Appendix C-2

Jurisdictional Delineation Report

IRVINE CAMPUS MEDICAL COMPLEX PROJECT

University of California, Irvine
Orange County, California

JURISDICTIONAL DELINEATION REPORT

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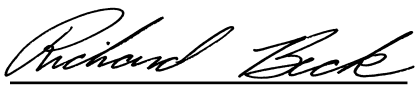
IRVINE CAMPUS MEDICAL COMPLEX PROJECT

UNIVERSITY OF CALIFORNIA, IRVINE
ORANGE COUNTY, CALIFORNIA

Jurisdictional Delineation Report

The undersigned certify that this report is a complete and accurate account of the findings and conclusions of jurisdictional wetland and non-wetland "waters of the U.S.," "waters of the State," and streambed/banks and associated riparian vegetation delineation for the above-referenced project.



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August 2020

Executive Summary

On behalf of the University of California, Irvine (UCI), Michael Baker International (Michael Baker) has prepared this Jurisdictional Delineation Report for the proposed approximately 14.5-acre Irvine Campus Medical Complex Project (project) located at the UCI North Campus, in the City of Irvine, Orange County, California. The proposed project consists of the construction of a new Specialty Hospital, Ambulatory Care Center, and associated facilities.

This report was prepared to document all aquatic and other hydrological features identified by Michael Baker within the survey area that are potentially subject to the jurisdiction of the U.S. Army Corps of Engineers (Corps) pursuant to Section 404 of the Federal Clean Water Act (CWA), Regional Water Quality Control Board (Regional Board) pursuant to Section 401 of the CWA and/or Section 13263 of the California Porter-Cologne Water Quality Control Act, and California Department of Fish and Wildlife (CDFW) pursuant to Sections 1600 *et seq.* of the California Fish and Game Code (CFGC). Further, the project site is located within the San Diego Creek Watershed that is subject to the Corps- and CDFW-regulated Special Area Management Plan.

Jurisdictional hydrological features within the survey area are limited to the San Joaquin Marsh, which receives urban runoff from the San Diego Creek Watershed. Within the survey area, the jurisdictional feature (San Joaquin Marsh) consists of a moderately dense riparian canopy with an herbaceous understory. Further beyond the riparian fringe of the marsh to the southeast is freshwater marsh vegetation and open waters adjacent to the San Diego Creek. Following storm events, urban flows are filtered by the wetlands and eventually conveyed from the marsh to San Diego Creek and the Upper Newport Bay, and ultimately the Pacific Ocean.

Table ES1 below provides a breakdown of total acreages of jurisdictional features within the survey area and project site as they relate to each regulatory agency. Delineation methods followed the most recent, acceptable guidelines for conducting a jurisdictional delineation in this region. However, only the regulatory agencies can make a final determination of jurisdictional limits.

ES1. Jurisdictional Limits within the Survey Area / Project Site

Feature	Jurisdictional Limits (acres) Survey Area / Project Site			
	Linear Feet	**Corps/Regional Board Wetland WoUS**	**Corps/Regional Board Non-wetland WoUS**	**CDFW Streambed/Banks and Riparian Vegetation**
San Joaquin Marsh	NA	0.40 / 0.00	0.00 / 0.00	0.65 / 0.00

No impacts to Corps/Regional Board wetland and non-wetland waters of the US/State and CDFW streambed and banks and riparian vegetation are expected to occur by the proposed project. Therefore, no regulatory permits/authorization would be required prior to any project-related activities.

It should be noted that On January 23, 2020, the EPA and the Corps finalized the Navigable Waters Protection Rule to define WoUS. On April 21, 2020, the EPA and the Corps published the Navigable Waters Protection Rule in the Federal Register which became effective on June 22, 2020. Under the Navigable Waters Protection Rule, ephemeral features such as those identified within the project site, do not meet the definition of a WoUS and are not subject to regulation under Section 404 of the CWA. Changes in Corps and State regulations have not impacted the findings of this report and are considered not applicable as the project improvements are located in upland areas.

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LIST OF ACRONYMS AND ABBREVIATIONS

°F	degrees Fahrenheit
amsl	above mean sea level
ARIA	aquatic resource integrity area
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CFGC	California Fish and Game Code
Corps	United States Army Corps of Engineers
CWA	Federal Clean Water Act
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
GIS	Geographic Information System
GPS	Global Positioning System
HA	Hydrologic Area
HSA	Hydrologic Subarea
HU	Hydrologic Unit
Michael Baker	Michael Baker International
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OHWM	Ordinary High Water Mark
PCN	Pre-Construction Notification
Porter-Cologne	California Porter-Cologne Water Quality Control Act
project	Health Campus Hospital & Ambulatory Care Project
Rapanos	Rapanos v. U.S. court case
Regional Board	Regional Water Quality Control Board
Regional Supplement	Corps Wetland Delineation Manual: Arid West Region, Version 2.0
SAMP	Special Area Management Plan
SWANCC	Solid Waste Agency of Northern Cook County v. Corps court case
UCI	University of California, Irvine
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
USFWS	U.S. Fish and Wildlife Service
WoUS	Waters of the U.S.
WSAA	Watershed Streambed Alteration Agreement
WQC	Water Quality Certification
1987 Manual	1987 Corps Wetland Delineation Manual

Section 1 Introduction

On behalf of the University of California, Irvine (UCI), Michael Baker International (Michael Baker) has prepared this Jurisdictional Delineation Report to describe, map, and quantify aquatic and other hydrological features located within the survey area and project site for the Health Campus Hospital & Ambulatory Care Project (project).

This report describes the regulatory setting, methodologies, and results of the jurisdictional delineation, including recommendations for any proposed impacts to potentially jurisdictional resources. This report presents Michael Baker's professional effort at determining the jurisdictional boundaries using the most up-to-date regulations, written policy, and guidance from the regulatory agencies; however, only the regulatory agencies can make a final determination of jurisdictional limits.

1.1 PROJECT LOCATION

The proposed project site is located within the UCI North Campus, approximately 0.4 mile east of State Route 73 and 2.5 miles south of Interstate 405, in the City of Irvine, Orange County, California (Figure 1, *Regional Vicinity*). Specifically, the survey area is depicted in Section 50 of Township 6 South, Range 9 West, of the U.S. Geological Survey (USGS) *Tustin, California* 7.5-minute topographic quadrangle map (Figure 2, *Project Vicinity*).

The survey area identified for the proposed project includes the proposed project site (comprised of the permanent footprint, including a 150-foot development buffer along the San Joaquin Marsh [Figure 3, *Project Site*]). The survey area is inclusive of and bounded by Jamboree Road to the north, the existing UCI Arboretum and Facilities Management and Distribution Services to the east, undeveloped (disturbed) areas to the west, and San Joaquin Marsh directly to the east. Portions of the San Joaquin Marsh riparian corridor are located within the survey area and slightly inclusive of the project site.

1.2 PROJECT DESCRIPTION

The proposed project consists of the permanent development footprint, the 150-foot marsh buffer zone, and associated temporary construction areas. The buffer zone area that will not be directly impacted by permanent development, but a recreational trail would be constructed that straddles the boundary between the permanent development footprint and the buffer. The proposed project consists of the construction of an Acute Hospital, Clinics and Ambulatory Services Building, and Parking Structure immediately south of the approved Center for Child Health/MOB Site.

8/23/2019 JN M:\Mdata\172571\GIS\MXD\Health Campus JD\August 2019 Update\Fig 01 Regional Vicinity.mxd RP

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0 2.5 5 Miles

Source: ArcGIS Online, 2018

HEALTH CAMPUS HOSPITAL AND AMBULATORY CARE PROJECT
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Regional Vicinity

Figure 1

8/27/2020 JN M:\Data\172571\GIS\MXD\Health Campus JD\August 2020 Update\Fig 02 Project Vicinity.mxd RP

Legend

Survey Area

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Project Vicinity

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0 0.25 0.5 Miles

Source: USGS 7.5-Minute topographic quadrangle maps: *Tustin, California (2018) and Newport Beach, California (2018)*

Figure 2

Legend

- ICMC Project Site
- San Joaquin Marsh Development Buffer
- Laydown Area
- Temporary Parking Area
- Reference Point
- Photograph Point and Direction

0 65 130 Feet

8/27/2020 JN:MAMdata\172571\GIS\MXD\Health Campus JD\Aerial 2020 Update\Fig 03 Project Site.mxd RP

Source: Eagle Aerial, 2014

HEALTH CAMPUS HOSPITAL AND AMBULATORY CARE PROJECT
JURISDICTIONAL DELINEATION REPORT

Project Site

Figure 3

Work would occur during dry conditions. Best Management Practices (BMP) would be implemented to ensure water quality. Weather forecasts would be monitored during construction activities. If rainfall is predicted, soil stabilization and sediment controls would be established at all disturbed areas prior to the onset of rain. No construction activities would occur during a rain event.

1.3 ENVIRONMENTAL SETTING

The project site is located within the UCI North Campus. The survey area includes Jamboree Road to the northwest and Campus Drive the northeast, with flat areas and gentle slopes throughout the majority of the project site, and a small portion of the San Joaquin Marsh. The northeastern portion of the survey area primarily consists of developed areas and ornamental plantings associated with the existing UCI Facilities Management and Distribution Services and the UCI Arboretum. The southern boundary of the survey area includes a portion of the southern arroyo willow riparian forest and freshwater marsh that is the lateral northwestern extent of the San Joaquin Marsh. The western portion of the survey area consists of highly disturbed areas, with a strip of intact coastal sage scrub along the moderate slopes at the southern end.

1.3.1 Climate

The survey area, located at the UCI North Campus in the City of Irvine, California, has a climate characterized as Mediterranean, with cool, mild winter rains and hot, dry summers. The Irvine area is generally hot and dry through most of the year, with highs averaging approximately 79 degrees Fahrenheit (°F) in the summer and lows averaging 48 °F in the winter. Average annual precipitation for the Irvine, California, area is approximately 14 inches (U.S. Climate Data 2019).

1.3.2 Vegetation

Michael Baker reviewed the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) maps online (USFWS, NWI 2019). San Joaquin Marsh habitat within the survey area was mapped by the USFWS NWI as Freshwater Emergent Wetland and Freshwater Forested/Shrub Wetland, but more specifically as PEM1Ax: Palustrine, Emergent, Persistent, Temporary Flooded, Excavated, and PFO/SSA: Palustrine, Forested, Scrub-Shrub, Temporary Flooded. Refer to Appendix B, *National Wetlands Inventory Map*. These mapped areas were only referenced while documenting all potentially jurisdictional features as observed on-site during the jurisdictional delineation. Plant species nomenclature and taxonomy below follows *The Jepson Manual: Vascular Plants of California, second edition* (Baldwin et al. 2012).

Within the survey area, naturally, fringes of the San Joaquin Marsh consist of a moderately dense riparian canopy and herbaceous understory. The southern arroyo willow riparian forest vegetation is dominated by black willow (and (*S. gooddingii*), with scattered individuals of arroyo willow (*Salix lasiolepis*) and mule fat (*Baccharis salicifolia*), and an understory dominated by

willow dock (*Rumex salicifolius*). On-site, poison hemlock (*Conium maculatum*) and California rose (*Rosa californica*) dominate the banks surrounding the marsh, primarily within the riparian canopy. The freshwater marsh itself is dominated mainly by California bulrush (*Schoenoplectus californicus*).

1.3.3 Hydrology

The project site is located within the Santa Ana River Watershed (Hydrologic Unit Code 18070204), Santa Ana River Hydrologic Unit (HU 801.00), Lower Santa Ana River Hydrologic Area (HA 801.10), and East Coastal Plain Hydrologic Subarea (HSA 801.11) of the Water Quality Control Plan for the Santa Ana River Basin (Region 8). The Santa Ana River HU is a roughly rectangular-shaped area of approximately 154 square miles, extending from the Santiago Canyon foothills on the east to the Pacific Ocean on the west, and from the City of Orange on the north to the City of Lake Forest on the south. The unit includes the Cities of Irvine, Tustin, Orange, Newport Beach, Santa Ana, Costa Mesa, and Lake Forest. Waters from the project site are ultimately conveyed to Upper Newport Bay and the Pacific Ocean. Further, the project site is located within the San Diego Creek Watershed subject to the Corps- and CDFW-regulated Special Area Management Plan (SAMP) (Corps 2009).

Michael Baker searched the Federal Emergency Management Agency (FEMA) – 100 Year Flood Zones for flood data within the project site (ArcGIS 2019). According to FEMA, the southeastern portion of the survey area and portions of the project site are located within the 100-year flood zone, Zone A (areas with a 1 percent annual chance of flooding). Refer to Appendix C, *FEMA 100-Year Flood Zone Map*.

It should be noted that the project site is not located within the Coastal Zone regulated by the California Coastal Commission pursuant to the California Coastal Act.

1.3.4 Topography and Soils

The general area that the project site is situated in is characterized primarily by flat area and gentle slopes, with moderate slopes in the southeast leading towards the San Joaquin Marsh. Surface elevations within the survey area vary between approximately 55 feet above mean sea level (amsl) along the northwestern boundary of the survey area along Jamboree Road to approximately 10 feet amsl at the southeastern end of the survey area at San Joaquin Marsh.

On-site and adjoining soils were reviewed prior to the field visit using the USDA, NRCS Web Soil Survey (USDA, NRCS 2019). Mapped soils within the project site and survey area primarily include Alo clay, 9 to 15 percent slopes (Map Unit Symbol: 100), with Tidal Flats (211) within the survey area along the southeastern boundary (refer to Appendix D – *USDA/NRCS Custom Soil Resources Report*).

Michael Baker then reviewed the National Hydric Soils List (USDA, NRCS 2015) to identify soils mapped within the survey area that are considered to be hydric. According to the soils list, Alo clay, 9 to 15 percent slopes, is not considered hydric; however, Tidal Flats are considered hydric. Soil textures identified on-site were generally consistent with those mapped by the *Soil Survey of the Los Angeles County, California, Southeastern Part* (USDA, NRCS 2019), with the soil textures consisting of clay and silty clay.

Section 2 Summary of Regulations

Three agencies regulate activities within inland streams, wetlands, and riparian areas in California. The U.S. Army Corps of Engineers (Corps) Regulatory Division regulates activities pursuant to Section 404 of the Federal Clean Water Act (CWA). Of the State agencies, the California Department of Fish and Wildlife (CDFW) regulates activities under the California Fish and Game Code (CFGC) Sections 1600 *et seq.*, and the Regional Water Quality Control Board (Regional Board) regulates activities pursuant to CWA Section 401 and/or Section 13263 of the California Porter-Cologne Water Quality Control Act (Porter-Cologne).

2.1 U.S. ARMY CORPS OF ENGINEERS

Since 1972, the Corps and U.S. Environmental Protection Agency jointly regulate discharges of dredged or fill material into "waters of the U.S." (WoUS), including wetland and non-wetland aquatic features, pursuant to Section 404 of the CWA.

SWANCC and Rapanos

In 1984, the Migratory Bird Rule enabled the Corps to expand jurisdiction over isolated waters, and in 1985, the U.S. Supreme Court upheld the inclusion of adjacent wetlands in the regulatory definition of WoUS. However, in 2001, the Corps' jurisdiction was narrowly limited following the *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* (SWANCC) in which the U.S. Supreme Court held that the use of "isolated" non-navigable intrastate ponds by migratory birds was not, by itself, sufficient basis for the exercise of Federal regulatory authority under the CWA. In 2006, a majority of the U.S. Supreme Court overturned two Sixth Circuit Court of Appeals decisions in the consolidated cases of *Rapanos v. United States* and *Carabell v. United States* (collectively referred to as Rapanos), concluding that wetlands isolated by surface connection are WoUS nonetheless if they significantly affect the chemical, physical, and biological integrity of other covered waters.

Clean Water Rule

In 2015, the Corps and EPA published the "Clean Water Rule" clarifying the scope of coverage of the CWA. Upon issuance however, numerous lawsuits were filed and consolidated in the Sixth Circuit, immediately putting a "stay" on its implementation. In January 2018, the U.S. Supreme Court ruled that the Sixth Circuit did not have jurisdiction over the case, and in February 2018, dismissed it and dissolved the stay. Also, in February 2018, the Corps and EPA suspended the rule for two years. However, in August 2018, a Federal judge found that the suspension failed to give an adequate public notice and therefore violated the Administrative Procedure Act.

Repeal of 2015 Clean Water Rule

On October 22, 2019, the EPA and the Corps published a final rule to repeal the 2015 Clean Water Rule and restore the regulatory methodology that existed prior to the 2015 Rule. Under this rule, which became effective on December 23, 2019, jurisdictional WoUS were defined by the 1986/1988 regulatory definition of WoUS under CWA regulations 40 CFR 230.3(s).

Navigable Waters Protection Rule (Current Regulation)

On January 23, 2020, the EPA and the Corps finalized the Navigable Waters Protection Rule to define WoUS. On April 21, 2020, the EPA and the Corps published the Navigable Waters Protection Rule in the Federal Register. On June 22, 2020, 60 days after publication in the Federal Register, the Navigable Waters Protection Rule became effective across the nation including the state of California.

Under the Navigable Waters Protection Rule, waters considered jurisdictional WoUS are outlined in four categories as follows:

1. Territorial Seas and TNWs
    - Under the final rule, the territorial seas and traditional navigable waters include large rivers and lakes as well as tidally-influenced waterbodies used in interstate or foreign commerce.
2. Tributaries
    - Under the final rule, tributaries include perennial and intermittent rivers and streams that contribute surface flow to traditional navigable waters in a typical year.
    - These naturally occurring surface water channels must flow more often than just after a single precipitation event – that is, tributaries must be perennial or intermittent.
    - Tributaries can connect to a traditional navigable water or territorial sea in a typical year either directly or through other WoUS, through channelized non-jurisdictional surface waters, through artificial features (including culverts and spillways), or through natural features (including debris piles and boulder fields).
    - Ditches are to be considered tributaries only where they satisfy the flow conditions of the perennial and intermittent tributary definition and either were constructed in or relocate a tributary or were constructed in an adjacent wetland and contribute perennial or intermittent flow to a traditional navigable water in a typical year.
3. Lakes, Ponds, and Impoundments of Jurisdictional Waters

- Lakes, ponds, and impoundments of jurisdictional waters are jurisdictional where they contribute surface water flow to a TNW or territorial sea in a typical year either directly or through other WOUS, through channelized non-jurisdictional surface waters, through artificial features (including culverts and spillways), or through natural features (including debris piles and boulder fields).
- Lakes, ponds, and impoundments of jurisdictional waters are also jurisdictional where they are flooded by a "water of the United States" in a typical year.

4. Adjacent Wetlands

- Wetlands that physically touch other jurisdictional waters are "adjacent wetlands."
- Wetlands separated from a WoUS by only a natural berm, bank or dune are also "adjacent."
- Wetlands inundated by flooding from a WoUS in a typical year are "adjacent."
- Wetlands that are physically separated from a jurisdictional water by an artificial dike, barrier, or similar artificial structure are "adjacent" so long as that structure allows for a direct hydrologic surface connection between the wetlands and the jurisdictional water in a typical year, such as through a culvert, flood or tide gate, pump, or similar artificial feature.
- An adjacent wetland is jurisdictional in its entirety when a road or similar artificial structure divides the wetland, as long as the structure allows for a direct hydrologic surface connection through or over that structure in a typical year.

The final rule also outlines 12 categories of exclusions and features that are not WoUS, such as features that only contain water in direct response to rainfall (e.g., ephemeral features); groundwater; many ditches; prior converted cropland; and waste treatment systems.

Special Area Management Plan

The project site is located within the San Diego Creek Watershed, thereby subject to the SAMP (Corps 2009) developed by the Corps Los Angeles District Regulatory Division and CDFW South Coast Region Habitat Conservation Branch. The plan was established to integrate a watershed approach to addressing anticipated regulated activities and aquatic resource conservation needs. This coordinated process resulted in a watershed approach to issuing CWA Section 404 permits and CFGC Watershed Streambed Alteration Agreements (WSAA). The SAMP for the Watershed establishes alternative permitting processes, including a new Regional General Permit 74, where the Corps issues Letters of Permission (LOP) for low impact discharges. Further, the SAMP has identified aquatic resources with moderate to high integrity (water quality, hydrology, or habitat), and/or those that provide functions important for the sustainability of the watershed's riparian ecosystem, including their upland areas of influence. These areas are referred to as aquatic resource integrity areas (ARIA) and provide a framework for reviewing proposed activities affecting Corps jurisdiction.

2.2 REGIONAL WATER QUALITY CONTROL BOARD

Applicants for a Federal license or permit for activities that may discharge to WoUS must seek a Water Quality Certification (Certification) from the State or Indian tribe with jurisdiction[1]. In California, there are nine Regional Boards that issue or deny Certification for discharges within their geographical jurisdiction. Such Certification is based on a finding that the discharge will meet water quality standards, which are defined as numeric and narrative objectives in each Regional Board's Basin Plan, and other applicable requirements. The State Water Resources Control Board has this responsibility for projects affecting waters within multiple Regional Boards. The Regional Board's jurisdiction extends to all WoUS, including wetlands, and to waters of the State (described below).

The Porter-Cologne Act gives the State very broad authority to regulate waters of the State, which are defined as any surface water or groundwater, including saline waters. The Porter-Cologne Act has become an important tool for the regulatory environment following the SWANCC[2] and Rapanos[3] court cases as well as with the implementation of the Federal Navigable Waters Protection Rule, with respect to the state's authority over isolated and otherwise insignificant waters.

On April 2, 2019 the State Water Resources Control Board adopted a State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (Procedures), for inclusion in the forthcoming Water Quality Control Plan for Inland Surface Waters and Enclosed Bays and Estuaries and Ocean Waters of California. The Procedures consist of four major elements: 1) a wetland definition; 2) a framework for determining if a feature that meets the wetland definition is a water of the state; 3) wetland delineation procedures; and 4) procedures for the submittal, review and approval of applications for Water Quality Certifications and Waste Discharge Requirements for dredge or fill activities. The Procedures were approved by the Office of Administrative Law (OAL) on August 28, 2019 and became effective on May 28, 2020.

2.3 CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

CFGC Sections 1600 *et seq.* establishes a fee-based process to ensure that projects conducted in and around lakes, rivers, or streams do not adversely affect fish and wildlife resources, or when adverse impacts cannot be avoided, ensures that adequate mitigation and/or compensation is provided.

CFGC Section 1602 requires any person, State, or local governmental agency or public utility to notify CDFW before beginning any activity that will do one or more of the following:

1 Title 33, United States Code, Section 1341; Clean Water Act Section.
2 *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers*, 531 U.S. 159 (2001).
3 *Rapanos v. United States*, 547 U.S. 715 (2006).

(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.

This applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the State, including the maintenance of existing drain culverts, outfalls, and other structures. To avoid the need for a Streambed Alteration Agreement from CDFW, all proposed impacts should remain outside of the top of active banks and the canopy/drip line of any associated riparian vegetation, whichever is greater.

Section 3 Methodology

Review of relevant literature and materials often aids in preliminary identification of areas that potentially fall under an agency's jurisdiction, including topographic, NWI, FEMA, and USDA/NRCS Soils maps; however, is not a substitute for on-site field investigations. In addition to the above noted items reviewed during the literature review a timeline of aerial photography (Google Earth Pro 2019) was evaluated to determine how on-site conditions have changed over time. Refer to Section 6.0 for a complete list of references used during this delineation.

The analysis presented in this document is supported by a field survey and verification of current conditions within the survey area conducted by Michael Baker regulatory specialists Dan Rosie and Stephen Anderson on April 11, 2019. In addition, a second field survey was conducted by Michael Baker regulatory specialists Stephen Anderson and Timothy Tidwell on August 20, 2019 to document additional areas within an updated project boundary. Data were collected using current aerial photography for recording the current jurisdictional limits of hydrological features within the survey area. A Garmin Global Positioning System (GPS) Map62 unit was also used to record and identify soil pits (SP) and drainage features. These data were then transferred as shapefiles, added to the jurisdictional map, and measurements calculated using ArcView Geographic Information System (GIS) software.

It should be noted that the project site is not located within the Coastal Zone regulated by the California Coastal Commission pursuant to the California Coastal Act. The following is a discussion of regulatory jurisdictions applicable to this project.

3.1 WATERS OF THE U.S.

3.1.1 Non-wetland Waters of the U.S.

The limits of the Corps' jurisdiction in non-tidal waters extend to the OHWM, which is defined 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 soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.*"[4] An OHWM can be determined by the observation of a natural line impressed on the bank; shelving; changes in the character of the 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; and/or change in plant community.

[4] CWA regulations 33 CFR §328.3(e).

3.1.2 Wetland Waters of the U.S.

For this project location, jurisdictional wetlands were delineated using the methods outlined in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, Version 2.0* (Regional Supplement; Corps, 2008). This document is part of a series of regional supplements to the *1987 Corps Wetland Delineation Manual* (Corps Manual). According to the Corps Manual, identification of wetlands is based on a three-parameter approach involving indicators of hydrophytic vegetation, hydric soil, and wetland hydrology. In order to be considered a wetland, an area must exhibit at least minimal characteristics within these three (3) parameters. The Regional Supplement presents wetland indicators, delineation guidance, and other information that is specific to the Arid West Region. In the field, vegetation, soils, and evidence of hydrology have been examined using the methodology listed below and documented on Corps wetland determination data forms, when applicable.

The Procedures adopted by the State Water Resources Control Board on April 2, 2019, contain a wetland definition and wetland delineation procedures. The State wetland definition and delineation procedures are largely consistent with the three-parameter approach involving indicators of hydrophytic vegetation, hydric soil, and wetland hydrology implemented by the Corps and outlined in the 2010 Regional supplement to the Corps Manual. However, one exception is an area can lack vegetation and still qualify as a wetland water of the State if satisfy the hydric soil and wetland hydrology parameters are fulfilled.

3.2 WATERS OF THE STATE

The Regional Board generally shares the Corps jurisdictional methodology, unless SWANCC or Rapanos conditions are present, or if the waterbody is not jurisdictional under the Navigable Waters Protection Rule. In the case the waterbody is not a WoUS, the Regional Board considers such waterbodies to be jurisdictional waters of the State. The CDFW's jurisdiction extends to the top of bank of the streambed or to the limit (outer dripline) of the adjacent riparian vegetation.

3.3 STREAMBED/BANKS AND RIPARIAN VEGETATION

CDFW jurisdiction applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the State of California. CDFW regulatory authority extends to include riparian habitat (including adjacent wetlands) supported by a river, stream, or lake regardless of the presence or absence of hydric soils or saturated soil conditions. Generally, CDFW jurisdiction is mapped to the top of the active bank of the stream or to the outer drip line of the associated riparian vegetation, whichever is greater. For WSAA notification purposes, vegetated and non-vegetated streambed are distinguished when riparian vegetation is present.

Section 4 Results

The following is a discussion of the existing on-site hydrological resources based on the results of a formal jurisdictional delineation conducted within the survey area in April and August 2019.

4.1 HYDROLOGICAL FEATURES

One (1) jurisdictional feature is present within the survey area, mapped as southern arroyo willow riparian forest located along the fringes of the San Joaquin Marsh.

San Joaquin Marsh

Within the survey area, the jurisdictional feature (San Joaquin Marsh) consists of a moderately dense riparian canopy with herbaceous understory, and a freshwater marsh. Inundation occurs within the survey area when rainfall and groundwater totals exceed the capacity of the adjacent freshwater marsh to the southeast during storm events. The Ordinary High Water Mark (OHWM) was delineated by identifying the extent of the present wetland hydrology primary indicator, water-stained leaves (B9). Streambanks within the survey area are all exceeded by the riparian vegetation. Four (4) soil pits were dug within the lowest vegetated portion within and adjacent to the survey area having the most potential for meeting the criteria for Corps wetlands.

SP1 consisted of approximately 25 percent absolute cover by black willow, a facultative wetland species (FACW), as the only tree species within the 20-foot radius sample plot (i.e., a dominant). The sapling/shrub layer consisted of approximately 5 percent cover of black willow, also as a dominant. The herb stratum consisted of approximately 80 percent cover of willow dock as a dominant and a trace amount (not a dominant) of common sow-thistle (*Sonchus oleraceus*). With black willow dominant in the tree and sapling layers and willow dock as the only dominant on the herb layer, SP1 met the hydrophytic vegetation criterion. Wetland hydrology indicators observed at SP1 consisted of one Primary Indicator, Water-Stained Leaves (B9), thereby meeting the wetland hydrology criterion. The soil profile within SP1 consisted entirely of silty clay as observed within the 10-inch soil pit, with the Munsell (2009) soil color identified as 10YR 3/1. Although soils at SP1 are low in chroma, no evidence of redoximorphic concentrations or other hydric soil indicators were observed with this representative sample, thereby not meeting the hydric soil criterion. Therefore, SP1 did not meet the definition of a three-parameter wetland.

SP2 consisted of approximately 35 percent absolute cover by black willow (FACW) as the only tree species within the 30-foot radius sample plot as a dominant. The sapling/shrub layer consisted of approximately 50 percent cover of California bulrush, an obligate wetland species (OBL), as the only shrub/sapling species as a dominant. With black willow dominant in the tree layer and California bulrush dominant in the sapling layer, SP2 met the hydrophytic vegetation

criterion. Wetland hydrology indicators observed at SP2 consisted of one Primary Indicator, Water-Stained Leaves (B9), thereby meeting the wetland hydrology criterion. The soil profile within SP2 consisted entirely of silty clay loam as observed within the 14-inch soil pit, with the Munsell (2009) soil color identified as 5Y 7.5/1 within the matrix (90%), and redox concentrations within the pore lining with color identified as 7.5YR 4/6 (10%). Soils within SP2 met the hydric soil indicator Redox Depressions (F8). Therefore, SP2 met all three wetland parameters and is thus considered a wetland.

SP3 consisted of approximately 75 percent absolute cover by narrowleaf willow (*Salix exigua*; FACW) and California Bulrush (OBL) within the 15-foot radius sampling/shrub layer sample plot as a dominant. With narrowleaf willow and California bulrush dominant in the sapling layer, SP2 met the hydrophytic vegetation criterion. Wetland hydrology indicators observed at SP2 consisted of one Primary Indicator, Water-Stained Leaves (B9), thereby meeting the wetland hydrology criterion. The soil profile within SP2 consisted entirely of silty clay loam as observed within the 10-inch soil pit, with the Munsell (2009) soil color identified as 10YR 2/1 within the matrix (90%), and redox concentrations within the matrix with color identified as 7.5YR 4/6 (10%). Soils within SP3 met the hydric soil indicator Redox Depressions (F8). Therefore, SP3 met all three wetland parameters and is thus considered a wetland.

SP4 consisted of approximately 70 percent absolute cover by red willow (*Salix laevigata*; FACW) as the only tree species within the 30-foot radius sample plot as a dominant. The herb layer consisted of approximately 15 percent cover of tomato (*Lycopersicon esculentum*; Not Listed) as the only herb species as a dominant. The woody vine layer consisted of approximately 15 percent cover of southern California grape (*Vitis girdiana*), a facultative species (FAC), as the only woody vine species as a dominant. With red willow dominant in the tree layer and southern California grape dominant in the woody vine layer, SP4 met the hydrophytic vegetation criterion. Wetland hydrology indicators observed at SP4 consisted of one Primary Indicator, Surface Soil Cracks (B6), thereby meeting the wetland hydrology criterion. The soil profile within SP4 consisted entirely of silty clay loam as observed within the 14-inch soil pit, with the Munsell (2009) soil color identified as 10YR 2/1 within the matrix (93%), and redox concentrations within the matrix with color identified as 7.5YR 3/3 (7%). Soils within SP4 met the hydric soil indicator Redox Depressions (F8). Therefore, SP4 met all three wetland parameters and is thus considered a wetland.

Therefore, it was determined that some areas within the survey area that are within the OHWM of the San Joaquin Marsh did meet the criteria required to be identified as a Corps wetland WoUS. Areas of Corps wetland were identified via topography and conditions within areas containing soil pits exhibiting all three wetland parameters. Wetland edges were extrapolated within the survey area based on areas exhibiting similar vegetation and topography as the areas surrounding the soil pits exhibiting all three wetland parameters. Areas within the OHWM of San Joaquin Marsh that did not meet the three wetland parameters and thus did not qualify as

wetlands were mapped as non-wetland. Within the survey area, the outer limits of the riparian vegetation (due to all active banks being exceeded) constitutes the limits of CDFW jurisdictional streambed, banks, and associated riparian vegetation.

Significant Nexus Determination

The San Joaquin Marsh, a perennial water body, has a direct hydrological and chemical connection to the San Diego Creek (RPW) approximately 0.62 mile to the south of the survey area. San Diego Creek conveys flows directly into the Upper Newport Bay, and ultimately into the Pacific Ocean (TNW).

Non-Jurisdictional Feature

A small erosional feature/swale was observed near the center of the southern portion of the project site. No evidence of an ordinary high water mark (OHWM) was noted. No drainage features such as scour, evidence of flow were observed. This area apparently sheet flows during storm events.

4.2 JURISDICTIONAL DETERMINATION

This Jurisdictional Delineation Report has been prepared for the project to delineate the Corps, Regional Board, and CDFW jurisdictional authority within the survey area. It presents Michael Baker's professional effort at determining the jurisdictional boundaries using the most up-to-date regulations, written policy, and guidance from the regulatory agencies. However, as with any jurisdictional delineation, only the regulatory agencies can make a final determination of jurisdictional boundaries within a project site/property. Jurisdictional limits within the survey area for each regulatory agency are provided in Table 1, below.

Table 1: Jurisdictional Limits within the Survey Area

Feature	Jurisdictional Limits (acres)			
	Linear Feet	Corps/Regional Board Wetland WoUS	Corps/Regional Board Non-wetland WoUS	CDFW Streambed/Banks and Riparian Vegetation
San Joaquin Marsh	NA	0.40	0.00	0.65

4.2.1 U.S. Army Corps of Engineers and Regional Water Quality Control Board

Approximately 0.40 acre of wetland WoUS within the survey area are potentially subject to jurisdiction of the Corps and Regional Board pursuant to CWA Sections 404 and 401, respectively. No non-wetland WoUS occur within the survey area. Refer to Figure 4 – *Corps/Regional Board Jurisdiction*.

4.2.2 California Department of Fish and Wildlife

Approximately 0.65 acre of streambed/banks and associated riparian vegetation within the survey area are potentially subject to jurisdiction of the CDFW pursuant to CFGC Sections 1600 *et seq*. Refer to Figure 5 – *CDFW Jurisdiction*.

8/27/2020 J:\N_M\Mdata\172571\GIS\MXD\Health Campus_JD\August2020 Update\Fig 04 Corps_Regional Board Jurisdiction mxd RP

Michael Baker INTERNATIONAL

Source: Eagle Aerial, 2014

HEALTH CAMPUS HOSPITAL AND AMBULATORY CARE PROJECT
JURISDICTIONAL DELINEATION REPORT

Corps/Regional Board Jurisdiction

Figure 4

8/27/2020 J:\N Mdata\172571\GIS\MXD\Health Campus JD\August2020 Update\Fig 05 CDFW Jurisdiction.mxd RP

Source: Eagle Aerial, 2014

HEALTH CAMPUS HOSPITAL AND AMBULATORY CARE PROJECT
JURISDICTIONAL DELINEATION REPORT

CDFW Jurisdiction

Figure 5

Section 5 Conclusions and Recommendations

This Jurisdictional Delineation Report has been prepared for the Department to delineate the Corps, Regional Board, and CDFW jurisdictional authority within the project site and survey area. Table 2, below, provides the total area of potential jurisdiction for each regulatory agency within the project site, followed by a summary of the various permits/authorizations required before any temporary or permanent impacts to jurisdictional areas may occur.

Table 2: Jurisdictional Limits within the Project Site

Feature	Jurisdictional Limits (acres)			
	Linear Feet	Corps/Regional Board Wetland WoUS	Corps/Regional Board Non-wetland WoUS	CDFW Streambed/Banks and Riparian Vegetation
San Joaquin Marsh	NA	0.00	0.00	0.00

5.1 U.S. ARMY CORPS OF ENGINEERS DETERMINATION

The Corps regulates discharges of dredged or fill materials into WoUS pursuant to Section 404 of the CWA. No areas subject to Corps jurisdiction were mapped within the project footprint. No impacts to WoUS are expected as a result of project implementation. Therefore, permit authorization from the Corps would not be required.

5.2 REGIONAL WATER QUALITY CONTROL BOARD DETERMINATION

The Regional Board regulates discharges to surface waters with a nexus to a Corps-identified TNW under the CWA Section 401, and to waters of the State under Porter-Cologne Section 13263 for those that do not. Because the San Joaquin Marsh has a significant nexus to downstream WoUS, the total acres within the project site jurisdictional under the Regional Board mirrors that of the Corps. No impacts to WoUS are expected as a result of project implementation. Therefore, permit authorization from the Regional Board would not be required.

5.3 CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE DETERMINATION

The CDFW regulates substantial alteration of lakes and streambeds and associated riparian vegetation pursuant to CFGC Sections 1600 *et seq.* No impacts to CDFW streambed and banks and riparian vegetation are expected as a result of project implementation. Therefore, permit authorization from CDFW would not be required.

Section 6 References

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Appendix A Site Photographs

Photograph 1 – View of the non-jurisdictional uplands within the San Joaquin Marsh Development Buffer, facing northeast.

Photograph 2 – View of the non-jurisdictional uplands within the San Joaquin Marsh Development Buffer, including riparian forest to the right and disturbed habitat to the left, facing northeast.

Photograph 3 – View of the non-jurisdictional uplands within the San Joaquin Marsh Development Buffer, including riparian forest to the left and intact coastal sage scrub in the background, facing west.

Photograph 4 – View of the associated riparian vegetation throughout the eastern portion of the survey area, facing southeast.

Appendix B National Wetlands Inventory Map

U.S. Fish and Wildlife Service

National Wetlands Inventory

UCI North Campus

April 10, 2019

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

Appendix C FEMA 100-Year Flood Zone Map

National Flood Hazard Layer FIRMette

FEMA

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN — Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 — Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 4/10/2019 at 5:38:00 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Appendix D USDA Soil Resources Report

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Orange County and Part of Riverside County, California

February 17, 2020

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:2,790 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 40 80 160 240

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Orange County and Part of Riverside County, California
Survey Area Data: Version 13, Sep 16, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 3, 2015—May 5, 2018

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
100	Alo clay, 9 to 15 percent slopes	15.1	98.7%
211	Tidal flats	0.2	1.3%
Totals for Area of Interest		**15.3**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Orange County and Part of Riverside County, California

100—Alo clay, 9 to 15 percent slopes

Map Unit Setting

National map unit symbol: hcl7
Elevation: 0 to 1,460 feet
Mean annual precipitation: 11 to 19 inches
Mean annual air temperature: 61 to 65 degrees F
Frost-free period: 320 to 365 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Alo and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Alo

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Calcareous residuum weathered from sandstone and shale

Typical profile

A1 - 0 to 2 inches: clay
A2 - 2 to 15 inches: clay
Bkss - 15 to 25 inches: clay
Cr1 - 25 to 41 inches: bedrock
Cr2 - 41 to 59 inches: bedrock

Properties and qualities

Slope: 9 to 15 percent
Depth to restrictive feature: 20 to 39 inches to paralithic bedrock
Natural drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 4.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: D
Ecological site: CLAYEY (1975) (R019XD001CA)
Hydric soil rating: No

Minor Components

Anaheim, clay loam
Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Bosanko, clay
Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Balcom, clay loam
Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

211—Tidal flats

Map Unit Composition
Tidal flats: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tidal Flats

Setting
Landform: Tidal flats
Down-slope shape: Linear
Across-slope shape: Linear

Typical profile
H1 - 0 to 60 inches: variable

Properties and qualities
Slope: 0 to 2 percent
Depth to water table: About 0 inches
Frequency of flooding: Frequent
Salinity, maximum in profile: Moderately saline to strongly saline (8.0 to 16.0 mmhos/cm)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8w
Hydric soil rating: Yes

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Appendix E Wetland Determination Data Form

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: UCI Health Campus Hospital &Ambulatory Care City/County: Irvine / Orange Sampling Date: 4/11/2019

Applicant/Owner: University of California, Irvine State: CA Sampling Point: 1

Investigator(s): Dan Rosie and Stephen Anderson Section, Township, Range: Section 50, Township 6 South, Range 9 West

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

Subregion (LRR): C - Mediterranean California Lat: 33°39'47.06"N Long: 117°51'9.36"W Datum: 11S

Soil Map Unit Name: Tidal Flats (211) NWI classification: PFO/SSA

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

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

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

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

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

Remarks:

Sampling Point 1 examined within most suspect area of wetlands within the survey area. Therefore, no wetlands were observed within the survey area.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix gooddingii*	25	Yes	FACW
2.			
3.			
4.			
Total Cover:	25 %		
Sapling/Shrub Stratum			
1. *Salix gooddingii*	5	Yes	FACW
2.			
3.			
4.			
5.			
Total Cover:	5 %		
Herb Stratum			
1. *Rumex salicifolius*	80	Yes	FACW
2. *Sonchus oleraceus*	1	No	UPL
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	81 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	110	x 2 =	220
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species	1	x 5 =	5
Column Totals:	111 (A)		225 (B)

Prevalence Index = B/A = 2.03

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

Herb Stratum - ground consists entirely of detritus/leaf litter

SOIL

Sampling Point: 1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-10	10 YR 3/1	100					silty clay	No evidence of redox

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

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

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

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

Indicators for Problematic Hydric Soils:[4]

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: UCI Health Campus Hospital &Ambulatory Care City/County: Irvine / Orange Sampling Date: 8/20/2019

Applicant/Owner: University of California, Irvine State: CA Sampling Point: 2

Investigator(s): Timothy Tidwell and Stephen Anderson Section, Township, Range: Section 50, Township 6 South, Range 9 West

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

Subregion (LRR): C - Mediterranean California Lat: 33°39'38.57"N Long: 117°51'15.74"W Datum: 11S

Soil Map Unit Name: Tidal Flats (211) NWI classification: PFO/SSA

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

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

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

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

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

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix gooddingii*	35	Yes	FACW
2.			
3.			
4.			
Total Cover:	35 %		
Sapling/Shrub Stratum			
1. *Schoenoplectus californicus*	50	Yes	OBL
2.			
3.			
4.			
5.			
Total Cover:	50 %		
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	50	x 1 =	50
FACW species	35	x 2 =	70
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	85 (A)		120 (B)

Prevalence Index = B/A = 1.41

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? **Yes (•) No ( )**

Remarks:

Remaining ground cover is leaf litter

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[3]	Remarks
0-14	5Y 2.5/1	90	7.5YR 4/6	10	C	PL	silty clay loam	

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

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

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

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

Indicators for Problematic Hydric Soils:[4]

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: UCI Health Campus Hospital &Ambulatory Care City/County: Irvine / Orange Sampling Date: 8/20/2019

Applicant/Owner: University of California, Irvine State: CA Sampling Point: 3

Investigator(s): Timothy Tidwell and Stephen Anderson Section, Township, Range: Section 50, Township 6 South, Range 9 West

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

Subregion (LRR): C - Mediterranean California Lat: 33°39'39.57"N Long: 117°51'13.93"W Datum: 11S

Soil Map Unit Name: Tidal Flats (211) NWI classification: PFO/SSA

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

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

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

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

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

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *Schoenoplectus californicus*	25	Yes	OBL
2. *Salix exigua*	75	Yes	FACW
3.			
4.			
5.			
Total Cover:	100%		
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	%		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 20 % % Cover of Biotic Crust %

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	25	x 1 =	25
FACW species	75	x 2 =	150
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	100 (A)		175 (B)

Prevalence Index = B/A = 1.75

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

Remaining ground cover is leaf litter

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[3]	Remarks
0-10	10YR 2/1	90	7.5YR 4/6	10	C	M	silty clay loam	

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

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

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

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

Indicators for Problematic Hydric Soils:[4]

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: UCI Health Campus Hospital &Ambulatory Care City/County: Irvine / Orange Sampling Date: 8/20/2019

Applicant/Owner: University of California, Irvine State: CA Sampling Point: 4

Investigator(s): Timothy Tidwell and Stephen Anderson Section, Township, Range: Section 50, Township 6 South, Range 9 West

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

Subregion (LRR): C - Mediterranean California Lat: 33°39'44.55"N Long: 117°51'11.03"W Datum: 11S

Soil Map Unit Name: Tidal Flats (211) NWI classification: PFO/SSA

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

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

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

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

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

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix laevigata*	70	Yes	FACW
2.			
3.			
4.			
Total Cover:	70 %		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Lycopersicon esculentum*	15	Yes	Not Listed
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	15 %		
Woody Vine Stratum			
1. *Vitis girdiana*	15	Yes	FACW*
2.			
Total Cover:	15 %		

% Bare Ground in Herb Stratum 20 % % Cover of Biotic Crust %

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	85	x 2 =	170
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species	15	x 5 =	75
Column Totals:	100 (A)		245 (B)

Prevalence Index = B/A = 2.45

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes (•) No ( )

Remarks:

Remaining ground cover is leaf litter

SOIL

Sampling Point: 4

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-14	10YR 2/1	93	7.5YR 3/3	7	C	M	silty clay loam	

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

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

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

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

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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: