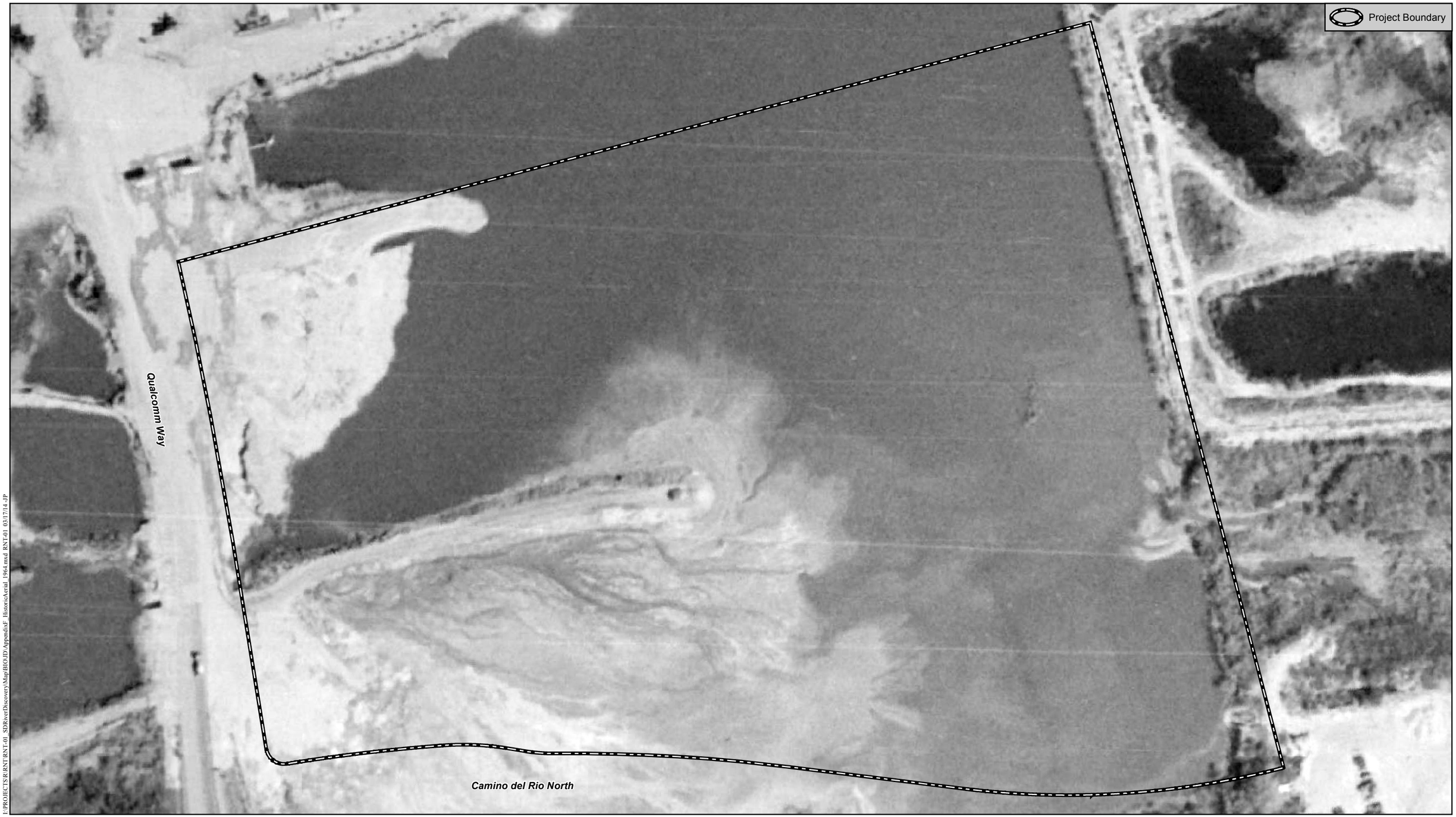
Aerial Photograph - 1953

SAN DIEGO RIVER DISCOVERY CENTER

HELIX Environmental Planning

N

0 100 Feet



I:\PROJECTS\R\RNT\RNT-01_SDRiverDiscovery\Map\BIO\JD\AppendixF_HistoricAerial_1964.mxd RNT-01 03/17/14 JP

Aerial Photograph - 1964

SAN DIEGO RIVER DISCOVERY CENTER

HELIX Environmental Planning

N

0 100 Feet

I:\PROJECTS\R\RNT\RNT-01_SDRiverDiscoveryMap\BIO\JD\AppendixF_HistoricAerial_1980.mxd RNT-01 03/17/14 JP

Aerial Photograph - 1980

SAN DIEGO RIVER DISCOVERY CENTER

HELIX Environmental Planning

N 0 100 Feet

I:\PROJECTS\R\RNT\RNT-01_SDRiverDiscovery\Map\BIO_JD\AppendixF_HistoricAerial_1981.mxd RNT-01 03/17/14 JP

Aerial Photograph - 1981

SAN DIEGO RIVER DISCOVERY CENTER

HELIX Environmental Planning

N 0 100 Feet

I:\PROJECTS\R\RNT\RNT-01_SDRiverDiscovery\Map\BIO\JD\AppendixF_HistoricAerial_1989.mxd RNT-01 03/17/14 JP

Aerial Photograph - 1989

SAN DIEGO RIVER DISCOVERY CENTER

HELIX Environmental Planning

N

0 100 Feet

ATTACHMENT 2

Plant Species Observed

Attachment 2 Plant Species Observed			
Scientific Name	Common Name	Habitat	Origin
ANGIOSPERMS: MONOCOTS			
AGAVACEAE	**AGAVE FAMILY**		
Agave americana L.	American century plant	DH	I
ARECACEAE	**PALM FAMILY**		
Phoenix canariensis Chabaud	Canary Island palm	NNW	I
Washingtonia robusta H. Wendl.	Mexican fan palm	NNW	I
ASPARAGACEAE	**ASPARAGUS FAMILY**		
Asparagus asparagoides (L.) Druce	florist's-smilax	SRF	I
CYPERACEAE	**SEDGE FAMILY**		
Schoenoplectus [=*Scirpus*] *californicus* (C.A. Mey.) Soják	southern bulrush	SRF, FWM	N
IRIDACEAE	**IRIS FAMILY**		
Iris sp.	iris	NNW	I
POACEAE (GRAMINEAE)	**GRASS FAMILY**		
Arundo donax L.	giant reed	FWM	I
Cortaderia selloana (Schult. & Schult. f.) Asch. & Graebn.	pampas grass	SRW	I
Stipa miliacea (L.) Hoover var. *miliaceae* [=*Piptatherum miliaceum* ssp. *miliaceum* and *Oryzopsis miliacea*]	smilo grass	NNW	I
TYPHACEAE	**CATTAIL FAMILY**		
Typha latifolia L.	broad-leaved cattail	FWM	N
AIZOACEAE	**FIG-MARIGOLD FAMILY**		
Carpobrotus edulis (L.) N.E. Br.	freeway iceplant	DH, SRW	I
ANACARDIACEAE	**SUMAC OR CASHEW FAMILY**		
Malosma laurina Nutt. ex Abrams	laurel sumac	CSS, DH, SRW	N
Rhus integrifolia (Nutt.) Benth. & Hook. f. ex Rothr.	lemonade berry	CSS, SRW, SRF	N
Schinus molle L.	Peruvian pepper tree	SRF	I
Schinus terebinthifolius Raddi	Brazilian pepper tree	SWS, SRF, NNW	I
APIACEAE (UMBELLIFERAE)	**CARROT FAMILY**		
Apium graveolens L.	celery	SRF	I
Foeniculum vulgare Mill.	fennel	DH	I
ASTERACEAE	**SUNFLOWER FAMILY**		
Ageratina adenophora	sticky snakeroot	SRF	I

Attachment 2 Plant Species Observed			
Scientific Name	Common Name	Habitat	Origin
Artemisia californica Less.	California sagebrush	CSS	N
Baccharis pilularis DC.	chaparral broom, coyote brush	BS	N
Baccharis salicifolia (Ruiz & Pav.) Pers. ssp. *salicifolia*	mule fat, seep-willow	DH, SRF, NNW, BS	N
Baccharis sarothroides A. Gray	broom baccharis	DH, SRW, SRF, BS	N
Centaurea melitensis L.	tocalote, Maltese star-thistle	CSS, DH, SRW, BS	I
Encelia californica Nutt.	California encelia	CSS	N
Glebionis coronaria (L.) Spach [=*Chrysanthemum coronarium*]	garland, crown daisy	DH	I
Helminthotheca [=*Picris*] *echioides* (L.) Holub	bristly ox-tongue	SRF	I
Heterotheca grandiflora Nutt.	telegraph weed	DH	N
Isocoma menziesii (Hook. & Arn.) G.L. Nesom	coastal goldenbush	DH, SRW	N
BORAGINACEAE	**BORAGE FAMILY**		
Heliotropium curassavicum L. var. *oculatum* (A. Heller) I. M. Johnst. ex Tidestr.	seaside heliotrope, alkali heliotrope	DH	N
BRASSICACEAE (CRUCIFERAE)	**MUSTARD FAMILY**		
Brassica nigra (L.) W.D.J. Koch	black mustard	DH	I
Hirschfeldia incana (L.) Lagr.-Fossat	short-pod mustard	CSS, DH, SRW, SRF, BS	I
CHENOPODIACEAE	**GOOSEFOOT FAMILY**		
Chenopodium sp.	goosefoot	SRF	N/I
CONVOLVULACEAE	**MORNING-GLORY FAMILY**		
Ipomoea purpurea (L.) Roth.	common morning-glory	SRF	I
EUPHORBIACEAE	**SPURGE FAMILY**		
Ricinus communis L.	castor bean	SWS, SRF, NNW	I
FABACEAE (LEGUMINOSAE)	**LEGUME FAMILY**		
Acacia sp.	acacia	SWS	I
Melilotus albus Medik.	white sweetclover	CSS, SRW	I
FAGACEAE	**OAK FAMILY**		
Quercus agrifolia Née	coast live oak, encina	DH, SWS, SRF	N
LAMIACEAE	**MINT FAMILY**		
Marrubium vulgare L.	horehound	DH	I

Attachment 2 Plant Species Observed			
Scientific Name	Common Name	Habitat	Origin
MALVACEAE	**MALLOW FAMILY**		
Malva parviflora L.	cheeseweed, little mallow	SRF	I
MORACEAE	**MULBERRY FAMILY**		
Ficus sp.	fig	SRF	I
MYRTACEAE	**MYRTLE FAMILY**		
Eucalyptus camaldulensis	red river gum	SRF, NNW	I
Melaleuca viminalis (Sol. ex Gaertn.) Bymes	weeping bottlebrush	NNW	I
OLEACEAE	**OLIVE FAMILY**		
Fraxinus uhdei (Wenz.) Lingelsh.	shamel ash	NNW	I
Olea europaea L.	olive	SRF	I
POLYGONACEAE	**BUCKWHEAT FAMILY**		
Eriogonum fasciculatum Benth.	California buckwheat	CSS	N
ROSACEAE	**ROSE FAMILY**		
Heteromeles arbutifolia (Lindl.) M. Roem.	toyon, Christmas berry	CSS, SRW, SRF	N
SALICACEAE	**WILLOW FAMILY**		
Populus fremontii S. Watson ssp. *fremontii*	Fremont cottonwood, alamo	SRW, SRF	N
Salix gooddingii C.R. Ball.	Goodding's black willow	SRW, SRF	N
Salix lasiolepis Benth.	arroyo willow	SWS	N
SOLANACEAE	**NIGHTSHADE FAMILY**		
Nicotiana glauca Graham	tree tobacco	SRW	I
TAMARICACEAE	**TAMARISK FAMILY**		
Tamarix ramosissima Ledeb.	saltcedar	DH, SRF	I
VITACEAE	**GRAPE FAMILY**		
Vitis girdiana Munson	desert wild grape	FWM, SRF	N

Notes: Scientific and common names were primarily derived from the Jepson eflora (Jepson 2017). In instances where common names were not provided in this resource, common names were obtained from Rebman and Simpson (2014). Additional common names were obtained from the USDA maintained database (USDA 2017) or the Sunset Western Garden Book (Brenzel 2001) for ornamental/horticultural plants.

Attachment 2 Plant Species Observed	
HABITATS	**ORIGIN**
FWM = Freshwater marsh	N = Native to locality
SRF = Southern cottonwood-willow riparian forest	I = Introduced species from outside locality
SRW = Southern riparian woodland	
SWS = Southern willow scrub	
MFS = Mulefat scrub	
BS = Baccharis scrub	
CSS = Diegan coastal sage scrub	
NNW = Non-native woodland	
DH = Disturbed Habitat	

ATTACHMENT 3

Wildlife Species Observed/Detected

Attachment 3 Wildlife Species Observed/Detected				
Scientific Name	Common Name	Occupied Habitat	On-Site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence
INVERTEBRATES (Nomenclature for butterflies from San Diego Natural History Museum 2002)				
NYMPHALIDAE	**BRUSH-FOOTED BUTTERFLIES**			
Vanessa cardui	painted lady			O
REPTILES (Nomenclature from Crother 2012)				
PHRYNOSOMATIDAE	**SPINY LIZARDS**			
Sceloporus occidentalis	western fence lizard			O
BIRDS (Nomenclature from American Ornithologists' Union 2017 and Unitt 2004)				
ACCIPITRIDAE	**HAWKS, KITES, & EAGLES**			
Accipiter cooperii	Cooper's hawk	RW	F/ Y	O
COLUMBIDAE	**PIGEONS & DOVES**			
Columba livia	rock dove (I)	F	C/ Y	O
Zenaida macroura marginella	mourning dove		C/ Y	O
TROCHILIDAE	**HUMMINGBIRDS**			
Calypte anna	Anna's hummingbird	RW	C/ Y	O
PICIDAE	**WOODPECKERS & SAPSUCKERS**			
Picoides pubescens turati	downy woodpecker	RW	U/ Y	O
Sayornis nigricans semiatra	black phoebe		F/ Y	O
CORVIDAE	**CROWS, JAYS, & MAGPIES**			
Corvus brachyrhynchos hesperis	American crow	F	C/ Y	O
AEGITHALIDAE	**BUSHTIT**			
Psaltriparus minimus melanurus	bushtit	RW	C/ Y	O
TROGLODYTIDAE	**WRENS**			
Thryomanes bewickii	Bewick's wren	RW	C/ Y	O
SYLVIIDAE	**GNATCATCHERS**			
Polioptila caerulea	blue-gray gnatcatcher	RW	F/ Y	O
TIMALIIDAE	**BABBLERS**			
Chamaea fasciata henshawi	wrentit	RW	F/ Y	O

Attachment 3 Wildlife Species Observed/Detected				
Scientific Name	Common Name	Occupied Habitat	On-Site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence
MIMIDAE	**MOCKINGBIRDS & THRASHERS**			
Mimus polyglottos polyglottos	northern mockingbird	RW	F/ Y	O
Toxostoma redivivum redivivum	California thrasher	RW	F/ Y	O
PARULIDAE	**WOOD WARBLERS**			
Setophaga [=*Dendroica*] *coronata*	yellow-rumped warbler	RW	C/ W	O
Geothlypis trichas	common yellowthroat	RW	C/ Y	O
ICTERIDAE	**BLACKBIRDS & NEW WORLD ORIOLES**			
FRINGILLIDAE	**FINCHES**			
Spinus [=*Carduelis*] *psaltria hesperophilus*	lesser goldfinch	RW	C/ Y	O
Haemorhous [=*Carpodacus*] *mexicanus frontalis*	house finch	RW	C/ Y	O

(I) = Introduced species

HABITATS
F = Flying overhead
RW = Riparian woodlands

ABUNDANCE (birds only; based on Garrett and Dunn 1981)
C = Common to abundant; almost always encountered in proper habitat, usually in moderate to large numbers
F = Fairly common; usually encountered in proper habitat, generally not in large numbers
U = Uncommon; occurs in small numbers or only locally

SEASONALITY (birds only)
W = Winter visitor; does not breed locally
Y = Year-round resident; probable breeder on-site or in vicinity

EVIDENCE OF OCCURRENCE
O = Observed

ATTACHMENT 4

Sensitive Plant Species with Potential for Occurrence

Attachment 4 Sensitive Plant Species with Potential for Occurrence						
Species' *Scientific Name* Common Name	State/Federal Status	CNPS Rank	City of San Diego	Habitat/ Preference/Requirements/ Blooming Period	Observed?	Basis for Determination of Occurrence Potential
BRYOPHYTES						
SPHAEROCARPACEAE						
Geothallus tuberosus Campbell's liverwort	–/–	1B.1	–	Ephemeral liverwort; mesic coastal sage scrub, vernal pools; elevation below 2,000 feet. California endemic. Known from San Diego and Riverside counties. Recently reported from Camp Pendleton, likely extirpated elsewhere in urbanized San Diego County.	No	Not expected to occur. This species has not been recorded on-site. The site does not contain vernal pools and has limited areas of coastal sage scrub. This species is uncommon and may be extirpated from most areas of San Diego County.
Sphaerocarpos drewei bottle liverwort	–/–	1B.1	–	Ephemeral liverwort; openings in chaparral and coastal sage scrub; elevation 300–2,000 feet. California endemic. Known from San Diego and Riverside counties.	No	Not expected to occur. The site does not contain chaparral and has limited areas of coastal sage scrub. The site is also below the known elevation range for this species.
ANGIOSPERMS: DICOTS						
CHENOPODIACEAE GOOSEFOOT FAMILY						
Aphanisma blitoides aphanisma	–/–	1B.2	NE, MSCP	Annual herb; coastal bluff scrub, coastal sage scrub; sandy soils; blooms March–June; elevation less than 1,000 feet.	No	Not expected to occur. This species has not been recorded within two miles of the site (State of California 2017a) and the site contains limited areas of coastal sage scrub.

Attachment 4 Sensitive Plant Species with Potential for Occurrence						
Species' *Scientific Name* Common Name	State/Federal Status	CNPS Rank	City of San Diego	Habitat/ Preference/Requirements/ Blooming Period	Observed?	Basis for Determination of Occurrence Potential
Atriplex coulteri Coulter's saltbush	–/–	1B.2	–	Perennial herb; coastal bluff scrub, coastal dunes, coastal sage scrub, valley and foothill grasslands; alkaline or clay soil; blooms March–October; elevation less than 1,500 feet.	No	Not expected to occur. The site does not contain alkaline or clay soils and has limited areas of coastal sage scrub. This species likely would have been apparent at the time of the survey.
Atriplex pacifica south coast saltbush	–/–	1B.2	–	Annual herb; coastal bluff scrub, coastal dunes, coastal sage scrub, playas; blooms March–October; elevation less than 500 feet.	No	Not expected to occur. The site contains limited areas of coastal sage scrub. This species likely would have been apparent at the time of the survey.
APIACEAE **CARROT FAMILY**						
Eryngium aristulatum var. *parishii* San Diego button-celery	CE/FE	1B.1	NE, MSCP	Biennial/perennial herb; vernal pools, mesic areas of coastal sage scrub and grasslands, blooms April–June; elevation less than 2,000 feet. Known from San Diego and Riverside counties. Additional populations occur in Baja California, Mexico.	No	Not expected to occur. The site does not contain vernal pools and has limited areas of coastal sage scrub. Nearby CNDDB record is presumed extirpated due to development (State of California 2017a).
ASTERACEAE **SUNFLOWER FAMILY**						
Ambrosia monogyra [=*Hymenoclea monogyra*] singlewhorl burrobrush	–/–	2B.2	–	Perennial shrub; sandy, chaparral, Sonoran desert scrub; blooms August–November; elevation 30–1,650 feet.	No	Not expected to occur. The site does not contain chaparral or desert scrub. This species would have been apparent at the time of the survey.

Attachment 4 Sensitive Plant Species with Potential for Occurrence						
Species' *Scientific Name* Common Name	State/Federal Status	CNPS Rank	City of San Diego	Habitat/ Preference/Requirements/ Blooming Period	Observed?	Basis for Determination of Occurrence Potential
Ambrosia pumila San Diego ambrosia	–/FE	1B.1	NE, MSCP	Perennial herb (rhizomatous); chaparral, coastal sage scrub, valley and foothill grasslands, creek beds, vernal pools, often in disturbed areas; blooms May–September; elevation less than 1,400 feet. Many occurrences extirpated in San Diego County.	No	Low potential to occur. The site contains limited areas of suitable habitat. Additionally, the nearby CNDDB record is from 1936 and is presumed to have been extirpated due to development (State of California 2017a).
Artemisia palmeri San Diego sagewort	–/–	4.2	–	Perennial deciduous shrub; coastal sage scrub, chaparral, riparian, mesic, sandy areas; blooms May–September; elevation less than 3,000 feet.	No	Not expected to occur. This species would have been apparent at the time of the survey.
Baccharis vanessae Encinitas baccharis [=Encinitas coyote brush]	CE/FT	1B.1	NE, MSCP	Perennial deciduous shrub; chaparral; maritime; sandstone; blooms August–November; elevation less than 2,500 feet. San Diego County endemic. Known from fewer than 20 occurrences. Extirpated from Encinitas area.	No	Not expected to occur. The site does not contain sandstone soils. This species would have been apparent at the time of the survey.
Centromadia [=*Hemizonia*] *parryi* ssp. *australis* southern tarplant	–/–	1B.1	–	Annual herb; margins of marshes and swamps, valley and foothill grasslands, vernal pools; blooms May–November; elevation less than 1,600 feet.	No	Not expected to occur. The site does not contain suitable vernal pool, grassland, or wetland margin habitat. Additionally, this species would have been apparent at the time of the survey.

Attachment 4 Sensitive Plant Species with Potential for Occurrence						
Species' *Scientific Name* Common Name	State/Federal Status	CNPS Rank	City of San Diego	Habitat/ Preference/Requirements/ Blooming Period	Observed?	Basis for Determination of Occurrence Potential
Centromadia [=*Hemizonia*] *pungens* ssp. *laevis* smooth tarplant	–/–	1B.1	–	Annual herb; chenopod scrub, meadow and seeps, playas, riparian woodland, valley and foothill grasslands; alkaline soils; blooms April–September; elevation less than 2,100 feet. California endemic. Known from San Diego, Riverside, and San Bernardino counties.	No	Not expected to occur. The site contains only limited areas of suitable habitat, riparian woodland. Additionally, no recent records for this species have been recorded within two miles of the site (State of California 2017a).
Deinandra [=*Hemizonia*] *conjugens* Otay tarplant	CE/FT	1B.1	NE, MSCP	Annual herb; clayey soils of coastal scrub openings, valley and foothill grassland; blooms April–June, elevation less than 1,000 feet.	No	Not expected to occur. The site does not contain clay soils. Additionally, no recent records for this species have been recorded within two miles of the site (State of California 2017a).
Ericameria palmeri var. *palmeri* [=*E. palmeri* ssp. *palmeri*] Palmer's goldenbush [=Palmer's ericameria]	–/–	1B.1	MSCP	Perennial evergreen shrub; chaparral coastal sage scrub, typically in mesic areas; blooms July–November; elevation less than 2,000 feet. Known in California from sixteen occurrences all of which are in San Diego County. Additional populations in Baja California, Mexico.	No	Not expected to occur. This species would have been apparent at the time of the survey.
Heterotheca sessiliflora ssp. *sessiliflora* beach goldenaster	–/–	1B.1	_	Perennial herb; chaparral (coastal), coastal dunes, coastal scrub; blooms March–December; elevation less than 4,000 feet. Known in California from 12 occurrences presumed to be extant in San Diego County. Additional populations occur in Baja California, Mexico.	No	Not expected to occur. This species would have been apparent at the time of the survey.

Attachment 4 Sensitive Plant Species with Potential for Occurrence						
Species' *Scientific Name* Common Name	State/Federal Status	CNPS Rank	City of San Diego	Habitat/ Preference/Requirements/ Blooming Period	Observed?	Basis for Determination of Occurrence Potential
Isocoma menziesii var. *decumbens* decumbent goldenbush	–/–	1B.2	–	Perennial shrub; chaparral, coastal sage scrub; sandy soils, often in disturbed areas; blooms April–November; elevation less than 500 feet.	No	Low potential to occur. This species would have been apparent at the time of the survey. Although a record from 2011 exists from the area of the project site (Consortium of California Herbaria 2017), the location of this record was not verified and is described as occurring in chaparral of which the site has none.
Iva hayesiana San Diego marsh-elder	–/–	2B.2	–	Perennial herb; marshes and swamps, playas, riparian areas; blooms April–September; elevation below 1,700 feet.	No	Not expected to occur. This species would have been apparent at the time of the survey.
Senecio aphanactis chaparral ragwort [=rayless ragwort and groundsel]	–/–	2B.2	–	Annual herb; chaparral, cismontane woodland, coastal sage scrub; blooms January–April; elevation less than 2,700 feet.	No	Not expected to occur. The site contains limited areas of coastal sage scrub and the only nearby recorded occurrences of this species are from the early 1900s and are likely extirpated due to development (State of California 2017a).
Stylocline citroleum oil nest-straw	–/–	1B.1	–	Annual herb; chenopod scrub; potentially coastal sage scrub, valley and foothill grasslands; clay soils; blooms March–April; elevation less than 1,300 feet. California endemic. Known from San Diego (presumed extirpated) and Kern counties.	No	Not expected to occur. The site does not contain clay soil and has limited habitat suitable for this species. Additionally, this species is presumed extirpated in San Diego County.

Attachment 4 Sensitive Plant Species with Potential for Occurrence						
Species' *Scientific Name* Common Name	State/Federal Status	CNPS Rank	City of San Diego	Habitat/ Preference/Requirements/ Blooming Period	Observed?	Basis for Determination of Occurrence Potential
BRASSICACEAE MUSTARD FAMILY						
Lepidium virginicum var. *robinsonii* Robinson's peppergrass	–/–	4.3	–	Annual herb; coastal sage scrub, chaparral; blooms January–July; elevation less than 2,900 feet.	No	Not expected to occur. The site contains limited areas of suitable coastal sage scrub and no records for this species occur within two miles of the site (State of California 2017a).
CACTACEAE CACTUS FAMILY						
Cylindropuntia californica var. *californica* [=*Opuntia parryi* var. *serpentina*] snake cholla	–/–	1B.1	NE, MSCP	Perennial stem succulent; chaparral, coastal sage scrub; blooms April–May; elevation 100–500 feet.	No	Not expected to occur. This species would have been apparent at the time of the survey.
Ferocactus viridescens San Diego barrel cactus	–/–	2B.1	MSCP	Perennial stem succulent; chaparral, coastal sage scrub, valley and foothill grasslands, vernal pools; blooms May–June; elevation less than 1,500 feet.	No	Not expected to occur. This species would have been apparent at the time of the survey.
CRASSULACEAE STONECROP FAMILY						
Dudleya brevifolia [=*D. blochmaniae* ssp. *brevifolia*] short-leaved dudleya [short-leaved live-forever]	CE/–	1B.1	NE, MSCP	Perennial herb; southern maritime chaparral, coastal sage scrub on Torrey sandstone; blooms in April; elevation less than 1,000 feet. San Diego County endemic. Known from fewer than five occurrences in the Del Mar and La Jolla areas.	No	Not expected to occur. The site does not contain sandstone soils or iron concretions associated with this species.
Dudleya variegata variegated dudleya	–/–	1B.2	NE, MSCP	Perennial herb; openings in chaparral, coastal sage scrub, grasslands, vernal pools; blooms May–June; elevation less than 1,900 feet.	No	Not expected to occur. The site contains limited areas of coastal sage scrub and the site has undergone extensive historical disturbance which is not tolerated by this species.

Attachment 4 Sensitive Plant Species with Potential for Occurrence						
Species' *Scientific Name* Common Name	State/Federal Status	CNPS Rank	City of San Diego	Habitat/ Preference/Requirements/ Blooming Period	Observed?	Basis for Determination of Occurrence Potential
ERICACEAE HEATH FAMILY						
Comarostaphylis diversifolia ssp. *diversifolia* summer holly	–/–	1B.2	–	Perennial evergreen shrub; chaparral; blooms April–June; elevation 100–2,600 feet.	No	Not expected to occur. This species would have been apparent at the time of the survey.
FABACEAE LEGUME FAMILY						
Astragalus tener var. *titi* coastal dunes milkvetch	CE/FE	1B.1	NE, MSCP	Annual herb; coastal bluff scrub, coastal dunes, sandy soils, mesic coastal prairie; blooms March–May; elevation less than 200 feet. California endemic. Known from fewer than 10 occurrences in San Diego (presumed extirpated), Los Angeles (presumed extirpated), and Monterey counties.	No	Not expected to occur. The site does not contain suitable coastal bluff scrub, dunes, or coastal prairie habitats. Additionally, this species is presumed extirpated in San Diego County.
FAGACEAE OAK FAMILY						
Quercus dumosa Nuttall's scrub oak	–/–	1B.1	–	Perennial evergreen shrub; closed-cone coniferous forest, coastal chaparral, coastal sage scrub; sandy and clay loam soils; blooms February–March; elevation less than 1,300 feet.	No	Not expected to occur. This species would have been apparent at the time of the survey.
JUGLANDACEAE WALNUT FAMILY						
Juglans californica southern California black walnut	–/–	4.2	–	Perennial deciduous tree; chaparral, cismontane woodland, coastal sage scrub; blooms March–May; elevation less than 3,000 feet. California endemic. Known from San Diego, Riverside, Los Angeles, Orange, Santa Barbara, San Bernardino, and Ventura counties.	No	Not expected to occur. This species would have been apparent at the time of the survey.

Attachment 4 Sensitive Plant Species with Potential for Occurrence						
Species' *Scientific Name* Common Name	State/Federal Status	CNPS Rank	City of San Diego	Habitat/ Preference/Requirements/ Blooming Period	Observed?	Basis for Determination of Occurrence Potential
LAMIACEAE MINT FAMILY						
Acanthomintha ilicifolia San Diego thornmint	CE/FT	1B.1	NE, MSCP	Annual herb; chaparral, coastal sage scrub, and grasslands; friable or broken clay soils; blooms April–June; elevation less than 3,200 feet.	No	Not expected to occur. The site does not contain suitable friable clay soil.
Pogogyne abramsii San Diego mesa mint	CE/FE	1B.1	NE, MSCP	Annual herb; vernal pools; blooms April–July; elevation 300–700 feet. San Diego County endemic.	No	Not expected to occur. The site does not contain vernal pools.
Pogogyne nudiuscula Otay mesa mint	CE/FE	1B.1	NE, MSCP	Annual herb; vernal pools; blooms May–July; elevation 300–820 feet. In California, known from approximately 10 occurrences in Otay Mesa in San Diego County. Additional populations occur in Baja California, Mexico.	No	Not expected to occur. The site does not contain vernal pools.
Salvia munzii Munz's sage	–/–	2B.2	–	Perennial evergreen shrub; chaparral, coastal sage scrub, blooms February–April; elevation 400–3,500 feet.	No	Not expected to occur. This species would have been apparent at the time of the survey.
MONTIACEAE MONTIA FAMILY						
Calandrinia breweri Brewer's calandrinia	–/–	4.2	–	Annual herb; chaparral and coastal sage scrub; sandy or loamy soils, disturbed sites and burns; blooms March–June; elevation less than 4,000 feet.	No	Low potential to occur. The site contains limited areas of suitable coastal sage scrub and has not been burned recently which is an ecological process preferred by this species.

Attachment 4 Sensitive Plant Species with Potential for Occurrence						
Species' *Scientific Name* Common Name	State/Federal Status	CNPS Rank	City of San Diego	Habitat/ Preference/Requirements/ Blooming Period	Observed?	Basis for Determination of Occurrence Potential
PLANTAGINACEAE PLANTAIN FAMILY						
Stemodia durantifolia purple stemodia	–/–	2B.1	–	Perennial herb; Sonoran desert scrub, mesic; sandy soils; blooms January–December; elevation 600–1,000 feet.	No	Not expected to occur. This site is outside the known elevation range for this species and no recent occurrences have been recorded within two miles for this species (State of California 2017a).
POLEMONIACEAE PHLOX FAMILY						
Navarretia fossalis spreading navarretia [=prostrate navarretia]	–/FT	1B.1	NE, MSCP	Annual herb; vernal pools, marshes and swamps, chenopod scrub; blooms April–June; elevation 100–4,300 feet.	No	Not expected to occur. The site does not contain vernal pools or other suitable habitats.
RHAMNACEAE BUCKTHORN FAMILY						
Ceanothus verrucosus wart-stemmed ceanothus	–/–	2B.2	MSCP	Perennial evergreen shrub; chaparral; blooms December–April; elevation less than 1,300 feet.	No	Not expected to occur. This species would have been apparent at the time of the survey.
ANGIOSPERMS: MONOCOTS						
AGAVACEAE AGAVE FAMILY						
Agave shawii var. *shawii* Shaw's agave	–/–	2B.1	NE, MSCP	Perennial leaf succulent; coastal bluff scrub, coastal sage scrub, maritime succulent scrub; blooms September–May; elevation less than 400 feet.	No	Not expected to occur. This species would have been apparent at the time of the survey.

Attachment 4 Sensitive Plant Species with Potential for Occurrence						
Species' *Scientific Name* Common Name	State/Federal Status	CNPS Rank	City of San Diego	Habitat/ Preference/Requirements/ Blooming Period	Observed?	Basis for Determination of Occurrence Potential
JUNCACEAE RUSH FAMILY						
Juncus acutus ssp. *leopoldii* southwestern spiny rush	–/–	4.2	–	Perennial herb (rhizomatous); coastal dunes, meadows and seeps, coastal salt marsh, riparian; blooms May–June; elevation less than 3,000 feet.	No	Low potential to occur. Although occurrences for this species have been recorded near the site (State of California 2017a), this species would likely have been apparent at the time of the survey.
POACEAE GRASS FAMILY						
Orcuttia californica California Orcutt grass	CE/FE	1B.1	NE, MSCP	Annual herb; vernal pools; blooms April–August; elevation 50–2,200 feet.	No	Not expected to occur. The site does not contain vernal pools.
THEMIDACEAE BRODIAEA FAMILY						
Bloomeria [=*Muilla*] *clevelandii* San Diego goldenstar	–/–	1B.1	MSCP	Perennial herb (bulbiferous); chaparral, coastal sage scrub, valley and foothill grassland, vernal pools; clay soils; blooms May; elevation 170–1,500 feet.	No	Not expected to occur. The site does not contain suitable clay soils.
Brodiaea orcuttii Orcutt's brodiaea	–/–	1B.1	MSCP	Perennial herb (bulbiferous); closed cone coniferous forest, chaparral, meadows and seeps, valley and foothill grassland, vernal pools; mesic, clay soil; blooms May–July; elevation less than 5,600 feet.	No	Not expected to occur. The site does not contain suitable clay soils.

Attachment 4
Sensitive Plant Species with the Potential for Occurrence

FEDERAL CANDIDATES AND LISTED PLANTS

FE = Federally listed endangered
FT = Federally listed threatened
FC = Federal candidate for listing as endangered or threatened

STATE LISTED PLANTS

CE = State listed endangered
CR = State listed rare
CT = State listed threatened

CALIFORNIA NATIVE PLANT SOCIETY (CNPS): CALIFORNIA RARE PLANT RANKS (CRPR)

1A = Species presumed extinct.
1B = Species rare, threatened, or endangered in California and elsewhere. These species are eligible for state listing.
2A = Plants presumed extirpated in California, but more common elsewhere.
2B = Species rare, threatened, or endangered in California but more common elsewhere. These species are eligible for state listing.
3 = Species for which more information is needed. Distribution, endangerment, and/or taxonomic information is needed.
4 = A watch list of species of limited distribution. These species need to be monitored for changes in the status of their populations.
.1 = Species seriously threatened in California (over 80% of occurrences threatened; high degree and immediacy of threat).
.2 = Species fairly threatened in California (20-80% occurrences threatened; moderate degree and immediacy of threat).
.3 = Species not very threatened in California (<20% of occurrences threatened; low degree and immediacy of threat or no current threats known).
CBR = Considered but rejected

CITY OF SAN DIEGO

NE = Narrow endemic
MSCP = Multiple Species Conservation Program covered species

ATTACHMENT 5

Sensitive Wildlife Species Occurring or with the Potential for Occurrence

Attachment 5 Sensitive Wildlife Species Occurring or with the Potential for Occurrence					
Species' Common Name/ Scientific Name	Listing Status	Habitat Preference/ Requirements	Detected On-Site?	Potential to Occur On-Site?	Basis for Determination of Occurrence Potential
INVERTEBRATES (Nomenclature from Eriksen and Belk 1999; San Diego Natural History Museum 2002)					
BRANCHINECTIDAE **FAIRY SHRIMP**					
Vernal pool fairy shrimp *Branchinecta lynchi*	FT	Vernal pools.	No	Not expected	No vernal pools occur on site.
San Diego fairy shrimp *Branchinecta sandiegonensis*	FE, MSCP, *	Vernal pools.	No	Not expected	No vernal pools occur on site.
STREPTOCEPHALIDAE **FAIRY SHRIMP**					
Riverside fairy shrimp *Streptocephalus woottoni*	FE, MSCP, *	Vernal pools.	No	Not expected	No vernal pools occur on site.
LYCAENIDAE **BLUES, COPPERS, & HAIRSTREAKS**					
Hermes copper *Lycaena hermes*	FC, *	Chaparral and coastal sage scrub where host plant *Rhamnus crocea* occurs. Adult emergence late May to July.	No	Not expected	No suitable habitat with the host plant, *Rhamnus crocea*, occurs on site.
NYMPHALIDAE **BRUSH-FOOTED BUTTERFLIES**					
Quino checkerspot *Euphydryas editha quino*	FE	Open, dry areas in foothills, mesas, lake margins. Larval host plant *Plantago erecta.* Adult emergence mid-January through April.	No	Not expected	Open, dry areas are limited on site and are highly disturbed which would not be suitable for primary or secondary host plants of this species.
AMPHIBIANS (Nomenclature from Crother et al. 2012)					
PELOBATIDAE **SPADEFOOT TOADS**					
Western spadefoot *Spea hammondii*	CSC	Vernal pools, floodplains, and alkali flats within areas of open vegetation.	No	Not expected	No suitable habitat occurs on site.

Attachment 5 Sensitive Wildlife Species Occurring or with the Potential for Occurrence					
Species' Common Name/ Scientific Name	Listing Status	Habitat Preference/ Requirements	Detected On-Site?	Potential to Occur On-Site?	Basis for Determination of Occurrence Potential
BUFONIDAE TRUE TOADS					
Arroyo toad *Anaxyrus californicus*	FE, CSC, MSCP	Open streamside sand/gravel flats. Quiet, shallow pools along stream edges are breeding habitat. Nocturnal except during breeding season (March–July).	No	Not expected	No suitable habitat occurs on site.
REPTILES (Nomenclature from Crother et al. 2012)					
EMYDIDAE BOX & WATER TURTLES					
Western pond turtle *Actinemys* [=*Clemmys*] *marmorata*	CSC, MSCP	Ponds, small lakes, marshes, slow-moving, sometimes brackish water.	No	Low	While some slow-moving open water does exist within the site, most of the river channel contains densely vegetated fresh water marsh.
IGUANIDAE IGUANID LIZARDS					
Coast horned lizard *Phrynosoma blainvillii* [= *P. coronatum* coastal population]	CSC, MSCP, *	Chaparral, coastal sage scrub with fine, loose soil. Partially dependent on harvester ants for forage.	No	Not expected	Coastal Sage scrub onsite is isolated and within an urbanized landscape. No harvester or other native ants were observed during surveys
TEIIDAE WHIPTAIL LIZARDS					
Belding's orange-throated whiptail *Aspidoscelis hyperythra beldingi*	CSC, MSCP	Chaparral, coastal sage scrub with coarse sandy soils and scattered brush.	No	High	Suitable sage scrub and woodland exists throughout the site. Prior species reports within the area
San Diegan tiger whiptail *Aspidoscelis tigris stejnegeri*	CSC	Coastal sage scrub, chaparral, woodlands, and streamsides where plants are sparsely distributed.	No	Moderate	Suitable sage scrub and woodland exists throughout the site.

Attachment 5 Sensitive Wildlife Species Occurring or with the Potential for Occurrence					
Species' Common Name/ Scientific Name	Listing Status	Habitat Preference/ Requirements	Detected On-Site?	Potential to Occur On-Site?	Basis for Determination of Occurrence Potential
ANNIELLIDAE **LEGLESS LIZARDS**					
California Glossy Snake *Arizona elegans occidentalis*	CSC	Coastal sage scrub, rocky washes, grassland, and chaparral	No	Low	Suitable species habitat is disturbed and isolated from any adjacent habitat patches in the area
Two-striped gartersnake *Thamnophis hammondii*	CSC, *	Permanent freshwater streams with rocky bottoms. Mesic areas.	No	Moderate	Species has been observed within the area and suitable habitat exists within the project area
CROTALIDAE **RATTLESNAKES**					
Red diamond rattlesnake *Crotalus ruber*	CSC	Desert scrub and riparian, coastal sage scrub, open chaparral, grassland, and agricultural fields.	No	Low	While some sage scrub exists within the site, it is isolated from larger patches of adjacent habitat
BIRDS (Nomenclature from American Ornithologists' Union 2017 and Unitt 2004)					
ACCIPITRIDAE **HAWKS, KITES, & EAGLES**					
Cooper's hawk (nesting) *Accipiter cooperii*	WL, MSCP	Mature forest, open woodlands, wood edges, river groves. Parks and residential areas.	Yes	High	Observed during surveys within suitable habitat
White-tailed kite (nesting) *Elanus leucurus*	CFP, *	Nest in riparian woodland, oaks, sycamores. Forage in open, grassy areas. Year-round resident.	No.	Low	Although tall riparian trees are present within the project area, adjacent foraging lands are not

Attachment 5 Sensitive Wildlife Species Occurring or with the Potential for Occurrence					
Species' Common Name/ Scientific Name	Listing Status	Habitat Preference/ Requirements	Detected On-Site?	Potential to Occur On-Site?	Basis for Determination of Occurrence Potential
FALCONIDAE FALCONS & CARACARAS					
Peregrine falcon *Falco peregrinus anatum*	(State Delisted), CFP, MSCP	Open coastal areas, mud flats. Rare inland. Rare fall and winter resident, casual in late spring and early summer. Local breeding populations extirpated.	No	Low	The project area occurs as a small isolated patch surrounded by development and does not contain suitable open coastal habitat preferred by the species. Additionally, the local breeding population is considered extirpated from San Diego. This species is not expected to nest in the project area.
CUCULIDAE CUCKOOS & ROADRUNNERS					
Western yellow-billed cuckoo (breeding) *Coccyzus americanus occidentalis*	FT, CE	Riparian woodlands. Summer resident. Very localized breeding.	No	Low	Low potential to occur within the project area. The riparian vegetation within the survey area provides suitable habitat for this species, but this species is not known to occur in the vicinity of the project
TYRANNIDAE TYRANT FLYCATCHERS					
Southwestern willow flycatcher *Empidonax traillii extimus*	FE, CE, MSCP	Nesting restricted to willow thickets. Also occupies other woodlands. Rare spring and fall migrant, rare summer resident. Extremely localized breeding.	No	Low	Low potential to occur within the project area. The riparian vegetation within the survey area provides suitable habitat for this species, but this species is not known to occur in the vicinity of the project

Attachment 5 Sensitive Wildlife Species Occurring or with the Potential for Occurrence					
Species' Common Name/ Scientific Name	Listing Status	Habitat Preference/ Requirements	Detected On-Site?	Potential to Occur On-Site?	Basis for Determination of Occurrence Potential
VIREONIDAE VIREOS					
Least Bell's vireo (nesting) *Vireo bellii pusillus*	FE, CE, MSCP	Willow riparian woodlands. Summer resident.	No	High	Moderate to high quality Species habitat exsiting on-site. Species observed during previous surveys at this location
SYLVIIDAE GNATCATCHERS					
Coastal California gnatcatcher *Polioptila californica californica*	FT, CSC, MSCP	Coastal sage scrub, maritime succulent scrub. Resident.	No	Low	Coastal sage scrub vegetation on-site is disturbed and isolated from other larger patches of intact habitat
PARULIDAE WOOD WARBLERS					
Yellow warbler (nesting) *Setophaga* [=*Dendroica*] *petechia*	CSC	Breeding restricted to riparian woodland. Spring and fall migrant, localized summer resident, rare winter visitor.	No	Moderate	Moderate to high quality Species habitat exsiting on-site. Species observed within the region
Yellow-breasted chat (nesting) *Icteria virens auricollis*	CSC	Dense riparian woodland. Localized summer resident.	No	High	Moderate to high quality Species habitat exsiting on-site. Species observed during previous surveys at this location
EMBERIZIDAE EMBERIZIDS					
Southern California rufous-crowned sparrow *Aimophila ruficeps canescens*	WL, MSCP	Coastal sage scrub, chaparral, grassland. Resident.	No	Low	Coastal sage scrub vegetation on-site is disturbed and isolated from other larger patches of intact habitat

Attachment 5 Sensitive Wildlife Species Occurring or with the Potential for Occurrence					
Species' Common Name/ Scientific Name	Listing Status	Habitat Preference/ Requirements	Detected On-Site?	Potential to Occur On-Site?	Basis for Determination of Occurrence Potential
MAMMALS (Nomenclature from Baker et al. 2003)					
VESPERTILIONIDAE VESPER BATS					
Pallid bat *Antrozous pallidus*	CSC	Arid deserts and grasslands. Shallow caves, crevices, rock outcrops, buildings, tree cavities. Especially near water. Colonial. Audible echolocation signal.	No	Low	Low potential for this species to forage, but not expected to roost due to lack of suitable roosting habitat.
MOLOSSIDAE FREE-TAILED BATS					
Western mastiff bat *Eumops perotis californicus*	CSC	Woodlands, rocky habitat, arid and semiarid lowlands, cliffs, crevices, buildings, tree hollows. Audible echolocation signal.	No	Low	While the project area contains mature trees and likely supports moths and other insects for feeding, neither the site nor the surrounding urban area contains suitable large rock features or cliffs for roosting. This species is not expected to occur in the project area.
Pocketed free-tailed bat *Nyctinomops femorosaccus*	CSC	Normally roost in crevice in rocks, slopes, cliffs. Lower elevations in San Diego and Imperial Counties. Colonial. Leave roosts well after dark.	No	Low	The project area does not contain suitable habitat for this species. This species is not expected to occur in the project area.

Attachment 5 Sensitive Wildlife Species Occurring or with the Potential for Occurrence					
Species' Common Name/ Scientific Name	Listing Status	Habitat Preference/ Requirements	Detected On-Site?	Potential to Occur On-Site?	Basis for Determination of Occurrence Potential
Big free-tailed bat *Nyctinomops macrotis*	CSC	Rugged, rocky terrain. Roost in crevices, buildings, caves, tree holes. Very rare in San Diego County. Colonial. Migratory.	No	Low	Suitable roosting habitat does not occur on site. While the site likely supports moths, it does not contain a substantial population to attract this species from other areas. This species is not expected to occur in the project area.

(I) = Introduced species

STATUS CODES

Listed/Proposed

FE = Listed as endangered by the federal government
FT = Listed as threatened by the federal government
CE = Listed as endangered by the state of California

Other

CFP = California fully protected species
CSC = California Department of Fish and Wildlife species of special concern
FC = Federal candidate for listing (taxa for which the U.S. Fish and Wildlife Service has on file sufficient information on biological vulnerability and threat(s) to support proposals to list as endangered or threatened; development and publication of proposed rules for these taxa are anticipated)
WL = California Department of Fish and Wildlife watch list species
MSCP = City and County of San Diego Multiple Species Conservation Program covered species
* = Taxa listed with an asterisk fall into one or more of the following categories:

- Taxa considered endangered or rare under Section 15380(d) of CEQA guidelines
- Taxa that are biologically rare, very restricted in distribution, or declining throughout their range
- Population(s) in California that may be peripheral to the major portion of a taxon's range but which are threatened with extirpation within California
- Taxa closely associated with a habitat that is declining in California at an alarming rate (e.g., wetlands, riparian, old growth forests, desert aquatic systems, native grasslands)

HELIX
Environmental Planning

The San Diego River Park Foundation Discovery Center at Grant Park Project

Jurisdictional Delineation Report

September 30, 2014

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The San Diego River Park Foundation
Discovery Center at Grant Park Project
Jurisdictional Delineation Report

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I. INTRODUCTION

This report presents the results of a jurisdictional delineation of The San Diego River Park Foundation's Discovery Center at Grant Park Project (Discovery Center), located in the City of San Diego (City), California. The delineation was conducted to identify and map existing waters of the U.S. (WUS) under U.S. Army Corps of Engineers (USACE) jurisdiction pursuant to Section 404 of the federal Clean Water Act (CWA; 33 USC 1344), wetland and waters of the State (WS) under California Department of Fish and Wildlife (CDFW) jurisdiction pursuant to Section 1600 of the California Fish and Game Code, and City of San Diego wetlands pursuant to Biological Guidelines of the Land Development Code. This information is necessary to evaluate jurisdictional impacts and permit requirements associated with development of the property. This report presents HELIX Environmental Planning, Inc.'s (HELIX's) best efforts to quantify the extent of WUS, WS, and City wetlands within the property using the current regulations, written policies, and guidance from regulatory agencies. The jurisdictional boundaries provided here are subject to verification by the USACE, CDFW, and City.

The approximately 17.51-acre project site is located in the Mission Valley neighborhood of the City, in the northeastern quadrant of Qualcomm Way and Camino del Rio North (Figure 1). It is located on unsectioned land that is part of the Pueblo Land Grant of San Diego (Figure 2).

II. METHODS

Prior to beginning fieldwork, aerial photographs (1"=100' scale) and topographic maps (1"=100' scale) were reviewed to determine the location of potential jurisdictional areas that may be affected by the proposed project. Data were collected in areas that were suspected to be jurisdictional habitats on February 24 and 26, 2014. Vegetation mapping was refined using GPS equipment (sub-meter accuracy) on September 22, 2014. HELIX Principal Biologist W. Larry Sward conducted the field work on each of these days and is the primary author of this report.

Waters of the U.S. wetland boundaries were determined using the three criteria (vegetation, hydrology, and soils) established for wetland delineations, as described within the Wetlands Delineation Manual (Environmental Laboratory 1987) and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 2008).

The results presented here are also discussed in light of court decisions (i.e., Rapanos v. United States, Carabell v. United States, and Solid Waste Agency of Northern Cook County v. USACE), as outlined and applied by the USACE (USACE 2007; Grumbles and Woodley 2007), USACE and Environmental Protection Agency (EPA; 2007), and EPA and USACE (2007). These publications explain that the EPA and USACE will assert jurisdiction over traditional navigable waters (TNW) and tributaries to TNWs that are relatively permanent water bodies (RPWs), which have year-round or continuous seasonal flow. For water bodies that are not RPWs, a significant nexus evaluation must be conducted to determine whether the non-RPW is jurisdictional. An overview of USACE wetlands and jurisdictional WUS definitions is presented in Appendix A.

Plants were identified according to Baldwin et al. (2012), and Rebman and Calflora (2013) was used to augment common names. Wetland affiliations of plant species follows The National Wetland Plant List (Lichvar 2012). Vegetation was mapped according to Holland (1986).

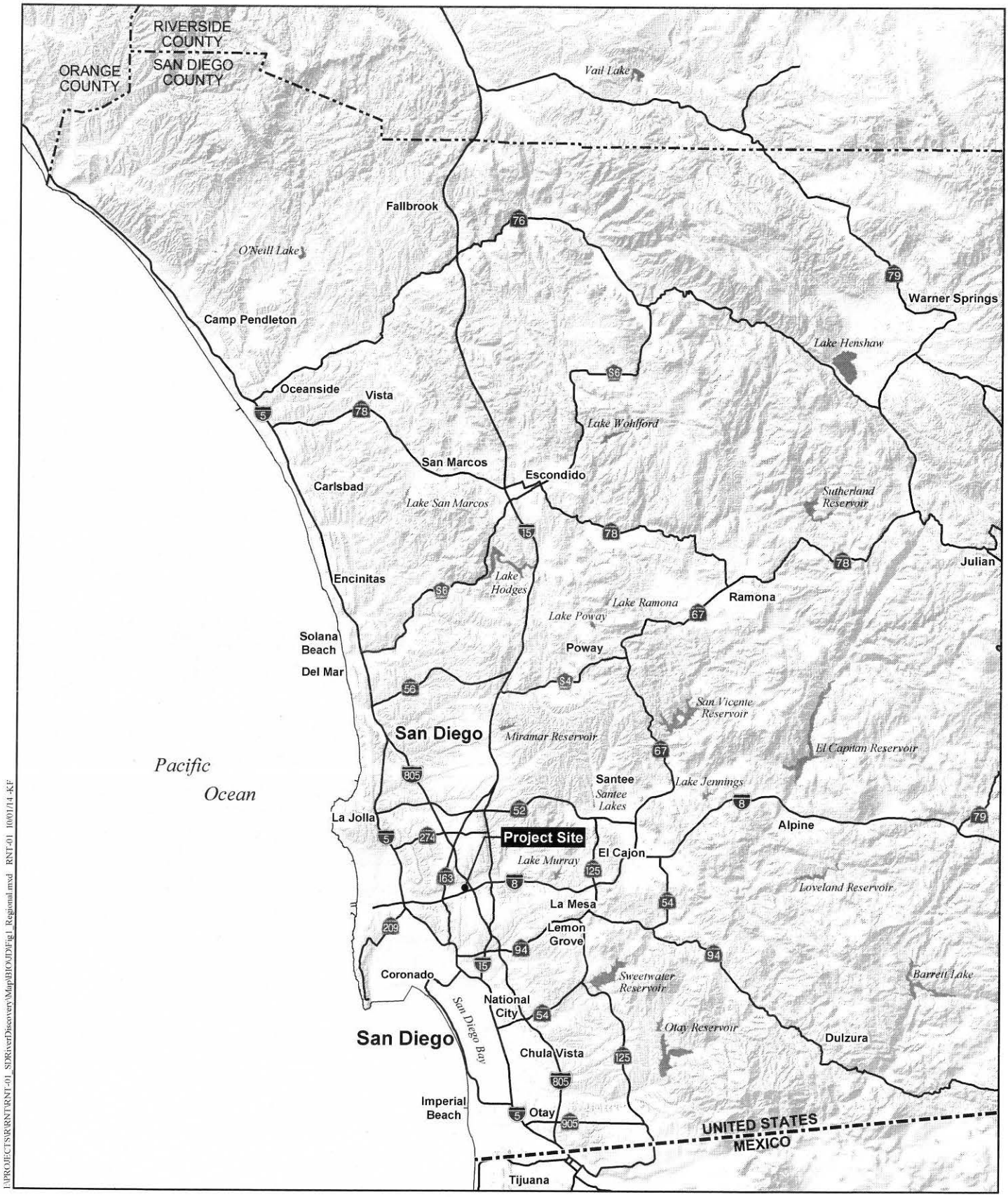
Soils information was taken from Knecht (1971) and the NRCS (2013). Soil samples were evaluated for hydric soil indicators (e.g., hydrogen sulfide [A4], sandy redox [S5], depleted matrix [F3], redox dark surface [F6], and depleted dark surface [F7]). Soil chromas were identified according to Munsell's Soil Color Charts (Kollmorgen 1994).

Sample points were inspected for primary wetland hydrology indicators (e.g., surface water [A1], saturation [A3], water marks [non-riverine, B1], sediment deposits [non-riverine, B2], drift deposits [non-riverine, B3], surface soil cracks [B6], inundation visible on aerial imagery [B7], salt crust [B11], aquatic invertebrates [B13], hydrogen sulfide odor [C1], and oxidized rhizospheres along living roots [C3]) and secondary wetland hydrology indicators (e.g., water marks [riverine, B1], sediment deposits [riverine, B2], drift deposits [riverine, B3], drainage patterns in wetlands [B10], shallow aquitard [D3], and positive FAC neutral test [D5]).

Areas were determined to be non-wetland WUS if there was evidence of regular surface flow (e.g., bed and bank), but neither the vegetation nor soils criterion was met. Jurisdictional limits for these areas were defined by the ordinary high water mark (OHWM), which is defined in 33 CFR Section 329.11 as "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank; shelving; changes in the character of the soil; destruction of terrestrial vegetation; the presence of litter or debris; or other appropriate means that consider the characteristics of the surrounding areas." The USACE has issued further guidance on the OHWM (Riley 2005; Lichvar and McColley 2008), which also has been used for this delineation. The OHWM widths were measured to the nearest foot at various locations along mapped drainages.

Waters of the State jurisdictional boundaries were determined based on the presence of riparian vegetation or regular surface flow. Streambeds within CDFW jurisdiction were delineated based on the definition of streambed as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supporting fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports riparian vegetation" (Title 14, Section 1.72). This definition for CDFW jurisdictional habitat allows for a wide variety of habitat types to be jurisdictional, including some that do not include wetland species (e.g., oak woodland and alluvial fan sage scrub). Definitions of CDFW jurisdictional areas are presented in Appendix B. Streambed widths were measured to the nearest foot at various locations along the channel. The CDFW publication on dryland watersheds (Vyverberg 2010) was used as an aid to map streambeds.

City wetland boundaries were determined based primarily on the presence of wetland vegetation. There are certain instances where City wetlands occur without wetland vegetation (where present and past human activities have removed wetland vegetation). There are also situations where wetland vegetation created by human activities is not considered wetlands. Please refer to Appendix C for a full definition of City wetlands.



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Regional Location Map

DISCOVERY CENTER AT GRANT PARK

HELIX Environmental Planning

0 8 Miles

Figure 1

Project Vicinity Map

DISCOVERY CENTER AT GRANT PARK

HELIX Environmental Planning

0 2,000 Feet

Figure 2

Nine sample points were studied. Standard data forms were completed for each sample point in the field and are included in Appendix D. Photographs were taken of the sample points and are included in Appendix E.

III. RESULTS

A. SITE DESCRIPTION

The Discovery Center project site is situated along the San Diego River. Currently, the river and adjacent floodplain are between 27 and 30 feet elevation (Figure 3). Two berms exist on the site. The larger of the two is higher (49 to 53 feet in elevation over most of its length), and extends in an arc from the southeast corner of the project site to near the southwest corner. The smaller of the two is 50 to 53 feet in elevation, but has a notch near its western end that is 41 feet in elevation and approximately 15 feet wide. This berm extends approximately 300 feet to the eastern project site boundary and connects to the larger berm. These berms create 2 basins. One is south of the large berm and north of Camino del Rio North. The lowest point of this basin is near the southeastern edge of the project site. The elevation here is 35 feet. The second basin is triangular in shape and formed by the two berms and grading for the pad offsite to the east. This basin has a more level bottom and is at an elevation of 36 feet. A small streambed exists along the west side of the project site, extending from a culvert outlet at the edge of Camino del Rio North and draining north to the river. The upper elevation in this streambed is 40 feet. A second culvert outlet releases water onto site near the middle of the southern boundary.

The project site has been subject to ongoing human disturbance for at least 60 years. A review of historical aerial photos (Appendix F) revealed the following.

- 1953. Approximately 75 percent of the site was vegetated, although all of the surrounding vegetation was absent. These areas were farmed, cleared, or subject to sand mining.
- 1964. The entire site had been mined for sand and approximately 70 percent of the site was ponded.
- 1980. The two berms were constructed-effectively separating the southern part of the site from the river. Land to the south supported surface streets and the interstate, and what was to become Qualcomm Way was built. The gas station on the opposite corner of Qualcomm Way and Camino del Rio North was present, but otherwise the surrounding land was undeveloped.
- 1981. The pad to the east, which now has a post office, had been constructed.
- 1989. Present day land uses around the site were either present, or grading to make them possible had been initiated.

Diegan coastal sage scrub, baccharis scrub, and non-native grassland comprise most of the upland parts of the site. Wetland vegetation present on site includes southern cottonwood-willow riparian forest (including disturbed), southern riparian woodland, southern willow scrub, freshwater marsh, riparian scrub-freshwater marsh ecotone, mule fat scrub, and Arundo

dominated riparian. Eucalyptus woodland, non-native vegetation, disturbed habitat, and developed areas also occur on site.

Two soil types are mapped at the Discovery Center project site (Figure 4). Most of the site is mapped as Riverwash and a small part (roughly 5 to 8 percent) of the site is mapped as gravel pits. Neither of these soil types was encountered; most of the soil pits contained loams and clays. Given the history of sand mining and subsequent filling on this site it is difficult to know where the soils came from or how they should be classified.

Wetlands are dominated by hydrophytic plants, and have wetland hydrology and hydric soils. Wetland plant species on site (Table 1) include species such as willows (*Salix* spp.), watercress (*Nasturtium officinale*), southern cattail (*Typha domingensis*), rush (*Juncus* spp.), saltgrass (*Distichlis spicata*), western goldenrod (*Euthamia occidentalis*), yerba mansa (*Anemopsis californicus*), hastate orache (*Atriplex prostrata*), dock (*Rumex* spp.), tamarisk (*Tamarix* sp.), Red River gum (*Eucalyptus camaldulensis*), and Mexican fan palm (*Washingtonia robusta*).

Table 1
PLANT SPECIES OBSERVED AT SAMPLING POINTS

FAMILY	SPECIES	COMMON NAME	INDICATOR STATUS†
Anacardiaceae	*Schinus terebinthifolius**	Brazilian pepper tree	FAC
Arecaceae	*Phoenix canariensis**	Canary Island date palm	FAC$^{\gamma}$
	*Washingtonia robusta**	Mexican fan palm	FACW
Asteraceae	*Baccharis salicifolia*	mule fat	FAC
	Baccharis sarothroides	broom baccharis	FACU
	*Carduus pycnocephalus**	Italian thistle	UPL
Cyperaceae	*Schoenoplectus californicus*	California bulrush	OBL
Euphorbiaceae	*Euphorbia peplus**	petty spurge	UPL
	*Ricinus communis**	castor bean	FACU
Fabaceae	*Melilotus albus**	white sweetclover	UPL
Myrtaceae	*Eucalyptus camaldulensis**	Red-river gum	FAC
Oleaceae	*Fraxinus uhdei**	shamel ash	FAC
Passifloraceae	*Passiflora sp.**	passion flower	FAC$^{\alpha}$
Poaceae	*Bromus madritensis* ssp.*rubens**	red brome	UPL
	*Stipa miliaceia**	smilo grass	UPL
Salicaceae	*Populus fremontii*	western cottonwood	FAC
	Salix gooddingii	black willow	FACW
	Salix laevigata	red willow	FACW
	Salix lasiolepis	arroyo willow	FACW

* Floodway and floodplain mapping based on adaptation of FEMA mapping to site specific topography.

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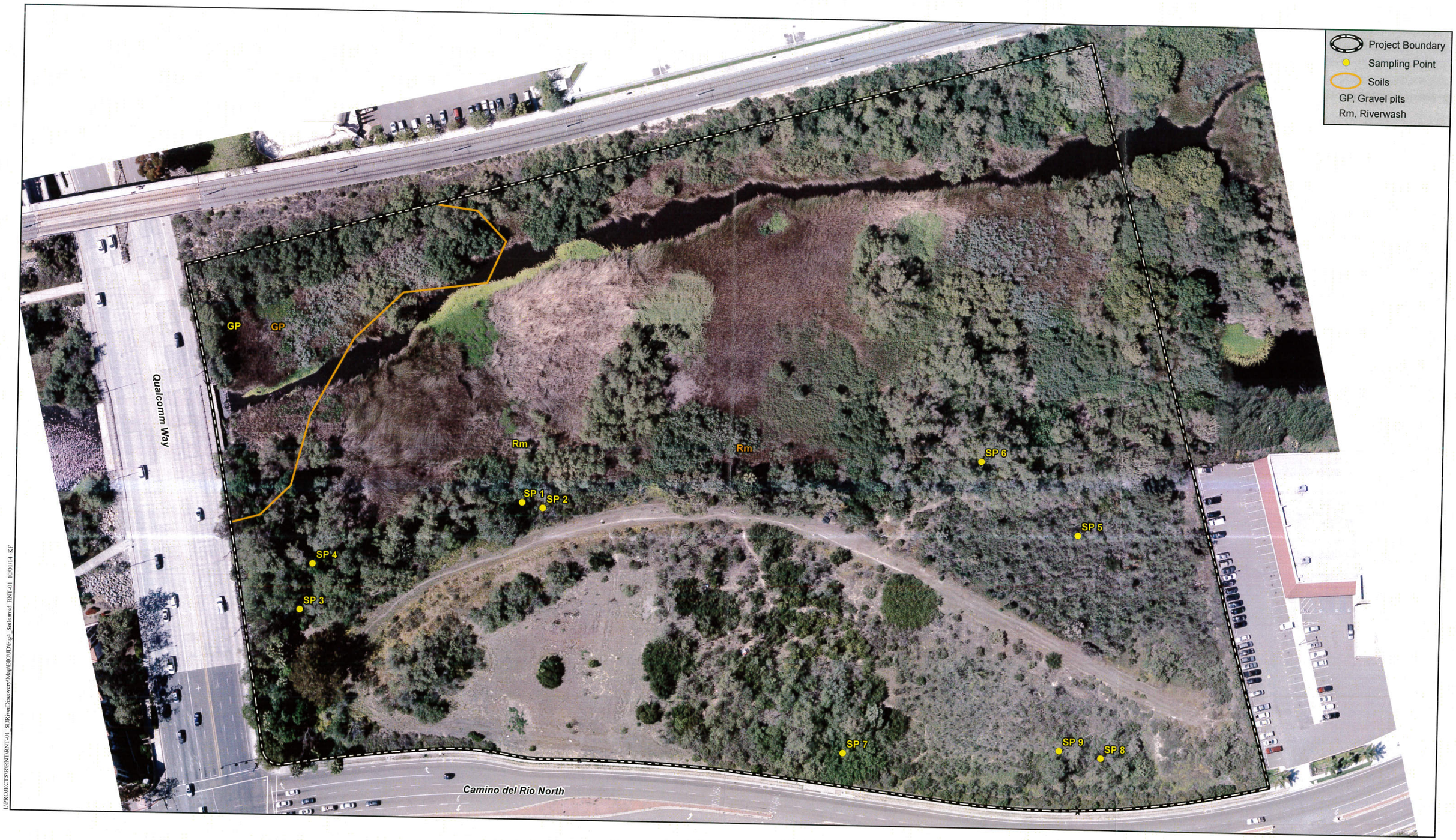
HELIX Environmental Planning

N 0 100 Feet

Aerial Photograph

DISCOVERY CENTER AT GRANT PARK

Figure 3



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Soils

DISCOVERY CENTER AT GRANT PARK

HELIX Environmental Planning

0 100 Feet

Figure 4

Table 1 (cont.) PLANT SPECIES OBSERVED AT SAMPLE POINTS			
FAMILY	**SPECIES**	**COMMON NAME**	**INDICATOR STATUS†**
Tropaeolaceae	*Tropaeolum majus**	garden nasturtium	UPL
Tamaricaceae	*Tamarix parviflora**	Salt-cedar	FAC

† OBL=obligate wetland species; FACW=facultative wetland species, FAC=facultative species, FACU=facultative upland species, and UPL=obligate upland species. Please also see Appendix A.

[v]Best professional judgment of delineator.

*Indicates non-native species.

[α]Passion flower not identified to species. This taxa assigned FAC, which is for the only passion flower (*P. arizonica*) listed in the Arid West List of wetland plants.

The National Wetland Inventory (NWI) indicates a freshwater emergent and freshwater forested/shrub wetlands along the river (U.S. Fish and Wildlife Service [USFWS] 2013; Figure 5). The mapping done as part of this report generally agrees with the NWI mapping.

B. SAMPLING POINTS

Nine wetland delineation points were sampled within the project site (Figures 6 and 7). A summary of these samples is provided below.

Sampling Point 1. This Sampling Point was located near the southern edge of the San Diego River floodplain, in southern cottonwood-willow riparian forest. Only wetland plants were dominant at this location, including western cottonwood (*Populus fremontii*), arroyo willow (*Salix lasiolepis*), mule fat (*Baccharis salicifolia*) and California bulrush (*Schoenoplectus californicus*), thus meeting the Dominance Test for wetland vegetation. A soil pit excavated to a depth of 18 inches revealed a depleted matrix (F3), a hydric soil indicator. Wetland hydrology was indicated by the presence of two primary indicators: high water table (A2), saturation (A3), and one secondary indicator: FAC-neutral test (D5). This location is considered a WUS, WS, and City wetland.

Sampling Point 2. This Sampling Point was located on the side of a berm at the south edge of the San Diego River floodplain. The soil pit for this sampling point was approximately 3 feet above Sampling Point 1. The vegetation here was mule fat scrub. Only one plant was dominant at this location (mule fat) and it is a wetland plant, thus meeting the Dominance Test for wetland vegetation. A soil pit was excavated to a depth of 15 inches did not reveal any hydric soil indicators. No wetland hydrology indicators were noted. The data shows that the FAC-neutral test (D5) was not met. The only dominant species was FAC, so the test was run with non-dominant species, which at this location was just 1 FACU species. This location is considered a WS and City wetland (mule fat scrub).

Sampling Point 3. This Sampling Point was located along a streambed. The bottom of the streambed was unvegetated. Disturbed southern cottonwood-willow riparian forest was rooted on the terraces above the low-flow channel. Dominant species include three wetland plants

(Mexican fan palm [*Washingtonia robusta*], Red River gum [*Eucalyptus camaldulensis*], and one arroyo willow, which met the Dominance Test for wetland vegetation. A soil pit excavated to a depth of 16 inches did not reveal any hydric soil indicators. Wetland hydrology was indicated by the presence of two secondary indicators: drift deposits (B3; riverine), and the FAC-neutral test (D5). This location is considered a non-wetland WUS, and a WS and City wetland.

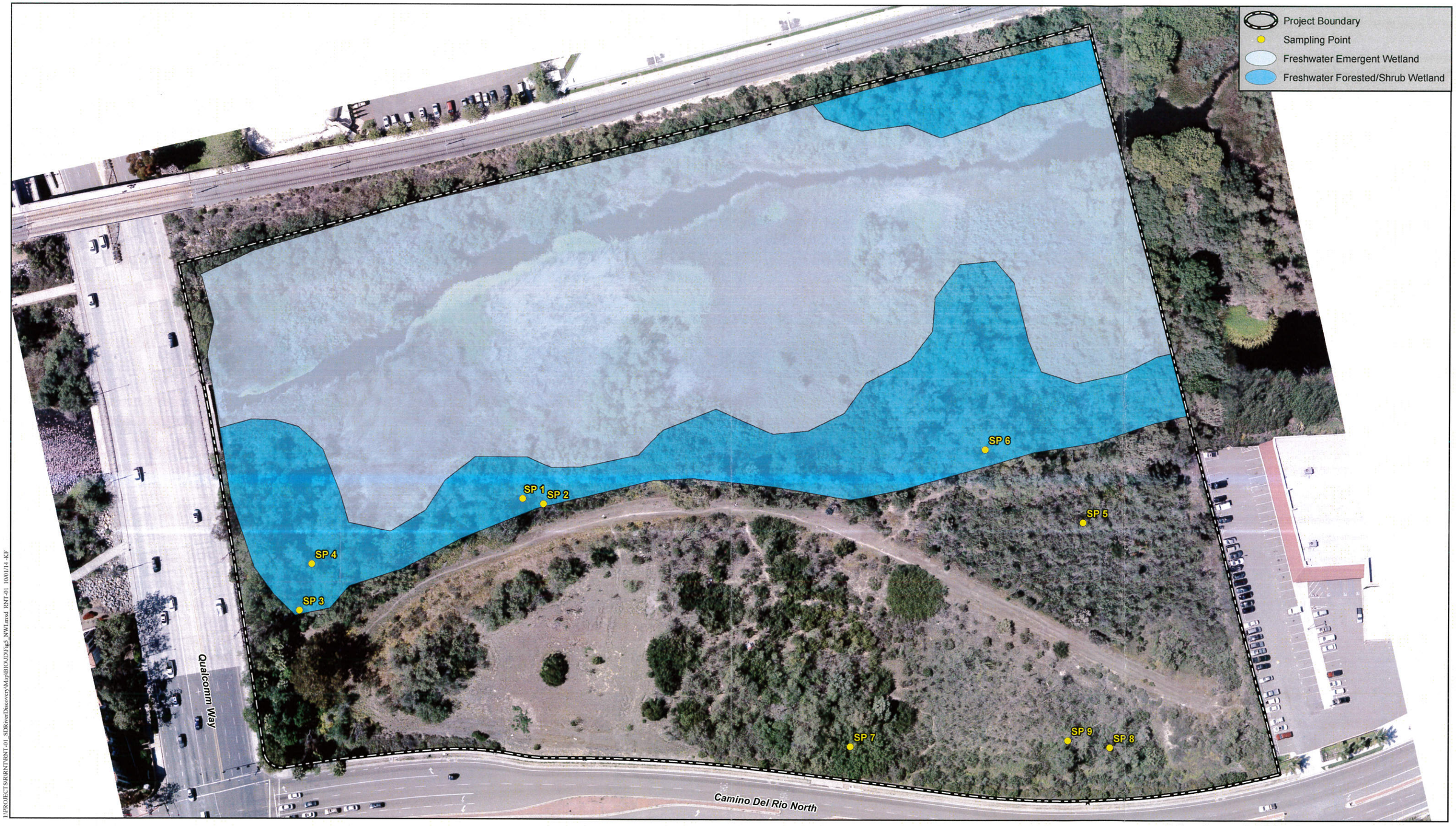
Sampling Point 4. This Sampling Point was located near the southern edge of the San Diego River floodplain in the western part of the project site. The vegetation here is southern cottonwood-willow riparian forest. Only wetland plants were dominant at this location, including arroyo willow and shamel ash (*Fraxinus uhdei*), thus meeting the Dominance Test for wetland vegetation. A soil pit excavated to a depth of 20 inches did not reveal any hydric soil indicators. Wetland hydrology was indicated by the presence of two secondary indicators: drift deposits (B3; riverine), and the FAC-neutral test (D5). This location is considered a non-wetland WUS, and a WS and City wetland.

Sampling Point 5. This Sampling Point was located in a basin that is separated from the San Diego River floodplain by a berm. There is a notch in the berm, which is 11 feet above the riverbed. The bottom of the basin is 6 feet below the notch. Southern cottonwood-willow riparian forest exists in the basin, although it is different than the habitat that exists in the riverbed. Overall the biomass of the forest is lower in the basin than in the riverbed. The habitat in the basin also has fewer and smaller trees. Only wetland plants were dominant at this location, including western cottonwood, red willow (*Salix laevigata*), and mule fat, thus meeting the Dominance Test for wetland vegetation. A soil pit excavated to 16 inches did not reveal the presence of any hydric soil indicators. Wetland hydrology was indicated by the presence of one secondary indicator: FAC-neutral test (D5), which does not satisfy the wetland hydrology criterion. This location is not considered a WUS but is considered a WS and City wetland.

Sampling Point 6. This Sampling Point was located near the southern edge of the San Diego River floodplain, in southern cottonwood-willow riparian forest. Only wetland plants were dominant at this location, including red willow (*Salix laevigata*), Brazilian pepper tree (*Schinus terebinthifolius*), and mule fat, thus meeting the Dominance Test for wetland vegetation. A soil pit excavated to 18 inches did not reveal any hydric soil indicators. Wetland hydrology was indicated by the presence of one secondary indicator: FAC-neutral test (D5), which does not satisfy the wetland hydrology criterion. This location is not considered a WUS but is considered a WS and City wetland.

Sampling Point 7. This Sampling Point was located in southern cottonwood-willow riparian forest, near Camino del Rio North and below a culvert outlet. Arroyo willow, a wetland plant was the only dominant and occurred in two layers, thus meeting the Dominance Test for wetland vegetation. A soil pit excavated to 17 inches did not reveal the presence of any hydric soil indicators. Wetland hydrology was indicated by the presence of two secondary indicators: drift deposits (B3; riverine), and the FAC-neutral test (D5).

Ostensibly this location should be non-wetland WUS, and a WS and City wetland. It is isolated, however, which forms the basis for it being non-jurisdictional, pursuant to the SWANCC court decision and subsequent USACE implementing regulations. Water apparently flows into this



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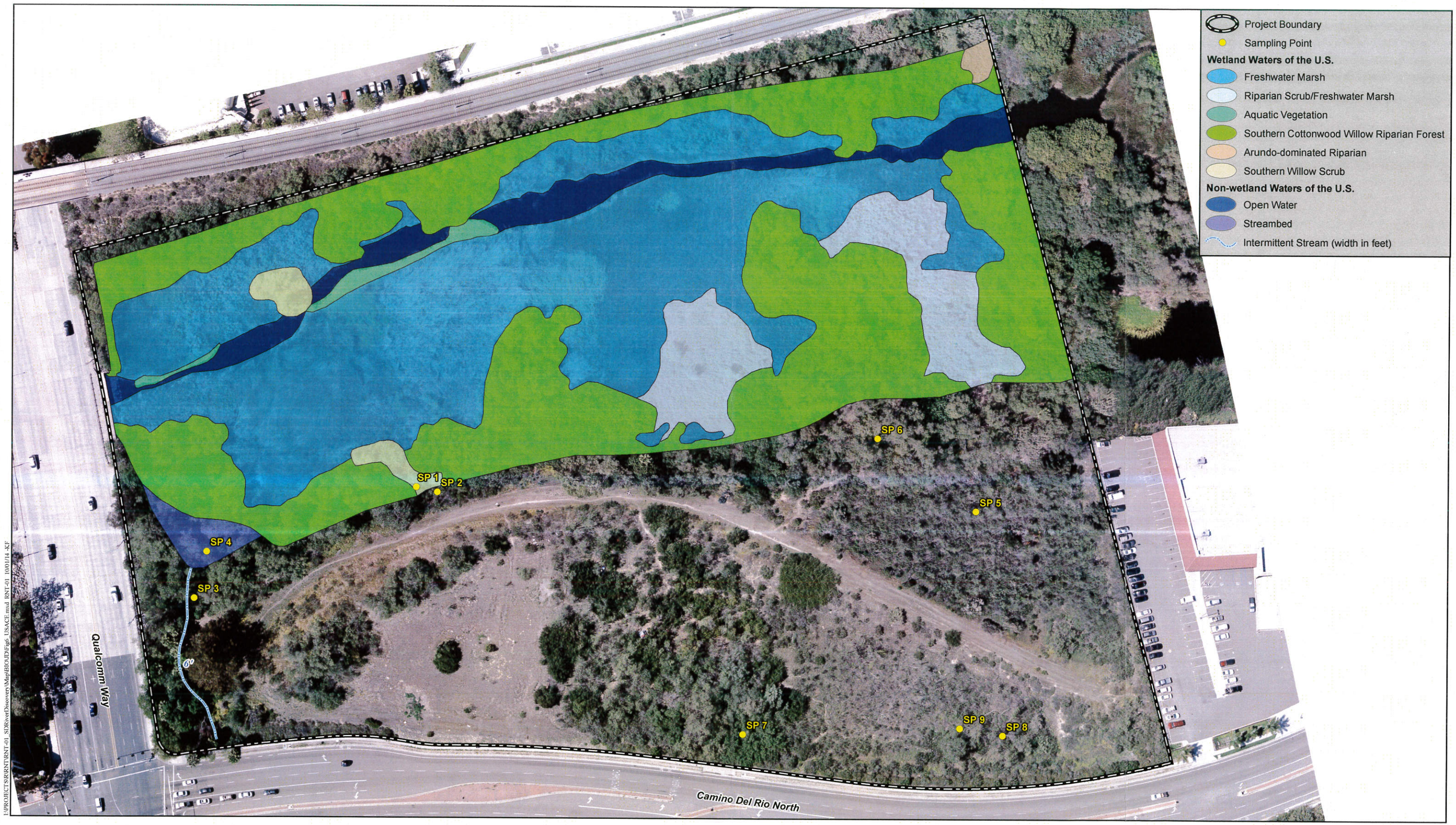
National Wetlands Inventory

DISCOVERY CENTER AT GRANT PARK

HELIX Environmental Planning

N 0 100 Feet

Figure 5



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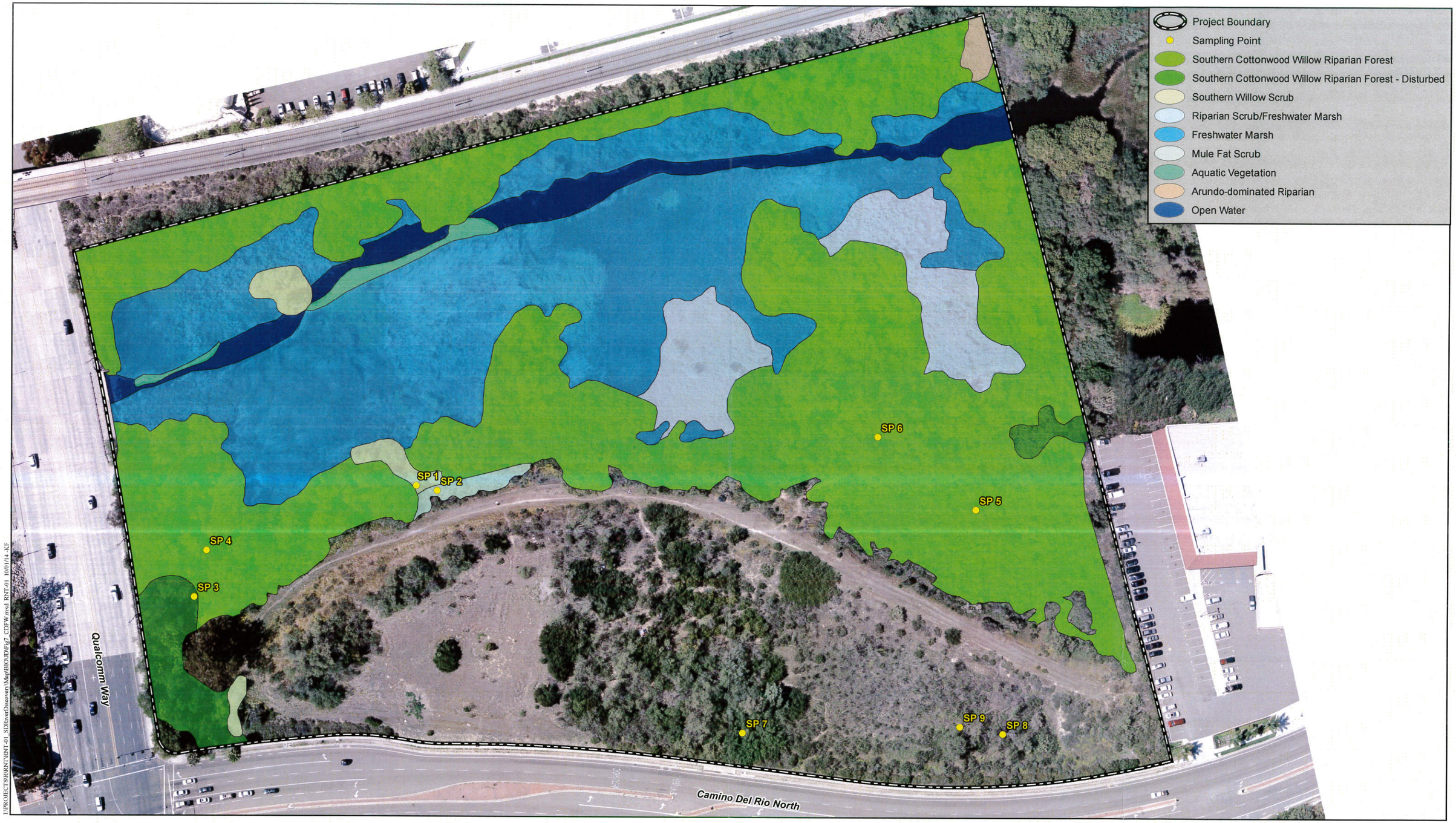
Waters of the U.S.

DISCOVERY CENTER AT GRANT PARK

HELIX Environmental Planning

0 100 Feet

Figure 6



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Waters of the State and City Wetlands

DISCOVERY CENTER AT GRANT PARK

HELIX Environmental Planning

0 100 Feet

Figure 7

area, as evidenced by the trash that apparently flowed onto the site from the culvert outlet. Flows from this culvert are best characterized as sheet flow, as there is no channel, streambed, or indication of an OHWM other than the trash. Given the lack of a streambed or plausible connection to one, this location is also non-jurisdictional pursuant to Section 1602 of the state Fish and Game Code. Vegetation at this location appears to be supported by runoff from Camino del Rio North. The artificial hydrology source excludes vegetation in this area from consideration as a wetland pursuant to the City's definition of what constitutes a wetland. This location is not jurisdictional.

Sampling Point 8. This Sampling Point was located on the floor of a basin in the southeastern part of the project site. The habitat at this location is southern riparian woodland, although the trees in this patch of habitat appear to be in decline. This is evidenced by canopies that are thin and appear much too small to have been responsible for the trunks that support them. Three of 4 dominant species at this location were wetland plants, thus meeting the Dominance Test. Those 3 species include black willow (*Salix gooddingii*), salt cedar, and mule fat. The dominant upland species at this location is Italian thistle (*Carduus pycnocephalus*). A soil pit dug to 18 inches did not reveal any hydric soil indicators and neither were any wetland hydrology indicators observed. This location is not jurisdictional.

Sampling Point 9. This Sampling Point was located on a low ridge above Sampling Point 8, in disturbed baccharis scrub and near riparian woodland. Two wetland plants (black willow and mule fat) were dominant and 2 upland plants (Italian thistle and red brome [*Bromus madritensis* ssp. *Rubens*]) were dominant at this location, which is insufficient to meet the Dominance Test for wetland vegetation. The Prevalence Index for this location was also too high (4.3) to conclude wetland vegetation was present. No morphological adaptations or other circumstances at this location indicated this locale was dominated by wetland vegetation. A soil pit excavated to 18 inches did not reveal the presence of any hydric soil indicators nor were any wetland hydrology indicators present. This location is regarded as an upland.

C. POTENTIALLY JURISDICTIONAL HABITATS

The following potentially jurisdictional habitats occur at the Discovery Center, including southern cottonwood-willow riparian forest, southern riparian woodland, southern willow scrub, riparian scrub/freshwater marsh, freshwater marsh, mule fat scrub, aquatic vegetation, Arundo-dominated riparian, and open water along the San Diego River and streambed (Figure 8). All or some of each of these habitats are regarded as WUS, WS and City wetlands except for southern riparian woodland. Portions of the southern cottonwood-willow riparian forest and southern willow scrub are also not jurisdictional. The reasons for what is and is not jurisdictional is provided below (Section III. D). The extent of WUS on site tends to be smaller because of the more restrictive parameters for WUS.

Southern Cottonwood-willow Riparian Forest. Southern cottonwood-willow riparian forests are composed of winter-deciduous trees that require water near the soil surface. Willow (*Salix* sp.), cottonwood (*Populus* sp.), and western sycamore (*Platanus racemosa*) form a dense, medium height canopy along rivers and in mesic canyons and streambeds. Associated understory species include mule fat (*Baccharis salicifolia*), stinging nettle (*Urtica dioica* ssp.

holosericea), and wild grape (*Vitis girdiana*). On site these occur along the San Diego River and between the large berm and Camino del Rio North.

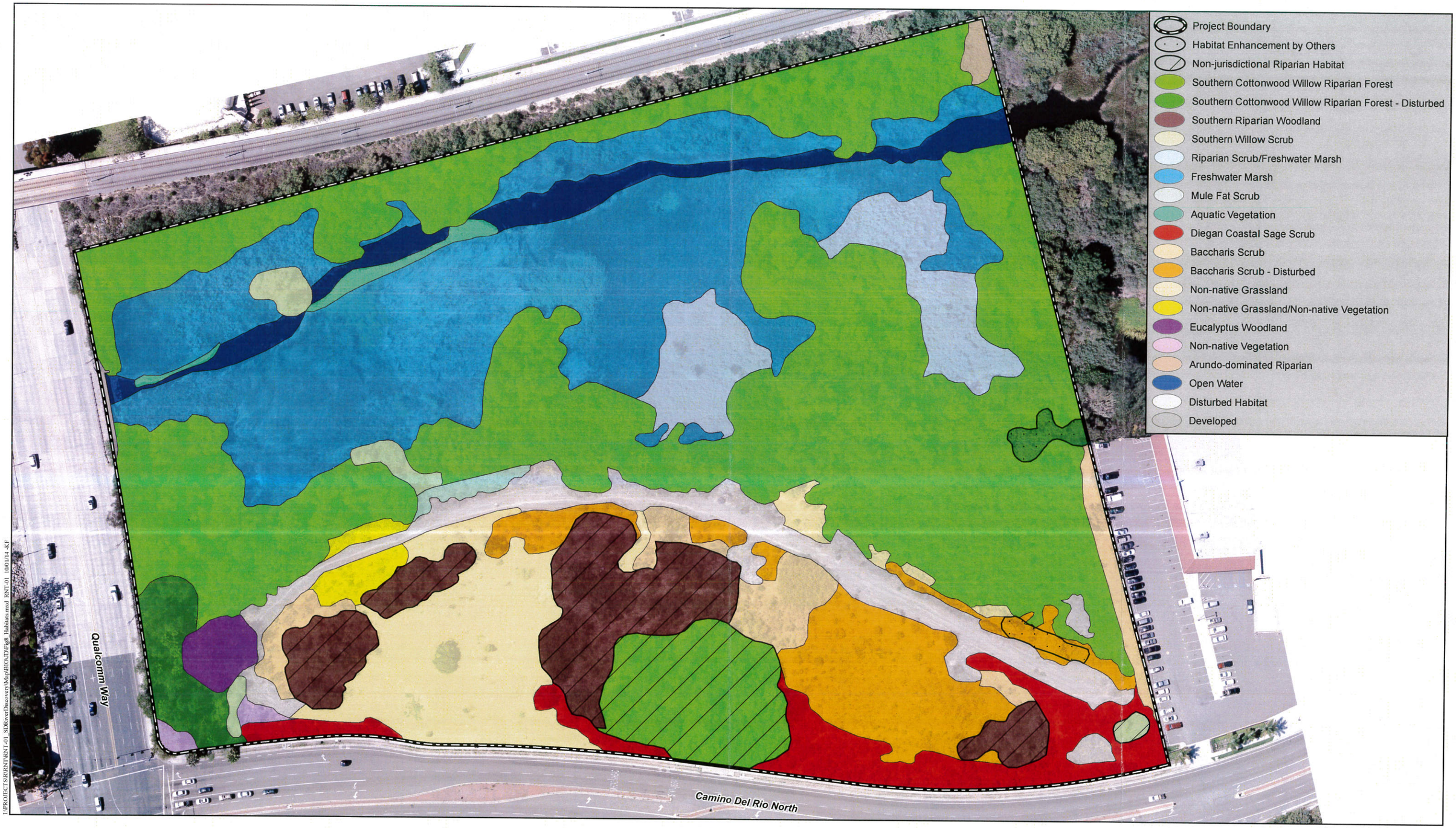
Southern Riparian Woodland. The southern riparian woodland is typically similar to southern riparian forest. The differences between woodlands and forests are physiognomic rather than compositional. Woodlands have less canopy cover than forests. In forests, the canopies of individual tree species do overlap so that a canopy cover exceeding 100 percent may occur in the upper tree stratum. In woodlands, there may be large canopy gaps within the upper tree stratum. At the Discovery Center, however, it is unusual in its landscape position and composition. It does not occur along in a streambed and, in places, supports an upland species (e.g., *Heteromeles arbutifolia*, *Rhus integrifolia*, and *Malosma laurina*). Willows in portions of the riparian woodland appear to be in decline, based on their sparse canopy.

Southern Willow Scrub. Southern willow scrub consists of dense, broadleaved, winter-deciduous stands of trees dominated by shrubby willows (*Salix* sp.) in association with mule fat (*Baccharis salicifolia*), and with scattered emergent cottonwood (*Populus fremontii*) and western sycamores (*Platanus racemosa*). This vegetation community appears as a single layer; it lacks separate shrub and tree layers and generally appears as a mass of short trees or large shrubs. It occurs on loose, sandy or fine gravelly alluvium deposited near stream channels during flood flows. Frequent flooding maintains this early seral community, preventing succession to a riparian woodland or forest (Holland 1986). In the absence of periodic flooding, this early seral type would be succeeded by southern cottonwood or western sycamore riparian forest, provided the requisite hydrology is present to support the greater water needs of those habitats.

Riparian Scrub/Freshwater Marsh. Areas supporting primarily bulrushes (*Schoenoplectus* and *Bolboschoenus* spp.) with an overstory of shrubby willows exist along the San Diego River. The establishment of willows in these areas appears to be a relatively recent occurrence based on a review of aerial photographs taken over the last decade or so. It may be that these areas have silted in, creating less saturated conditions, which is suitable for willow establishment.

Freshwater Marsh. Coastal and valley freshwater marsh is dominated by perennial, emergent monocots, 5 to 13 feet tall, forming incomplete to completely closed canopies. This vegetation type occurs along the coast and in coastal valleys near river mouths and around the margins of lakes and springs, freshwater or brackish marshes. These areas are semi- or permanently flooded yet lack a significant current (Holland 1986). Dominant species include cattails (*Typha* sp.) and bulrushes, along with umbrella sedges (*Cyperus* sp.), rushes (*Juncus* sp.), and spike-sedge (*Eleocharis* sp.).

Mule Fat Scrub. Mule fat scrub is a depauperate, shrubby riparian scrub community dominated by mule fat and interspersed with small willows. This vegetation community occurs along intermittent stream channels with a fairly coarse substrate and moderate depth to the water table. This early seral community is maintained by frequent flooding, the absence of which would lead to a cottonwood or sycamore dominated riparian woodland or forest (Holland 1986), provided the requisite hydrology is present to support the greater water needs of those habitats.



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Habitat Map

DISCOVERY CENTER AT GRANT PARK

HELIX Environmental Planning

0 100 Feet

Figure 8

Aquatic Vegetation. Aquatic vegetation exists in permanent and semi-permanent freshwater, and typically in areas with minimal current. Typical species include water-primrose (*Ludwigia* spp.), duckweed (*Lemna* spp.), and water-meal (*Wolffia* spp.).

Arundo-dominated Riparian. Arundo-dominated riparian are thickets of dense vegetation comprised almost exclusively of giant reed (*Arundo donax*). This riparian habitat exists in loose, sandy or fine gravelly alluvium along the major rivers of coastal southern California.

Streambed and Open Water. The San Diego River is a perennial system. The drainage along Qualcomm Way is intermittent.

D. JURISDICTIONAL HABITAT SUMMARY

Jurisdictional areas within the study area occur along the San Diego River and the streambed that flows north in the southwest corner of the project site. There are habitats that are dominated by wetland species that are not jurisdictional. These habitats occur south of the large berm that hydrologically isolates these habitats from the river. Habitats found in this area include southern cottonwood-willow riparian forest, southern riparian woodland, and southern willow scrub.

The area south of the large berm supports habitats that are sometimes jurisdictional. In this case they are not, primarily due to their hydrological and topographical isolation from jurisdictional waters, and artificial hydrology source. The hydrological isolation of the area south of the large berm is reflected in the fact that the river's floodway and floodplain do not extend into this area (Figure 3).

Water that does flow into the area south of the berm is runoff from Camino del Rio North. There are no streambeds associated with this flow as the runoff comes from a paved surface and does not coalesce into a streambed on site. Runoff from the road enters this part of the site from a culvert outlet (Figure 3). Water from the culvert appears to sheet flow into the site. The water that enters this isolated area does so only because of the development that created Camino del Rio North. Runoff from landscaping and rainfall is collected on the road, concentrated, and then released at a culvert outlet. Without these artificial circumstances the area south of the berm would receive much less water.

Large scale wetland mapping does not include the area south of the berm. The NWI maps show no wetlands outside of the San Diego River Floodway (Figure 5).

A significant portion of the riparian woodland in this area is not subject to inundation: they occur in an upland landscape position. These areas occur at elevations higher than any potential wetland hydrology source. Other areas that conceivably could receive flows (i.e., the basin in the southeast part of the project site) do not appear to be doing so judging by the declining state of the willows there. The trees in this part of the site have relatively small canopies relative to the size of the trunks and major branches.

The potentially jurisdictional habitats between the large berm and Camino del Rio North are not regarded as jurisdictional for a variety of reasons including, their hydrological isolation from

other waters; are not part of a streambed flowing into or across the site; what water does enter this area flows from developed areas; significant parts of this area are not subject to inundation; and wetland vegetation in parts of this area appears to be hydrologically stressed based on the declining state of the riparian trees. Furthermore, this area has not been included in any regional wetland mapping.

1. Federal Jurisdiction

Federal (WUS) jurisdictional areas at the Discovery Center project site include 8.71 acres of wetland and 0.61 acre of non-wetland WUS (Figure 6; Table 2). The length of jurisdictional areas on site totals 1,270 linear feet. This includes the length of the river through the project site and the streambed along Qualcomm Way.

Table 2
WATERS OF THE U.S.

JURISDICTIONAL AREAS	AREA[1] (acres)
Wetlands	
Southern Cottonwood-willow Riparian Forest	3.45
Southern Willow Scrub	0.12
Riparian Scrub/Freshwater Marsh	0.71
Freshwater Marsh	3.70
Aquatic Vegetation	0.09
Arundo-dominated Riparian	0.03
Subtotal	8.10
Non-wetland	
Open Water	0.47
Streambed	0.14
Subtotal	0.61
TOTAL	8.71

[1]Rounded to nearest one-hundredth.

2. State and City Jurisdiction

At this site the state and City jurisdictional areas are sympatric. State (WS) and City wetland jurisdictional areas at the Discovery Center project site include 11.07 acres of wetland and 0.47 acre of non-wetland (Figure 7; Table 3). The length of jurisdictional areas on site totals 1,270 linear feet. This includes the length of the river through the project site and the streambed along Qualcomm Way.

Table 3 WATERS OF THE STATE AND CITY WETLANDS	
JURISDICTIONAL AREAS	**AREA[1]** (acres)
Wetlands	
Southern Cottonwood-willow Riparian Forest	6.34
Southern Willow Scrub	0.14
Riparian Scrub/Freshwater Marsh	0.71
Freshwater Marsh	3.70
Mule Fat Scrub	0.05
Aquatic Vegetation	0.09
Arundo-dominated Riparian	0.04
Subtotal	**11.07**
Non-wetland	
Open Water	0.47
TOTAL	**11.54**

[1]Rounded to nearest one-hundredth.

IV. CONCLUSION

A. FEDERAL PERMITTING

Impacts to WUS are regulated by the USACE under Section 404 of the CWA (33 USC 401 et seq.; 33 USC 1344; USC 1413; and Department of Defense, Department of the Army, Corps of Engineers 33 CFR Part 323). A federal CWA Section 404 Permit would be required for the project to place fill in WUS. A CWA Section 401 Water Quality Certification, which is administered by the State Water Resources Control Board, must be obtained prior to the issuance of any 404 Permit.

B. STATE PERMITTING

Impacts to WS (i.e., streambeds and lakes) are regulated by CDFW under California Fish and Game Code 1602. The CDFW requires a Streambed Alteration Agreement (SAA) for projects that will divert or obstruct the natural flow of water; change the bed, channel, or bank of any stream; or use any material from a streambed. The SAA is a contract between the applicant and CDFW stating what activities can occur in the riparian zone and stream course (California Association of Resource Conservation Districts 2002).

C. CITY PERMITTING

Impacts to wetlands, which are regarded by the City as an Environmentally Sensitive Lands (ESL), require a Site Development Permit. The ESL regulations require that impacts to wetlands be avoided. Unavoidable impacts should be minimized to the maximum extent practicable, and mitigated as follows:

As part of the project-specific environmental review pursuant to CEQA, all unavoidable wetlands impacts (both temporary and permanent) will need to be analyzed and mitigation will be required in accordance with the City's Biology Guidelines; mitigation should be based on the impacted type of wetland habitat and project design. Mitigation should prevent any net loss of wetland functions and values of the impacted wetland.

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Appendix A

FEDERAL JURISDICTIONAL INFORMATION

Appendix A
FEDERAL JURISDICTIONAL INFORMATION

Waters of the U.S.

The official definition of "Waters of the U.S." and their limits of jurisdiction (as they may apply) are defined by the Corps' Regulatory Program Regulations (Section 328.3, paragraphs [a] 1-3 and [e], and Section 328.4, paragraphs [c] 1 and 2) as follows:

> All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; all waters including interstate wetlands, all other waters such as interstate lakes, rivers, streams [including intermittent streams], mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate commerce including any such water, which are or could be used by interstate travelers for recreation or other purposes; or from which fish or shellfish are or could be taken and sold in interstate commerce; or which are or could be used for industries in interstate commerce; or wetlands adjacent to waters [other than waters that are themselves wetlands].
>
> Non-tidal Waters of the U.S. The limits of jurisdiction in non-tidal waters: In the absence of adjacent wetlands, the jurisdiction extends to the ordinary high water mark, or when adjacent wetlands are present, the jurisdiction extends to the limit of the adjacent wetlands.
>
> The term ordinary high water mark means that line on the shore established by the fluctuation of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation (scouring), the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

The U.S. Army Corps of Engineers (Corps; Federal Register 1982) and the Environmental Protection Agency (Federal Register 1980) jointly define wetlands as "[t]hose areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (Environmental Laboratory 1987).

Waters of the U.S. must exhibit an ordinary high water mark (OHWM) or other evidence of surface flow created by hydrologic physical changes. These physical changes include (Riley 2005):

- Natural line impressed on the bank
- Shelving
- Changes in the character of soil
- Destruction of terrestrial vegetation
- Presence of litter and debris
- Wracking
- Vegetation matted down, bent, or absent
- Change in plant community
- Sediment sorting
- Leaf litter disturbed or washed away
- Scour
- Deposition
- Multiple observed flow events
- Bed and banks
- Water staining

Jurisdictional areas also must be connected to Waters of the U.S. (Guzy and Anderson 2001; U.S. Supreme Court 2001).

As a consequence of the U.S. Supreme Court decision in Rapanos v. United States, a memorandum was developed regarding Clean Water Act jurisdiction (Grumbles and Woodley 2007). The memorandum states that the EPA and the Corps will assert jurisdiction over traditional navigable waters (TNW), wetlands adjacent to TNW, tributaries to TNWs that are a relatively permanent water body (RPW), and wetlands adjacent to TNW. An RPW has year round flow or continuous seasonal flow (i.e., typically for three months or longer). Jurisdiction over other waters (i.e., non TNW and RPW) will be based on a fact specific analysis to determine if they have a significant nexus to a TNW.

Pursuant to the Corps Instructional Guidebook (Corps and EPA 2007), the significant nexus evaluation will cover the subject reach of the stream (upstream and downstream) as well as its adjacent wetlands (Illustrations 2 through 6, Corps and EPA 2007). The evaluation will include the flow characteristics, annual precipitation, ability to provide habitat for aquatic species, ability to retain floodwaters and filter pollutants, proximity of the subject reach to a TNW, drainage area, and the watershed.

Wetland Criteria

Wetland boundaries are determined using three mandatory criteria (hydrophytic vegetation, wetland hydrology, and hydric soil) established for wetland delineations and described within the Wetlands Delineation Manual (Environmental Laboratory 1987) and the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Corps 2006). Following is a brief discussion of the three criteria and how they are evaluated.

Vegetation

"Hydrophytic vegetation is defined herein as the sum total of macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present" (Environmental Laboratory 1987).

The wetland indicator status (obligate upland, facultative upland, facultative, facultative wetland, obligate wetland, or no indicator status) of the dominant plant species of all vegetative layers is determined. Species considered to be hydrophytic include the classifications of facultative,

facultative wetland, and obligate wetland as defined by the U.S. Fish and Wildlife Service (1988; Table A-1). The percent of dominant wetland plant species is calculated. The hydrophytic vegetation criterion is considered to be met if it meets the "Dominance Test," "Prevalence Index," or the vegetation has morphological adaptations for prolonged inundation.

Table A-1
DEFINITIONS OF PLANT INDICATOR CATEGORIES

INDICATOR CATEGORIES	ABBREVIATION	PROBABILITY OF OCCURRING IN WETLANDS
Obligate wetland	OBL	Occur almost exclusively in wetlands
Facultative wetland	FACW	Usually found in wetlands (66 to 99 percent probability) but occasionally in uplands
Facultative	FAC	Equally likely to occur in wetland (34 to 66 percent probability) or non-wetland
Facultative upland	FACU	Usually occur in non-wetlands but occasionally found in wetlands
Obligate upland	UPL	Occur almost exclusively in non-wetlands
No indicator	NI	Inconclusive status

Hydrology

The term "wetland hydrology" encompasses all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface at some time during the growing season. Areas with evident characteristics of wetland hydrology are those where the presence of water has an overriding influence on characteristics of vegetation and soils due to anaerobic reducing conditions, respectively" (Environmental Laboratory 1987).

Hydrologic characteristics must indicate that the ground is saturated to within 12 inches of the surface for at least 5 percent of the growing season during a normal rainfall year (approximately 18 days for most of low-lying southern California). Hydrology criteria are evaluated based on the characteristics listed below (Corps 2006). Where positive indicators of wetland hydrology are present, the limit of the OHWM (or the limit of adjacent wetlands) is noted and mapped. Evidence of wetland hydrology is met by the presence of a single primary indicator or two secondary indicators.

Primary

- surface water (A1)
- high water table (A2)
- saturation (A3)
- water marks (B1; non-riverine)
- sediment deposits (B2; non-riverine)
- drift deposits (B3; non-riverine)
- surface soil cracks (B6)
- inundation visible on aerial imagery (B7)
- water-stained leaves (B9)
- salt crust (B11)
- biotic crust (B12)
- aquatic invertebrates (B13)
- hydrogen sulfide odor (C1)
- oxidized rhizospheres along living roots (C3)
- preserve of reduced iron (C4)
- recent iron reduction in tilled soils (C6)
- thin much surface (C7)

Secondary

- watermarks (B1; riverine)
- sediment deposits (B2; riverine)
- drift deposits (B3; riverine)
- drainage patterns (B10)
- dry-season water table (C2)
- crayfish burrows (C8)
- saturation visible on aerial imagery (C9)
- shallow aquitard (D3)
- FAC-neutral test (D5)

In the absence of all other hydrologic indicators and in the absence of significant modifications of an area's hydrologic function, positive hydric soil characteristics are assumed to indicate positive wetland hydrology. This assumption applies unless the site visit was done during the wet season of a normal or wetter-than-normal year. Under those circumstances, wetland hydrology would not be present.

Soils

"A hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part" (Natural Resource Conservation Service [NRCS] 2004).

Soils must exhibit physical and/or chemical characteristics indicative of permanent or periodic saturation. Soil matrix and mottle colors are identified at each sampling plot using a Munsell soil color chart (Kollmorgen 1994). Generally, an 18-inch deep pit is excavated with a shovel at each sampling plot unless refusal occurs above 18 inches, although hydric soil indicators begin within 12 inches of the soil surface.

Soils in each area are closely examined for hydric soil indicators, including the characteristics listed below. Hydric soil indicators are presented in three groups. Indicators for "All Soils" (A) are used in any soil regardless of texture, indicators for "Sandy Soils" (S) area used in soil layers with USDA textures of loamy fine sand or coarser, and indicators for "Loamy and Clayey Soils" (F) are used with soil layers of loamy very fine sand and finer (Corps 2006).

- histosols (A1)
- histic epipedons (A2)
- black histic (A3)
- sulfidic odor (A4)
- stratified layers (A5)
- 1 cm muck (A9)
- depleted below dark surface (A11)
- thick dark surface (A12)
- sandy mucky mineral (S1)
- sandy gleyed matrix (S4)
- sandy redox (S5)
- stripped matrix (S6)
- loamy mucky mineral (F1)
- loamy gleyed matrix (F2)
- depleted matrix (F3)
- redox dark surface (F6)
- depleted dark surface (F7)
- redox depressions (F8)
- vernal pools (F9)
- 2 cm muck (A10)
- reduced vertic (F18)
- red parent material (TF2; indicator is currently being tested by NRCS).

Hydric soils may be assumed to be present in plant communities that have complete dominance of obligate or facultative wetland species. In some cases, there is only inundation during the growing season and determination must be made by direct observation during that season, recorded hydrologic data, testimony of reliable persons, and/or indication on aerial photographs.

Non-wetland Waters of the U.S.

The non-wetland Waters of the U.S. designation is met when an area has periodic surface flows but lacks sufficient indicators to meet the hydrophytic vegetation and/or hydric soils criteria. For purposes of delineation and jurisdictional designation, the non-wetland Waters of the U.S. boundary in non-tidal areas is the OHWM as described in the Section 404 regulations (33 CFR Part 328). Further guidance on the OHWM (Riley 2005; Lichvar and McColley 2008),

USGS Mapping

The USGS Quad maps are one of the resources used to aid in the identification and mapping of jurisdictional areas. Their primary uses include understanding the subregional landscape position of a site, major topographical features, and a project's position in the watershed.

In our experience, the designation of watercourse as a blue-line stream (intermittent or perennial) on USGS maps has been unreliable and typically overstates the hydrology of most streams. This has also been the experience of others, including the late Dr. Luna Leopold. Dr. Leopold was a hydrologist with USGS from 1952 to 1972, Professor in the Department of Geology and Geophysics, and Department of Landscape Architecture, University of California, Berkeley from 1972 to 1986, and Professor Emeritus from 1987 until his death in 2006. In regard to stream mapping on USGS maps, Dr. Leopold (1994) opined that "...blue lines on a map are drawn by nonprofessional, low-salaried personnel. In actual fact, they are drawn to fit a rather personalized aesthetic."

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Appendix B

STATE JURISDICTIONAL INFORMATION

Appendix B
STATE JURISDICTIONAL INFORMATION

California Department of Fish and Wildlife Regulations

The California Department of Fish and Wildlife (CDFW; Department) regulates alterations or impacts to streambeds or lakes (wetlands) under Fish and Game Code Sections 1600 through 1616 for any private, state, or local government or public utility-initiated projects. Section 1602 of the Fish and Game Code requires any entity to notify the Department before beginning any activity that will do one or more of the following: (1) substantially obstruct or divert the natural flow of a river, stream, or lake; (2) substantially change or use any material from the bed, channel, or bank of a river, stream, or lake; or (3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake. Fish and Game Code Section 1602 applies to all perennial, intermittent, and ephemeral rivers and streams as well as lakes in the state.

In order to notify the Department, a person, state, or local governmental agency or public utility must submit a complete notification package and fee to the Department regional office that serves the county where the activity will take place. A fee schedule is included in the notification package materials. Under the Permit Streamlining Act (Government Code Sections 65920 et seq.), the Department has 30 days to determine whether the package is complete. If the requestor is not notified within 30 days, the application is automatically deemed to be complete.

Once the notification package is deemed to be complete, the Department will determine whether the applicant will need a Lake or Streambed Alteration Agreement (SAA) for the activity, which will be required if the activity could substantially adversely affect an existing fish and wildlife resource. If an SAA is required, the Department will conduct an on-site inspection, if necessary, and submit a draft SAA that will include measures to protect fish and wildlife resources while conducting the project. If the applicant is applying for a regular SAA (less than five years), the Department will submit a draft SAA within 60 calendar days after notification is deemed complete. The 60-day time period does not apply to notifications for long-term SAAs (greater than five years).

After the applicant receives the SAA, the applicant has 30 calendar days to notify the Department whether the measures in the draft SAA are acceptable. If the applicant agrees with the measures included in the draft SAA, the applicant will need to sign the SAA and submit it to the Department. If the applicant disagrees with any measures in the draft SAA, the applicant must notify the Department in writing and specify the measures that are not acceptable. Upon written request, the Department will meet with the applicant within 14 calendar days of receiving the request to resolve the disagreement. If the applicant fails to respond in writing within 90 calendar days of receiving the draft SAA, the Department may withdraw that SAA. The time periods described above may be extended at any time by mutual agreement.

After the Department receives the signed draft SAA, the Department will make it final by signing the SAA; however, the Department will not sign the SAA until it both receives the notification fee and ensures that the SAA complies with the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000 et seq.). After the applicant receives the final agreement, the applicant may begin the project the agreement covers, provided that the applicant has obtained any other necessary federal, state and/or local authorizations.

Water Resource Control Board Regulations

Section 401 Water Quality Certification

Whenever a project requires a federal Clean Water Act (CWA) Section 404 permit or a Rivers and Harbors Act Section 10 permit, it must first obtain a CWA Section 401 Water Quality Certification. The Regional Water Quality Control Board (RWQCB) administers the 401 Certification program. Federal CWA Section 401 requires that every applicant for a Section 404 permit must request a Water Quality Certification that the proposed activity will not violate state and federal water quality standards.

Porter-Cologne Water Quality Control Act

The State Water Resource Control Board (SWRCB) and the RWQCB regulate the discharge of waste to Waters of the State via the 1969 Porter-Cologne Water Quality Control Act (Porter-Cologne) as described in the California Water Code (SWRCB 2008). The California Water Code is the State's version of the Federal CWA. Waste, according to the California Water Code, includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal. State waters that are not federal waters may be regulated under Porter-Cologne. A Report of Waste Discharge must be filed with the RWQCB for projects that result in discharge of waste into waters of the State. The RWQCB will issue Waste Discharge Requirements (WDRs) or a waiver. The WDRs are the Porter-Cologne version of a CWA 401 Water Quality Certification.

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Appendix C

CITY OF SAN DIEGO JURISDICTIONAL INFORMATION

Appendix C
CITY OF SAN DIEGO WETLANDS
LAND DEVELOPMENT CODE, BIOLOGICAL GUIDELINES; SECTION I.A.2.

Wetlands support many of the species included in the MSCP (i.e. Covered Species). The definition of wetlands in Environmentally Sensitive Lands (ESL) is intended to differentiate uplands (terrestrial areas) from wetlands, and furthermore to differentiate naturally occurring wetland areas from those created by human activities. Except for areas created for the purposes of wetland habitat or resulting from human actions to create open waters or from the alteration of natural stream courses, it is not the intent of the City to regulate artificially created wetlands in historically non-wetland areas unless they have been delineated as wetlands by the Army Corps of Engineers, and/or the California Department of Fish and Game. For the purposes of the ESL, artificially created lakes such as Lake Hodges, artificially channeled floodways such as the Carmel Valley Restoration and Enhancement Project (CVREP) and previously dredged tidal areas such as Mission Bay should be considered wetlands under ESL. The following provides guidance for defining wetlands regulated by the City of San Diego under the Land Development Code.

Naturally occurring wetland vegetation communities are typically characteristic of wetland areas. Examples of wetland vegetation communities include saltmarsh, brackish marsh, freshwater marsh, riparian forest, oak riparian forest, riparian woodland, riparian scrub and vernal pools. Common to all wetland vegetation communities is the predominance of hydrophytic plant species (plants adapted for life in anaerobic soils). Many references are available to help identify and classify wetland vegetation communities; Holland (1986), revised Holland (Oberbauer 2005 and 2008), Cowardin et al. (1979), Sawyer and Keeler-Wolf (1996), and Zedler (1987). The U.S. Army Corps of Engineers Wetland Delineation Manual (1987) provides technical information on hydrophytic species.

Problem areas can occur when delineating wetlands due to previous human activities or naturally occurring events. Areas lacking naturally occurring wetland vegetation communities are still considered wetlands if hydric soil or wetland hydrology is present and past human activities have occurred to remove the historic vegetation (e.g., agricultural grading in floodways, dirt roads bisecting vernal pools, channelized streambeds), or catastrophic or recurring natural events preclude the establishment of wetland vegetation (e.g., areas of scour within streambeds, coastal mudflats and salt pannes that are unvegetated due to tidal duration). The U.S. Army Corps of Engineers Wetland Delineation Manual (1987) provides technical information on hydric soils and wetland hydrology.

Seasonal drainage patterns that are sufficient enough to etch the landscape (i.e. ephemeral/intermittent drainages) may not be sufficient enough to support wetland dependent vegetation. These types of drainages would not satisfy the City's wetland definition unless wetland dependent vegetation is either present in the drainage or lacking due to past human activities. Seasonal drainage patterns may constitute "waters of the United States" which are regulated by the Army Corps of Engineers and/or the California Department of Fish and Game.

Areas lacking wetland vegetation communities, hydric soils and wetland hydrology due to non-permitted filling of previously existing wetlands will be considered a wetland under the ESL and regulated accordingly. The removal of the fill and restoration of the wetland may be required as a condition of project approval.

Areas that contain wetland vegetation, soils or hydrology created by human activities in historically non-wetland areas do not qualify as wetlands under this definition unless they have been delineated as wetlands by the Army Corps of Engineers, and/or the California Department of Fish and Game. 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, road ruts created by vehicles and artificially irrigated areas which would revert to uplands if the irrigation ceased. Areas of historic wetlands can be assessed using historic aerial photographs, existing environmental reports (EIRs, biology surveys, etc.), and other collateral material such as soil surveys.

Some coastal wetlands, vernal pools and riparian areas have been previously mapped. The maps, labeled C-713 and C-740 are available to aid in the identification of wetlands. Additionally, the 1":2000' scale MSCP vegetation maps may also be used as a general reference, as well as the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory maps. These maps, available for viewing at the Development Services Department, should not replace site-specific field mapping.

Appendix D

DATA FORMS

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Discovery Center City/County: San Diego/San Diego Sampling Date: 24 Feb 2014

Applicant/Owner: San Diego River Park Foundation State: CA Sampling Point: 1

Investigator(s): W.L. Sward Section, Township, Range: LANDGRANT PUEBLO LANDS OF SAN DIEGO

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 3-4

Subregion (LRR): C Lat: 32.773005 Long: -117.139077 Datum: WGS 1984

Soil Map Unit Name: Riverwash NWI classification: See Summary Remarks

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

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

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

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

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

Remarks:

Sampling point located at the toe of large berm. Berm is at southern edge of river floodplain.
NWI Classification: Freshwater Forested/Shrub Wetland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20 X 60)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus fremontii	4	Yes	FAC
2. Salix lasiolepis	6	Yes	FACW
3.			
4.			
	10 = Total Cover		
Sapling/Shrub Stratum (Plot size: 20 X 20)			
1. Salix lasiolepis	45	Yes	FACW
2. Baccharis salicifolia	25	Yes	FAC
3.			
4.			
5.			
	70 = Total Cover		
Herb Stratum (Plot size: 10 X 10)			
1. Schoenoplectus californicus	20	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	20 = Total Cover		
Woody Vine Stratum (Plot size: 15 X 15)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Southern cottonwood-willow riparian forest.
Abundant leaf litter.

SOIL

Sampling Point: 1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/2	10					SiL	
3-18	10YR 4/1	90	7.5YR 4/6				SiL	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes ✓ No ___ Depth (inches): 10

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 2.5

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

FAC-neutral Test; W:U=3:0

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Discovery Center City/County: San Diego/San Diego Sampling Date: 24 Feb 2014

Applicant/Owner: San Diego River Park Foundation State: CA Sampling Point: 2

Investigator(s): W.L. Sward Section, Township, Range: LANDGRANT PUEBLO LANDS OF SAN DIEGO

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 30

Subregion (LRR): C Lat: 32.77299 Long: -117.139 Datum: WGS 1984

Soil Map Unit Name: Riverwash NWI classification: See Summary Remarks

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

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

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

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

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

Remarks:

Sampling point located on a steep slope 3 feet above terrace (that is wetland based on Sample Point 1). Sampling point is within CDFW habitat. NWI Classification: Freshwater Forested/Shrub Wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 12 X 60)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 12 X 20)			
1. Baccharis salicifolia	70	Yes	FAC
2. Baccharis sarothroides	10	No	FACU
3.			
4.			
5.			
	80 = Total Cover		
Herb Stratum (Plot size: 10 X 10)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: 12 X 15)			
1.			
2.			
	0 = Total Cover		

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Mule fat scrub

SOIL

Sampling Point: 2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/2	100					SiL	
3-15	10YR 3/2	100					SiL	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Sampling point very cobbly.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

FAC-neutral Test; W:U=0:1

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Discovery Center City/County: San Diego/San Diego Sampling Date: 24 Feb 2014

Applicant/Owner: San Diego River Park Foundation State: CA Sampling Point: 3

Investigator(s): W.L. Sward Section, Township, Range: LANDGRANT PUEBLO LANDS OF SAN DIEGO

Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): None Slope (%): 50

Subregion (LRR): C Lat: 32.772653 Long: -117.139923 Datum: WGS 1984

Soil Map Unit Name: Riverwash NWI classification: See Summary Remarks

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

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

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

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

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

Remarks:

Sampling point is located along a drainage next to Qualcomm Way. No vegetation is present in the channel bottom. Soil pit dug on side of drainage where plants are rooted. Unable to dig in channel bottom due to rocks, trash, and rip-rap on slope on west side of drainage. NWI Classification: Freshwater Forested/Shrub Wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20 X 60)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus fremontii	15	No	FAC
2. Washingtonia robusta	40	Yes	FACW
3. Eucalyptus camaldulensis	25	Yes	FAC
4.			
	80	= Total Cover	
Sapling/Shrub Stratum (Plot size: 20 X 20)			
1. Salix lasiolepis	10	Yes	FACW
2.			
3.			
4.			
5.			
	10	= Total Cover	
Herb Stratum (Plot size: 10 X 10)			
1. Melilotus albus	+	No	UPL
2. Stipa miliaceia	2	No	UPL
3.			
4.			
5.			
6.			
7.			
8.			
		= Total Cover	
Woody Vine Stratum (Plot size: 15 X 15)			
1.			
2.			
	0	= Total Cover	

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Disturbed southern cottonwood-willow riparian forest

SOIL

Sampling Point: 3

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/2	100					SaL	
4-16	10YR 2/1	100					CL	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Pit located at edge of streambed. Profile taken on the side of the pit (not the deepest or shallowest part of the pit).

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

FAC-neutral Test; W:U=2:0

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Discovery Center City/County: San Diego/San Diego Sampling Date: 24 Feb 2014

Applicant/Owner: San Diego River Park Foundation State: CA Sampling Point: 4

Investigator(s): W.L. Sward Section, Township, Range: LANDGRANT PUEBLO LANDS OF SAN DIEGO

Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR): C Lat: 32.772799 Long: -117.139836 Datum: WGS 1984

Soil Map Unit Name: Riverwash NWI classification: See Summary Remarks

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

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

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

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

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

Remarks:

Sampling point is in a drainage north of Qualcomm Way. Soil pit is located north of a berm. Non-wetland WUS/CDFW habitat. NWI Classification: Freshwater Forested/Shrub Wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 X 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Phoenix canariensis	10	No	FAC*
2. Fraxinus uhdei	25	Yes	FAC*
3. Salix laevigata	50	Yes	FACW
4. Populus fremontii	20	No	FAC
	105	= Total Cover	
Sapling/Shrub Stratum (Plot size: 20 X 20)			
1. Fraxinus uhdei	10	Yes	FAC*
2.			
3.			
4.			
5.			
	10	= Total Cover	
Herb Stratum (Plot size: 10 X 10)			
1. Euphorbia peplus	1	No	UPL
2. Stipa miliaceia	3	No	UPL
3.			
4.			
5.			
6.			
7.			
8.			
	4	= Total Cover	
Woody Vine Stratum (Plot size: 15 X 15)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 65% % Cover of Biotic Crust _____

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Southern cottonwood-willow riparian forest.
*Best professional judgment.

SOIL

Sampling Point: 4

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/1	100					LSa	
2-7	10YR 2/2	100					SaL	
7-20	10YR 2/1	100					SaL	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

FAC-neutral Test; W:U=1:0

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Discovery Center City/County: San Diego/San Diego Sampling Date: 24 Feb 2014

Applicant/Owner: San Diego River Park Foundation State: CA Sampling Point: 5

Investigator(s): W.L. Sward Section, Township, Range: LANDGRANT PUEBLO LANDS OF SAN DIEGO

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

Subregion (LRR): C Lat: 32.77295 Long: -117.13705 Datum: WGS 1984

Soil Map Unit Name: Riverwash NWI classification: None

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

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

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

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

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

Remarks:

Sampling Point is located in a basin that is isolated from the San Diego River.
Not WUS. CDFW habitat.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 40 X 40)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus fremontii	17	Yes	FAC
2. Salix laevigata	30	Yes	FACW
3.			
4.			
	47 = Total Cover		
Sapling/Shrub Stratum (Plot size: 20 X 20)			
1. Baccharis salicifolia	60	Yes	FAC
2. Baccharis sarothroides	10	No	FACU
3.			
4.			
5.			
	70 = Total Cover		
Herb Stratum (Plot size: 10 X 10)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: 15 X 15)			
1.			
2.			
	0 = Total Cover		

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Southern cottonwood-willow riparian forest (xeric)

SOIL

Sampling Point: 5

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/3	100					C	
2-16	10YR 4/4	100					C	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

FAC-neutral Test; W:U=1:0

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Discovery Center City/County: San Diego/San Diego Sampling Date: 24 Feb 2014

Applicant/Owner: San Diego River Park Foundation State: CA Sampling Point: 6

Investigator(s): W.L. Sward Section, Township, Range: LANDGRANT PUEBLO LANDS OF SAN DIEGO

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 1-2

Subregion (LRR): C Lat: 32.77317 Long: -117.137408 Datum: WGS 1984

Soil Map Unit Name: Riverwash NWI classification: See Summary Remarks

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

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

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

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

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

Remarks:

NWI Classification: Freshwater Forested/Shrub Wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 X 40)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix laevigata	60	Yes	FACW
2.			
3.			
4.			
	60 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30 X 20)			
1. Schinus terebinthifolius	10	Yes	FAC
2. Baccharis salicifolia	25	Yes	FAC
3. Ricinus communis			FACU
4.			
5.			
	35 = Total Cover		
Herb Stratum (Plot size: 10 X 10)			
1. Tropaeolum majus	+	no	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
Woody Vine Stratum (Plot size: 15 X 15)			
1. Passiflora sp.	3	No	FAC?
2.			
	3 = Total Cover		

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Abundant leaf litter.

SOIL

Sampling Point: 6

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

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

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

FAC-neutral Test; W:U=1:0

Sampling Point located on river side of large berm, yet no OHWM signs evident.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Discovery Center City/County: San Diego/San Diego Sampling Date: 26 Feb 2014

Applicant/Owner: San Diego River Park Foundation State: CA Sampling Point: 7

Investigator(s): W.L. Sward Section, Township, Range: LANDGRANT PUEBLO LANDS OF SAN DIEGO

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

Subregion (LRR): C Lat: 32.772262 Long: -117.137881 Datum: WGS 1984

Soil Map Unit Name: Riverwash NWI classification: None

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

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

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

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

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

Remarks:

Sampling point isolated from San Diego River floodplain.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 X 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiolepis	20	Yes	FACW
2.			
3.			
4.			
	20 = Total Cover		
Sapling/Shrub Stratum (Plot size: 20 X 20)			
1. Salix lasiolepis	70	Yes	FACW
2.			
3.			
4.			
5.			
	70 = Total Cover		
Herb Stratum (Plot size: 10 X 10)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: 15 X 15)			
1.			
2.			
	0 = Total Cover		

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Southern cottonwood-willow riparian forest.
Dense leaf litter.

SOIL

Sampling Point: 7

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/1	100					SiL	
6-17	10YR 4/3	90					C	
	10YR 2/1	10						

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Second color in bottom layer appears to be soils that have been mixed into layer from the surface layer.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

Primary source of hydrology is a nearby culvert outlet. Drift deposits consist of cans and plastic cups. There is no organic matter deposited on the tree trunks.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Discovery Center City/County: San Diego/San Diego Sampling Date: 26 Feb 2014

Applicant/Owner: San Diego River Park Foundation State: CA Sampling Point: 8

Investigator(s): W.L. Sward Section, Township, Range: LANDGRANT PUEBLO LANDS OF SAN DIEGO

Landform (hillslope, terrace, etc.): Basin floor Local relief (concave, convex, none): None Slope (%): 0-1

Subregion (LRR): C Lat: 32.772267 Long: -117.136943 Datum: WGS 1984

Soil Map Unit Name: Riverwash NWI classification: None

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

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

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

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

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

Remarks:

Sampling point located on the floor of the basin.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 X 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix gooddingii	5	Yes	FACW
2. Tamarix parviflora	2	Yes	FAC
3.			
4.			
	7 = Total Cover		
Sapling/Shrub Stratum (Plot size: 20 X 20)			
1. Baccharis salicifolia	60	Yes	FAC
2.			
3.			
4.			
5.			
	60 = Total Cover		
Herb Stratum (Plot size: 10 X 10)			
1. Carduus pycnocephalus	40	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	40 = Total Cover		
Woody Vine Stratum (Plot size: 15 X 15)			
1.			
2.			
	0 = Total Cover		

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Southern riparian woodland. Abundant stick mulch on ground surface. Trees appear to be in decline.

SOIL

Sampling Point: 8

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 4/3.5	95						
	10YR 2/2	5						
5-12	10YR 4/4	100						
12-18	10YR 4/4	60	7.5YR 4/6	1	C	PL	C	Redox in 10YR 4/4
	7.5YR 5/2	39						

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Redox features too deep to qualify as a hydric soil indicator. Soil colors at depth may be from wetter hydrological regime. Or, basin may have silted in burying wetter soils and increasing distance of surface soils from wetland hydrology.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

FAC-neutral Test; W:U=1:1.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Discovery Center City/County: San Diego/San Diego Sampling Date: 26 Feb 2014

Applicant/Owner: San Diego River Park Foundation State: CA Sampling Point: 9

Investigator(s): W.L. Sward Section, Township, Range: LANDGRANT PUEBLO LANDS OF SAN DIEGO

Landform (hillslope, terrace, etc.): Ridge in basin Local relief (concave, convex, none): Mpme Slope (%): 3

Subregion (LRR): C Lat: 32.772288 Long: -117.137097 Datum: WGS 1984

Soil Map Unit Name: Riverwash NWI classification: None

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

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

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

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

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

Remarks:

Sampling point located on small ridge 3 feet above Sampling Point 8.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 X 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix gooddingii	10	Yes	FACW
2.			
3.			
4.			
	10 = Total Cover		
Sapling/Shrub Stratum (Plot size: 10 X 20)			
1. Baccharis salicifolia	15	Yes	FAC
2.			
3.			
4.			
5.			
	15 = Total Cover		
Herb Stratum (Plot size: 5 X 10)			
1. Carduus pycnocephalus	40	Yes	UPL
2. Euphorbia peplus	1	No	UPL
3. Bromus madritensis	20	Yes	UPL
4.			
5.			
6.			
7.			
8.			
	61 = Total Cover		
Woody Vine Stratum (Plot size: 10 X 15)			
1.			
2.			
	0 = Total Cover		

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	15	x 3 =	45
FACU species	0	x 4 =	0
UPL species	61	x 5 =	305
Column Totals:	86 (A)		370 (B)

Prevalence Index = B/A = 4.3

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

Baccharis scrub disturbed

SOIL

Sampling Point: 9

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 4/3	70					SiL	
	10YR 2/2	30						
7-18	10YR 4/4	89	7.5YR 4/6	1			C	
	7/5YR 5/2	10						

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Redox features insufficient to qualify as a hydric soil indicator.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

FAC-neutral Test; W:U=1:2

Appendix E

SAMPLING POINT PHOTOGRAPHS

Sampling Point 1 was located at the southern edge of the San Diego River floodplain, in southern cottonwood-willow riparian forest. Wetland vegetation, soils, and hydrology were present. This location is a waters of the U.S. (WUS), waters of the State (WS), and City wetland.

Sampling Point 2 was located on berm, approximately 3 feet higher than Sampling Point 1. The habitat at this location is mule fat scrub. Wetland vegetation was present, but this sampling point lacked wetland soils and hydrology. This location is not a WUS, but is a WS and City wetland.

Sampling Point 3 was located along a drainage at the western edge of the project site. No vegetation was rooted in the channel bottom at this location and efforts to dig a pit in the channel bottom proved futile due to the presence of rip-rap, trash, and rocks. This pit was located on the eastern side of the channel just above the channel bottom. The habitat at this location is disturbed southern cottonwood-willow riparian forest. Wetland vegetation and hydrology were observed here but there was no indication of hydric soils. This location is a non-wetland WUS, and a WS and City wetland.

Sampling Point 4 was located north of, and in the same drainage as, Sampling Point 3. The location is north of the large berm that separates the river from the southern part of the project site, at a place where the drainage fans out. Wetland vegetation and hydrology were observed here but there was no indication of hydric soils. This location is regarded as a non-wetland WUS, and a WS and City wetland.

Sampling Point 5 was located in a basin formed by two berms and a graded pad to the east. This location appears to be isolated from the river floodplain. The vegetation was noted as southern cottonwood-willow riparian forest, but it is a more xeric expression of this habitat type than that growing along the river. This is reflected in the relative lower cover provided by trees and less mesic wetland vegetation. Wetland vegetation was present, but the sampling point lacked wetland soils and hydrology. This location is not a WUS, but is a WS and City wetland.

Sampling Point 6 was located at the southern edge of the San Diego River floodplain, in southern cottonwood-willow riparian forest. Wetland vegetation was present, but the sampling point lacked wetland soils and hydrology. This location is not a WUS, but is a WS and City wetland.

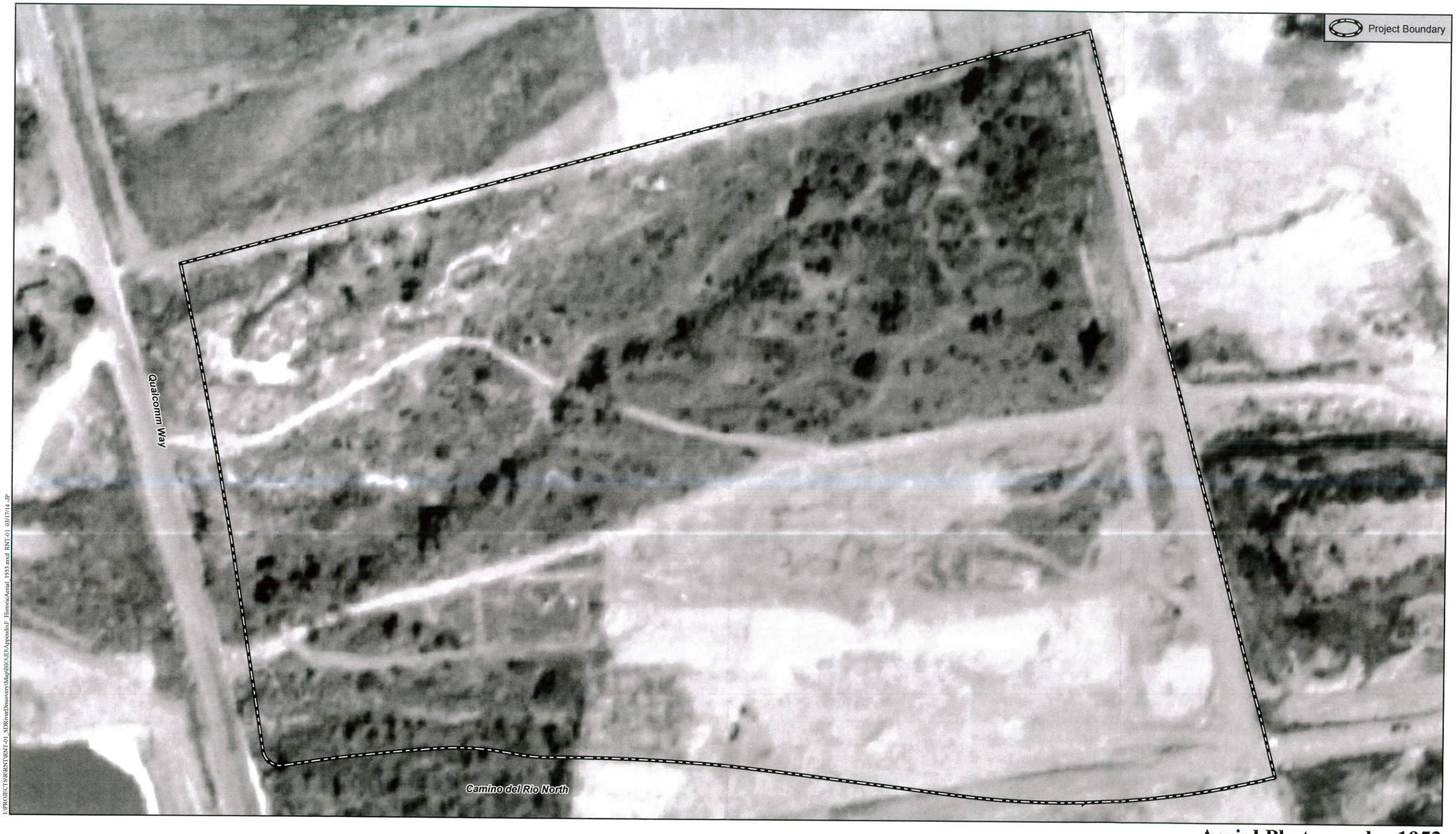
Sampling Point 7 was located along Camino del Rio North, just below a storm drain outlet. The habitat at this location is southern cottonwood-willow riparian forest. Wetland vegetation and hydrology were observed here but there was no indication of hydric soils. This location, however, is isolated from the San Diego River and therefore not regarded as either WUS, WS, or a City wetland.

Sampling Point 8 was located in the bottom of a large isolated basin. Riparian woodland, a wetland vegetation, was present, but the sampling point lacked wetland hydrology. The soils did not exactly meet any hydric soil indicator, but did contain redox features, albeit too deep to qualify as a hydric soil indicator. This location is also isolated from the San Diego River and therefore not WUS, WS, or a City wetland.

Sampling Point 9 was located on a small ridge near Sampling Point 8, in disturbed baccharis scrub. This location is about 3 feet higher than Sampling Point 8, and is near the boundary between the riparian woodland and disturbed baccharis scrub. The soils did not exactly meet any hydric soil indicator, but did contain redox features. These features were insufficient to qualify as a hydric soil indicator. This location is also isolated from the San Diego River and therefore not WUS, WS, or a City wetland.

Appendix F

HISTORIC AERIAL PHOTOGRAPHS

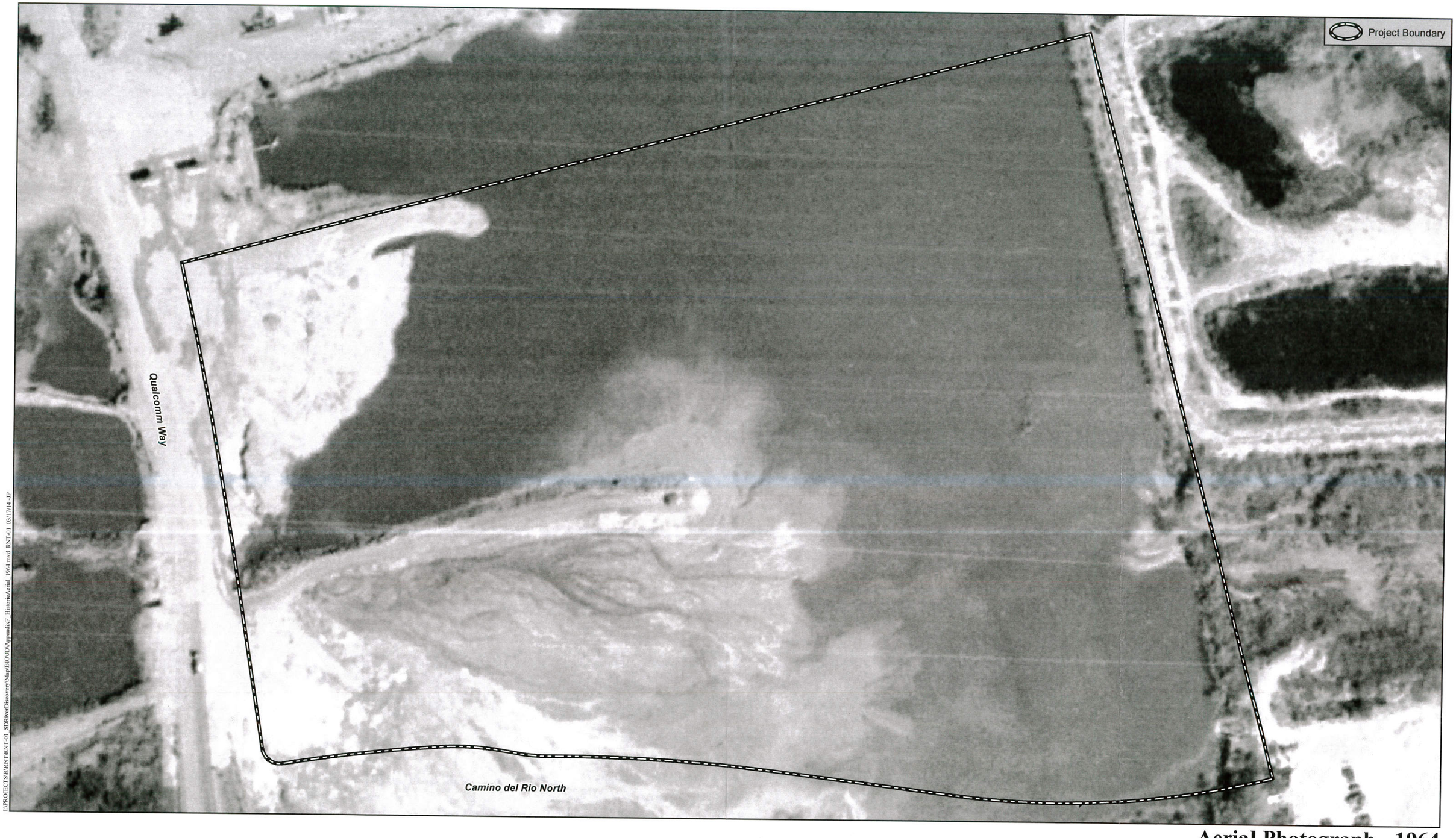


Aerial Photograph - 1953

SAN DIEGO RIVER DISCOVERY CENTER

HELIX Environmental Planning

N 0 100 Feet



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Aerial Photograph - 1964

SAN DIEGO RIVER DISCOVERY CENTER

HELIX Environmental Planning

N

0 100 Feet

I:\PROJECTS\RRNT\RNT-01_SDRiverDiscoveryMap\HOUD\Appendix\F_HistoricAerial_1980.mxd RNT-01 03/17/14 JP

Aerial Photograph - 1980

SAN DIEGO RIVER DISCOVERY CENTER

HELIX Environmental Planning

N 0 100 Feet

I:\PROJECTS\RIVR\RNT-01_SDRiverDiscovery\Map\DIGOJD\AppendixF_HistoricAerial_1981.mxd RNT-01 03/17/14 JP

Aerial Photograph - 1981

SAN DIEGO RIVER DISCOVERY CENTER

HELIX Environmental Planning

N 0 100 Feet

I:\PROJECTS\RRNT\RNT-01_SDRiverDiscovery\Map\HOUD\Appendix\F_HistoricAerial_1989.mxd RNT-01 03/17/14 JP

Aerial Photograph - 1989

SAN DIEGO RIVER DISCOVERY CENTER

HELIX Environmental Planning

N 0 100 Feet

RECON

On-site Mitigation Plan for the San Diego River Park Foundation Discovery Center at Grant Park Project San Diego, California

Prepared for
San Diego River Park Foundation
4891 Pacific Highway, Suite 114
San Diego, CA 92110
Attn: Mr. Robert Hutsel

Prepared by
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RECON Number 8219-1
April 6, 2018

Michael Nieto, Biologist

Amanda Chao, Biologist

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FIGURES

TABLES

Acronyms

°F	degrees Fahrenheit
BMP	best management practice
CDFW	California Department of Fish and Wildlife
CFR	Code of Federal Regulations
ESL	environmentally sensitive land
MHPA	multi-habitat planning area
MMC	Mitigation Monitoring Coordination
MSL	mean sea level
PCE	Primary Constituent Element
PEP	plant establishment period
Plan	On-site Mitigation Plan
project	San Diego River Park Foundation Discovery Center at Grant Park
SDRPF	San Diego River Park Foundation
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey

1.0 Objectives

This document serves as the On-site Mitigation Plan (plan) for the San Diego River Park Foundation (SDRPF) Discovery Center at Grant Park Project (project). This plan has been developed in accordance with Attachment B of the City of San Diego (City) Biology Guidelines (2012) and the City Landscape Standards (2004).

A combination of on-site riparian habitat creation and enhancement is proposed as mitigation to reduce project impacts to City wetlands to less than significant. The riparian habitat creation and enhancement proposed by SDRPF on-site is intended to: (1) create riparian vegetation within the multi-habitat planning area (MHPA) and (2) provide functional habitat connectivity for sensitive riparian birds between isolated riparian vegetation patches on-site.

The objectives of this plan are to:

1. Create approximately 1.00 acre of self-sustaining riparian vegetation to compensate for 0.89 acre of permanent impacts and 0.11 acre of temporary impacts to wetlands under the jurisdiction of the City resulting from construction of the proposed project.
2. Replace the watershed functions and services permanently impacted due to implementation of the project.
3. Achieve a no net loss of aquatic resources.
4. Create approximately 0.32 acre of Diegan coastal sage scrub within disturbed habitat within the MHPA and restore 0.11 acre of Diegan coastal sage scrub proposed for temporary impacts.

These objectives will be accomplished by: 1) creating riparian habitat within upland areas, 2) removal of a section of existing berm to provide connectivity to adjacent riparian vegetation, 3) removal of invasive weeds from the adjacent vegetated San Diego River floodplain, and 4) creation of Diegan coastal sage habitat within disturbed areas in the MHPA. The quality of the established (i.e., created) habitat will be equal to or exceed that of the impacted wetland habitat by providing a net increase in riparian habitat acreage and an increase in habitat functions and values beyond existing site conditions.

A goal of this plan is to create 1.00 acre of riparian habitat that are functionally and jurisdictionally commensurate with the City wetlands proposed to be impacted by the Discovery Center (RECON 2018). As these impacted wetlands did not contain hydric soils or observable wetland hydrology, the ultimate objective for the project is the establishment and persistence of riparian vegetation. Riparian habitat creation areas have been selected in an effort to expand existing riparian habitat into adjacent upland areas within the floodplain of the San Diego River.

1.1 Introduction

The proposed project would consist of the installation of a new 9,950-gross-square-foot facility on a 17.51-acre site in Mission Valley in the City (Figure 1). The 17.51-acre project site is found on the U.S. Geological Survey (USGS) 7.5-minute topographical map series, La Jolla quadrangle, within unsectioned lands of the Pueblo of San Diego Land Grant, Township 16 South, Range 3 West (Figure 2; USGS 1975). An aerial photograph of the survey area is provided on Figure 3. The site is bounded on the west by Qualcomm Way, on the south by Camino del Rio North, on the north by the San Diego Trolley, and on the east by a U.S. Post Office facility and undeveloped land.

The impact site occurs in the northeast quadrant of the intersection of Camino del Rio North and Qualcomm Way, within San Diego County assessor parcel numbers 438-052-016 and 438-052-017 (see Figure 3). The Discovery Center would consist of a two-story, meeting/interpretive center with a view deck, a concession space with storage and restrooms, a passive park, an outdoor classroom space, volunteer staging areas, an interpretive water feature, and an extension of the San Diego River Pathway through the site. Associated access, parking, water quality, and utility improvements would also be constructed. The landscape plan includes retention of a substantial proportion of the site's existing vegetation, removal of invasive and non-native vegetation, and new landscaping composed primarily of native vegetation (RECON 2018).

1.2 Review of Project Impacts and Compensatory Mitigation

The proposed project would result in permanent impacts to 0.89 acre and temporary impacts to 0.11 acre of wetland vegetation communities (RECON 2018). Impacts to these riparian vegetation communities (1.00 acre) are considered impacts to City-jurisdictional wetlands (Table 1). Impacts to on-site Waters of the United States, which are Regional Water Quality Control Board and U.S. Army Corps of Engineers jurisdictional, have been avoided (RECON 2018).

The majority of the permanent impacts to City-jurisdictional wetland vegetation communities were classified as riparian woodland and forest. These impacts occur on disturbed, relictual, low-quality patches of riparian vegetation located on a man-made river terrace separated from the San Diego River channel by a berm (RECON 2018). The proposed mitigation for these impacts is to create riparian habitat within uplands and the implementation of a habitat enhancement program at the Discovery Center site. The proposed mitigation is "in-kind" with impacts to disturbed riparian woodland and forest. The proposed mitigation is functionally superior and would meet the ultimate goal of establishing persistent riparian vegetation as described below.

Project Location

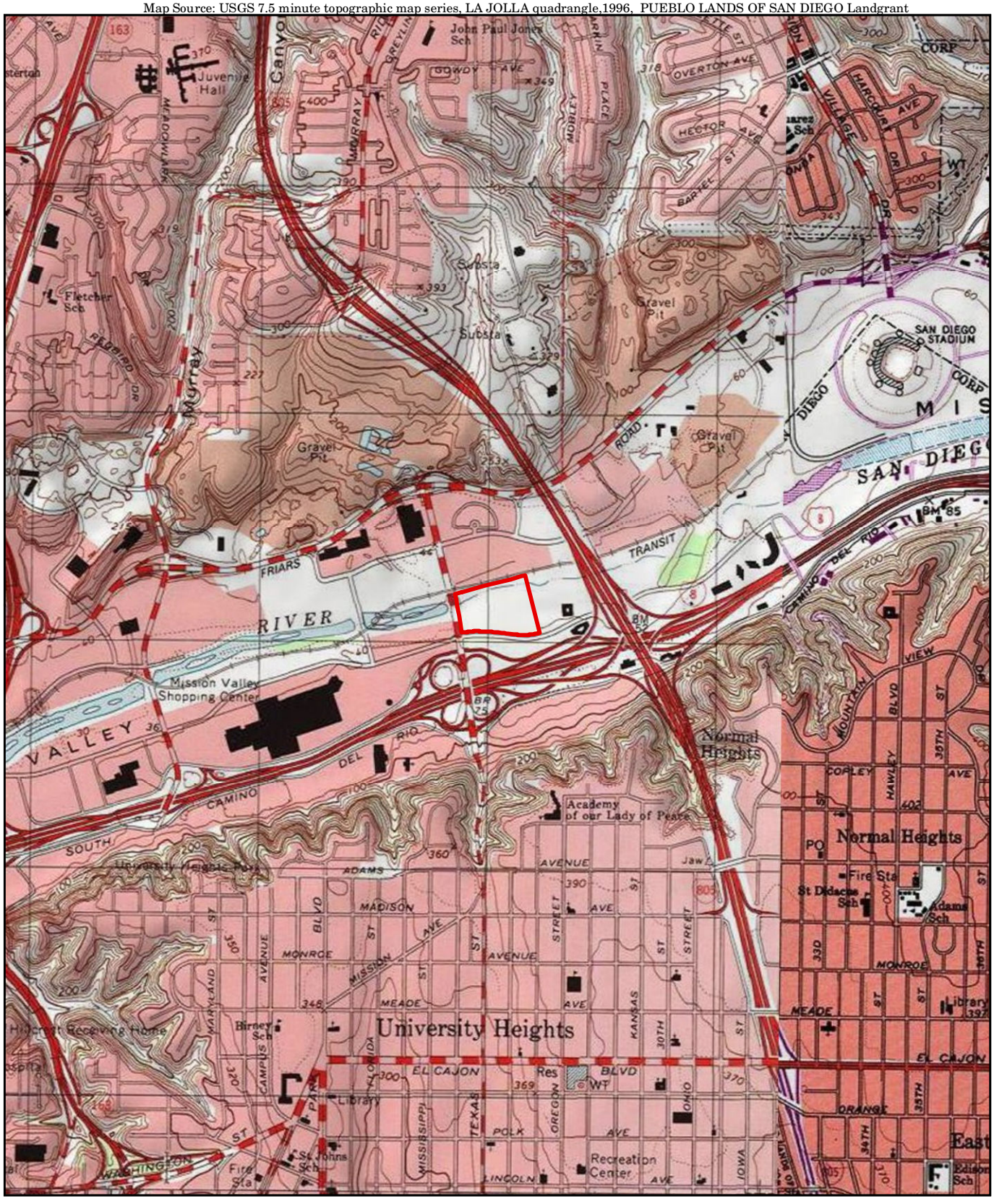
RECON

M:\JOBS5\8219\common_gis\fig1.mxd 10/25/2017 sab

FIGURE 1

Regional Location

Map Source: USGS 7.5 minute topographic map series, LA JOLLA quadrangle,1996, PUEBLO LANDS OF SAN DIEGO Landgrant



Project Boundary

FIGURE 2
Project Location on USGS Map

RECON

M:\JOBS5\8219\common_gis\fig2.mxd 10/25/2017 sab

Image source: NearMaps (flown July 2017)

0 Feet 200

Project Boundary

FIGURE 3

Project Location on Aerial Photograph

RECON

M:\JOBS5\8219\common_gis\fig3_resto17.mxd 11/10/2017 sab

All wetland impacts are considered significant direct impacts by the City (2011). According to the City's wetland mitigation element (2012), which requires no net loss for wetlands, proposed project impacts to wetlands would require a 3:1 mitigation ratio, totaling 3.00 acres (Table 2). To accomplish 1:1 restoration/creation and achieve a no-net-loss of wetlands, temporary impacts to southern cottonwood-willow riparian forest, southern riparian woodland, and southern willow scrub will be restored to their original condition, totaling 0.11 acre, and 0.89 acre of riparian habitat will be created on-site.

The remaining 2:1 mitigation would be provided by 2.31 acres of wetland restoration mitigation credit achieved through the enhancement of 11.97 acres of riparian habitat of varying weed densities along the San Diego River on-site (Table 2). These on-site wetland mitigation efforts would satisfy mitigation requirements for permanent and temporary impacts to City-jurisdictional wetlands.

Table 1
Impacts to Vegetation Communities and Land Cover Types
(acres)

Vegetation and Land Cover Types	ESL Tier	Existing	Permanent Impacts	Temporary Impacts	**Total Impacts**
Open water	Wetland	0.49	0.00	0.00	**0.00**
Freshwater marsh	Wetland	3.97	0.00	0.00	**0.00**
Southern cottonwood-willow riparian forest	Wetland	7.07	0.26	0.06	**0.32**
Southern riparian woodland	Wetland	0.92	0.58	0.04	**0.62**
Southern willow scrub	Wetland	0.51	0.05	0.01	**0.06**
Mule fat scrub	Wetland	0.05	0.00	0.00	**0.00**
Diegan coastal sage scrub	II	1.09	0.44	0.05	**0.49**
Baccharis scrub	II	1.41	0.92	0.06	**0.98**
Non-native woodland	N/A	0.33	0.01	0.02	**0.03**
Disturbed habitat	N/A	1.65	1.54	0.04	**1.58**
Urban/developed	N/A	0.02	0.02	0.00	**0.02**
TOTAL	**-**	**17.51**	**3.82**	**0.28**	**4.10**

The 2.31 acres of enhancement credit was calculated by assessing the percent cover of weed species in various portions of the 11.97-acre enhancement area and multiplying these percentages by the acreage of each portion. Table 3 below shows these calculations.

The proposed project would result in permanent impacts to 1.36 acres and temporary impacts to 0.11 acre of a combination of Diegan coastal sage scrub and baccharis scrub, both Tier II vegetation communities (RECON 2018). A portion of the permanent impacts to each of these vegetation communities would result from the on-site wetland mitigation described above.

The total mitigation required for impacts to these sensitive uplands is 1.47 acres based on a 1:1 mitigation ratio. The proposed mitigation includes: (a) restoration of all (0.11 acre) temporary impact areas to their original condition, (b) on-site creation of 0.32 acre of Diegan coastal sage scrub, (c) on-site preservation of 0.44 acre of Diegan coastal sage scrub and 0.12 acre of baccharis scrub, and (d) the purchase of 0.48 acre of mitigation credit for similar habitat off-site.

Table 2
Sensitive Habitat and Jurisdictional Resource Mitigation
(acres)[a]

Biological Resource	ESL Tier	Permanent Impacts (inside MHPA)	Temporary Impacts	Mitigation Ratio	Mitigation Required		Mitigation Proposed: Habitat Restoration/ Creation	Mitigation Proposed: Habitat Enhancement/ Preservation	Mitigation Proposed: Habitat Acquisition Fund
Vegetation Communities									
Southern cottonwood–willow riparian forest	Wetland	0.26	-	3:1	0.78	Total wetland required = 3.00 acres	1.00[c] acre	2.31 acres credit of on-site riparian habitat enhancement[d]	-
		-	0.06	3:1	0.18				-
Southern riparian woodland	Wetland	0.58	-	3:1	1.74				-
		-	0.04	3:1	0.12				-
Southern willow scrub	Wetland	0.05	-	3:1	0.15				-
		-	0.01	3:1	0.03				-
Diegan coastal sage scrub	II	0.44 (0.09)	-	1:1[e]	0.44	Total sensitive upland required = 1.47 acres	0.43[c] acre Diegan coastal sage scrub	0.44 acre[f]	0.48 acre credits
		-	0.05	1:1[g]	0.05				
Baccharis scrub	II	0.92 (0.72)	-	1:1[e]	0.92			0.12 acre[f]	
		-	0.06	1:1[g]	0.06				
Non-native woodland	IV	0.01	0.02	0:1	0.00		-	-	-
Disturbed habitat	IV	1.54 (0.40)	0.04	0:1	0.00		-	-	-
Urban/developed	N/A	0.02	0.00	0:1	0.00		-	-	-
TOTAL	-	**3.82**	**0.28**						
Jurisdictional Resources[h]									
City wetlands	-	0.89	-	3:1	2.67		0.89[b]	-	-
		-	0.11	3:1	0.33		-	2.31	-

[a]Totals subject to rounding.
[b]On-site riparian habitat creation.
[c]Includes restoration of temporary impact areas.
[d]See riparian enhancement restoration credit discussion.
[e]Impacts both inside and outside MHPA will be mitigated inside MHPA.
[f]On-site preservation.
[g]Revegetated to original condition.
[h]Unimpacted vegetation communities and jurisdictional resources omitted from table.

Table 3 Weed Density and Enhancement Credit Calculations		
Percent Cover of Weed Species	On-site Acres	Total Enhancement Credit (acres)
10	10.55	1.06
70	0.50	0.35
80	0.08	0.06
100	0.84	0.84
TOTAL	**11.97**	**2.31**

2.0 Mitigation Site

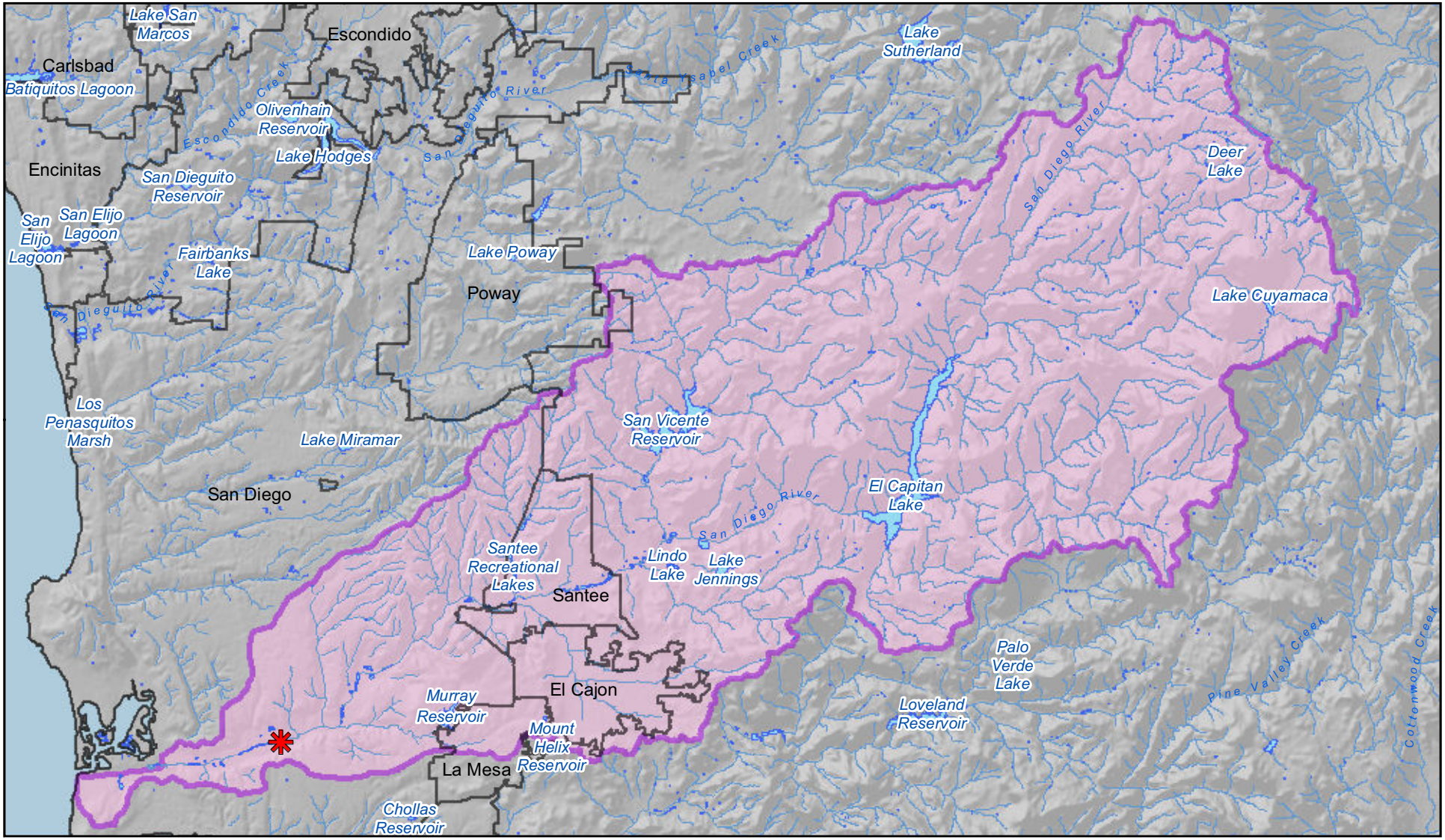
2.1 Location and Size

The project mitigation site is located on the project site in Mission Valley on a floodplain terrace of the San Diego River, 7 miles upstream of the Pacific Ocean (Figure 4). The elevation within the project area varies from 26 to 54 feet above MSL (Figure 5). The development boundaries are located approximately 200 feet from the active channel of the San Diego River. The surrounding landscape is a mix of industrial, residential, and commercial uses. Riparian habitat and native upland habitat within the region are fragmented. Riparian habitat is concentrated in areas directly adjacent to the active channel of the San Diego River and portions of the slopes and canyons surrounding Mission Valley contain native upland habitat.

2.2 Regional Context

The riparian habitat proposed to be permanently impacted occurs on the south side of a large berm and not along any streambed. Given the relatively fragmented nature of the riparian habitat, the lack of substantial surface flows over the site, the open canopy, and the decline of primary habitat species (willows), the impacted site has limited functional value (Table 4).

Table 4 Functional Loss of City Wetlands at the Discovery Center Project Site	
Wetland Functions	Functional Value
Short-long term surface water storage	Low
Sub-surface water storage	Low
Moderation of groundwater discharge	Low
Dissipation of energy	Low
Cycling of nutrients	Low
Removal of elements and compounds	Low
Retention of particulates	Low
Export of organic carbon	Low
Maintenance of plant and animal communities	Low



RECON

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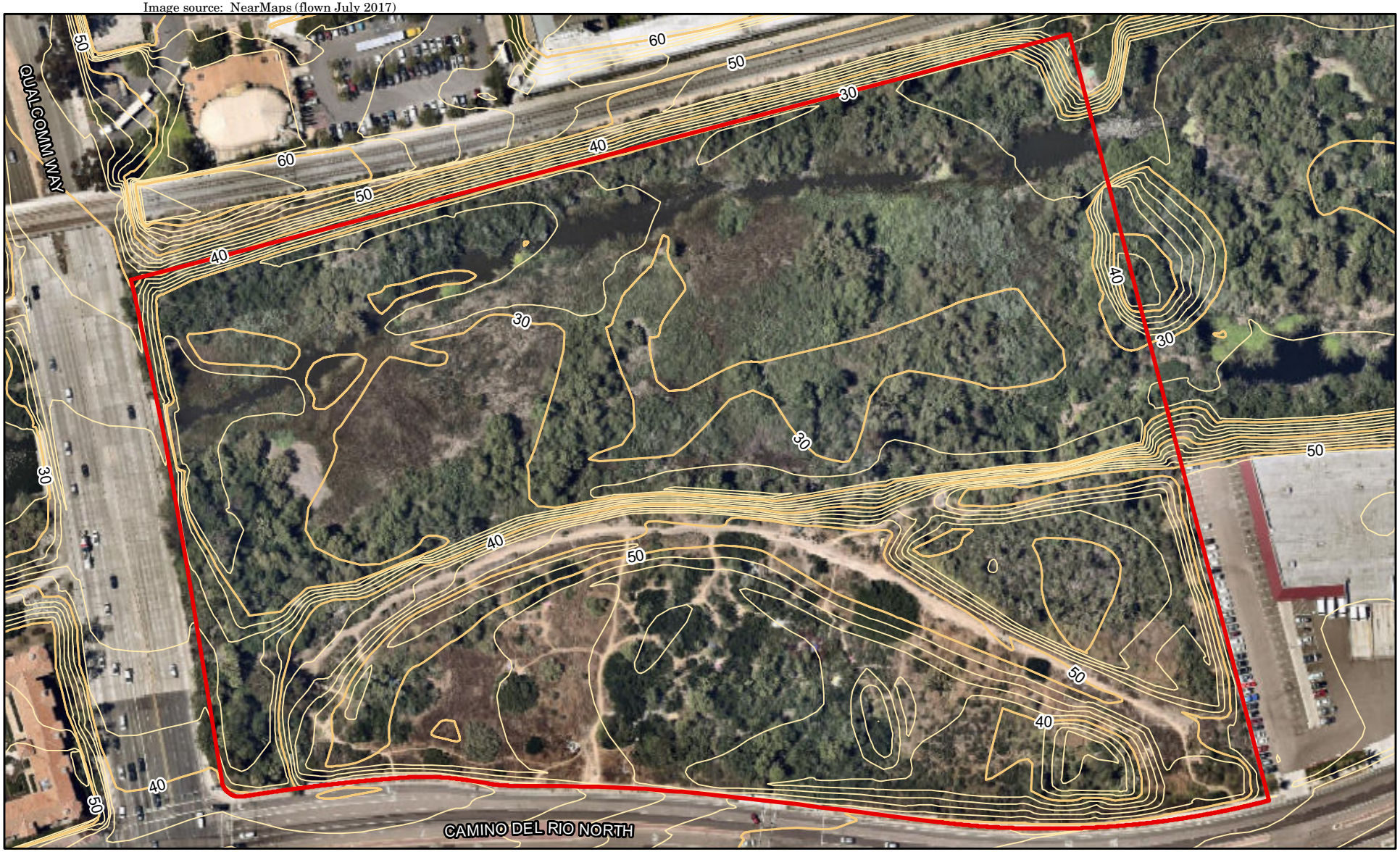
FIGURE 4

Local Watershed

Image source: NearMaps (flown July 2017)



0 Feet 150

Project Boundary **Contour Lines**

10-foot Contours

2-foot Contours

FIGURE 5

Topography

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The coastal sage scrub and baccharis scrub proposed to be impacted occur mostly as patches and strips along artificial slopes, often adjacent to developed or disturbed habitat. A larger area of baccharis scrub occurs in the southeastern portion of the site and would be permanently impacted by riparian habitat creation. These areas of habitat range from low- to moderate-quality depending on their size. Much of the site is undeveloped, and high-quality habitat occurs along the river corridor in the northern portion of the site. However, these upland habitats occur in the southern portion and are subject to disturbance from human access and the surrounding urban setting.

2.3 Site Selection

RECON biologists, SDRPF, City staff, and participating regulatory agencies met on-site on April 25, 2017 and identified several locations to create riparian and upland sensitive habitat on-site. These areas were selected based on elevation, riparian habitat adjacency, and the observation of sparse (though not dominant) hydrophytic species on site (Figure 6).

Based on the needs of the watershed and the practicability of accomplishing ecologically self-sustaining aquatic resource restoration, the mitigation site proposed herein is selected based on its feasibility for providing the following:

1. The opportunity exists to expand upon existing riparian habitat associated with the San Diego River floodplain, creating a larger, more contiguous area of City wetlands, rather than a small, isolated patch elsewhere.

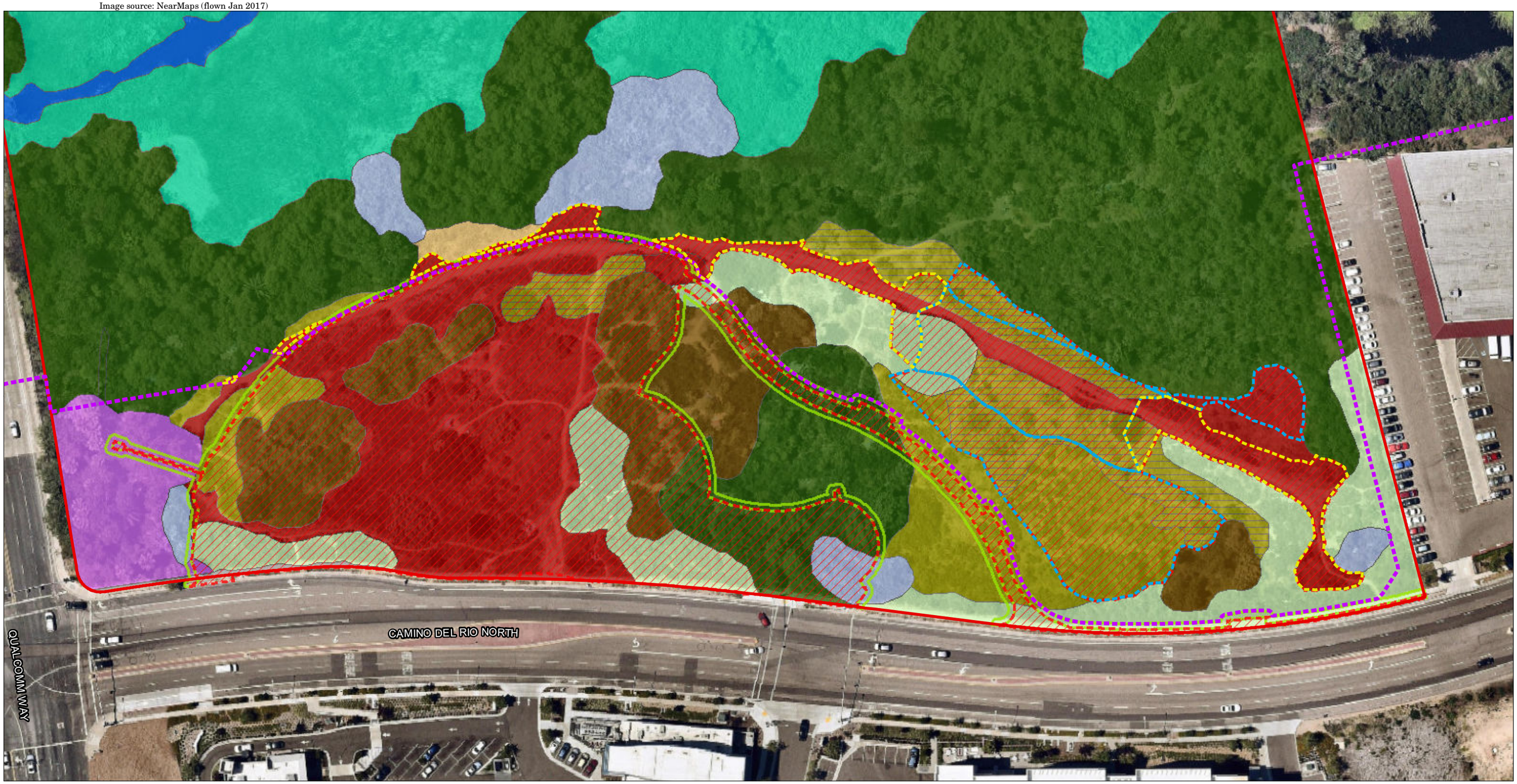
2. The mitigation site is ecologically appropriate for the establishment of riparian and upland habitat taking into consideration the site's landscape/topographic position, existing and proposed surface hydrology inputs, and suitable soil types.

3. The mitigation site is situated within the same watershed where the impacts are occurring, which is preferred as outlined in 33 Code of Federal Regulations [CFR] Part 332.

4. The site has similar hydrology as the impacted sites and has a high probability of compensating for lost aquatic functions and values. Following the mitigation site installation, the site will support functional riparian and upland habitat.

5. The site is located within the San Diego River watershed that is to remain as open space within the City's MHPA. An expanded functional mitigation effort within this watershed will improve habitat heterogeneity, improve the retention of sediment, and improve local functions and values.

Image source: NearMaps (flown Jan 2017)



Project Boundary
Revised MHPA Boundary
Permanent Impacts
Temporary Impacts
Riparian Habitat Creation Area
Diegan Coastal Sage Scrub Restoration Area

Vegetation Communities

Wetlands
- Freshwater Marsh
- Mule Fat Scrub
- Open Water
- Southern Cottonwood-Willow Riparian Forest
- Southern Willow Scrub
- Southern Riparian Woodland

Tier II
- Diegan Coastal Sage Scrub
- Baccharis Scrub
- Disturbed Baccharis Scrub

Tier IV
- Non-native Woodland
- Disturbed Habitat

Other Cover
- Urban/Developed

0 Feet 80

RECON

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FIGURE 6

On-site Riparian and Diegan Coastal Sage Scrub Habitat Creation Areas

2.4 Existing Conditions

The project site is composed of mostly undeveloped land that had been previously disturbed by sand mining activities prior to 1964. The southern 40 percent of the site is separated from the northern 60 percent by an east-west running berm (see Figures 3 and 5). This berm was used as a haul road after the conclusion of mining activities prior to 1980. The northern portion is comprised of mostly riparian habitat associated with the San Diego River, which occurs as a perennial waterway running east-west through this portion of the site. A majority of the northern portion of the site is flat with slopes along the northern, western, and southern edges leading up to the San Diego Trolley, Qualcomm Way, and the aforementioned berm, respectively. The northern slope of this berm extends approximately 20 feet down to the mostly flat areas of the northern portion of the site.

Approximately 10.81 acres of the project site is within the City's MHPA. The southern portion of the site is comprised mostly of disturbed and upland habitat with patches of riparian habitat that are isolated from the river floodplain by the berm and generally occur in areas of slightly lower elevation. In the eastern portion of the site, the berm splits into two, with one berm continuing east and the other continuing southeast, both connecting in elevation to the parking lot of the U.S. Post Office along the eastern edge of the site. This creates a triangular-shaped basin approximately 10 feet below the surrounding berms. In the southwest corner of the site, a small stream carries water from a storm drain north to the floodplain of the river.

The proposed riparian habitat creation area is located adjacent to an existing wetland on what are currently upland terraces adjacent to existing impoundments within the San Diego River floodplain. The riparian habitat creation area currently receives surface hydrology during precipitation events as sheet flow and/or during extreme flooding events.

The proposed coastal sage scrub creation areas occur within the existing disturbed habitat of the berms, mainly along the southeast-running berm south of the triangle-shaped basin and adjacent to the proposed riparian habitat creation area.

2.4.1 Topography

Elevations within the project site range from 26 feet above mean sea level (MSL) to 54 feet above MSL (see Figure 5). The majority of the site is flat with an east-west berm dividing the northern half of the site from the southern half. A second berm splits from the first in the southeastern portion of the site creating a triangular-shaped basin. Due to prior disturbance, no natural landscape features, such as rock outcrops or bluffs, occur on the project site.

2.4.2 Geology and Soils

Information on the soil types sampled in the survey area is summarized from the Soil Survey for San Diego County (U.S. Department of Agriculture [USDA] 1973), the San Diego

Association of Governments' 1995 geographic information system data, and the Hydric Soils of California list obtained from the Natural Resource Conservation Service (USDA 2014).

Riverwash and gravel pits, as mapped by the USDA (1973), occur within the project site. Gravel pits soils are restricted to approximately 10 percent of the site in the northwest corner and Riverwash covers the remainder of the site.

Riverwash soils occur in intermittent stream channels and typically consist of sand, gravel, or cobble. Riverwash soil may be devoid of vegetation in many places, or may contain sparse patches of shrubs and forbs. The soil drains is rapidly permeable and excessively drained. This soil type is located on the eastern and western vegetated slopes of the project floodplain.

Gravel pits consist of somewhat poorly drained, very deep, very dark brown to black silt loams and sandy loams. Instances of this soil type area located on former wet meadows, which have been drained for pastureland. This soil type is considered hydric when observed within alluvial fans (USDA 2014). This soil type occurs within the project floodplain. Lu is considered a hydric soil type when found in alluvial fans.

2.4.3 Climate

Southern California is characterized by a semi-arid Mediterranean climate with temperatures ranging from approximately 57 degrees Fahrenheit (°F) to 90°F throughout the year. The region generally experiences sunny weather, with late summer and early fall being the warmest times of the year. Precipitation usually occurs in the winter and averages less than 12 inches annually.

2.4.4 Hydrology

The San Diego River, which flows into the Pacific Ocean, a Traditionally Navigable Waterway, is approximately 7 miles downstream of the project site (see Figure 4). The hydrology of the San Diego River at the project location is perennial and contains inputs from water treatment plant out flows, natural precipitation, and urban runoff. The project area is located on an upland terrace of the San Diego River immediately adjacent to its floodplain.

The San Diego River Watershed has its headwaters in the Cuyamaca Mountains near Julian, California and its terminus at the Pacific Ocean in San Diego near Mission Bay (see Figure 4). The watershed, as a whole, contains 11 significant tributaries, five water storage reservoirs, and several important groundwater aquifers. There are four dams, including El Capitan, San Vicente, Lake Jennings, and Cuyamaca, which affect modulate year-round flows. Historically, the San Diego River flowed intermittently west of El Capitan and was characterized by periods of drought and extreme flooding events (Smythe 1908). Currently, with the addition of several dams and additional water inputs from urban runoff and treated wastewater, the San Diego River flows year-round and is less prone to flooding.

2.4.5 Vegetation, Cover Types, and Jurisdictional Status

The vegetation communities observed within the project site include freshwater marsh, southern cottonwood-willow riparian forest, southern riparian woodland, southern willow scrub, mule fat scrub, Diegan coastal sage scrub, baccharis scrub, non-native woodland, disturbed habitat, and urban/developed land (see Figure 6).

No sensitive plant species were observed on the project site during the 2017 biological surveys conducted by RECON, and none are expected to occur.

Under the City of San Diego Biology Guidelines, the environmentally sensitive lands (ESL) regulations define sensitive biological resources into four tiers of sensitivity. Upland vegetation communities that are classified as Tier I (rare uplands), Tier II (uncommon uplands), or Tier III (common uplands) are considered sensitive by the City. Tier IV (other uplands) vegetation communities are not considered sensitive (City of San Diego 2012). Table 5 shows the vegetation communities and land cover types that occur on the project site inside and outside of the MHPA.

Table 5
Vegetation Communities and Land Cover Types
(acres)

Vegetation and Land Cover Types	ESL Tier	Outside MHPA	Inside MHPA	Total
Open water	-	0.00	0.49	0.49
Freshwater marsh	-	0.00	3.97	3.97
Southern cottonwood-willow riparian forest	-	1.80	5.27	7.07
Southern riparian woodland	-	0.83	0.09	0.92
Southern willow scrub	-	0.13	0.38	0.51
Mule fat scrub	-	0.00	0.05	0.05
Diegan coastal sage scrub	II	1.04	0.05	1.09
Baccharis scrub	II	1.27	0.14	1.41
Non-native woodland	N/A	0.33	0.00	0.33
Disturbed habitat	N/A	1.27	0.38	1.65
Urban/developed	N/A	0.02	0.00	0.02
TOTAL	**-**	**6.70***	**10.81***	**17.51**
*Totals subject to rounding.				

2.4.5.1 Freshwater Marsh

Freshwater marsh communities are comprised of perennial emergent monocots typically forming a closed canopy. This habitat occurs in open bodies of fresh water with little current flow, such as ponds, and to a lesser extent around seeps and springs. Freshwater marshes occur in areas of permanent inundation by freshwater without active stream flow. Freshwater marsh communities, as with all wetland habitats, have been greatly reduced throughout their entire range and continue to decline as a result of urbanization and are considered sensitive by state and federal resource agencies.

Freshwater marsh occurs in the northern portion of the project site adjacent to the open water of the San Diego River and totals 3.97 acres (see Figure 6). It is dominated by broad-leaf cattail (*Typha latifolia*) and California bulrush (*Schoenoplectus californicus*) with occasional mule fat (*Baccharis salisifolia*), desert wild grape (*Vitis girdiana*), and other native wetland species.

2.4.5.2 Southern Cottonwood-Willow Riparian Forest

Southern cottonwood-willow riparian forest is an open, seral type of riparian forest dominated by tall broad-leafed winter-deciduous trees, Fremont cottonwood and tree willows, with an understory of shrubby willows. This community typically occurs along sub-irrigated and frequently overflowed lands along perennially wet rivers and streams (Oberbauer et al. 2008).

Southern cottonwood-willow riparian forest occurs mostly in the northern portion of the site adjacent to freshwater marsh and the San Diego River and totals 7.07 acres (see Figure 6). It extends south to, and on the northern slope of, the east-west running berm and between the first and second berms in the southeastern portion of the site within the triangular-shaped basin described above. The majority of southern cottonwood-willow riparian forest on-site is dominated by Fremont cottonwood and tree willows. In the triangular-shaped basin, this vegetation community contains tree willows with slightly diminished canopies and a dense understory of mule fat.

2.4.5.3 Southern Riparian Woodland

Southern riparian woodland is a moderately dense riparian woodland community, which contains a majority of small trees and shrubs with a sparse density of tall, riparian trees (Oberbauer et al. 2008). This vegetation community occurs in larger river and tributary systems in southern California. It has been observed throughout San Diego County and is characterized by western sycamore (*Platanus racemosa*), cottonwoods (*Populus* sp.), and various willows (*Salix* sp.).

Southern riparian woodland occurs in four patches in the southern portion of the site, south of the east-west running berm, and totals 0.92 acre (see Figure 6). The western two patches and the eastern patch contain mature tree willows and/or Fremont cottonwood that have spreading canopies that nearly touch the canopies of adjacent trees. In these patches, the understory is mostly open. The central patch of southern riparian woodland contains the same tree species but their canopies are diminished comparatively and the understory is dense with native shrubs, mostly lemonade berry (*Rhus integrifolia*) and toyon (*Heteromeles arbutifolia*).

2.4.5.4 Southern Willow Scrub

Southern willow scrub is considered a sensitive wetland habitat by U.S. Army Corps of Engineers (USACE). Southern willow scrub is a dense riparian community dominated by broad-leafed, winter-deciduous trees such as willows, and often scattered with Fremont cottonwoods and western sycamore. This plant community is typically found along major

drainages but also occurs in smaller drainages. The density of the willows typically prevents a dense understory of smaller plants from growing. The representative species typically grow in loose, sandy, or fine gravelly alluvium deposited near stream channels during flood flows. This community requires repeated flooding to prevent succession to community dominated by sycamores and cottonwoods (Holland 1986).

Southern willow scrub occurs in small patches throughout the site occurring mostly adjacent to southern cottonwood-willow riparian forest and totaling 0.51 acre. A small patch in the southwestern corner of the site occurs adjacent to non-native woodland and near a storm drain outlet. A small patch in the southeastern corner of the site occurs adjacent to Diegan coastal sage scrub and disturbed habitat (see Figure 6). These patches of southern willow scrub are all dominated by arroyo willow (*S. lasiolepis*).

2.4.5.5 Mule Fat Scrub

Mule fat scrub is considered a sensitive wetland habitat by California Department of Fish and Wildlife (CDFW) and USACE. Mule fat scrub is a tall, herbaceous riparian scrub strongly dominated by mule fat. This plant community is an early seral plant community that occurs along drainages with a fairly coarse substrate and a moderate depth to the water table. Mule fat scrub is developed and maintained from flooding or other disturbance but may change through successional processes, to willow-cottonwood or sycamore-dominated riparian forest/woodland, in the absence of disturbance. The community can also occur where dominant riparian scrubs and woodlands are disturbed or open, and integrates with the willow scrub on-site.

Mule fat scrub occurs as a small patch in the central portion of the site on the north-facing slope of the east-west running berm (see Figure 6). It is dense with mule fat and totals 0.05 acre in size.

2.4.5.6 Diegan Coastal Sage Scrub

Diegan coastal sage scrub is a vegetation community considered sensitive by federal and state resource agencies, and a Tier II (Uncommon Upland) by the City of San Diego's Multiple Species Conservation Program (MSCP; City of San Diego 1997). Diegan coastal sage scrub is the southern form of coastal sage scrub, is a plant community consisting of low-growing, aromatic, drought-deciduous soft-woody shrubs that have an average height of approximately 3 to 4 feet. The plant community is typically dominated by facultatively drought-deciduous species such as California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), laurel sumac (*Malosma laurina*), and white sage (*Salvia apiana*). The community is typically found on low moisture-availability sites with steep, xeric slopes or clay rich soils that are slow to release stored water. These sites often include drier south- and west-facing slopes and occasionally north-facing slopes, where the community can act as a successional phase of chaparral development.

Diegan coastal sage scrub occurs in the southern portion of the site, mostly along slopes adjacent to the sidewalk along Camino del Rio North, with a small patch along the south-

facing slope of the east-west running berm (see Figure 6). The central patches are dominated by lemonade berry and laurel sumac. The eastern and western patches are dominated by California encelia (*Encelia californica*). Diegan coastal sage scrub on-site totals 1.09 acres.

2.4.5.7 Baccharis Scrub

Baccharis scrub is a vegetation community that is a variation of coastal sage scrub that is dominated by Baccharis species (*B. sarothroides, B. pilularis*). Just like Diegan coastal sage scrub, it is considered a Tier II (Uncommon Upland) by the City's MSCP (City of San Diego 1997). It often occurs adjacent to Diegan coastal sage scrub in areas with nutrient-poor soils or that have undergone disturbance (Oberbauer et al. 2008).

Baccharis scrub occurs as a large patch in the southeastern portion of the site and as small patches along the slopes of the berms, and totals 1.41 acres. The large patch occurs in the basin that is formed between a berm and the slope along the sidewalk of Camino del Rio North and is dominated by broom baccharis (*B. sarothroides*). It also contains scattered mule fat and an understory of non-native annuals. The smaller patches of baccharis scrub are also dominated by broom baccharis. Some portions of baccharis scrub are considered disturbed due to the more scattered distribution of native shrubs and an increased cover of non-native annuals.

2.4.5.8 Non-native Woodland

Non-native woodland is a woodland of exotic trees that are not maintained or artificially irrigated. On-site, it occurs as a 0.33-acre patch in the southwestern corner of the site and is dominated by shamel ash (*Fraxinus uhdei*), Mexican fan palm (*Washingtonia robusta*), Canary Island date palm (*Phoenix canariensis*), and river red gum (*Eucalyptus camaldulensis*). The understory is mostly open and contains trails that appear to be frequently used by people. The storm drain outlet described above occurs within this patch of non-native woodland.

2.4.5.9 Disturbed Habitat

Disturbed habitat is composed of areas that have been previously disturbed and no longer function as a native or naturalized vegetation community. Vegetation, if present, is dominated by opportunistic non-native species. Disturbed habitat can also include previously graded lands such as fire breaks, off-road vehicle trails, and construction staging sites (Oberbauer et al. 2008).

Disturbed habitat on-site occurs along the berms and as a large area dominated by non-native species such as crown daisy (*Glebionis coronaria*) and short-pod mustard (*Hirschfeldia incana*). Non-native grasses also dominate in some areas. The total area of disturbed habitat on-site is 1.65 acres.

2.4.5.10 Urban/Developed Land

Urban/developed land occurs within the project boundary as a sliver of the sidewalk along Camino del Rio North and totals 0.02 acre.

2.4.6 Sensitive Wildlife Species

One sensitive wildlife species, Cooper's hawk (*Accipiter cooperii*), was observed within southern cottonwood-willow riparian forest in a western portion of the project site. Six sensitive species have a moderate or high potential to occur/nest on-site. These include: least Bell's vireo (*Vireo bellii pusillus*), yellow warbler (*Setophaga* [=*Dendroica*] *petechia*), yellow-breasted chat (*Icteria virens auricollis*), Belding's orange-throated whiptail (*Aspidoscelis hyperythra beldingi*), San Diegan tiger whiptail (*Aspidoscelis tigris stejnegeri*), and two-striped garter snake (*Thamnophis hammondii*).

3.0 Goal of Mitigation

The goal of on-site habitat creation for the project is to create functional riparian and upland habitat. Functional coastal sage scrub would consist of mostly even cover of a variety of native soft-woody shrubs common in this vegetation community. This would likely include species such as: California encelia, California buckwheat, and California sagebrush. Functional coastal sage scrub is also capable of hosting a variety of native wildlife and annual plants species.

As the site is located above the observed water table and as riparian vegetation community types are water and disturbance dependent, the riparian habitat creation area will ultimately function as moderately dense to dense riparian scrub community. These non-climax riparian communities are typically observed on stochastic event maintained floodplain terraces adjacent to more surface water-dependent vegetation communities within riverine systems. Ultimately, the habitat creation area will be dominated by mule fat with a sparse emergent canopy of riparian trees such as various native willows and cottonwood (*Populus fremontii*). The final community will have two dominant riparian structural tiers, shrubs and trees. Given proposed deep-rooting restoration techniques and existing mule fat observed persisting within the creation area, the created riparian habitat is expected to remain in its created state in perpetuity.

Moderate to dense riparian scrub vegetation provides foraging and nesting habitat in the form of riparian understory species for sensitive riparian birds including the yellow-breasted chat and least Bell's vireo. The proposed habitat creation meets standards for both Primary Constituent Elements (PCEs) for least Bell's vireo habitat (USFWS 1994):

1. Riparian woodland vegetation that generally contains both canopy and shrub layers, and includes some associated upland habitats. Vireos meet their survival and reproductive needs (food, cover, nest sites, nestling and fledgling protection) within the riparian zone in most areas. In some areas they also forage in adjacent upland habitats; and

2. Riverine and floodplain habitats (particularly willow-dominated riparian woodland with dense understory vegetation maintained, in part, in a non-climax stage by periodic floods or other agents) and adjacent coastal sage scrub, chaparral, or other upland plant communities.

3.1 Types of Habitat to be Restored

3.1.1 Diegan Coastal Sage Scrub

Diegan coastal sage scrub is a vegetation community considered sensitive by federal and state resource agencies, and a Tier II (Uncommon Upland) by the City's MSCP (City of San Diego 1997). Diegan coastal sage scrub is the southern form of coastal sage scrub, is a plant community consisting of low-growing, aromatic, drought-deciduous soft-woody shrubs that have an average height of approximately 3 to 4 feet. The plant community is typically dominated by facultatively drought-deciduous species such as California sagebrush, California buckwheat, laurel sumac, and white sage. The community is typically found on low moisture-availability sites with steep, xeric slopes or clay rich soils that are slow to release stored water. These sites often include drier south- and west-facing slopes and occasionally north-facing slopes, where the community can act as a successional phase of chaparral development. Diegan coastal sage scrub intergrades at higher elevations with several types of chaparrals, or in drier more inland areas with Riversidean sage scrub. Diegan coastal sage scrub is found in coastal areas from Los Angeles County south into Baja California (Holland 1986).

3.1.2 Southern Riparian Woodland

Southern riparian woodland is a moderately dense riparian woodland community that contains a majority of small trees and shrubs with a sparse density of tall, riparian trees (Oberbauer et al. 2008). This community occurs in larger river and tributary systems in southern California. It has been observed throughout San Diego County and is characterized by western sycamore (*Platanus racemosa*), cottonwoods, and various willows. This community tends to develop in stream systems with moderate amounts of scour events.

3.2 Functions and Services to be Restored

By creating location-appropriate riparian habitat and improving City wetland functions and values at the project mitigation site, the on-site riparian mitigation areas would have functions and values superior than those of the impacted riparian habitat (Table 6).

Table 6 Impact Site and Creation Site Wetland Functional Values Comparison		
Wetland Functions	Pre-impact Functional Values[1]	Post-restoration Functional Values
Short- and long-term surface water storage	low	low
Sub-surface water storage	low	low
Moderation of groundwater discharge	low	low
Dissipation of energy	low	low
Cycling of nutrients	moderate	moderate
Removal of elements and compounds	low	low
Retention of particulates	low	low
Export of organic carbon	low	moderate
Maintenance of plant and animal communities	low	high
[1]Functional values of only the riparian habitat proposed to be permanently impacted.		

By replacing areas of disturbed habitat along the berm with restored coastal sage scrub, the coastal sage scrub mitigation areas would create an uninterrupted connection between native habitats throughout the site. This would include creating continuity between patches of coastal sage scrub and Baccharis scrub to be preserved on-site, ultimately resulting in habitat of either comparable or superior quality compared to the sensitive uplands proposed to be impacted.

3.3 Time Lapse

Planting and seeding of the proposed mitigation sites will be limited to between the months of November through March, in order to coincide with appropriate weather conditions and help support plant growth. Establishment (i.e., creation) of a functioning riparian and coastal sage scrub community may take approximately four to five years to reach the appropriate level of establishment to be considered self-sustaining. Therefore, a five-year maintenance and monitoring period is proposed to help assure adequate plant establishment and that the mitigation goals are achieved.

4.0 Mitigation Work Plan

The implementation plan encompasses the initial work plan for the mitigation site. The wetland mitigation program will make use of seed and nursery-grown container plants grown from locally collected seed/propagules, if available. Control of non-native weed species during the initial installation, as well as throughout the maintenance period, will also be an important component to helping ensure the success of the mitigation program.

4.1 Responsible Parties

The SDRPF shall be responsible for coordination and management of project activities. Decisions to stop work are the responsibility of the SDRPF, which shall have authority in

decisions to suspend payment or terminate such contracts. This includes all phases of project installation, maintenance, and biological monitoring.

The project biologist shall be a qualified individual or team of qualified individuals with experience in riparian habitat creation/restoration. The project biologist shall perform the following tasks and be responsible for monitoring the restoration in accordance with the restoration plan specifications:

- Monitor qualified contractors in execution of plan implementation and maintenance.
- Oversee and perform the required monitoring and reporting in accordance with the procedures established in this plan.
- Consult with the contractor on any issues that may prevent the success of this plan and any resulting adaptive management strategies.

The landscape contractor shall have experience in native habitat restoration including installing and maintaining riparian habitat. The landscape contractor shall be responsible for implementing the tasks outlined in this plan under the supervision of the project biologist. These include:

- Preparing riparian habitat creation areas for planting (includes minor grading activities);
- Implementing the restoration plan;
- Maintaining the site as outlined in this plan;
- Preparing plans and specifications intended for project construction and the interpretation of said plans and specifications;
- Identifying plants and topsoil to be salvaged from within habitat areas located within the limits of grading;
- Coordinating, performing, and monitoring site preparation;
- Coordinating, performing, and monitoring seed collection and plant production; and
- Coordinating, performing, and monitoring plant installation.
- Conducting long-term management actions (see Section 9.3.2).

The native plant supplier will be a qualified native plant nursery or supplier. The native plant supplier must have experience in propagating native plants.

- The native plant supplier will produce properly aged plants that are well rooted relative to their container size. Root bound or undersized plants will not be acceptable plant materials.

- All plants will be grown in inoculated native soil from seed or cuttings collected within the SDRPFD's project site. If seed/cuttings are not available within this property, the closest available source within 10 miles will be used.

The native seed supplier must have experience collecting riparian habitat seeds for restoration projects.

- Only species specified by the project biologist will be collected.
- Whenever possible, seed will be collected from within the SDRPFD's project site, but if enough seed is not available, seed will be collected within 10 miles from the same watershed.

4.2 Access and Staging

Access to the riparian habitat creation area is available via Camino del Rio North or from an existing haul road on top of the berm surrounding the site. As spoils from restoration grading will remain on –site and used concurrently to balance Discovery Center grading, staging of heavy equipment described in this mitigation plan will occur on previously graded lands associated with the project construction footprint.

4.3 Implementation Steps and Schedule

Construction of all project mitigation will occur concurrently with construction of the project. In general terms, the mitigation implementation sequence is as described in Table 7.

Table 7
Compensatory Mitigation Site Implementation Sequence

Task	Description
Project Implementation	1) Plant/seed acquisition 2) Site grading 3) Erosion control 4) Weed removal 5) Irrigation installation 6) Planting 7) Mitigation monitoring

The mitigation site will be graded and planted concurrent with proposed impacts to minimize temporal loss. Exceptions to this schedule include postponement due to seasonal and/or natural restrictions, such as above-average rainfall, that may pose sedimentation and erosion risks. If delays are encountered, the mitigation site will be installed and planted no later than nine months following authorized project impacts to sensitive habitats.

Planting and seeding of the proposed on-site mitigation area will be limited to between the months of November through March, in order to coincide with appropriate weather conditions to help support plant growth. Establishment (i.e., creation) of a functioning

natural community may take approximately four to five years to reach the appropriate level of establishment to be considered self-sustaining. Therefore, a minimum five-year maintenance and monitoring period is proposed to help assure adequate plant establishment and that the success criteria and performance standards are achieved.

4.4 Habitat Creation

4.4.1 Non-native Plant Removal

Non-native species treatment within the creation area will consist of treating and/or mechanical removal of all non-native plant species.

Prior to the start of treatments, the project biologist is required to implement the following measures in compliance with permit requirements:

- Mark access routes if necessary to avoid impacts to native vegetation during non-native treatment.
- Coordinate with the City and landscape contractor in the field to review weed removal areas, access flagging, and disposal methods.
- Time the weed removal such that non-native species do not produce and dehisce viable seed within the site. Any viable seed found on non-native plants will be cut and bagged and disposed of at an approved facility.

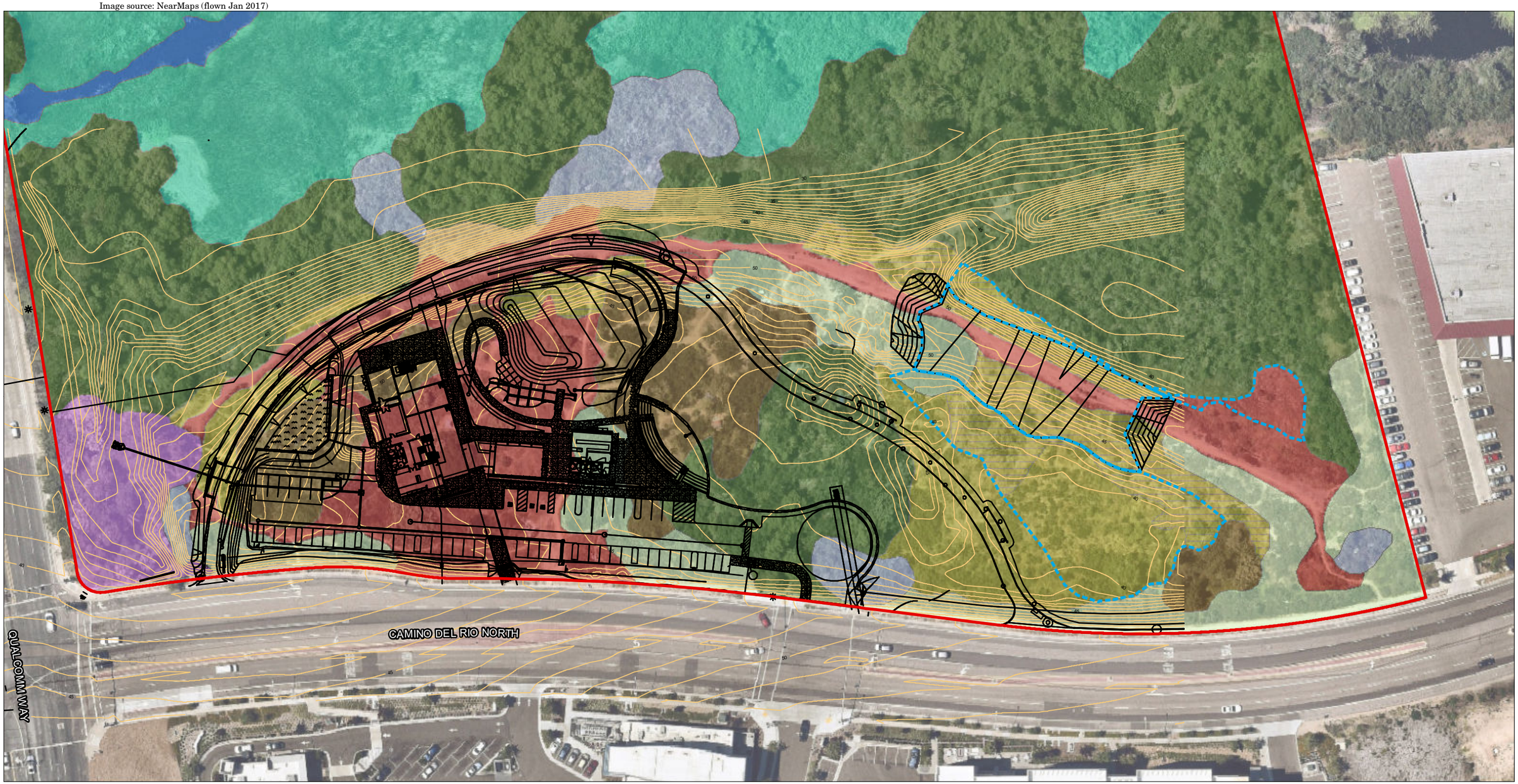
Prior to the start of and during weed removal, the landscape contractor shall document safe operating procedures.

Primarily, non-native species treatment will occur within non-native grassland. It will consist of herbicide treatment of live, green weeds, followed by dethatching of dead weeds with line trimmers and rakes, if needed. Only herbicide with formulations that are considered suitable for use in or adjacent to aquatic habitats will be used within the project site. All dethatched weed material will be transported off-site and disposed of at an approved facility. Raking in the creation area shall double as site preparation as it will expose the soil and create viable germination microsites for seeding and suitable substrate for planting.

4.4.2 Site Preparation

Site preparation for both wetland and upland creation areas will consist of non-native species treatment, site resource protection, and erosion control measures. Additionally, minor grading will occur in various portions of the riparian habitat creation area to allow plants to have adequate access to water. Figure 7 shows conceptual grading areas and will be used to guide the grading activities. The final configuration may differ somewhat depending on specific conditions encountered while grading. The Landscape Contractor and

Image source: NearMaps (flown Jan 2017)



0 Feet 80

Project Boundary
Riparian Habitat Creation Area

Vegetation Communities

Wetlands
- Freshwater Marsh
- Mule Fat Scrub
- Open Water
- Southern Cottonwood-Willow Riparian Forest
- Southern Willow Scrub
- Southern Riparian Woodland

Tier II
- Diegan Coastal Sage Scrub
- Baccharis Scrub
- Disturbed Baccharis Scrub

Tier IV
- Non-native Woodland
- Disturbed Habitat

Other Cover
- Urban/Developed

Plan Lines
1-foot Contours

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FIGURE 7

Conceptual Habitat Restoration Grading Plan

Project Biologist will inspect the creation areas following grading activities and verify that the topography is acceptable. Any extra spoils from grading activities will be deposited in upland areas.

Grading will be required to lower the elevation of an existing berm which currently isolates the proposed riparian habitat creation area from the San Diego river floodplain and associated complimentary riparian habitat (see Figure 7). This process will provide appropriate elevations to support the deep riparian habitat creation approach detailed in this report as well as provide connectivity to adjacent habitats.

Prior to grading, the project proponent/applicant shall clearly mark the limits of the workspace with flagging or similar means (i.e., barriers and staking) to ensure that all mechanized equipment does not enter beyond the project area. In addition, prior to grading, a silt fence shall be installed along the perimeter of the grading area in order to prevent sediment from spreading to the down slope sensitive habitats during project activities. The project biologist will be on-site during BMP installations (prior to grading and post-grading) to confirm that adjacent riparian habitat will be protected and not unintentionally impacted. Additionally, the surface of the excavation area will be cleared of non-native plant species.

In instances where soil conditions are not favorable for native plant establishment and growth, several courses of action will be considered. Feasible options include:

- Restoration of pre-construction slope contours to improve water retention and/or reduce sun exposure of plant establishment areas.
- In areas with little elevation changes and/or shallow soil, regrade the site to establish basin and mound topography and plant deeper rooting shrubs on mounds.
- Collection of all plant material (seed and container stock propagated from seed and/or cuttings) from the same watershed or basin as the impact area, where available.
- Use of temporary irrigation for a minimum of two years to help facilitate the establishment of plant species.
- Use of container stock instead of seed or in combination with seed to establish deeper rooting native shrubs.
- Require that all container stock include mycorrhizal inoculum or be propagated using native soil in the planting medium.
- When planting container stock, dig holes twice as large as the container and remove large rocks and boulders before backfilling.
- In areas of compacted soils (due to previous land uses), soil surface will be decompacted prior to plant installation.

Deep planting holes for riparian tree and mule fat plantings within the riparian habitat creation areas will be dug using mini-excavators and/or skid steers with extended auger bits. These planting holes will be deep (5 to 10 feet) and will be used to facilitate root growth closer to the water table below. Large watering basins will also be created around each planting to encourage the slow percolation of water around each planting for establishment.

4.4.3 Supplemental Irrigation

Planting will be timed to occur during the fall and winter months in order to take advantage of cooler temperatures and seasonal rainfall. Although natural precipitation may provide sufficient moisture to germinate the seed, supplemental water is recommended to assure survival of the plantings until root systems have developed sufficiently to access groundwater in the dry season. In these cases, water use is expected to be highest during the first growing season, tapering off gradually over a period of three years until no supplemental water is necessary. An irrigation schedule will be determined by the project biologist and modified based on the season of planting and rainfall patterns.

Irrigation methods will be determined by the project biologist and landscape contractor and may include the installation of an irrigation system. The irrigation design must demonstrate appropriate coverage and frequency of watering for plant establishment.

4.4.3.1 Diegan Coastal Sage Scrub

Irrigation will be applied as needed (as determined by the project biologist) for the 120-day plant establishment period (PEP) and the first two years of maintenance and monitoring in the coastal sage scrub mitigation areas. It is anticipated that all irrigation will be applied by use of a water truck and hose. Watering from the side spray or cannon from a water truck will not be allowed, since the droplet size and high pressure can damage newly planted plants. Watering with a hose will be applied to mimic natural rainfall such that the droplet impacts on the soil surface do not cause erosion. Once irrigation water begins to sheet flow off the soil surface, watering will be moved to a new location. Watering may return to a site once the surface water has percolated into the soil.

At the direction of the project biologist, the supplemental irrigation will be ceased when the plants have become established and irrigation is no longer necessary. When supplemental irrigation is removed from any site, the project biologist will monitor the site to ensure the plants are not adversely affected. If significant signs of stress are apparent, then irrigation will continue as needed.

4.4.3.2 Southern Riparian Woodland

Supplemental water shall be used to ensure survival of riparian plantings as a supplement to natural rainfall inputs. The project biologist will provide recommendations for timing and duration of the application of supplemental water though in general “deep watering” irrigation techniques should be employed. Deep watering includes the infrequent, slow

velocity, and high-volume application of water to trees and shrubs to allow moisture to infiltrate deeper and promote root growth closer to the water table. Sub-surface techniques including the use of injection probes may also be considered at the discretion of the project biologist.

Watering schedules will vary depending on seasonal rainfall patterns. Timing of implementation is intended to take advantage of natural precipitation; however, amounts of rainfall are highly variable from year to year and supplemental watering is likely to be needed to help the plantings survive and become sufficiently established. Irrigation application rates, timing, and schedule shall abide by all water-use restrictions, per City of San Diego and applicable water district water-use restrictions.

Should a temporary irrigation system be installed, the maintenance crews should keep the irrigation system in operating condition. All aboveground components of the irrigation system will be dismantled and completely removed from the mitigation site. Belowground mainlines may be left in place so the soil is not disturbed. Removal of the temporary irrigation system shall occur by the end of the fifth year of the monitoring period, prior to final review/acceptance by the resource agencies, per permit requirements.

4.4.4 Planting and Seeding

4.4.4.1 Diegan Coastal Sage Scrub

Seed of coastal sage scrub species may be applied by hydroseeding or hand broadcasting depending on the specific site conditions, and amount of seed available. Seeding rates will be determined by transect data, neighboring vegetation, and the amount of available seed.

Hydroseeding is a mechanical method of applying erosion-control materials to bare soil in order to establish erosion-resistant vegetation on disturbed areas and critical slopes. Hydroseeding provides rapid installation of a highly effective erosion control, increases favorable conditions for quick seed germination and growth, and may be applied over irregular soil surfaces, existing vegetation, and shallow soils that preclude the installation of erosion mats, fiber rolls, or silt fences. Hydroseeding application and rates will be stated in the construction plans and will vary depending on-site conditions.

Hand or mechanical broadcast seeding can be very effective, with proper technique, and is more practical and economic for small or difficult to reach areas. Prior to hand seeding, the soil surface shall be raked to roughen the surface, although care will be taken to not disturb any existing native soil crust or insect burrows if present. When broadcast seeding, efforts shall be made to distribute seed evenly over the target area. After broadcasting the seed, the seedbed should be lightly raked to fully incorporate the seed with the soil.

Plant installation in creation areas will occur in two phases: installation of container plants and hand seeding. Figure 6, above, depicts the proposed creation areas of the project and Table 8 summarizes the acreages.

Table 8 Diegan Coastal Sage Scrub Container Plant and Seed Palette			
Scientific Name	Common Name	Approximate Planting Density (plants/acre)	Approximate Seed Density (pounds/acre)
*Muhlenbergia rigens**	deergrass	100	4
Encelia californica	California encelia	200	4
*Eriogonum fasciculatum**	California buckwheat	300	4
*Artemesia californica**	California sagebrush	300	4
*Malosma laurina**	laurel sumac	150	-
*Opuntia littoralis**	coast prickly-pear	100	-
*Salvia mellifera**	black sage	200	4
Stipa pulchra	purple needle grass	200	4
TOTAL		**1,550**	**24**
*Plant species traditionally used by Native American tribes. NOTE: These recommendations are guidelines that may be changed due to a variety of circumstances, including reflection of neighboring habitats and seed species collected within the surrounding area.			

4.4.4.2 Southern Riparian Woodland

The riparian woodland mitigation areas will rely heavily on planted container stock for vegetation cover; however, the areas will also be hand seeded using the same methods as described for Diegan coastal sage scrub above.

As previously mentioned, this plan includes riparian woodland creation in areas that currently support predominantly native upland. Plant installation in creation areas will occur in two phases: installation of container plants and hand seeding. Figure 6, above, depicts the proposed creation areas of the project and Table 9 summarizes the acreages.

Table 9 Southern Riparian Woodland Container Plant and Seed Palette			
Scientific Name	Common Name	Approximate Planting Density (plants/acre)	Approximate Seed Density (pounds/acre)
*Ambrosia psilostachya**	western ragweed	0	4
*Artemisia douglasiana**	Douglas mugwort	0	4
*Baccharis salicifolia**	mule fat	400	0
*Muhlenbergia rigens**	deergrass	0	1
*Platanus racemosa**	California sycamore	30	0
*Populus fremontii**	western cottonwood	20	1
*Quercus agrifolia**	coast live oak	30	0
*Salix laevigata**	red willow	30	1
*Salix lasiolepis**	arroyo willow	60	1
*Salix gooddingii**	black willow	30	1
TOTAL		**600**	**13**
*Plant species traditionally used by Native American tribes. NOTE: These recommendations are guidelines that may be changed due to a variety of circumstances, including reflection of neighboring habitats and seed species collected within the surrounding area.			

In order to optimize plant establishment, planting is required to be performed immediately prior to or during the rainy season.

The riparian woodland creation area will be planted and seeded with species that are appropriate for riparian scrub habitat (see Table 9). The planting density will be approximately 600 plants per acre using 2-inch to 1-gallon container stock. Any changes to the proposed plant palette shall be determined by the project biologist and approved by City staff.

a. Container Plant Specifications

Container plants shall be propagated from seed or cuttings collected within 10 miles of the project site, where possible, in quantities directed by the project biologist. Container plants are to be grown in native soil and inoculated with beneficial mycorrhizae (mutualistic fungi) that contain the fungi and other microorganisms.

b. Container Plant Installation Methods

Standard planting procedures for container plants involves digging a hole approximately twice the size (width and depth) of the plant's root ball. Plants are then positioned so that the surface of the soil in the container is at ground level, with backfill from the excavation of the hole added carefully beneath and around the installed plant's root ball. The soil is then firmly tamped in around the plant. Each planting will receive a recessed watering basin to aid in the capture of natural rainfall and artificial irrigation.

c. Seed Specifications

The seed supplier will endeavor to provide seed for native species which may be suitable for riparian scrub. A list of species appropriate for collection and for use in habitat restoration is presented in Table 8. Note that Table 8 is intended to be a guiding list of plant species that could potentially be used for restoration purposes within for this project. If other species not on the list are found in the surrounding area, plant material from these species may be collected and used in the riparian habitat creation area at the discretion of the project biologist.

The SDRPF parcel at the project location is large and contains other areas with riparian scrub habitat. Plant material used for this project will be sourced from these areas, or obtained from sources within 10 miles of the site as directed by the project biologist, to prevent the introduction of foreign genetics. If seed of desired plant species are not available, the riparian habitat creation will move forward using plant material that is collected, and other seed can be applied later. If locally available plant material does not exist for a particular species, the seed supplier shall consult with the project biologist to determine alternatives.

d. Seed Application Methods

When applied, native plant seed shall be thoroughly mixed and hand broadcast evenly across the creation areas. Seed shall be free from noxious weed species and in quantities outlined in Table 8. After application of the seed, the site will be raked to a depth of one-quarter inch to ensure optimal seed to soil contact.

4.5 Habitat Enhancement

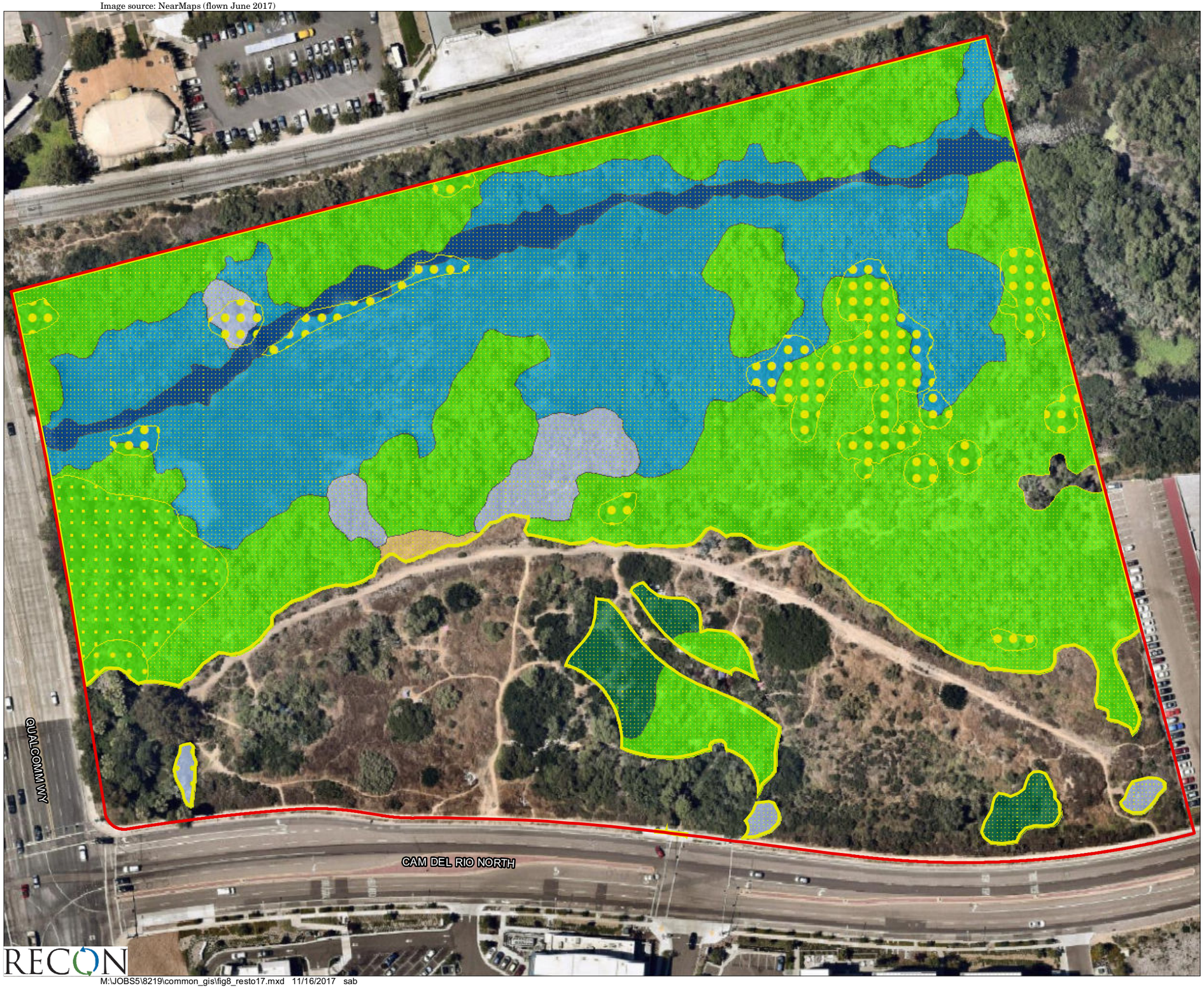
4.5.1 Existing Exotic Weed Distribution

A list of weed species identified and observed during the preconstruction surveys is presented in Table 10. Figure 8 shows the location of the various weed densities throughout the 11.97-acre enhancement area.

Table 10
Anticipated Weeds and Invasive Plant Species

Scientific Name	Common Name
Arundo donax	Giant reed
Schinus terebinthifolius	Brazilian pepper
Tamarix spp.	Tamarisk
Glebionis coronaria	Crown daisy
Pennisetum setaceum	Fountain grass
Ricinus communis	Castor bean
Phoenix canariensis	Canary island date palm
Washingtonia robusta	Mexican fan palm
Foeniculum vulgare	Fennel
Tropaeolum majus	Nasturtium
Carpobrotus edulis	Hottentot fig
Apium graveolens	Celery
Melaleuca viminalis	Bottlebrush
Cortaderia spp.	Pampas grass
Schinus molle	Peruvian pepper
Ficus carica	Fig
Ludwigia grandiflora	Large-flowered primrose-willow
Brassica nigra	Black mustard
Fraxinus uhdei	Shamel ash
Ageratina adenophora	Eupatory
Olea europaea	Olive
Lepidium latifolium	Perennial pepperweed

Image source: NearMaps (flown June 2017)



Project Boundary

Wetland Enhancement

Wetland Enhancement Invasive %

- 10%
- 70%
- 80%
- 100%

- Southern Cottonwood-Willow Riparian Forest
- Southern Riparian Woodland
- Southern Willow Scrub
- Freshwater Marsh
- Mule Fat Scrub
- Open Water

0 Feet 100

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FIGURE 8
Habitat Enhancement
and Invasive Species

4.5.2 Enhancement Tools

4.5.2.1 Weed Control Best Management Practices

The following list presents examples of best management practices (BMPs) that would be incorporated into construction activities to prevent the spread of weeds:

- Avoid impacts to native vegetation.
- Avoid and minimize ground disturbance. Consider impacts of different types of equipment and when possible choose equipment that will result in the least disturbance to soil and vegetation in natural areas.
- Cover material, including soil or fill, securely during transport.
- Stabilize disturbed soils as soon as possible with native seed and certified weed-free erosion control materials.
- Use only barren fill and gravel.

4.5.2.2 Physical Control

Physical control often involves hand dethatching, pulling, cutting, or removal by mechanical means. These methods are labor intensive and may be used for smaller populations of weed infestations or around sensitive habitats. Physical methods of weed control may provide an advantage in these situations where desirable species may be left in place while surrounding weeds may be removed. Dethatching is a useful tool that removes the dead or dying plant material from the soil surface. Dethatching also removes weed seed that may still be attached to the plant and will also increase the effectiveness of subsequent herbicide applications. When weed material is transported away from the removal area, care must be taken to confine the material and ensure that seeds or vegetative material do not escape and infest new areas. For large weed removal efforts, all material will be placed in a refuse bin (dumpster). The vegetative material placed in the bin will not exceed the top, and the bin will be appropriately covered so that plant material cannot be blown out of the bin during transport to a landfill. All invasive weeds must be disposed of in a landfill located within the county from which they were removed (i.e., San Diego County).

4.5.2.3 Chemical Control

The chemical means of controlling weeds is the application of herbicides. Herbicides kill or inhibit plant growth and can be very effective in controlling many weed species. Using herbicides to control weeds requires careful planning and a professional staff familiar with the application areas and herbicides they are using. The use of herbicides should be under the direction of a professional pesticide applicator with either a Qualified Applicator License (in Category E—Weed Control) or an Agricultural Pest Control Advisor License in the state of California. Before applying any herbicides, the applicators should be aware of

all safety regulations and applicable environmental regulations and be familiar with target versus native plants.

The method of application varies greatly from one species to the next and also with the degree of infestation, time of year, and environmental conditions. The application method ultimately chosen should minimize risks of harming non-target plants. The environmental risks of using herbicides include drift, volatilization, persistence in the environment, groundwater contamination, and harmful effects on animals.

Herbicide application should always include marker dyes to make the herbicide visible. Higher visibility is desirable because it:

- Allows personnel to more effectively protect themselves against contamination;
- Prevents unintended multiple application to a particular area or plant;
- Ensures complete coverage of target area and plants; and
- Informs personnel of overspray and wind-drift issues, which protects non-target plants

5.0 Maintenance

5.1 Site Protection and Erosion Control

The project biologist will assess the need for BMPs to help protect against erosion and site damage while the container plantings and seed establish. In general, the more effective erosion prevention measures are, the less maintenance would be required for sediment controls.

If erosion control measures, such as straw wattles, are determined necessary by the project biologist, they will be installed by the maintenance crew during regular maintenance visits. Similarly, if the project biologist determines that any installed erosion control devices are in need of repair or replacement, the necessary remedial work will be conducted during by the maintenance crew during regular maintenance visits.

Where necessary, all BMPs will be in place at the onset of the rainy season and maintained throughout the rainy season, as needed. Because of high demand and material shortages during winter months, materials for sediment and erosion control will be stockpiled on-site, or in an approved and accessible location, throughout the rainy season. Each BMP installed will have its own set of inspection and maintenance procedures as recommended by the manufacturer. After project completion, all materials that will not naturally break down will be removed from the restoration site.

5.2 Weed Control

Hand weeding or other weed control methods will be performed by trained maintenance workers under the supervision of the project biologist. Table 9 summarizes weed species expected to occur in the riparian habitat creation area based on project surveys (RECON 2018). In the event that additional invasive species are encountered, the project biologist shall refine control measures to include them.

Weed removal can be done in one of three ways. The method used at each habitat restoration site will be determined by access to the site, seasonal timing, and abundance and the weediness of the soil.

The three methods of eradicating weeds from a restoration site are:

1. Dethatching. If restoration activities begin during the dry season and all biomass is dead or dying, restoration sites will be mowed using line trimmers and then thoroughly raked. This process of "dethatching" removes weed seeds and biomass that lay on the surface and exposes the site as bare ground. When using line trimmers, it is important to cut the dried vegetation as close as possible to the surface (less than 5 centimeters) but also not to disturb the soil surface, as the spinning trimmer string can destroy beneficial soil crusts and insect burrows.

2. Herbicide treatment. Habitat restoration sites where weeds are actively growing will undergo a grow-and-kill regime using herbicide. Repeating the herbicide treatment whenever weeds reach 6 inches in height, but before they flower and set seed, will eventually result in the eradication of the weeds. During any herbicide application, it is important to have experienced workers who are familiar with native and non-native plants in all stages of growth.

3. Hand weeding. In areas where herbicide may be detrimental to sensitive biological resources, exotic species will be removed by hand or small machinery (e.g., line trimmer). Weeds will continue to be removed as needed before they set seed.

5.3 Trash Removal

Trash and debris are likely to be an issue due to the presence of homeless persons living in adjacent areas and the proximity to urban land uses. Any such materials will be removed from the riparian habitat creation area by hand during regular maintenance visits.

5.4 Supplemental Planting and Seeding

Some of the installed vegetation may be damaged from herbivory or disease or die during plant establishment. In such cases of plant mortality, the project biologist will note the number and species of plants to be replaced, and will direct the maintenance crew to install supplemental plants (either with cuttings or container plants) during regular maintenance visits.

In the case that seed in some areas fails to germinate or other damage occurs to the site, supplemental seeding will occur at the direction of the project biologist and with the approval of City staff.

5.5 Irrigation

If any irrigation system is installed, the project biologist shall monitor the irrigation system condition and effectiveness. If the irrigation system becomes damaged or if additional irrigation lines are required, the project biologist will recommend remedial measures to be implemented by the Landscape Contractor during regular maintenance visits.

6.0 Monitoring and Performance Standards

The maintenance and monitoring program is designed to support the establishment of native habitat by performing erosion control measures, non-native weed removal, protection from unauthorized access, pests, and vandalism, trash and debris removal, irrigation system maintenance, remedial planting, and reseeding if necessary. Additionally, the biological monitor will establish an information base to document the maintenance and monitoring efforts. To achieve these objectives, the project biologist will observe and direct coastal sage scrub and riparian habitat creation implementation, maintenance, and monitoring activities.

6.1 Implementation Monitoring

To ensure that conditions of this plan are adhered to, all implementation activities will be monitored and recorded by the project biologist. The project biologist will be available on-site during implementation to assist in making necessary plan modifications so that the work may proceed. Records kept will include dates of planting and any significant problems encountered or necessary changes. The maintenance and monitoring of the project will occur according to the schedule described in Table 11.

Table 11
Maintenance and Monitoring Schedule

Type/Task	120-day Plant Establishment Period	Year 1	Year 2	Year 3	Year 4	Year 5
Maintenance						
Weed Control	At least once	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly
Trash Removal	As-needed	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly
Irrigation*	As-needed	As-needed	As-needed	As-needed	As-needed	As-needed
Monitoring						
Qualitative	Bi-weekly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly
Quantitative	-	Annually	Annually	Annually	Annually	Annually
*Manual means of irrigation may be necessary and will be directed by the project biologist.						

6.2 120-Day Plant Establishment Period

A 120-day PEP will commence upon planting of the final container plants and seeding in the mitigation areas. During this period, the project biologist will monitor the site biweekly (see Table 11). Maintenance will occur monthly or as-needed at the direction of the project biologist. Throughout the PEP the maintenance crew shall control emerging weed seedlings, replace dead plants, and remove any trash from the riparian habitat creation areas.

The 120-day PEP letter will be submitted to the City. Upon submittal of the 120-day PEP letter, the project will transition to Year 1 of the maintenance and monitoring period.

6.3 Five-Year Maintenance Period

The five-year maintenance period will begin upon submittal of the 120-day PEP letter. Maintenance within the coastal sage scrub and riparian habitat creation areas will be conducted quarterly or as directed by the project biologist. Maintenance measures during the five-year maintenance period will be the same as those described for the 120-day PEP.

During the first four months of Year 1, the coastal sage scrub and riparian habitat creation areas will be weeded at a minimum of two times, to be conducted at least a month apart. During the remainder of the first year, workers will weed the site quarterly (or more often as determined by the project biologist) to keep weeds from producing seeds and to control weed competition during the establishment period of native plants.

The Project Biologist will conduct bi-weekly qualitative monitoring for the first three months, then quarterly monitoring for the remainder of the five-year maintenance period (see Table 11). Qualitative monitoring will focus on the factors discussed in Section 6.0 above (weed control, erosion control, trash removal, replacement planting and reseeding, site protection and signage, vandalism, and irrigation maintenance). Additionally, native plant health and native species recruitment will be recorded.

Site maintenance needs will be communicated to the maintenance crew for scheduling and implementation. In addition, the project biologist will note evidence of wildlife use as described in the City's Guidelines for Conducting Biological Surveys (City of San Diego 2002).

The project biologist will conduct annual quantitative monitoring starting at the end of Year 1 and continue through the end of Year 5, or project sign-off. Monitoring will occur using the relevé vegetation sampling technique to quantitatively monitor vegetation within the creation areas and reference sites, following the California Native Plant Society methodology (2009). The relevé is generally considered a "semi-quantitative" method. It relies on ocular estimates of plant cover rather than on counts of the "hits" of a particular species along a transect line or on precise measurements of cover/biomass by planimetric or weighing techniques (California Native Plant Society 2009). In relevé sampling, each

stratum (herb, shrub, tree) is recognized separately and percent cover by species within each strata is estimated.

A Diegan coastal sage scrub reference site will be established on-site and used to assess the success of the Diegan coastal sage scrub restoration areas. The exact location and size of this reference site will be chosen during Year 1 quantitative monitoring. Success for the riparian habitat creation will be assessed without the use of a reference site as described in Section 6.7 below.

6.4 Photo Documentation

The number and location of photo points will be determined and established by the project biologist the creation areas to record the progress of the restoration effort over the monitoring period. Photographs will be taken at each photo point during annual quantitative monitoring.

The photographs and survey results will be summarized and reported to the City in the annual reports.

6.5 Adaptive Management

An adaptive management approach will be implemented as part of this plan. Adaptive management is a systematic process for continually improving management policies and practices by learning from the outcomes of operational procedures. If operational procedures are not meeting management goals, methods are adjusted until they are achieved. Adaptive management will consist of the following key elements:

1. **Establish Management Goals.** It is imperative to establish clear and measurable goals before embarking on a restoration program. Careful consideration will be given to which vegetation type or plant species will be installed based on hydrologic, hydraulic, and topographical data. The ultimate goal of a restoration program will be to further the preservation of a species assemblage, vegetative type, or functioning ecosystem.

2. **Identify and Prioritize Species that Interfere with Management Goals.** The areas surrounding the project area have been surveyed as part of the preparation of this document. In many cases, it was immediately clear which weed species posed the biggest threat to native plant habitats within the riparian habitat creation area. For other species, the immediate threat was not clear, and observation over an extended period will help to identify if those species pose a threat to the native plant communities being restored.

3. **Assess Techniques.** All options for control of a particular invasive weed species will be considered. Each method will likely have advantages and disadvantages, and often the best approach is using a combination of management strategies. Furthermore, it is important to remain current on control methods, as new methodologies are constantly being developed, especially in the field of chemical control.

4. **Develop and Implement a Management Plan.** This document will supply the framework and background necessary for implementing management programs for vegetation and habitat type restoration throughout the project area.

5. **Review Management Goals, Restoration Methods, and Control Techniques.** Another crucial step in adaptive management is to examine and appraise the restoration methods that are currently in use. If portions of the mitigation areas are not responsive to planting one particular plant species because of differing hydrologic requirements or if natural recruitment into an area is not progressing at the expected rate, then planting alternate appropriate native plant species will be considered. Careful attention will be paid to weed species being controlled, then verified whether the control techniques are working towards reaching the specified goals, and determined whether alternate control methods will be used or if weed management actions will focus on an alternate species that has subsequently become problematic.

6.6 Reporting

At the end of the 120-day PEP, a letter report summarizing the installation and maintenance activities and monitoring results will be submitted to the SDRPF. This letter will include the species and quantities of seeds applied and container plants installed, survival of container plants after 120 days, photo-documentation of site conditions after 120 days, discussions of other aspects of site preparation, project implementation, and plant establishment, and recommendations for remedial actions, if needed. Upon submittal of this 120-day PEP letter, the project will transition into Year 1 of the maintenance and monitoring period.

At the end of each monitoring year, an annual monitoring report will be submitted to the SDRPF summarizing the activities of the previous year. Each annual monitoring report will summarize maintenance activities, discuss general site conditions and trends, include photo documentation of site conditions, compare quantitative measures with success performance criteria (after Year 1), and make recommendations for remedial actions, if needed. Each annual report will compare findings of the current year with those in previous years. The report will be prepared for the SDRPF and regulatory agencies (City) by September 1 of each monitoring year.

6.7 Performance Standards and Remedial Measures

Restoration of coastal sage scrub and riparian woodland will be considered successful when the final performance standards have been met. Coastal sage scrub habitat must sustain itself for a minimum of two years in the absence of significant maintenance measures. Significant maintenance measures include replanting, irrigation, reseeding, eradication of major weed infestations, and major erosion repairs Irrigation, weed control and erosion repair will be performed in the last year after final performance criteria have been met as a final measure to improve the long-term viability of the riparian habitat creation area. The

high density of deep-watered tree plantings in combination with adaptive irrigation as a key factor in the maintenance of the site will likely result in the achievement of the proposed success criteria.

Performance measures for targeted habitats are detailed below in Tables 12 and 13. If the minimum levels for any one of these performance measurements are not achieved, the project biologist will recommend remedial actions (such as replanting and/or seeding) to reach the following year's required levels. If, at the end of five years, the coastal sage scrub or riparian habitat creation areas fail to meet the standards, the monitoring and maintenance period may be extended and a specific set of remedial measures may be implemented per the direction of the project biologist in coordination with the City's Mitigation Monitoring Coordination (MMC) section. Only areas that fail to meet the success standards shall require additional work and/or additional remedial measures. This process will continue until the final standards are met or until MMC determines that other measures are appropriate.

Habitat mitigation will be considered complete when the performance standards shown in Tables 12 and 13 have been met.

Table 12
Diegan Coastal Sage Scrub Habitat Performance Standards

Year	Native Species Cover* (Shrubs and Herbs)	Plant Density	Non-native Coverage (not to exceed)
1	--	--	10%
2	30%	75%	10%
3	50%	80%	5%
4	70%	85%	5%
5	80%	85%	5%

*Relative to reference site.

Final success criterion for relative native species cover in the coastal sage scrub mitigation areas is 80 percent and final relative density of plant species is 85 percent of the reference site value. At the end of five years, the cover of non-native species will be no more than 5 percent within the coastal sage scrub creation areas. Measurements will be taken during quantitative monitoring and compared with the mean values measured in the reference site. Most of the performance standards (native vegetative cover, non-native cover, and plant density) are measured as a percentage and then compared to reference site values. This comparison is then presented as a percentage.

Table 13 Riparian Habitat Performance Standards				
Year	Container Plant Survival	Riparian Species Absolute Cover (Trees, Shrubs, and Herbs)	Non-native Coverage (not to exceed)	Upland absolute Coverage (not to exceed)
1	80%	--	10%	--
2	100%	20%	10%	60%
3	100%	30%	5%	50%
4	100%	50%	5%	20%
5	100%	65%	5%	15%

Final success criterion for absolute cover of riparian species is 65 percent and, at the end of five years, the cover of non-native species will be no more than 5 percent and upland species will not have an absolute cover greater than 15% within the riparian habitat creation area.

The riparian habitat creation area is expected to show a trend of increasing vegetation cover of native riparian species over time as the riparian trees become established via deep-watering techniques. A shrub layer of mule fat is expected to develop via this technique as well. As riparian trees and shrubs mature, an understory composed of herbaceous native riparian species is expected to develop.

The proposed riparian habitat creation area occurs adjacent to areas of Diegan coastal sage scrub and currently supports baccharis scrub dominated by broom baccharis. The baccharis scrub community will be inter-planted with riparian species in order to create riparian woodland habitat. However, it is anticipated that broom baccharis, a transitional wetland/upland species, will remain in the riparian woodland habitat along with other native upland species, including California encelia and California buckwheat. However, these species are not expected to exceed 15 percent absolute cover. The shrub layer is expected to be comprised predominantly of mule fat due to the installation of mule fat plantings in addition to the mule fat already occurring in this area.

The created riparian community will be comparable to transitional riparian habitat typically found on the fringes of large river systems such as the San Diego River. This transitional habitat, though dominated by riparian species, can naturally contain a proportion of upland plants. This mixture of wetland and upland species in riparian transition habitat would provide foraging habitat potentially utilized by sensitive riparian wildlife species such as least Bell's vireo. The resulting functional habitat is expected to be of much higher quality than the isolated riparian trees impacted by the project.

7.0 Completion of Installation and Establishment Phase

When the project performance standards have been met, or other remedial measures agreed upon by the project biologist and the MMC have been completed and approved, a final report will be submitted to the SDRPF summarizing the restoration project and

providing documentation of success upon approval by the SDRPF. The report will make a determination of whether the requirements of the mitigation plan have been achieved. With the SDRPF's approval, a Completion of Mitigation Notification will be sent to the City. A site review will be scheduled for all parties to review the restored areas within two months of the notification. The agencies will provide written confirmation of acceptance that the site has met the performance standards within one month following the site visit.

8.0 Completion of Mitigation

8.1 Notification of Completion

At the end of the fifth year, a final monitoring report will be submitted to the City of San Diego evaluating the success of the mitigation program. The report will make a determination of whether the requirements and performance standards/success criteria of the mitigation program have been achieved. If the project is determined to be unsuccessful, contingency measures will be implemented.

At the conclusion of the five-year maintenance and monitoring period, or at such time that the project has achieved the performance standards/success criteria, the project biologist shall inform the project proponent/applicant and the City of San Diego MMC and MSCP and request final sign-off/approval. A site review will be scheduled for all interested parties to review the mitigation site to confirm final conditions. Long-term management activities begin upon completion of the five-year maintenance and monitoring period.

9.0 Long-Term Management

9.1 Introduction

The overall goal of long-term management is to maintain the long-term viability of the mitigation area's created coastal sage scrub and riparian habitat. Routine monitoring and minor maintenance tasks are intended to assure the viability of the mitigation area in perpetuity. The mitigation site would be preserved in perpetuity as part of the Multi-Habitat Planning Area (MHPA) under the City of San Diego's Multiple Species Conservation Program (MSCP).

9.2 Preserve Area Description

The preserve area is approximately 15 acres and includes the majority of riparian habitat associated with the San Diego River and fragments of upland vegetation associated with more xeric areas of the preserve. The San Diego River occurs as a perennial waterway running east–west through this portion of the site. A majority of the northern portion of the site is flat with slopes along the northern, western, and southern edges leading up to the San Diego Trolley and Qualcomm Way. The preserve includes habitat areas deeded to the

MHPA from the project during the boundary line adjustment phase of the project (RECON 2018)

Historically, the project site had been used for sand mining prior to 1964. Based on aerial photographs a majority of the project site was ponded and devoid of vegetation during mining activities. After mining operations had ceased, native and exotic vegetation and wildlife species recolonized the area.

A number of transient encampments were observed in the southern portion of the site, and unauthorized walking trails within the site are currently heavily used. A substantial amount of trash was present within the southern portion of the site as well. The project site is also subject to traffic noise and night lighting associated with lands surrounding the project site. This includes noise and night lighting from Interstates 8 and 805, Camino del Rio North, Qualcomm Way, and the San Diego Trolley, as well as night lighting from surrounding development.

The riparian habitat associated with the San Diego River is moderately infested with exotic species. After the completion of the implementation and five-year establishment phase, additional riparian habitat will have been created. In addition, weed infestation and threats associated with unauthorized human access impacts are expected to be controlled.

9.3 Responsible Parties

9.3.1 Project Proponent/Applicant

The project proponent/applicant shall coordinate with the project habitat manager to prepare and provide any required notifications to the City of San Diego, The project proponent/applicant shall be responsible for funding all aspects of the long-term maintenance, monitoring, and remedial actions as determined necessary by the habitat manager in coordination with the City of San Diego.

The project proponent/applicant shall manage project activities in order to assure the restoration goals and permit conditions are achieved. The project proponent/applicant shall be solely responsible for administration of project contracts including the habitat manager. The project proponent/applicant shall have sole authority in decisions to suspend payment or terminate such contracts. The project proponent/applicant may, with sole discretion at any time, replace any of these parties if necessary, upon notification of the appropriate resource agency.

9.3.2 Habitat Manager

The habitat management entity shall manage and monitor the on-site restoration area property in perpetuity to preserve its habitat and conservation values in accordance with the long-term management plan. The habitat manager for the long-term management portion of the project shall be identified prior to the completion of the five-year maintenance and monitoring period.

The habitat manager shall have a minimum of five years' experience in upland and stream/wetland habitat restoration management and maintenance. The habitat manager will be responsible for implementing the tasks outlined in this plan under the supervision of the project biologist. The habitat manager may also be the project biologist, should the individual meet the qualifications for both roles.

- Implementation of the activities outlined in this mitigation plan in coordination with the project biologist (i.e., site preparation, weed control, seed application, and container planting);
- Long-term maintenance of the mitigation site as outlined in this mitigation plan in coordination with the project biologist (i.e., trash removal, weed control, supplemental irrigation, plant maintenance, and pest control); and
- Perform remedial measures as prescribed by the project biologist and approved by the project proponent/applicant.

Reporting shall be prepared by the land manager annually and will describe any problems encountered or remedial actions that shall be implemented the following year. In addition, every five years, the land manager, or its successors and assignees, shall prepare a maintenance report documenting activities performed under Section 9.5 below, and shall make such report available to the grantor upon request.

9.4 Funding Mechanism

The project proponent/applicant shall cover for any additional planning, implementation and monitoring of any contingency measure, and/or adaptive management strategies that may be required for long-term maintenance and management in perpetuity.

The SDRPF will add sufficient funding to an endowment fund at the San Diego Foundation to adequately fund the estimated annual costs associated with the long-term management tasks identified in Table 14. This endowment funding will be provided prior to the issuance of any grading permits for this project by the City of San Diego. The required endowment funding level will be determined based upon the analysis of the San Diego Foundation. If any funds are not required in a particular year, these funds will be released for other management activities consistent with the endowment fund.

A summary of estimated annual costs associated with identified long-term management tasks are presented in Table 14 below.

Table 14 Long-term Management Annual Task Cost		
Task	Frequency	Cost
Sensitive Vegetation Monitoring	Annual	$500.00
Sensitive Species Monitoring	Annual	$500.00
Exotic Species Control	Annual	$3,250.00
Public Awareness	Annual	$250.00
Trespass Monitoring and Management	Annual	$715.00
Trash Monitoring and Management	Annual	$1,000.00
Reporting and Administration	Annual	$844.00
Subtotal		$7,059.00
10% Contingency		$705.90
TOTAL		**$7,764.90**

9.5 Management Activities

While it is not anticipated that major management actions will be needed during long-term management and monitoring, an objective of this management plan is to use adaptive management to determine what actions might be appropriate to correct issues that may threaten the mitigation area. Adaptive management entails an approach to natural resource management that incorporates changes to management practices, including corrective actions as determined appropriate by the land manager. Before considering any adaptive management changes to the long-term management plan, the designated land manager will consider whether such actions will help ensure the continued viability of the mitigation area's biological resources. The monitoring and management tasks below are not intended to be exhaustive, as additional tasks or different categories may be required to meet the needs of the mitigation area.

Due to unforeseen circumstances, the prioritization of tasks may be necessary to accomplish long-term management goals. The land manager will assess task priorities and allocated annual endowment funding within an adaptive management framework to determine which tasks will be implemented. In general, tasks are prioritized in this order: (1) required by a local, state, or federal agency; (2) tasks necessary to maintain or remediate habitat quality; (3) tasks that monitor resources, particularly if past monitoring has not shown downward trends. Equipment and materials necessary to implement priority tasks will also be considered priorities. Final determination of task priorities in any given year will be determined by the signatory agencies in writing.

9.5.1 Sensitive Vegetation Monitoring

Objective: Monitor, conserve, and maintain the mitigation area's Diegan coastal sage scrub and southern riparian woodland vegetation communities.

Task: As part of the periodic site monitoring surveys, the mitigation area-covered habitat will be examined for any changes, current condition, or pending needs. Any necessary tasks

will be identified, prioritized, and implemented. This task shall be included in annual qualitative biological monitoring.

9.5.2 Sensitive Species Monitoring

Objective: Identify, monitor, conserve, and maintain the mitigation area's sensitive species and sensitive species habitat.

Task: As part of the periodic site monitoring surveys, the identification, status, and any changes to the sensitive species will be noted with particular emphasis on least Bell's vireo. This task shall be included in annual qualitative biological monitoring. Sensitive species monitoring will be conducted by a qualified biologist with no less than two years of sensitive riparian bird species identification including least Bell's vireo, yellow warbler, and yellow-breasted chat. Sensitive species biological monitoring shall occur within the genereally accepted nesting season of the least Bell's vireo (April to July). The monitoring survey will be conducted between dawn and 11 a.m. and be at times to avoid inclement weather. Any sensitive species observed using the on-site mitigation areas will be noted in addition to the presence of any species threats and/or potentially significant contributors to species indirect impacts and edge effects. Potential threats to riparian birds include the presence of brown headed cowbird, habitat degradation, and anthropogenic edge effects.

9.5.3 Exotic Species Control

Objective: Monitor and maintain control over invasive non-native species that diminish sensitive vegetation and species habitat quality.

Task: As part of the periodic site monitoring surveys, a qualitative assessment of potential or observed non-native plant invasions should occur. Additional actions to control invasive species will be evaluated and prioritized. Non-native plant control monitoring shall be conducted annually as a part of annual qualitative biological monitoring. Targeted non-native plant control will be conducted as needed (or annually) as determined by the designated land manager.

Of particular importance will be non-native plants listed by the California Invasive Plant Council as highly invasive. Aggressive species such as giant reed (*Arundo donax*), salt cedar (*Tamarix* spp.), perennial pepperweed (*Lepidium latifolium*), or other invasive species will be noted and addressed through either hand removal or highly selective approved herbicide applications.

9.5.4 Public Awareness

Objective: Install and maintain educational signage. Signage shall be posted and maintained at conspicuous locations.

Task: During each site visit, the condition of signage shall be monitored. The location, type, and adaptive management recommendations shall be monitored annually. Any necessary tasks will be identified and prioritized for implementation.

9.5.5 Trespass Monitoring and Management

Objective: Install and maintain access control signage. Signage shall be posted and maintained at conspicuous locations.

Task: During each site visit, the condition of signage and evidence of trespassing shall be recorded. The location, type, and adaptive management recommendations shall be monitored annually. Any necessary tasks will be identified and prioritized for implementation.

9.5.6 Trash Monitoring and Management

Objective: Monitor and manage sources of trash.

Task: During each site visit, record occurrences of trash and/or trespass. Record type, location, and management mitigation recommendations to avoid, minimize, or rectify a trash and/or trespass impact. This task shall occur annually.

Concurrent with other management efforts, collect and remove trash and repair and rectify vandalism and trespass impacts. This task shall occur annually.

9.5.7 Reporting

Objective: Provide a report on all management tasks conducted and general site conditions to the SDRPF and City of San Diego one time per year.

Task: Prepare a report and any other additional documentation one time per year to summarize site conditions and management actions. The report will make recommendations with regard to (1) any habitat enhancement measures deemed to be warranted, (2) any problems that need near-term attention (e.g., non-native plant removal, erosion control), and/or (3) any changes in the monitoring or management program that appear to be warranted based on monitoring results to date.

9.6 MSCP Consistency

The MSCP is a regional habitat conservation plan that addresses preservation of multiple species and natural vegetation communities within southwestern San Diego County. The MSCP provides a framework for preserving and protecting natural resources through mitigation of impacts to covered species and their habitats from direct, indirect, and cumulative impacts of future development on both public and private lands. The MSCP is implemented through the Final MSCP Plan (Ogden Environmental and Energy Services 1998), jurisdictional subarea plans such as the City MSCP Subarea Plan (City of San Diego

1997), and associated municipal codes which contain resource management requirements. The on-site mitigation areas identified in this plan shall be managed consistent with the MSCP Subarea Plan management frame work in perpetuity.

9.6.1 General Management Directives

Section 1.5.2 of the City's MSCP Subarea Plan provides general management directives which apply to all areas within the MHPA. These general directives provide guidance on access and recreation within open space areas, including the Discovery Center on-site mitigation areas. Priority directives relevant to the Discovery Center include:

- Install sufficient signage and barriers identifying access to the MHPA
- Locate trails, overlooks, and staging areas in least-sensitive areas in MHPA
- Avoid paving trails
- Minimize recreational trail widths
- Limit equestrian trails near sensitive resources
- Prohibit recreational off-road and cross county access to MHPA
- Remove homeless camps from habitat areas
- Remove litter and trash on a regular basis

9.6.2 Area-Specific Management Directives

The actions and commitments in this plan fulfill the City of San Diego's MSCP requirement to develop Area-Specific Management Directives for the protection of natural resources within the MHPA at Discovery Center project (see MSCP Implementing Agreement Section 10.6.B, City Subarea Plan Section 1.5.7, and Final MSCP Plan Section 6.3). The following describes the long-term management actions which fulfill the Area-Specific Management Directives requirement for MSCP covered species within preserved lands.

9.6.2.1 Least Bell's Vireo

Area-specific management directives must include measures to provide appropriate successional habitat, upland buffers for all known populations, cowbird control, and specific measures to protect against detrimental edge effects to this species. Any clearing of occupied habitat must occur between September 15 and March 15 (MSCP:Table 3-5; Ogden Environmental and Energy Services 1998).

The proposed southern riparian woodland vegetation creation areas provides upland buffers of approximately 20 to 120 feet to known least Bell's vireo nesting areas and, due to its unique design mimicking riparian transitional habitat, provides additional successional habitat for least Bell's vireo within the MHPA. Proposed habitat enhancement activities within the MHPA would occur outside of the least Bell's vireo nesting season. Proposed adaptive management activities such as exotic species control, public awareness, trespass management, and trash removal shall protect against detrimental edge effects to least Bell's vireo. Cowbirds, a known threat to least Bell's vireo, have not been observed during

project surveys. If cowbirds are detected during long-term sensitive species monitoring surveys, funds from the exotic species control task may be used to support a regional cowbird trapping program.

9.6.2.2 Cooper's Hawk

Area-specific management directives must include 300-foot impact avoidance areas around active nests and minimization of disturbance in oak woodlands and oak riparian forests (MSCP:Table 3-5; Ogden Environmental and Energy Services 1998).

Proposed habitat enhancement activities within the MHPA would occur outside of the Cooper's hawk nesting season. In addition, the minimization of new trails and the removal of previously unauthorized trails and encampments within the MHPA shall minimize disturbance within oak woodlands and, thereby, satisfy this condition.

9.6.2.3 Belding's Orange-Throated Whiptail

Area-specific management directives must address edge effects (MSCP:Table 3-5; Ogden Environmental and Energy Services 1998).

The control of trash, homeless encampments, public access, as well as weed control actions will serve to protect this species against detrimental edge effects within the MHPA.

9.6 Prohibitions

The following activities are prohibited within the on-site mitigation areas:

a. Herbicide types, rodenticides, pesticides, incompatible fire protection activities and any and all other uses which may adversely affect conservation of watersheds;

b. Use of off-road vehicles;

c. Grazing or surface entry for exploration or extraction of minerals;

d. Erecting of any building, billboard, or sign (except informational signs associated with the mitigation site);

e. Depositing of soil, trash, ashes, garbage, waste, bio-solids, or any other material; (soil deposition in association with an approved restoration program is allowed);

f. Excavating, dredging, or removing of loam, gravel, soil, rock, sand, or other material; (excavation or moving of soil, gravel, loam, rock, sand or other material in association with an approved restoration program is allowed);

g. Otherwise altering the general topography of the conserved area, including the building of roads; and

h. Removing, destroying, or cutting of trees, shrubs or other vegetation other than the non-native plant removal or brush management activities. Alterations in association with an approved restoration program are allowed.

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