3Roots San Diego Project
Environmental Impact Report

SCH No. 2018041065; Project No. 587128

Appendix I

Jurisdictional Delineation Report

June 2019

HELIX Environmental Planning

3Roots Project San Diego

Jurisdictional Delineation Report

May 2019 | CAH-02.01

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ACRONYMS AND ABBREVIATIONS

City	City of San Diego
CDFW	California Department of Fish and Wildlife
CWA	Clean Water Act
FAC	Facultative Species
FACU	Facultative Upland Species
FACW	Facultative Wetland Species
GPS	Global positioning system
HELIX	HELIX Environmental Planning, Inc.
Jurisdictional	Subject to city, state, or federal wetland regulations
NWI	National Wetlands Inventory
OHWM	Ordinary High Water Mark
Project	3Roots San Diego
SWRCB	State Water Resources Control Board
UPL	Upland Species
USACE	U.S. Army Corps of Engineers
WS	Waters of the State
WUS	Waters of the U.S.

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1.0 INTRODUCTION

1.1 REGULATORY FRAMEWORK

This report presents the results of a focused jurisdictional delineation of the 3Roots project, located in the City of San Diego, San Diego County, California. The delineation was conducted to identify and map Waters of the U.S. (WUS) under U.S. Army Corps of Engineers (USACE) jurisdiction pursuant to Section 404 of the Clean Water Act (CWA; 33 USC 1344), wetland and streambed habitats under California Department of Fish and Wildlife (CDFW) jurisdiction pursuant to Section 1600 of the California Fish and Game Code, Waters of the State (WS) under State Water Resources Control Board (SWRCB) jurisdiction pursuant to the Porter-Cologne Act, and City of San Diego (City) wetlands pursuant to the Biological Guidelines. 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 and state jurisdictional habitats 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, SWRCB, and City.

1.2 PROJECT LOCATION

The Project site primarily incorporates an approximate 413-acre property located in the south-central portion of the Mira Mesa Community Plan area, in the City of San Diego, California, and is owned by Lennar Communities (Lennar) (Figure 1). Off-site areas for extensions of Carroll Canyon Road east and west of the site are also covered in this report. Specifically, the Project is located north of Trade Street and Miramar Road, south of Flanders Drive and Mira Mesa Boulevard, east of Camino Santa Fe, and west of Parkdale Avenue. Its location can also be described as located in Section 35 of Township 14 South, Range 3 West; and Sections 1, 2, 3, and 11 of Township 15 South, Range 3 West on the Del Mar U.S. Geological Survey 7.5-minute quadrangle map (Figure 2). The Project site occupies San Diego County Assessor Parcel Numbers (APNs) 341-050-380, 341-050-400, 341-050-410, 341-050-420, 341-051-170, 341-051-180, and 341-060-820. Off-site areas within the Project boundary include APNs 341-040-400, 341-050-430, 341-470-100, 341-470-110, 341-480-050, 341-480-060, and 343-052-050.. The Project is situated south of residential development and north of commercial development (Figure 3). Most of the project site has been subject to quarry activities (Figure 3).

2.0 METHODS

2.1 APPROACH

Prior to beginning the fieldwork for this report, aerial photographs (1"=200' scale) and topographic maps (1"=200' scale) were reviewed to determine the location of potential jurisdictional areas that may be affected by the proposed project. The site's vegetation had also been previously mapped. Data were collected in areas that were suspected to be jurisdictional habitats on April 19 and 20, 2016, and May 3 and June 19 and 20, 2017. The CDFW jurisdictional areas were mapped with the assistance of a licensed land surveyor on June 19 and 20, 2017. Additionally, the off-site eastern and western extensions of Carroll Canyon Road were delineated by HELIX (Mr. Sward and Mrs. Stacy Nigro) on June 5,June 28, and December 4, 2018, respectively. HELIX Principal Biologist W. Larry Sward conducted the field work and authored this report.

An on-site meeting was held on September 21, 2017 with Kelly Fisher of CDFW and Alan Monji of the SWRCB. The purpose the meeting was to verify the extent of their agency's jurisdiction. Further, the jurisdictional limits of USACE jurisdictional areas were confirmed during an on-site meeting on February 19, 2019, with USACE Project Manager Christopher Allen. The results presented herein reflect the verification conclusions reached at those meetings.

2.2 FEDERAL JURISDICTION

The WUS 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 (U.S. Army Corps of Engineers [USACE] 2008).

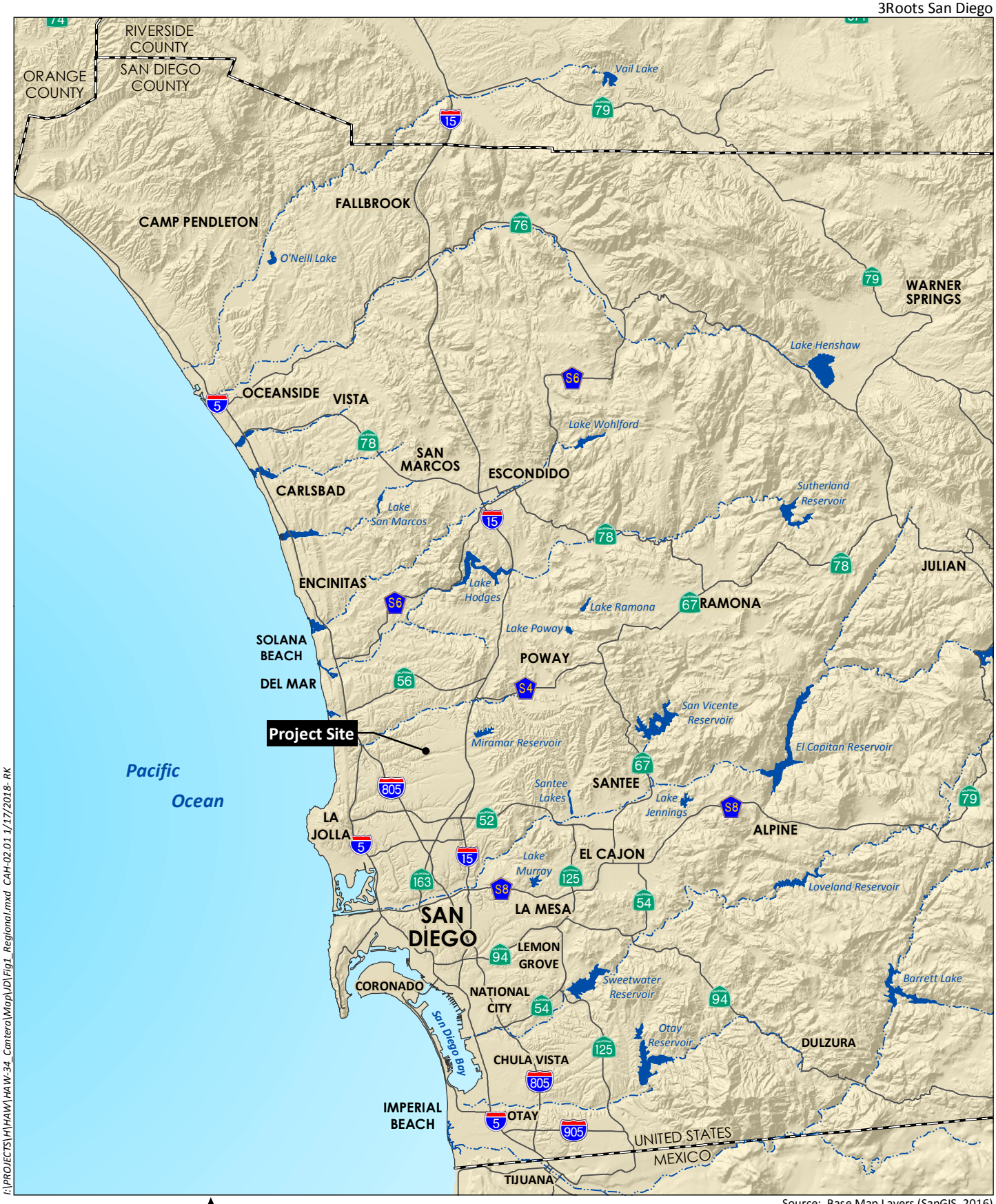
The results presented here are consistent with the recent final rule defining the scope of waters protected under the CWA (USACE and Environmental Protection Agency 2015). An overview of USACE wetlands and jurisdictional WUS definitions is presented in Appendix A.

Plants were identified according to Baldwin et al. (2012). Rebman and Simpson (2014) and Calflora (2018) were used to update scientific names and augment common names. Wetland affiliations of plant species follow The National Wetland Plant List (Lichvar et al. 2016). Vegetation was mapped according to Oberbauer et al. (2008).

Soils information was taken from Natural Resources Conservation Service (2017). 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 [nonriverine, 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]). Wetland determination data forms were completed for each sample point.

Areas were determined to be non-wetland WUS if there was evidence of regular surface flow (e.g., bed and bank), but lacked wetland vegetation or hydric soil, or both wetland vegetation and hydric soil. 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 and OHWM datasheets were completed.



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Source: Base Map Layers (SanGIS, 2016)

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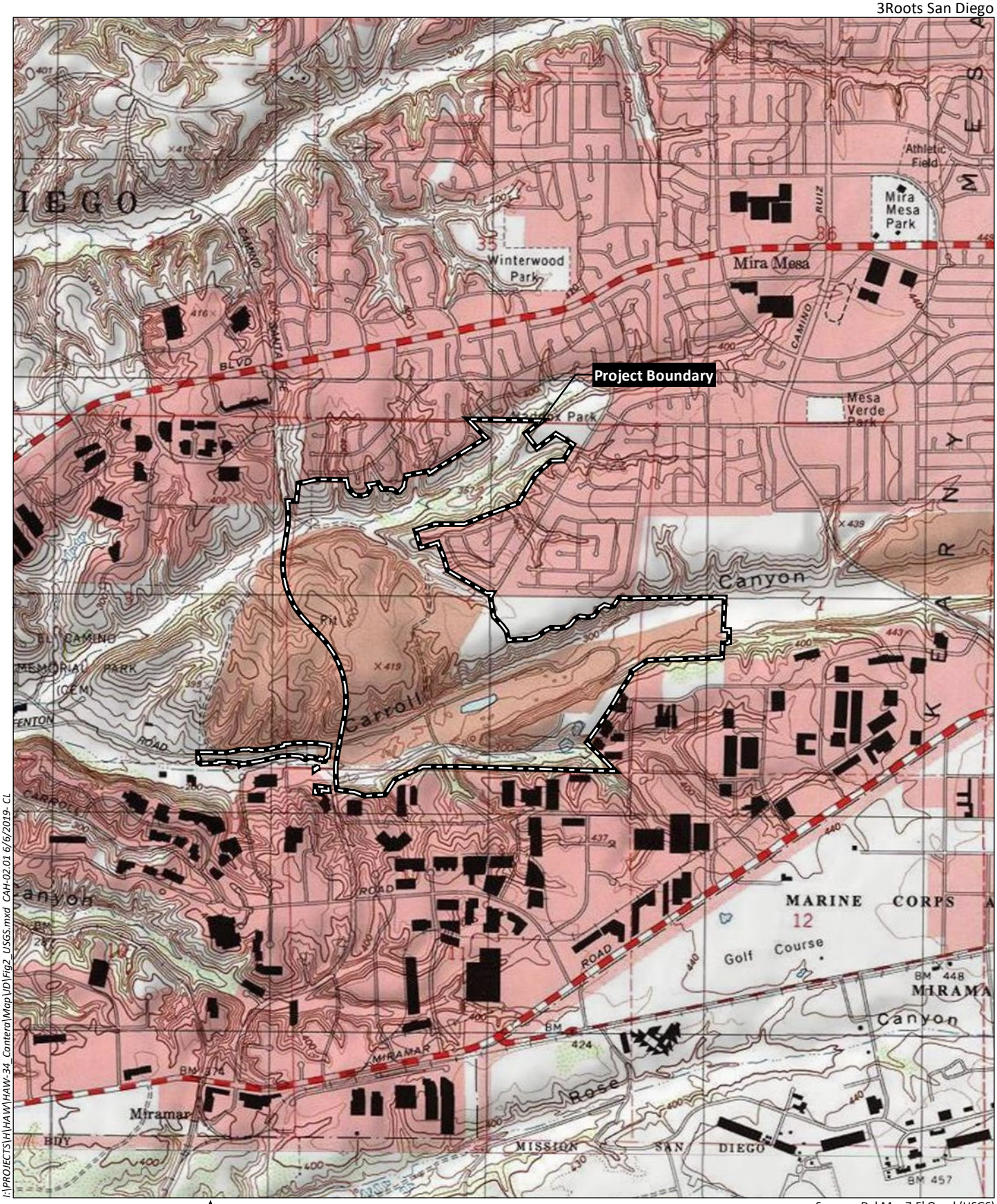
Regional Location

Figure 1



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Source: Del Mar 7.5' Quad (USGS)

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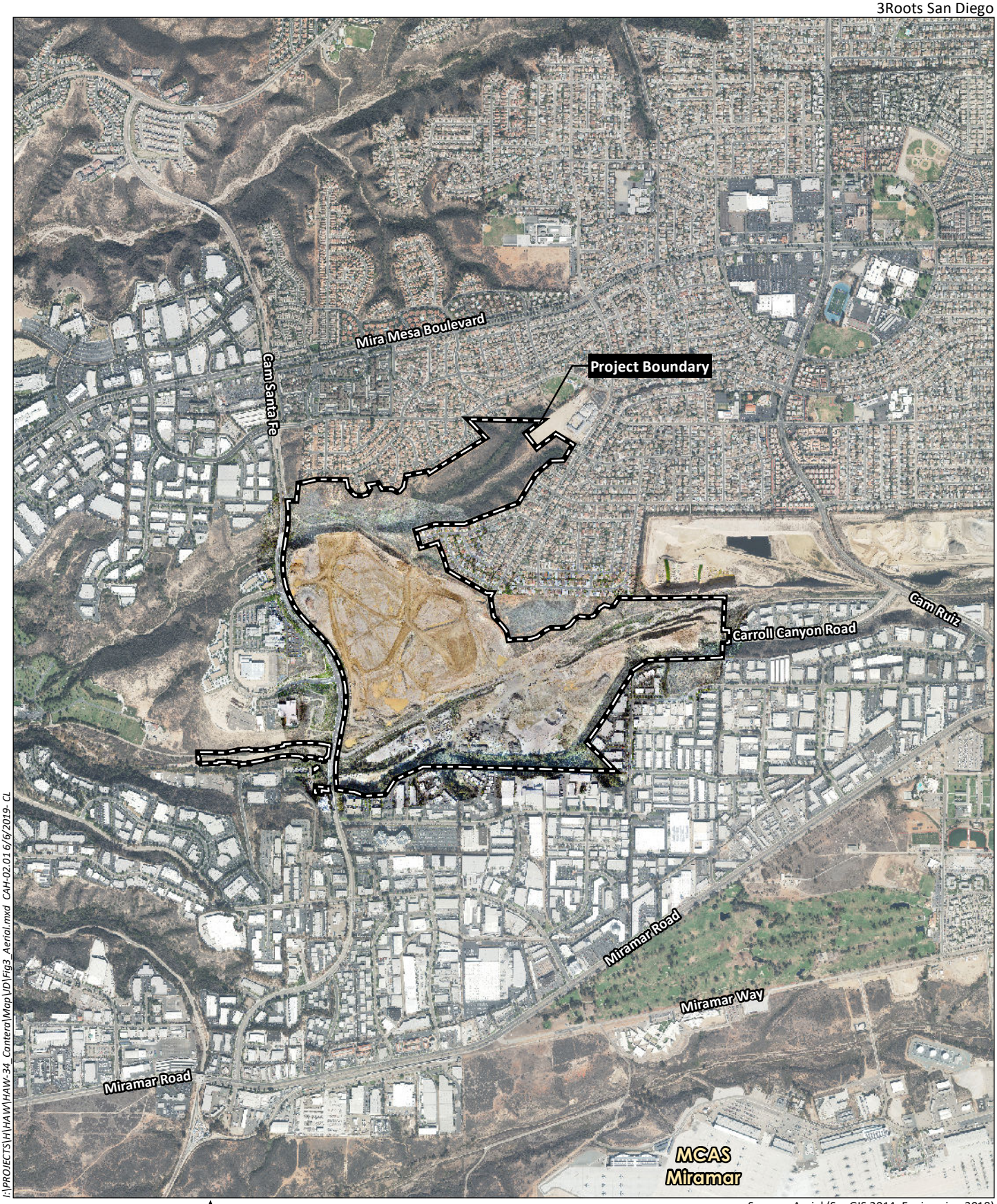
USGS Topography

Figure 2



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Source: Aerial (SanGIS 2014, Enviromine 2018)

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Aerial Vicinity

Figure 3

2.3 STATE JURISDICTION

2.3.1 California Department of Fish and Wildlife

The CDFW 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.

2.3.2 State Water Resources Control Board

The SWQCB jurisdiction includes CWA Section 404 waters and WS pursuant to the Porter-Cologne Act. The waters of the state are those areas between the upper limits of the 404 waters and the outer edge of CDFW habitat.

2.4 CITY JURISDICTION

City wetland boundaries were 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). Areas of unvegetated channel on site where City wetland vegetation occurs both upstream and downstream of the channel were determined to be City wetlands. There are also situations where wetland vegetation created by human activities is not considered wetlands (fed by artificial or manipulated hydrology). Please refer to Appendix C for a full definition of City wetlands.

2.5 FIELD STUDY

Three sample points were studied. Standard data forms were completed for each sample point in the field and are included in Appendix D. The sample point mapping was done with a GPS device with sub-meter accuracy. Photographs were taken of the sample points and are included in Appendix E. Additionally, OHWM datasheets were completed at four locations and are provided as Appendix F.

3.0 RESULTS

3.1 SITE DESCRIPTION

Topographic complexity on the site is the result of two natural canyons, watercourses, and man-made features (Figure 2). The 3Roots project site includes Rattlesnake Creek, which flows through the northern portion of the Project, and Carroll Canyon Creek, which bisects the southern portion of the Project. Most of the land between the drainages is a quarry, characterized by variable, transitory

topography. The areas north and south of the Project are relatively level, with residential development to the north and industrial development to the south. Overall, the water flows west through the Project.

Rattlesnake Creek has two unnamed tributaries. Rattlesnake Creek and its largest tributary are completely surrounded by development and flow onto the site via culvert outlets. The smaller tributary's watershed is primarily from a developed area, with most of the hydrology provided from a culvert outlet but also includes surface runoff. Elevations in the Rattlesnake Creek watershed range from 270 feet on the western boundary to 365 feet near the headwaters in the northeast portion of the site. Rattlesnake Creek and its tributaries are relatively natural in the reach that crosses the site.

Carroll Canyon Creek, unlike Rattlesnake Creek, is undeveloped east of the Project. It has an unnamed tributary merging into it at the southwest corner of the Project. The elevations of Carroll Canyon Creek within the project range from 214 feet on the western boundary to 297 feet on the eastern boundary.

These drainages on site support a variety of wetland vegetation communities, including southern riparian woodland, southern willow scrub, mule fat scrub, disturbed wetland, and unvegetated channel habitats (Figure 4). These habitats along Carroll Canyon Creek and the southern tributary have been heavily degraded by past quarry activities by previous owners.

The non-wetland habitats on site include coastal sage scrub and chaparral phases, including: baccharis scrub, chamise chaparral, coastal sage-chaparral transition, southern mixed chaparral, and Diegan coastal sage scrub. The site also supports several non-native habitats, including eucalyptus woodland, non-native grassland, and non-native vegetation.

Most of the site has been altered by quarry related activities. This includes disturbed and cleared habitat, disturbed habitat, and developed areas.

Federally regulated wetlands are dominated by hydrophytic plants and have wetland hydrology and hydric soils. State and city wetlands may only have wetland plants. Wetland plant species at the sample points (Table 1) include species such as arroyo willow (*Salix lasiolepis*), red willow (*Salix laevigata*), mule fat (*Baccharis salicifolia*), Red River gum (*Eucalyptus camaldulensis*), and smallflower tamarisk (*Tamarix parviflora*).

Table 1
PLANT SPECIES OBSERVED AT SAMPLING POINTS

Family	Species	Common Name	Indicator Status†
Apiaceae	*Foeniculum vulgare**	Fennel	UPL
Asteraceae	*Artemisia californica*	California sagebrush	UPL
	Ambrosia psilostachya	western ragweed	FACU
	Baccharis salicifolia	mule fat	FAC
	Baccharis sarothroides	broom baccharis	FACU
	Erigeron canadensis	horseweed	FACU
	*Sonchus asper**	prickly sow-thistle	FAC
	Xanthium strumarium	cocklebur	FAC
Brassicaceae	*Brassica rapa**	field mustard	FACU
Euphorbiaceae	*Euphorbia peplus**	petty spurge	UPL

- Project Site
- Project Boundary
- CUP 89-0585 Boundary
- SDG&E Additional Study Area
- Vernal Pool Preserve

Sensitive Animals

- Coastal California Gnatcatcher
- Cooper's Hawk
- Least Bell's Vireo
- Orange-throated Whiptail
- Coastal Whiptail

Sensitive Plants

- Nuttall's scrub oak
- Palmer's grapplinghook
- San Diego Barrel Cactus
- San Diego marsh-elder
- San Diego sagewort
- San Diego sunflower
- ashy spike-moss
- golden-rayed Pentachaeta
- summer holly
- San Diego marsh-elder
- San Diego sunflower

Vegetation

- Quarry
- Baccharis Scrub
- Baccharis Scrub - Disturbed
- Chamise Chaparral
- Coastal Sage-Chaparral Transition
- Southern Mixed Chaparral
- Diegan Coastal Sage Scrub
- Diegan Coastal Sage Scrub - Disturbed
- Eucalyptus Woodland
- Eucalyptus Woodland - Sparse
- Non-native Grassland
- Non-native Vegetation
- Disturbed Habitat
- Developed
- Disturbed Wetland
- Coast Live Oak Woodland
- Mule Fat Scrub
- Mule Fat Scrub - Disturbed
- Mule Fat Scrub - Sparse
- Southern Riparian Woodland
- Southern Riparian Woodland - Disturbed
- Southern Willow Scrub
- Southern Willow Scrub - Disturbed
- Unvegetated Channel/Streambed

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Source: Aerial (SanGIS 2014, Enviromine, Inc. 2018); MHPA (SanGIS 2015); Limits of Grading (PDC 2018).

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Existing Vegetation and Land Cover Types Prior to CUP 89-0585 Reclamation

Figure 4

Table 1 (cont.)
PLANT SPECIES OBSERVED AT SAMPLING POINTS

Family	Species	Common Name	Indicator Status†
Fabaceae	*Acacia longifolia**	Sydney golden wattle	UPL
	*Melilotus indicus**	sweetclover	FACU
Lamiaceae	*Salvia mellifera*	black sage	UPL
Myrsinaceae	*Anagallis arvensis**	scarlet pimpernel	UPL
Myrtaceae	*Eucalyptus camaldulensis**	Red River gum	FAC
Phrymaceae	*Mimulus aurantiacus*	bush monkey flower	UPL
Poaceae	*Brachypodium distachyon**	false brome	UPL
	*Bromus diandrus**	ripgut grass	UPL
	*Bromus madritensis**	red brome	UPL
	*Paspalum dilatatum**	Dallis grass	FAC
	*Cortaderia selloana**	selloa pampas grass	FACU
	Melica imperfecta	coast range melic	UPL
Polygonaceae	*Eriogonum fasciculatum*	California buckwheat	UPL
Salicaceae	*Salix laevigata*	red willow	FACW
	Salix lasiolepis	arroyo willow	FACW
Tamaricaceae	*Tamarix parviflora**	smallflower tamarisk	FAC

† FACW=facultative wetland species, FAC=facultative species, FACU=facultative upland species, and UPL=obligate upland species. Please also see Appendix A.
ʏ Best professional judgment of delineator.
*Indicates non-native species.

3.1.1 Soils

The 3Roots project is mapped as supporting 10 soil types (Natural Resources Conservation Service 2017; Figure 5): Altamont clay, 15 to 30 percent slopes; Gravel pits; Olivenhain cobbly loam (2 to 9 percent slopes, 9 to 30 percent slopes, and 30 to 50 percent slopes); Redding cobbly loam, dissected (15 to 50 percent slopes); Redding cobbly loam (9 to 30 percent slopes); Redding gravelly loam (2 to 9 percent slopes); Riverwash; and Terrace escarpments. Riverwash occurs along the southern drainage, flanked by Terrace escarpments to the east, and Olivenhain cobbly loam (2 to 9 percent slopes) and Redding cobbly loam, dissected (15 to 50 percent slopes) to the west. Redding gravelly loam, 2 to 9 percent slopes, covers the majority of the active quarry and a portion of the southeast corner of the Project. Redding cobbly loam (9 to 30 percent slopes and 30 to 50 percent slopes) occupies most of the northern side of the Project. Altamont clay, 15 to 30 percent slopes, occurs northwest of the active quarry. Because the site has been actively quarried for many years, these soil types only remain where quarrying has not occurred.

3.1.2 National Wetlands Inventory

The National Wetlands Inventory (NWI) has a variety of palustrine and riverine features shown on the Project (U.S. Fish and Wildlife Service 2017; Figure 6). These features occur along Carroll and Rattlesnake Canyons, their tributaries, and in the active quarry. The wetland type and locations shown on the NWI maps are:

Carroll and Rattlesnake Canyons and their tributaries:

- Palustrine forested, temporary flooded; Rattlesnake Creek and tributary;
- Palustrine scrub-shrub, temporary flooded; eastern reach of Carroll Canyon tributary and eastern reach of southern Rattlesnake Creek tributary;
- Palustrine scrub-shrub, unconsolidated shore, temporary flooded; eastern reach of Carroll Canyon;
- Riverine, intermittent streambed, temporarily flooded; eastern reach of Carroll Canyon, lower reach of Carroll Canyon, and western reach of Carroll Canyon tributary;
- Riverine, intermittent streambed, temporary flooded, excavated; eastern reach of Carroll Canyon tributary;
- Riverine, intermittent streambed, seasonally flooded; Rattlesnake Creek tributary; and
- Riverine, intermittent streambed, seasonally flooded, excavated; Carroll Canyon.

Features within the active quarry footprint:

- Palustrine emergent, persistent, temporary flooded;
- Palustrine emergent, persistent, temporary flooded, excavated;
- Palustrine emergent, persistent, seasonally flooded;
- Palustrine, unconsolidated bottom, permanently flooded;
- Palustrine, unconsolidated shore, seasonally flooded, excavated; and
- Palustrine, unconsolidated shore, temporary flooded, excavated.

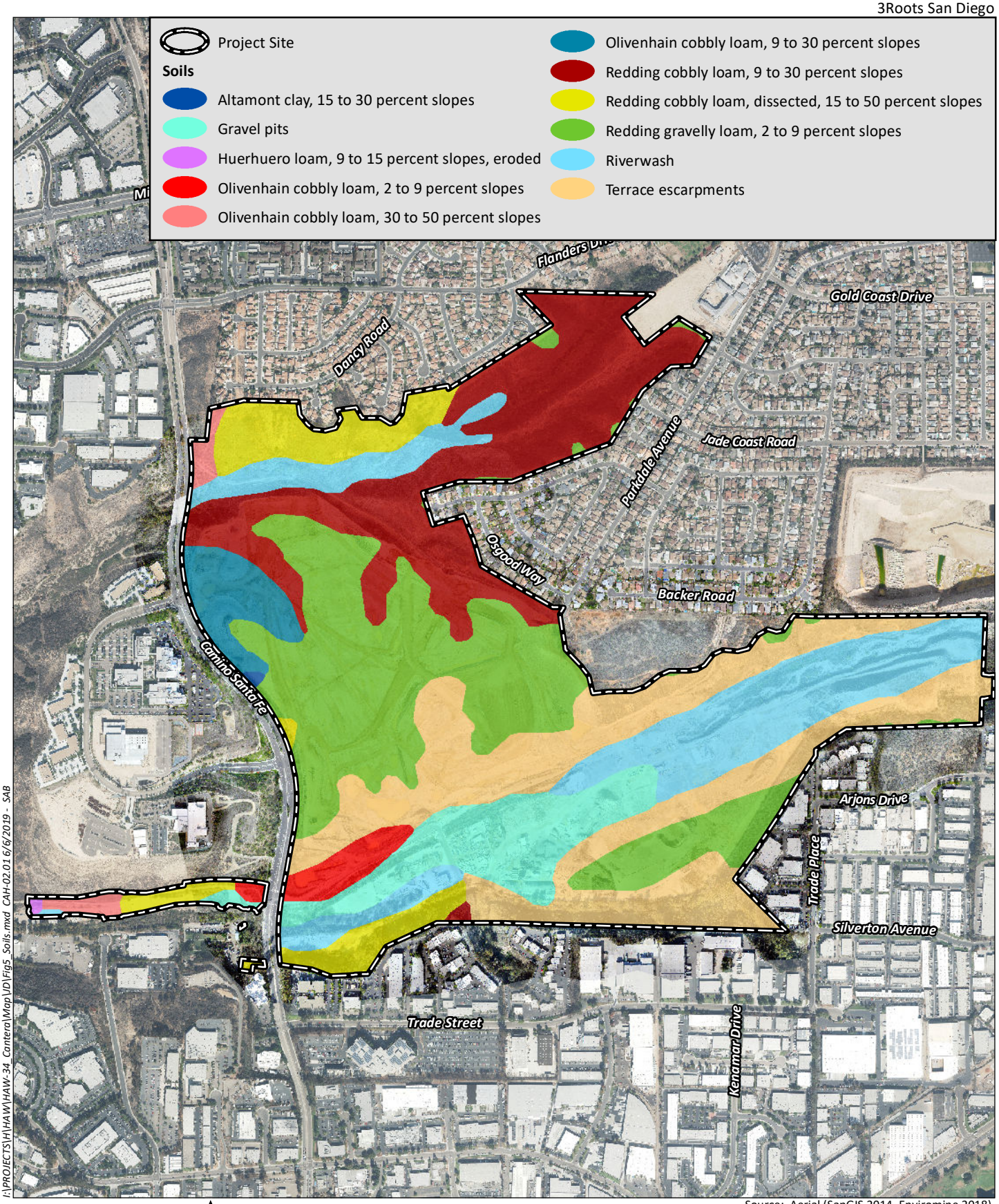
The field results presented in this report are generally consistent with the NWI mapping for the non-quarry areas of the Project. The area of the quarry is similar, but some features are absent. This is due to the ongoing quarry activities.

3.2 SAMPLE POINTS

Data from three wetland delineation sampling points were done within the project site (Figure 7). A summary of these samples is provided below. The sample points were done in Carroll Canyon Creek, including in the wettest naturally occurring areas within the Project.

Sample Point 1. This Sample Point was located on a sandbar adjacent to the unvegetated low-flow channel (Figures 7). The habitat at this location is shrubby, southern willow scrub. It is shown on the NWI as riverine, streambed, intermittent, temporarily flooded. Wetland vegetation, dominated by willows (*Salix lasiolepis* and S*. laevigata*), was present based on the Dominance Test. A soil pit excavated to a depth of 16 inches did not reveal any hydric soil indicators. However, the sample point appears to meet the circumstances for the vegetated sand and gravel bars within floodplains problem area of the Arid West Supplement (USACE 2008). Two secondary wetland hydrology indicators were present: drift deposits (B3; riverine) and the FAC-neutral Test, which is sufficient to conclude wetland hydrology. This location is a wetland WUS. The presence of wetland vegetation is also the basis for concluding that this location is also a CDFW jurisdictional habitat and a City wetland.

Sample Point 2. This Sample Point was located in the adjacent upland, in Diegan coastal sage scrub (Figures 7). Vegetation was dominated by two upland species (California sagebrush [*Artemisia californica*] and California buckwheat [*Eriogonum fasciculatum*]) and one facultative upland species (selloa pampas grass [*Cortaderia selloana*]), which failed the Wetland Dominance. The Prevalence Index



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Source: Aerial (SanGIS 2014, Enviromine 2018), Soils (Department of Agriculture, Natural Resources Conservation Service 2005).

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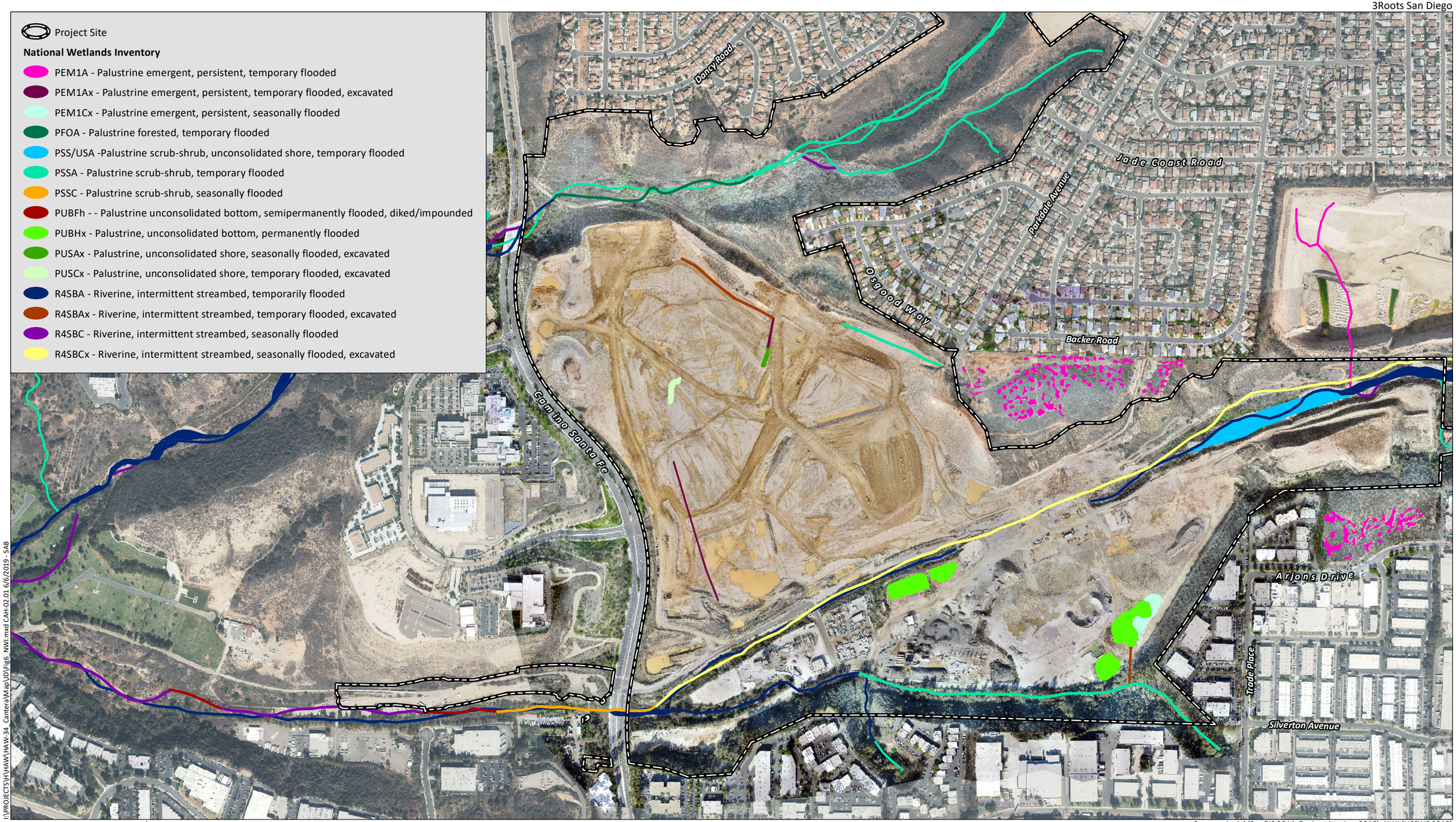
Soils

Figure 5

Project Site

National Wetlands Inventory

- PEM1A - Palustrine emergent, persistent, temporary flooded
- PEM1Ax - Palustrine emergent, persistent, temporary flooded, excavated
- PEM1Cx - Palustrine emergent, persistent, seasonally flooded
- PFOA - Palustrine forested, temporary flooded
- PSS/USA -Palustrine scrub-shrub, unconsolidated shore, temporary flooded
- PSSA - Palustrine scrub-shrub, temporary flooded
- PSSC - Palustrine scrub-shrub, seasonally flooded
- PUBFh - - Palustrine unconsolidated bottom, semipermanently flooded, diked/impounded
- PUBHx - Palustrine, unconsolidated bottom, permanently flooded
- PUSAx - Palustrine, unconsolidated shore, seasonally flooded, excavated
- PUSCx - Palustrine, unconsolidated shore, temporary flooded, excavated
- R4SBA - Riverine, intermittent streambed, temporarily flooded
- R4SBAx - Riverine, intermittent streambed, temporary flooded, excavated
- R4SBC - Riverine, intermittent streambed, seasonally flooded
- R4SBCx - Riverine, intermittent streambed, seasonally flooded, excavated



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Source: Aerial (SanGIS 2014, Enviromine, Inc. 2018), NWI (USFWS 2018)

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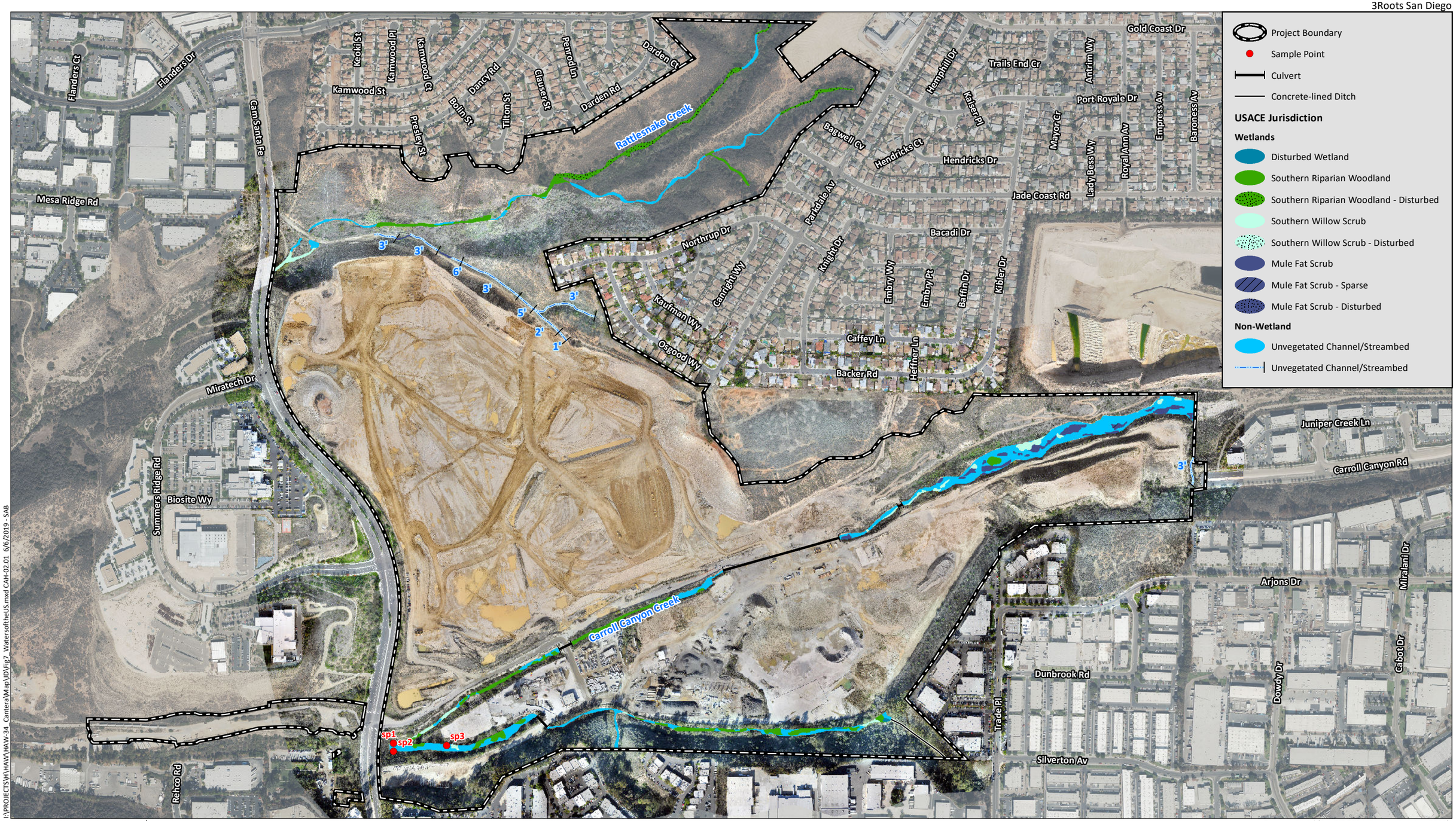
National Wetlands Inventory

Figure 6

3Roots San Diego



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Source: Aerial (SanGIS 2014, Enviromine, Inc. 2018).

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USACE Jurisdictional Limits

Figure 7

for this sample was 4.7, which it too high to conclude this is wetland vegetation. A soil pit excavated to a depth of 12 inches did not reveal any hydric soil indicators, and the soil appeared to be fill. No wetland hydrology indicators were present. This location was determined to be an upland pursuant to federal, state, and City regulations.

Sample Point 3. This Sample Point was located approximately 350 feet upstream of Sample Point 1 (Figure 7). The sample point was located on the floor of the drainage. The vegetation at this location was dominated by one upland species (Sydney golden wattle [*Acacia longifolia*]) and two facultative upland species—broom baccharis (*Baccharis sarothroides*) and western ragweed (*Ambrosia psilostachya*), which failed to meet the dominance test for hydrophytic vegetation. The Prevalence Index score for this sample point was 4.3, which is too high to conclude this is wetland vegetation. A soil pit dug to 16 inches did not reveal any hydric soil indicators. One secondary wetland hydrology indicator was noted—drift deposits (B3; riverine). While riverine drift deposits alone are insufficient for wetland hydrology, they are an OHWM indicator and are the basis for concluding that this location is non-wetland WUS. This location is also considered a CDFW jurisdictional streambed habitat.

3.3 POTENTIALLY JURISDICTIONAL HABITATS

The drainages support a variety of potentially jurisdictional habitats, including southern riparian woodland, southern willow scrub, mule fat scrub, disturbed wetland, and unvegetated channel/streambed (Figure 4). A general description of these is provided below. These habitats are considered jurisdictional aquatic resources subject to the regulatory authority of the USACE, CDFW, SWRCB, and City, to differing extents depending upon each agency's criteria for delineating jurisdiction. In general, CDFW jurisdiction extends farther up the slopes of the drainage features described previously, while USACE jurisdiction includes only the drainage bottoms and their floodplain up to the OHWM.

Southern Riparian Woodland. Southern riparian woodlands and forests are made up of winter-deciduous trees that require water near the soil surface. Willow, cottonwood (*Populus* sp.), and western sycamore (*Platanus racemosa*) form a dense medium height woodland or forest in moist canyons and drainage bottoms. 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.

The quality of the habitat in Carroll Canyon Creek downstream of the large culvert (Figures 7, 8, and 9) is highly disturbed. It contains patches of many non-native species (e.g., eucalyptus, Mexican fan palm, and Pampas grass), exposed and buried concrete rubble, sections with concrete sides, and an altered hydrograph from quarry runoff.

Southern Willow Scrub. Southern willow scrub consists of dense, broad-leaved, winter-deciduous stands of trees dominated by shrubby willows in association with mule fat, and with scattered emergent cottonwood (*Populus fremontii*) and western sycamores. 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.

The southern willow scrub that occurs downstream of a large culvert has the same disturbance related issues as those listed above for southern riparian woodland, including many non-native species, exposed and buried concrete rubble, sections with concrete sides, and an altered hydrograph from quarry runoff.

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). In some environments, limited hydrology may favor the persistence of mule fat.

Disturbed Wetland. Disturbed wetland on site consisted primarily of habitat dominated by non-native species such as umbrella sedge (*Cyperus involucratus*) and annual beard grass (*Polypogon monspeliensis*).

Unvegetated Channel/Streambed. Unvegetated channel/streambed occurs along both Rattlesnake Creek and Carroll Canyon Creek, as well as several tributaries to these creeks.

3.3.1 Waters of the U.S.

The WUS at the 3Roots project include 5.82 acres of wetland and 7.35 acres of non-wetland WUS (Figure 7; Table 2). The WUS length on site totals 18,797 linear feet. This includes the length of Rattlesnake Creek and Carroll Canyon Creek through the project site and their tributaries.

Table 2
U.S. ARMY CORPS OF ENGINEERS WATERS OF THE U.S.

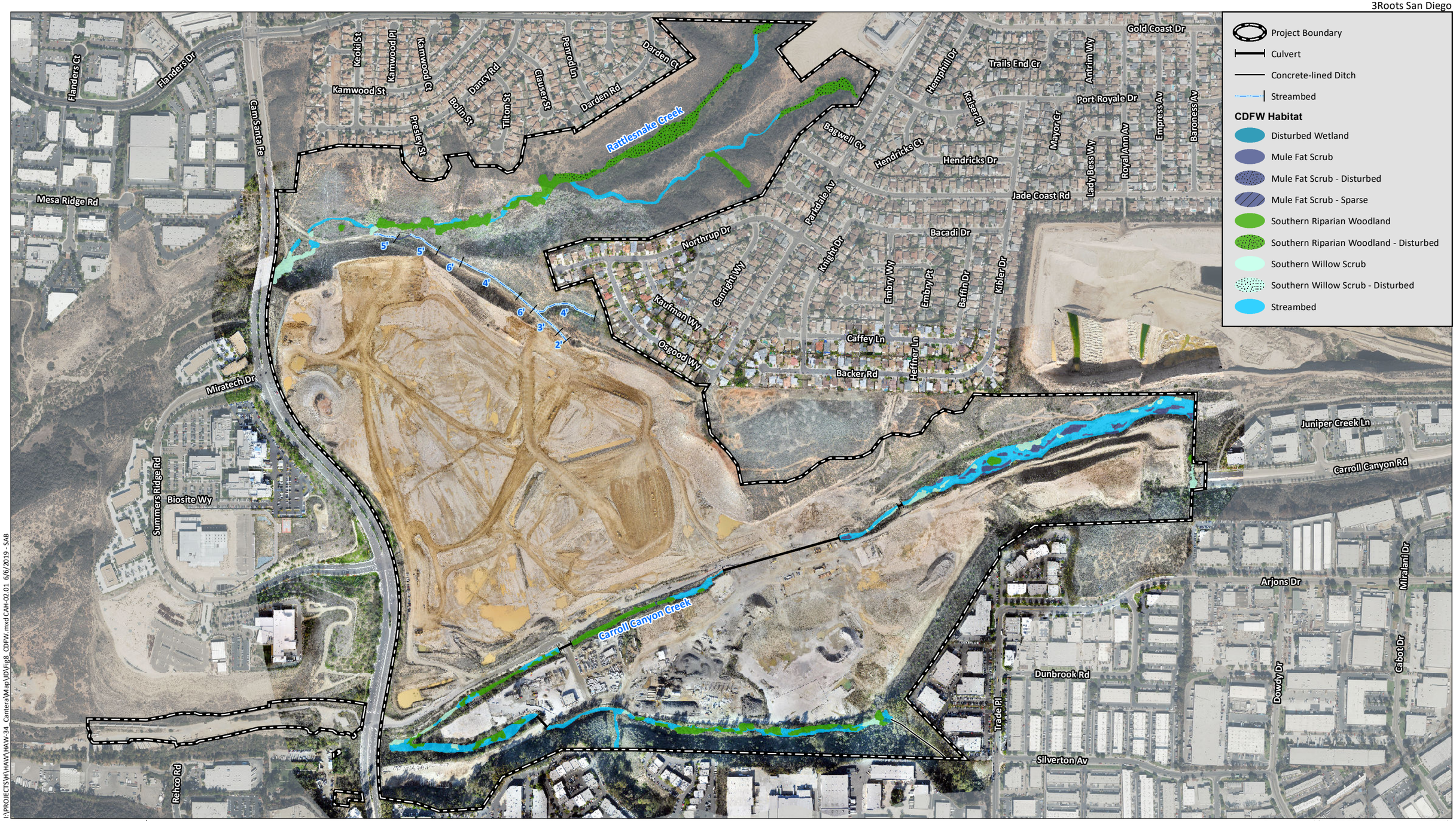
Waters of the U.S.	Area	Length
Wetlands		
Southern riparian woodland[1]	3.78	6,689
Southern willow scrub	0.91	899
Disturbed wetland	0.05	36
Mule fat scrub[1,2]	1.08	927
Subtotal	5.82	8,551
Non-wetlands		
Unvegetated Channel/Streambed	7.35	10,246
TOTAL	**13.17**	**18,797**

[1] Includes disturbed phase.
[2] Includes sparse phase.

3.3.2 California Department of Fish and Wildlife Jurisdiction

The CDFW jurisdictional habitats at the 3Roots project include 10.88 acres of riparian woodland, scrub, and herbaceous habitats, and 9.03 acres of unvegetated streambed (Figure 8; Table 3). The length of CDFW jurisdictional areas on site totals 19,283 linear feet. This includes the length of Rattlesnake Creek and Carroll Canyon Creek (to the edge of vegetation canopy) through the project site and their tributaries.

3Roots San Diego



Source: Aerial (SanGIS 2014, Enviromine, Inc. 2018).

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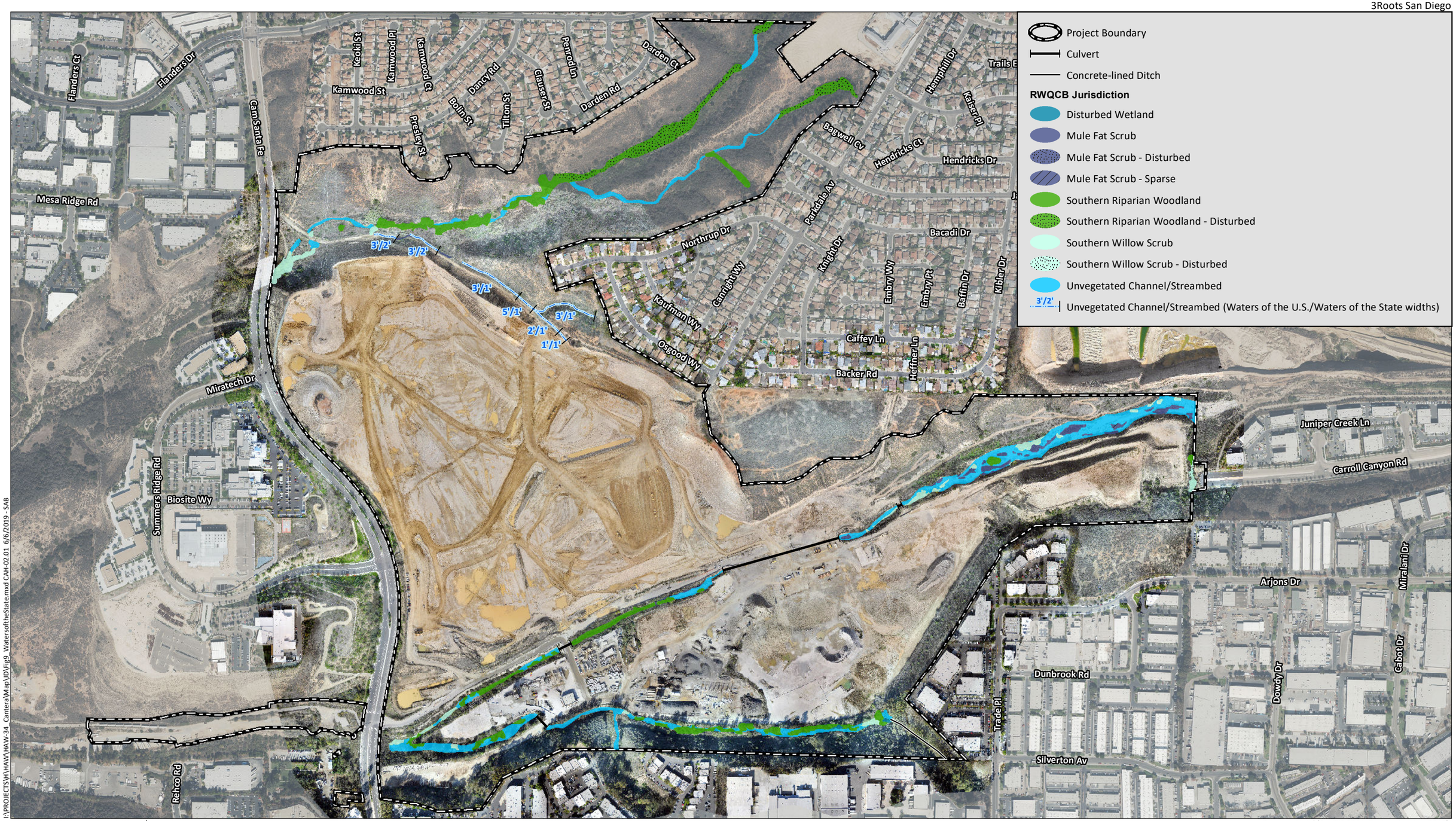
HELIX Environmental Planning

CDFW Jurisdictional Habitats

Figure 8



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0 650 Feet

Source: Aerial (SanGIS 2014, Enviromine, Inc. 2018).

HELIX Environmental Planning

RWQCB Jurisdictional Limits

Figure 9

Table 3
CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE
STREAMBED AND RIPARIAN HABITATS

Habitat	Area	Length
Southern riparian woodland[1]	7.94	6,966
Southern willow scrub[1]	1.72	1,278
Mule fat scrub[1,2]	1.15	928
Disturbed wetland	0.07	37
Unvegetated Channel/Streambed	9.03	10,074
TOTAL	**19.91**	**19,283**

[1] Includes disturbed phase.
[2] Includes sparse phase.

3.3.3 Waters of the State

The WS at the 3Roots project are nearly synonymous with the CDFW jurisdictional habitats and includes 10.88 acres of riparian woodland, riparian scrub, and herbaceous wetlands, and 8.89 acres of unvegetated streambed (Figure 9; Table 4). The length of RWQCB jurisdictional areas on site totals 19,201 linear feet, which includes the length of Rattlesnake Creek and Carroll Canyon Creek through the project site and their tributaries.

Table 4
REGIONAL WATER QUALITY CONTROL BOARD
WATERS OF THE STATE

Habitat	Area	Length
Southern riparian woodland[1]	7.94	6,965
Southern willow scrub[1]	1.72	1,279
Mule fat scrub[1,2]	1.15	927
Disturbed wetland	0.07	37
Unvegetated Channel/Streambed	8.89	9,993
TOTAL	**19.77**	**19,201**

[1] Includes disturbed phase.
[2] Includes sparse phase.

3.3.4 City Jurisdiction

The 3Roots project site includes a total of 27.47 acres of City wetland habitats (Figure 10; Table 5). The mapping for City wetlands was derived from what is currently on the ground and the extents of site restoration required as part of the Conditional Use Permit (CUP) reclamation requirements (CUP 89-0585). The restoration per CUP 89-0585 will be done at a later date.

Table 5
CITY WETLANDS*

Jurisdictional Areas	Area[1] (Ac.)
Habitat	
Southern Riparian Woodland–including disturbed phase	6.57
Southern Willow Scrub–including disturbed phase	1.4
Mule Fat Scrub–including disturbed and sparse phases	1.04
Disturbed Wetland	0.07
CUP 89-0585 Wetland/Riparian Restoration[2]	10.31
CUP Reclamation Wetland/Riparian Enhancement	1.24
Unvegetated channel	6.84
TOTAL	**27.47**

*Represents baseline resources mapping post CUP 89-0585 reclamation/restoration as presented on Figure 10.
[1]Rounded to nearest 0.01.
[2] Made up of 6.4 acres riparian scrub re-establishment, 0.89-acre riparian habitat restoration, 1.29 acre of riprap/gabions, and 1.73 acres of habitat preservation

4.0 CONCLUSION

4.1 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 SWRCB, must be obtained prior to the issuance of any 404 Permit.

4.2 STATE PERMITTING

Impacts to CDFW jurisdictional habitats (i.e., streambeds and lakes) are regulated by CDFW under California Fish and Game Code 1602. The CDFW requires a Streambed Alteration Agreement 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 Streambed Alteration Agreement is a contract between the applicant and CDFW stating what activities can occur in the riparian zone and stream course.

The SWRCB, in addition to asserting regulatory jurisdiction over activities affecting wetland and non-wetland WUS pursuant to Section 401 of the CWA, also asserts jurisdiction over WS pursuant to the State Porter-Cologne Water Quality Control Act. Impacts associated with the non-401 WS are subject to a Report of Waste Water Discharge.

4.3 CITY PERMITTING

Impacts to wetlands, which are regarded by the City as Environmentally Sensitive Lands, require a Site Development Permit. The Environmentally Sensitive Lands regulations require that impacts to wetlands be avoided. Unavoidable impacts should be minimized to the maximum extent practicable.

3Roots San Diego

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0 650 Feet

Source: Aerial (SanGIS 2014, Enviromine, Inc. 2018).

HELIX Environmental Planning

City Wetlands

Figure 10

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Appendix A

Federal Jurisdictional Information

Appendix A
Federal Jurisdictional Information

WETLANDS AND "WATERS OF THE U.S." DEFINITIONS

WETLANDS

The U.S. Army Corps of Engineers (USACE; 33 CFR 328.3) and the U.S. Environmental Protection Agency (USEPA; 40 CFR 230.3) 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.

The official definition of "Waters of the U.S." and their limits of jurisdiction (as they may apply) are defined by the USACE Regulatory Program Regulations (33 CFR 328.3, paragraphs [a] 1-3 and [e], and Section 328.4, paragraphs [c] 1 and 2) as follows:

1. All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

2. All interstate waters including interstate wetlands;

3. All other waters such as intrastate 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 or foreign commerce including any such waters,

    i. which are or could be used by interstate or foreign travelers for recreation or other purposes; or

    ii. from which fish or shellfish are or could be taken and sold in interstate commerce; or

    iii. which are used or could be used for industrial purpose by industries in interstate commerce;

4. All impoundments of waters otherwise defined as waters of the United States under the definition;

5. Tributaries of waters;

6. The territorial seas;

7. 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 (OHWM), or when adjacent wetlands are present, the jurisdiction extends to the limit of the adjacent wetlands.

The term OHWM refers to 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.

Waters of the U.S. must exhibit an 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
- Sediment sorting
- Leaf litter disturbed or washed away
- Scour
- Deposition
- Multiple observed flow events
- Bed and banks
- Water staining
- Change in plant community

Further guidance on identifying the OHWM in the Arid Southwest (Lichvar and McColley 2008). This publication provided geomorphic and vegetation OHWM indicators specific to the Arid Southwest.

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 USEPA and the USACE 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 a 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 USACE Instructional Guidebook (USACE and USEPA 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, USACE and USEPA 2007). The evaluation will include the flow characteristics, annual precipitation, ability to provide habitat for aquatic species, ability to retain

floodwaters and filter pollutants, and 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 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 2008). 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 in the current list of wetland plants of the Arid Southwest (Lichvar, et al. 2016; 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	Qualitative Description
Obligate	OBL	Almost always occur in wetlands
Facultative Wetland	FACW	Usually occur in wetlands but may occur in non-wetlands
Facultative	FAC	Occur in wetlands and non-wetlands
Facultative Upland	FACU	Usually occur in non-wetlands but may occur in wetlands
Upland	UPL	Almost never occur in wetlands

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 five 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 (USACE 2008). 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)
- presence of reduced iron (C4)
- recent iron reduction in tilled soils (C6)
- thin muck 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

The USACE and USEPA, in their administration of Section 404 of the Clean Water Act, rely on the National Technical Committee for Hydric Soils (NTCHS) for a definition of hydric soils. According to the NTCHS, "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." (Federal Register 1994)

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 or deeper pit is excavated with a shovel at each sampling plot unless refusal occurs above 18 inches.

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 (USACE 2008 and Vasilias et al. 2017).

- histosols (A1)
- histic epipedons (A2)
- black histic (A3)
- hydrogen sulfide (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)

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).

U.S. Geological Survey Mapping

The U.S. Geological Survey (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 USGS maps, Dr. Leopold wrote, "I tried to devise a way of defining hydrologic criteria for the channels shown on topographic maps and developed some promising procedures. None were acceptable to the topographers, however. I learned that the blue lines on a map are drawn by non-professional, low-salaried personnel. In actual fact, they are drawn to fit a rather personalized aesthetic" (Leopold 1994).

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Appendix B

State Jurisdictional Information

Appendix B
State Jurisdictional Information

CALIFORNIA FISH AND WILDLIFE REGULATIONS

The California Department of Fish and Wildlife (CDFW) 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. The Fish and Game Code Section 1602 requires any entity to notify the CDFW 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 CDFW, a person, state, or local governmental agency or public utility must submit a complete notification package and fee to the CDFW regional office that serves the county where the activity will take place (CDFW 2016). A fee schedule is included in the notification package materials. Under the Permit Streamlining Act (Government Code Sections 65920 et seq.), the CDFW 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 CDFW 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 CDFW 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 CDFW 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 CDFW 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 CDFW. If the applicant disagrees with any measures in the draft SAA, the applicant must notify the CDFW in writing and specify the measures that are not acceptable. Upon written request, the CDFW 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 CDFW may withdraw that SAA. The time periods described above may be extended at any time by mutual agreement.

After the CDFW receives the signed draft SAA, the CDFW will make it final by signing the SAA; however, the CDFW will not sign the SAA until it both receives the notification fee and ensures that the SAA complies with the California Environmental Quality Act (Public Resources Code Section 21000 et seq.). After the applicant receives the final agreement, the applicant may begin the project, 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 2017). 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.

REFERENCES

California Department of Fish and Wildlife (CDFW). 2016. Notification of Lake or Streambed Alteration, Notification Instructions and Process. Available from: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=3773&inline.

State Water Resources Control Board. 2017. Laws and Regulations. Sacramento, CA: State Water Resources Control Board, California Environmental Protection Agency. Available from: http://www.waterboards.ca.gov/laws_regulations/.

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Appendix C

City 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 Multiple Species Conservation Program (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 2008), Cowardin et al. (1979), Sawyer and Keeler-Wolf (1995), and Zedler (1987). The U.S. Army Corps of Engineers Wetland Delineation Manual (1986) 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 (USACE) Wetland Delineation Manual (1986) 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 USACE and/or the California Department of Fish and Wildlife (CDFW).

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 USACE and/or the CDFW. 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 National Wetlands Inventory maps. These maps, available for viewing at the Development Services Department, should not replace site-specific field mapping.

REFERENCES

Cowardin, L.M., F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U.S. Fish and Wildlife Service, Department of Interior, December.

Holland R.F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. Nongame-Heritage Program, State of California, Department of Fish and Game, Sacramento, 156 pp.

Oberbauer, T., Kelly, M., and Buegge, J. 2008. Vegetation Communities of San Diego County. Based on "Preliminary Descriptions of the Terrestrial Natural Communities of California", R.F. Holland, 1986. 73 pp.

Sawyer, J.O. and T. Keeler-Wolf. 1995. A Manual of California Vegetation. CNPS. 472 pp.

U.S. Army Corps of Engineers. 1986. Corps of Engineers wetland delineation manual. Environmental Laboratory, Waterways Experiment Station, Vicksburg, MI. Technical report y 86.

Zedler, J. 1987. The ecology of southern California coastal salt marshes: a community profile. U.S. Fish and Wildlife Service, Biological Services Program, Washington, D.C. FWS/OBS-81/54. 110 pp.

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Appendix D

Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Carroll Canyon City/County: San Diego/San Diego Sampling Date: 19 Apr 2016

Applicant/Owner: Hanson; HAW-31 State: CA Sampling Point: 1

Investigator(s): W. L. Sward Section, Township, Range: S 2/T 15S/R 03W

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

Subregion (LRR): C: Mediterranean California Lat: 32.89108630760 Long: -117.16747737700 Datum: NAD 83

Soil Map Unit Name: Gravel pits NWI classification: R4SBA

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:

SP located on sandbar in streambed. Adjacent low flow channel surface is cobbles and pebbles.
This location is also a City wetland and CDFW jurisdictional habitat. NWI: riverine, streambed, intermittent, temporarily flooded

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 60'X60')	Absolute % Cover	Dominant Species?	Indicator Status
1. Eucalyptis caaldulensis	1	no	FAC
2. Salix laevigata	1	no	FACW
3.			
4.			
	2% = Total Cover		
Sapling/Shrub Stratum (Plot size: 30'X30')			
1. Salix lasiolepis	45	yes	FACW
2. Salix laevigata	15	yes	FACW
3. Tamarix parviflora	2	no	FAC
4. Eriogonum fasciculatum	3	no	UPL
5. Baccharis salicifolia	5	no	FAC
	70% = Total Cover		
Herb Stratum (Plot size: 10'X10')			
1. Foeniculum vulgare	1	no	UPL
2. Xanthium strumarium	1	no	FAC
3. Cortaderia selloana	2	no	FACU
4.			
5.			
6.			
7.			
8.			
	4% = Total Cover		
Woody Vine Stratum (Plot size: 20'X20')			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 70% % Cover of Biotic Crust 0

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 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 willow scrub

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
0-16	10YR 3/3	97%	7.5YR 3/4	3%	C	M	LSa	

[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:

Problem Area: Vegetated Sand and Gravel Bars within Floodplains.

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:

Two secondary wetland hydrology indicators satisfy this parameter.
FAC-neutral Test, w:u=2:0

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Carroll Canyon City/County: San Diego/San Diego Sampling Date: 19 Apr 2016

Applicant/Owner: Hanson; HAW-31 State: CA Sampling Point: 2

Investigator(s): W. L. Sward Section, Township, Range: S 2/T 15S/R 03W

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

Subregion (LRR): C: Mediterranean California Lat: 32.89093211370 Long: -117.16747404500 Datum: NAD 83

Soil Map Unit Name: Gravel pits NWI classification: NA

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:

SP located on slope adjacent to streambed. This location is an upland pursuant to City, CDFW, and USACE jurisdictional determination methods.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 60'X60')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30'X30')			
1. Artemisia californica	40	yes	UPL
2. Salvia mellifera	22	yes	UPL
3. Baccharis salicifolia	8	no	FAC
4. Mimulus aurantiacus	3	no	UPL
5.			
	73%	= Total Cover	
Herb Stratum (Plot size: 10'X10')			
1. Bromus madritensis	1	no	UPL
2. Euphorbia peplus	1	no	UPL
3. Anagalus arvensis	2	no	UPL
4. Melilotus indicus	1	no	FACU
5. Erigeron canadensis	3	no	FACU
6. Coraderia selloana	35	yes	FACU
7.			
8.			
	43%	= Total Cover	
Woody Vine Stratum (Plot size: 20'X20')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 15% % Cover of Biotic Crust 0

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species 8	x 3 =	40
FACU species 38	x 4 =	152
UPL species 69	x 5 =	345
Column Totals: 115 (A)		537 (B)

Prevalence Index = B/A = 4.7

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:

Diegan coastal sage scrub, disturbed

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 3/3	100%					SaCL	
3-12	10YR 4.3	100%					SaCL	Stoney

[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:

No hydric indicators were noted.

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:

No wetland hydrology indicators noted.
FAC-neutral Test, w:u=0:3

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Carroll Canyon City/County: San Diego/San Diego Sampling Date: 20 Apr 2016

Applicant/Owner: Hanson; HAW-31 State: CA Sampling Point: 3

Investigator(s): W. L. Sward Section, Township, Range: S 2/T 15S/R 03W

Landform (hillslope, terrace, etc.): Streambed Local relief (concave, convex, none): none Slope (%): 2-3%

Subregion (LRR): C: Mediterranean California Lat: 32.89105308330 Long: -117.16623160200 Datum: NAD 83

Soil Map Unit Name: Riverwash NWI classification: R4SBA

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:

SP located in streambed. This location is a non-wetland WUS and CDFW jurisdictional streambed.
NWI: riverine, streambed, intermittent, temporarily flooded.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r-30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=20')			
1. Acacia longifolia	9	yes	UPL
2. Baccharis sarothroides	8	yes	FACU
3. Artemisia californica	1	no	UPL
4. Baccharis salicifolia	2	no	FAC
5.			
	20%	= Total Cover	
Herb Stratum (Plot size: r=5')			
1. Ambrosia psilostachya	12	yes	FACU
2. Melica imperfecta	4	no	UPL
3. Brachypodium distachylon	2	no	UPL
4. Paspalum dilatatum	1	no	FAC
5. Brassica rapa	1	no	UPL
6. Bromus diandrus	1	no	UPL
7. Sonchus asper	1	no	FAC
8. Melilotus indicus	1	no	FACU
	23%	= Total Cover	
Woody Vine Stratum (Plot size: r=10')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 50% % Cover of Biotic Crust 0

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species 4	x 3 =	12
FACU species 21	x 4 =	84
UPL species 18	x 5 =	90
Column Totals: 43 (A)		186 (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-dominated coastal sage scrub, disturbed

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
0-1								Rocks-no soil
1-16	10YR 3/3	100%					LSa	

[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:

No hydric soil indicators noted.

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:

Insufficient wetland hydrology indicators present to conclude wetland hydrology.
FAC-neutral Test, w:u=0:3
Drift deposits are an OHWM indicator.

Appendix E

Sample Point Photographs

SP1. Sample Point 1 is located in Carroll Canyon Creek, near Camino Santa Fe. This location is a wetland.

SP2. Sample Point 2 is located on a north facing slope above Carroll Canyon Creek. This location is an upland.

SP3. Sample Point 2 is located in the streambed of what is now a tributary to Carroll Canyon Creek. Historical aerials indicate this was Carroll Canyon Creek's main channel 50 years ago. This location is a non-wetland WUS and CDFW streambed.

Photo 1. Box culvert inlet for Carroll Canyon Creek, at Camino Santa Fe. Looking west.

Photo 2. Western crossing of Carroll Canyon Creek. Looking west.

Photo 3. Western crossing of Carroll Canyon Creek. Looking west.

Photo 4. Streambed of Carroll Canyon Creek, east of western crossing. Note large pieces of concrete debris in left foreground. Looking east.

Photo 5. Rattlesnake Canyon Creek. Ash coloring of rocks is dried algae. Looking east.

Photo 6. Southern tributary to Rattlesnake Canyon Creek. Looking east.

Photo 7. Southern tributary to Rattlesnake Canyon Creek, upstream of previous photo. Looking northwest.

Appendix F

Ordinary High Water Mark Datasheets

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: 3 Roots
Project Number: CAM-0201
Stream: Unnamed
Investigator(s): W. C. Swank

Date: 1 March
Town: S.D.
Photo begin file#: 0920

Time: approx 0910
State: CA
Photo end file#: 0926

Y [X] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [X] Is the site significantly disturbed?

Location Details: Western reach of southern stream

Projection:
Datum: NAD83
Coordinates:

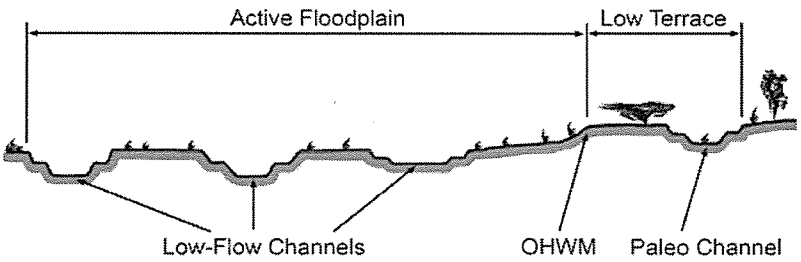
Potential anthropogenic influences on the channel system:
Culverted upstream, within a grazed

Brief site description:
Rock + boulder lined stream bed w/ steep banks

Checklist of resources (if available):

- [✓] Aerial photography
  Dates:
- [ ] Topographic maps
- [ ] Geologic maps
- [✓] Vegetation maps
- [✓] Soils maps
- [ ] Rainfall/precipitation maps
- [✓] Existing delineation(s) for site
- [✓] Global positioning system (GPS)
- [ ] Other studies
- [ ] Stream gage data
  Gage number:
  Period of record:
  - [ ] History of recent effective discharges
  - [ ] Results of flood frequency analysis
  - [ ] Most recent shift-adjusted rating
  - [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

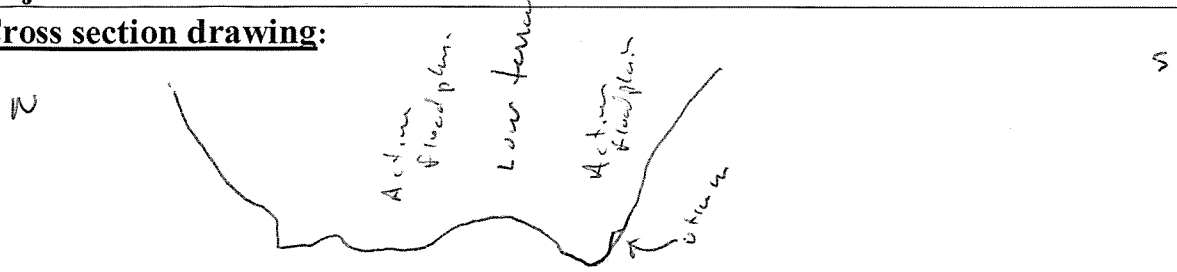


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [✓] GPS
   - [ ] Digitized on computer
   - [ ] Other:

Project ID: CAH-02.01 **Cross section ID:** 1 **Date:** 1 March 2019 **Time:** ~~1~~ 0910

Cross section drawing:



OHWM

GPS point: OHWM 1 MP

Indicators:

- [x] Change in average sediment texture
- [ ] Change in vegetation species
- [ ] Change in vegetation cover
- [x] Break in bank slope
- [x] Other: Inundation
- [ ] Other: _____

Comments:

Floodplain unit: [x] Low-Flow Channel [ ] Active Floodplain [ ] Low Terrace

GPS point: LFC 1 MP

Characteristics of the floodplain unit:

Average sediment texture: Gravel

Total veg cover: 0 % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- [x] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [ ] Drift and/or debris
- [x] Presence of bed and bank
- [x] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: [illegible] 3 Rocks
Project Number: CAH-02.01
Stream: Carroll Canyon Creek
Investigator(s): WC Swaim

Date: 1 March 2019
Town: SD.
Time: 0945
State: CA
Photo begin file#: 0949
Photo end file#: 0956

Y [x] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [x] Is the site significantly disturbed?

Location Details: Western Reach

Projection:
Datum: NAD83
Coordinates:

Potential anthropogenic influences on the channel system:
S. side of creek concrete lined. Culverts upstream. Within a quarry

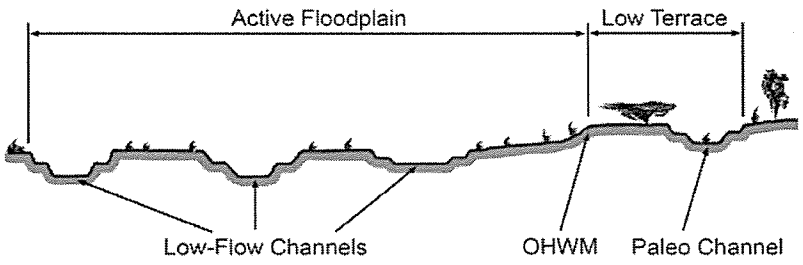
Brief site description:
Highly disturbed creek. Large concrete & asphalt slabs in low flow channel. S. side of channel concrete lined

Checklist of resources (if available):

- [x] Aerial photography
  Dates:
- [x] Topographic maps
- [ ] Geologic maps
- [x] Vegetation maps
- [x] Soils maps
- [ ] Rainfall/precipitation maps
- [x] Existing delineation(s) for site
- [x] Global positioning system (GPS)
- [ ] Other studies

- [ ] Stream gage data
  Gage number:
  Period of record:
- [ ] History of recent effective discharges
- [ ] Results of flood frequency analysis
- [ ] Most recent shift-adjusted rating
- [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

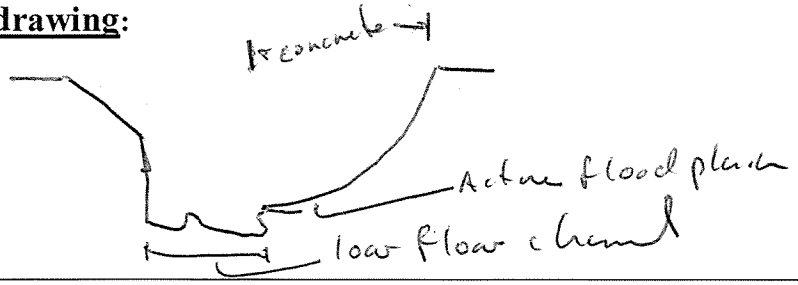


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [x] GPS
   - [ ] Digitized on computer
   - [ ] Other:

Project ID: CAM-02.01 **Cross section ID:** 2 **Date:** March 2019 **Time:** 9:45

Cross section drawing:



OHWM

GPS point: OHWM 2

Indicators:

- [ ] Change in average sediment texture
- [ ] Change in vegetation species
- [ ] Change in vegetation cover
- [x] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

Confined by concrete on south + steep slope on north

Attoe of steep slope

Floodplain unit:

- [x] Low-Flow Channel
- [ ] Active Floodplain
- [ ] Low Terrace

GPS point: LFC2

Characteristics of the floodplain unit:

Average sediment texture: Gravel

Total veg cover: 60 % Tree: 50 % Shrub: ____ % Herb: 20 %

Community successional stage:

- [ ] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [x] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [x] Drift and/or debris
- [x] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: WH 3 Rocks
Project Number: CAHE-02.01
Stream: Carroll Canyon Creek
Investigator(s): W.C. Swank

Date: 1 March 2014
Town: S.D.
Photo begin file#: 1038

Time: 1030
State: CA
Photo end file#: 1038

Y ☐ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☐ Is the site significantly disturbed?

Location Details: Middle Reach of Carroll Canyon Creek

Projection: **Datum:**
Coordinates:

Potential anthropogenic influences on the channel system: R.p-rap & gravel on N. side of creek defines creek channel

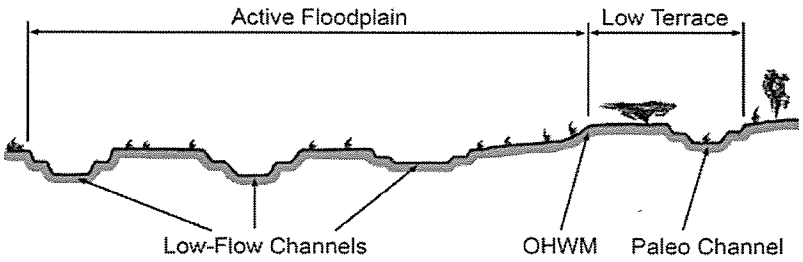
Brief site description: Gravel & Boulder lined creek bed: steep sided &

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☐ Rainfall/precipitation maps
- ☑ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

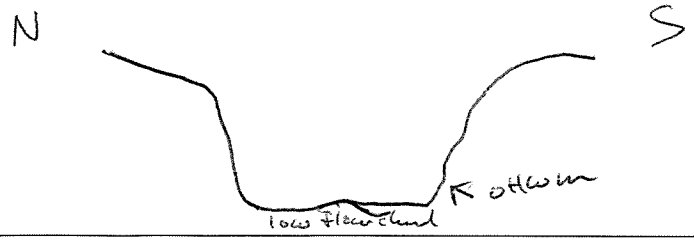


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ☑ GPS
   - ☐ Digitized on computer
   - ☐ Other:

Project ID: CAH02.01 **Cross section ID:** 3 **Date:** 1 March 2019 **Time:** 1040

Cross section drawing:



OHWM

GPS point: OHWM 3

Indicators:

- [x] Change in average sediment texture
- [ ] Change in vegetation species
- [ ] Change in vegetation cover
- [x] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

Floodplain unit:

- [x] Low-Flow Channel
- [ ] Active Floodplain
- [ ] Low Terrace

GPS point: LFC 3

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: 0 % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- [x] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [x] Drift and/or debris
- [x] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: 3 Roots
Project Number: CAHI-02.01
Stream: Carroll Canyon Creek
Investigator(s): W. C. Swaim

Date: 1 March 2014 **Time:** 1100
Town: SD **State:** CA
Photo begin file#: 1104 **Photo end file#:** 1116

Y [x] / N [ ] Do normal circumstances exist on the site?

Y [ ] / N [x] Is the site significantly disturbed?

Location Details: Upper reach of Carroll Canyon Creek

Projection: **Datum:** NAD 83
Coordinates:

Potential anthropogenic influences on the channel system:
None nearby – Quarry located upstream

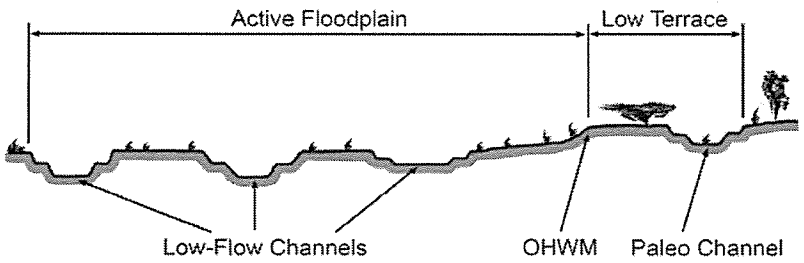
Brief site description:
Relatively natural condition of Carroll Canyon Creek

Checklist of resources (if available):

- [x] Aerial photography
  Dates:
- [x] Topographic maps
- [ ] Geologic maps
- [x] Vegetation maps
- [x] Soils maps
- [ ] Rainfall/precipitation maps
- [x] Existing delineation(s) for site
- [x] Global positioning system (GPS)
- [ ] Other studies

- [ ] Stream gage data
  Gage number:
  Period of record:
- [ ] History of recent effective discharges
- [ ] Results of flood frequency analysis
- [ ] Most recent shift-adjusted rating
- [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

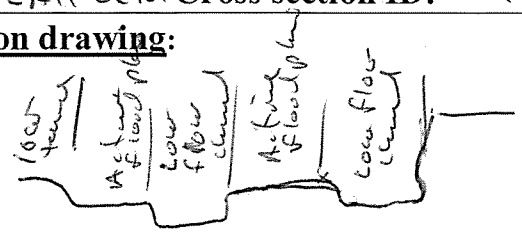


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - [ ] Mapping on aerial photograph
   - [x] GPS
   - [ ] Digitized on computer
   - [ ] Other:

Project ID: CAH-02.01 **Cross section ID:** 4 **Date:** 1 March 2019 **Time:** 1100

Cross section drawing:



OHWM

GPS point: OHWM 4

Indicators:

- [ ] Change in average sediment texture
- [ ] Change in vegetation species
- [ ] Change in vegetation cover
- [x] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

At s. edge of non-wetland wds

Floodplain unit:

- [x] Low-Flow Channel
- [ ] Active Floodplain
- [ ] Low Terrace

GPS point: LFC 4.1 & LFC 4.2

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: 0 % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- [x] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [x] Drift and/or debris
- [ ] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments: