

## Jurisdictional Delineation Report

### Measure M2 Freeway Environmental Mitigation Program Acquisition Properties Evaluation for the MacPherson Property in Orange County, California

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- A Summary of Regulatory Authority
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- C Datasheets Describing Overall Conditions of Jurisdictional Waters
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## **EXECUTIVE SUMMARY**

The purpose of this report is to provide baseline data concerning the type and extent of jurisdictional resources for the Measure M2 Freeway Environmental Mitigation Program (EMP) Acquisition Properties Evaluation Project. Jurisdictional resources considered for this report include wetlands and non-wetland “waters of the U.S.” regulated by the U.S. Army Corps of Engineers (USACE); “waters of the State” regulated by the Regional Water Quality Control Board (RWQCB); and the bed, bank, and channel of all lakes, rivers, and/or streams (and associated riparian vegetation), as regulated by the California Department of Fish and Wildlife (CDFW).

The limits of non-wetland “waters of the U.S.” and “waters of the State” were identified by the presence of an ordinary high water mark (OHWM). Wetland features were identified based on the USACE’s three-parameter approach in which wetlands are defined by the presence of hydrophytic vegetation, hydric soils, and presence of wetland hydrology indicators. The limits of CDFW jurisdictional waters were identified as either the top of bank or the outer drip line of riparian vegetation.

The jurisdictional delineation work was performed by BonTerra Psomas on July 8, 2015. Based on the results of the jurisdictional delineation fieldwork, it was determined that the total jurisdictional resources on the MacPherson property are as follows:

- **USACE Jurisdiction:** 0.814 acre.
- **RWQCB Jurisdiction:** 0.819 acre (0.814 acre of non-wetland “waters of the State” and 0.005 acre of isolated waters).
- **CDFW Jurisdiction:** 4.334 acres.

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## **1.0 INTRODUCTION**

This Jurisdictional Delineation Report (report) was prepared for the Orange County Transportation Authority (OCTA) to provide baseline data concerning the type and extent of resources under the jurisdiction of the U.S. Army Corps of Engineers (USACE), the California Department of Fish and Wildlife (CDFW), and the Regional Water Quality Control Board (RWQCB) for the Measure M2 Freeway Environmental Mitigation Program (EMP) Acquisition Properties Evaluation Project. This report is limited to the MacPherson property (hereinafter referred to as the “property”).

### **1.1 PROJECT LOCATION AND DESCRIPTION**

The approximate 204-acre property is located in unincorporated Orange County east of the cities of Orange and Irvine (Exhibit 1). Baker Canyon Road is to the north, Ladd Canyon Road is to the east, Silverado Canyon Road is to the south, and Black Star Canyon Road is to the west. The property is located on the U.S. Geological Survey’s (USGS’) Black Star Canyon and El Toro 7.5-minute topographic quadrangles of the San Bernardino Meridian in Sections 6 and 7 of Township 5 South, Range 7 West (Exhibit 2). It is within the 1,680-square-mile Santa Ana Watershed (Hydrologic Unit Code 18070203).

The property is part of a Natural Community Conservation Plan (NCCP)/Habitat Conservation Plan (HCP) habitat preserve purchased to mitigate for natural resource impacts of the Renewed Measure M (or Measure M2)-funded freeway improvement project.

### **1.2 REGULATORY AUTHORITY**

This section summarizes the federal and State agencies’ regulatory jurisdiction over activities that have a potential to impact jurisdictional resources. A detailed explanation of each agency’s regulatory authority is provided in Attachment A.

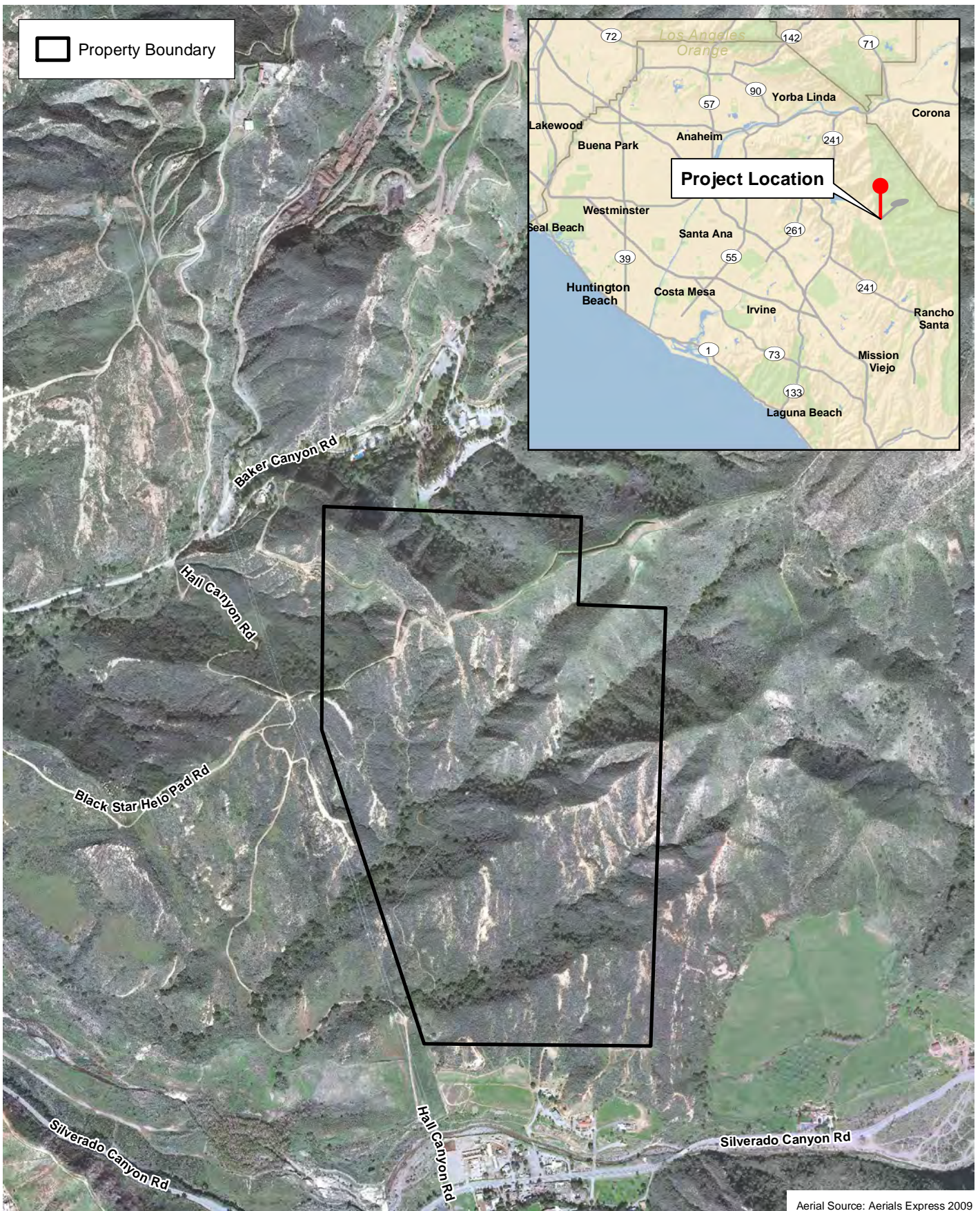
#### **1.2.1 U.S. Army Corps of Engineers**

The USACE’s Regulatory Branch regulates activities that discharge dredged or fill materials into “waters of the U.S.” under Section 404 of the Federal Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act. Its authority applies to all “waters of the U.S.” where the material (1) replaces any portion of a “waters of the U.S.” with dry land or (2) changes the bottom elevation of any portion of any “waters of the U.S.”. Activities that result in fill or dredge of “waters of the U.S.” require a permit from the USACE.

#### **1.2.2 Regional Water Quality Control Board**

The State Water Resources Control Board (SWRCB), in conjunction with the nine RWQCBs, is the primary agency responsible for protecting water quality in California through the regulation of discharges to surface waters under the CWA and the California Porter-Cologne Water Quality Control Act (Porter-Cologne Act). The SWRCB’s and RWQCBs’ jurisdictions extend to all “waters of the State” and to all “waters of the U.S.”, including wetlands (isolated and non-isolated).

Property Boundary



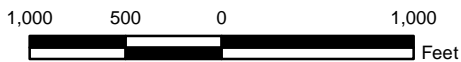
Aerial Source: Aerials Express 2009

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## Project Location

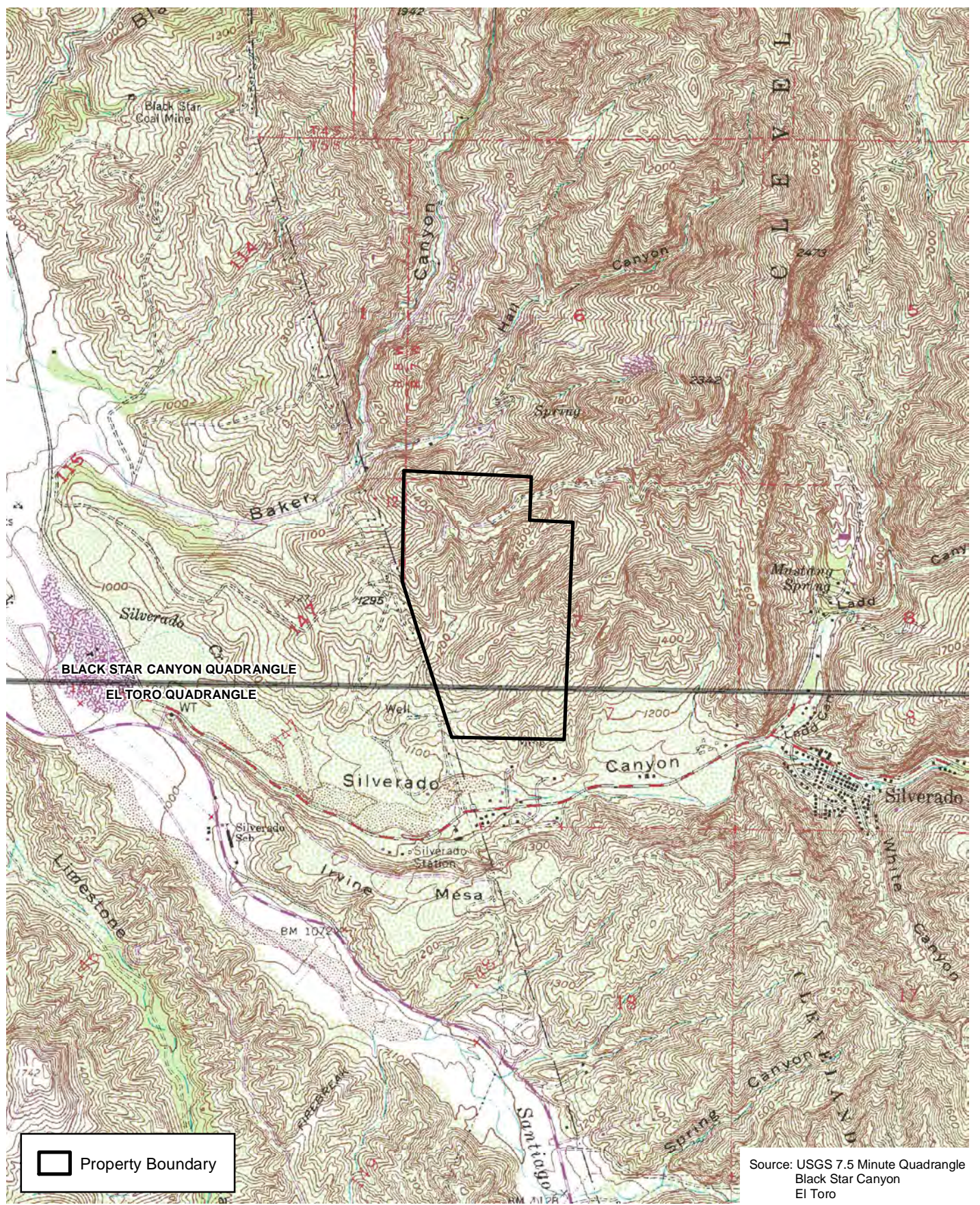
## Exhibit 1

Measure M2 Acquisition Properties Evaluation – MacPherson Property



**Bonterra**  
PSOMAS



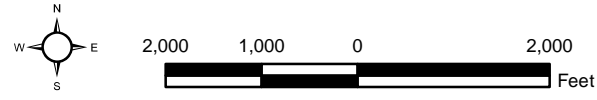


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# USGS 7.5-Minute Quadrangle

Measure M2 Acquisition Properties Evaluation – MacPherson Property

# Exhibit 2



### **1.2.3 California Department of Fish and Wildlife**

The CDFW regulates activities that may affect rivers, streams, and lakes pursuant to the *California Fish and Game Code* (§§1600–1616). According to Section 1602 of the *California Fish and Game Code*, the CDFW has jurisdictional authority over any work that will (1) substantially divert or obstruct the natural flow of any river, stream, or lake; (2) substantially change or use any material from the bed, channel, or bank of any river, stream, or lake; or (3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

## 2.0 **METHODS**

This section discusses the literature reviewed for the preparation of the delineation and the methods employed during performance of the field delineation. The entire property was surveyed.

### 2.1 **LITERATURE**

Prior to conducting the delineation and during the course of preparing this report, BonTerra Psomas reviewed the following documents to identify areas that may fall under agency jurisdiction: the USGS' Black Star Canyon and El Toro 7.5-minute quadrangle maps; color aerial photography provided by Aerials Express (spring 2009); the Web Soil Survey (USDA NRCS 2015); the National Hydric Soils List (USDA NRCS 2014); the National Wetlands Inventory's Wetland Mapper (USFWS 2015); and the Regional Water Quality Control Plan for the Santa Ana Region (RWQCB 1995). A description of this literature and a summary of the results for the property found from each source are provided below.

**USGS Topographic Quadrangle.** USGS quadrangle maps show geological formations and their characteristics; they describe the physical settings of an area through topographic contour lines and other major surface features. These features include lakes, streams, rivers, buildings, roadways, landmarks, and other features that may fall under the jurisdiction of one or more regulatory agencies. In addition, the USGS maps provide topographic information that is useful in determining elevations, latitude and longitude, and Universal Transverse Mercator Grid coordinates for a project site.

Topography on the property consists of low hills, with the main ridgelines oriented in a northeast to southwest direction. Elevations range from approximately 1,135 to 1,678 feet above mean sea level (msl). No blue-line streams occur on the property, but multiple drainage features are present in the canyon bottoms.

**Color Aerial Photography.** BonTerra Psomas reviewed an existing color aerial photograph prior to conducting the field delineation to identify the extent of any drainages and riparian vegetation occurring on the property.

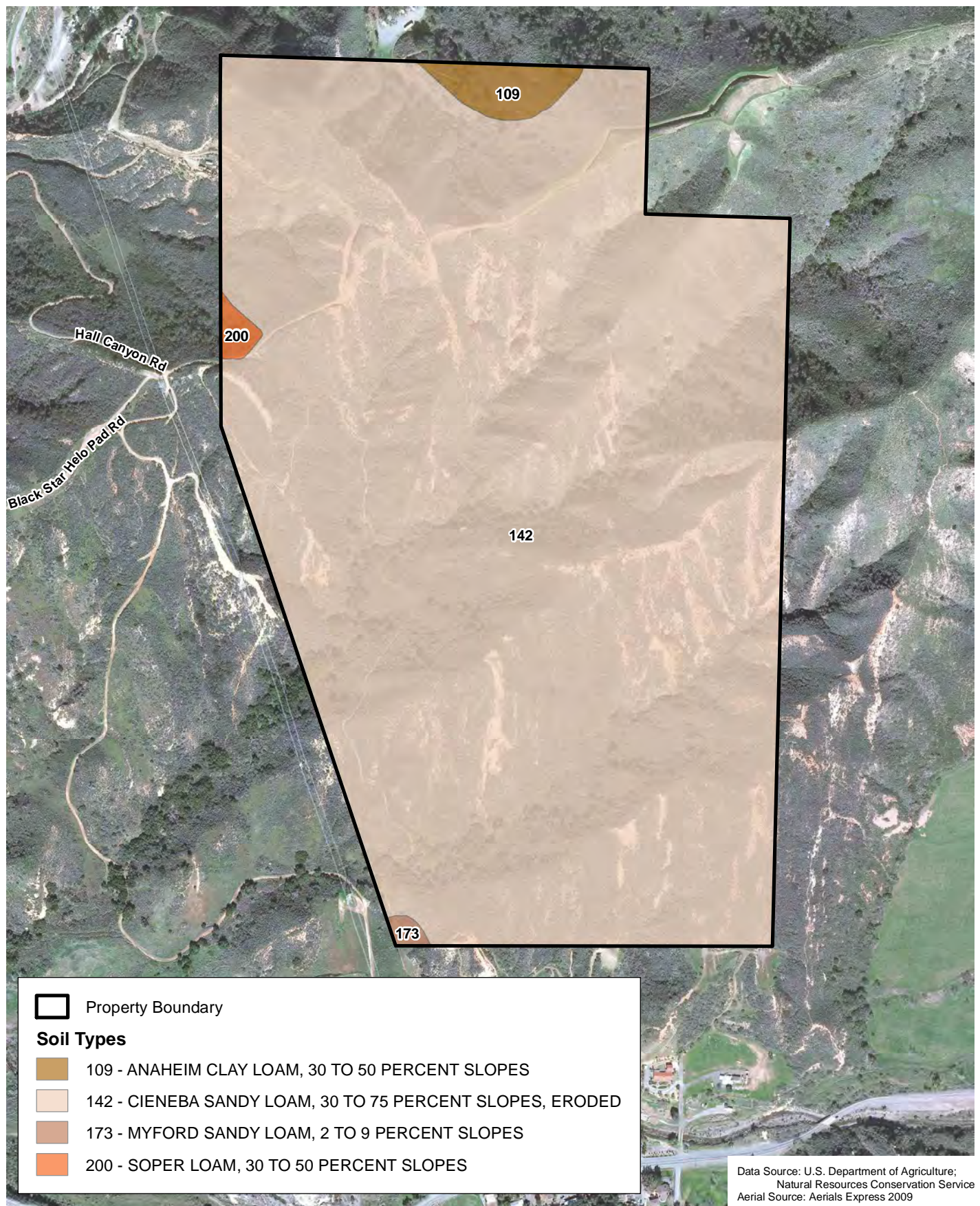
Multiple ridgelines and canyons are visible on the aerial imagery and vegetation appears to be primarily shrubland. The two main drainages contain trees along the canyon bottom and scattered up the slopes.

**U.S. Department of Agriculture, Natural Resources Conservation Service.** The presence of hydric soils is one of the chief indicators of jurisdictional wetlands. BonTerra Psomas reviewed U.S. Department of Agriculture (USDA) soil data for the property (USDA NRCS 2015).

The property occurs in the soil survey area for Orange County and Part of Riverside County, California. The following soil types have been mapped on the property: Anaheim clay loam (30 to 50 percent slopes), Cieneba sandy loam (30 to 75 percent slopes, eroded), Myford sandy loam (2 to 9 percent slopes), and Soper loam (30 to 50 percent slopes) (Exhibit 3).

The Natural Resources Conservation Service (NRCS) has delineated the boundaries of "soil map units", which often contain components of multiple soil types that may be classified as hydric or non-hydric. The National Hydric Soils List (USDA NRCS 2014) identifies a soil map unit as "hydric" if it contains either a major or minor component that is at least in part hydric. On the property, the following map unit is listed as "hydric" on the National List for the soil survey area in which it occurs: Myford sandy loam (2 to 9 percent slopes). A brief description of the soils mapped on the property is provided in Attachment B of this report.

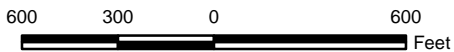
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### Soil Types

### Exhibit 3

Measure M2 Acquisition Properties Evaluation – MacPherson Property



**U.S. Fish and Wildlife Service, National Wetlands Inventory.** The Wetlands Mapper shows wetland resources available from the Wetlands Spatial Data Layer of the National Spatial Data Infrastructure (USFWS 2015). This resource provides the classification of known wetlands following the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979). This classification system is arranged in a hierarchy of (1) Systems, which share the influence of similar hydrologic, geomorphologic, chemical, or biological factors (i.e., Marine, Estuarine, Riverine, Lacustrine, and Palustrine); (2) Subsystems (i.e., Subtidal and Intertidal; Tidal, Lower Perennial, Upper Perennial, and Intermittent; or Littoral and Limnetic); (3) Classes, which are based on substrate material and flooding regime or on vegetative life forms; (4) Subclasses; and (5) Dominance Types, which are named for the dominant plant or wildlife forms. In addition, there are modifying terms applied to Classes or Subclasses.

The following resources are mapped on the property: (1) riverine, intermittent streambed, temporary flooded (R4SBA) and (2) Palustrine, forested/scrub-shrub, seasonally flooded (PFO/SSC) (Exhibit 4). The descriptions for mapped resources are provided in Attachment B of this report.

**Regional Water Quality Control Plans.** The property is located in RWQCB Region 8, the Santa Ana Region. The RWQCB has adopted a Water Quality Control Plan (or “Basin Plan”) for this region. The Basin Plan contains goals and policies, descriptions of conditions, and proposed solutions to surface and groundwater issues. The Basin Plan also establishes water quality standards for surface and groundwater resources and includes beneficial uses and levels of water quality that must be met and maintained to protect these uses. These water quality standards are implemented through various regulatory permits pursuant to the CWA, specifically Section 401 for Water Quality Certifications and Section 402 for Report of Waste Discharge (ROWD) permits.

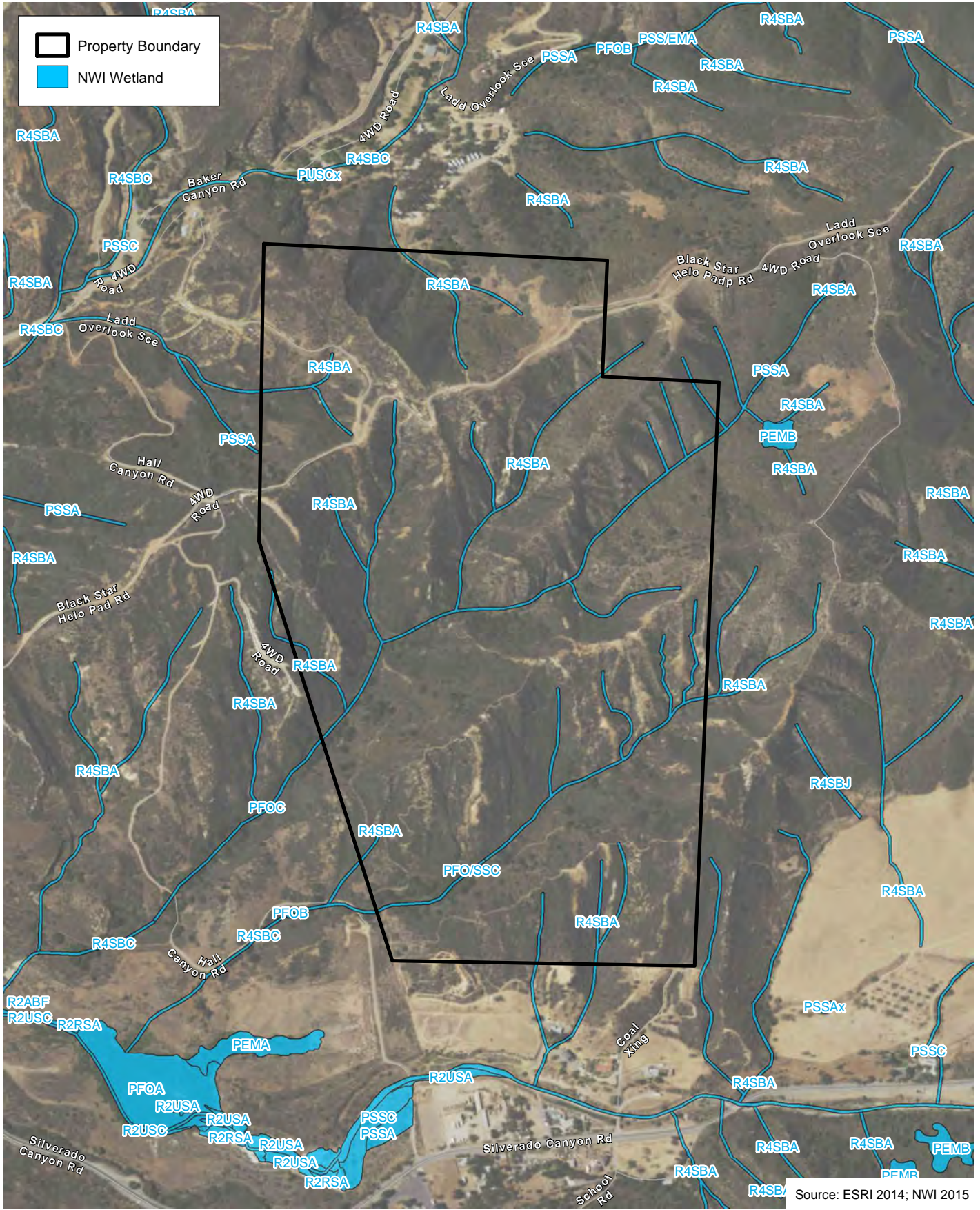
The Santa Ana Basin Plan indicates that the property is located in the Santa Ana River Hydrologic Unit, Lower Santa Ana River Hydrologic Area, and the Santiago Hydrologic Subarea (HSA). While the Basin Plan does not provide Water Quality Objectives for the unnamed drainages on the property, objectives are provided for Silverado Creek, of which the on-site drainages are tributaries (Table 1).

**TABLE 1  
WATER QUALITY OBJECTIVES FOR SILVERADO CREEK**

Water Quality Objectives (mg/L)						
Total Dissolved Solids	Hardness	Sodium	Chloride	Total Inorganic Nitrogen	Sulfate	Chemical Oxygen Demand
650	450	30	20	1	275	–
mg/L: milligrams per liter; –: none provided						
Source: RWQCB 1995						

Beneficial uses are defined in the Porter-Cologne Act as those uses of water that are necessary for tangible and intangible economic, social, and environmental benefits. The Basin Plan identifies a number of beneficial uses for Silverado Creek: Municipal and Domestic Water Supply (MUN) waters; Groundwater Recharge (GWR) waters; Water Contact Recreation (REC1) waters; Non-Contact Water Recreation (REC2) waters; Warm Fresh Water Habitat (WARM) waters; and Wildlife Habitat (WILD) waters. Descriptions of the beneficial uses applicable to waters on the property are provided in Attachment B of this report.

Property Boundary  
 NWI Wetland



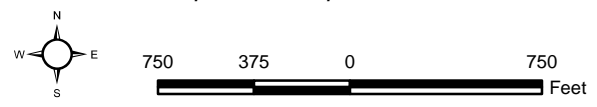
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Source: ESRI 2014; NWI 2015

## National Wetland Inventory

## Exhibit 4

Measure M2 Acquisition Properties Evaluation – MacPherson Property



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## 2.2 JURISDICTIONAL DELINEATION

Non-wetland “waters of the U.S.” are delineated based on the limits of the ordinary high water mark (OHWM), which can be determined by a number of factors including erosion, deposition of vegetation or debris, and changes in vegetation. The OHWM limits (i.e., active floodplain) occurring on the property were further verified using methods contained in *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States, A Delineation Manual* (Lichvar and McColley 2008), and the *Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (Curtis and Lichvar 2010).

In September 2008, the USACE issued the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region*. This regional supplement is designed for use with the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987). Both the 1987 Wetlands Manual and the Arid West Supplement to the manual provide technical methods and guidelines for determining the presence of “waters of the U.S.” and wetland resources. A three-parameter approach is used to identify wetlands and requires evidence of wetland hydrology, hydrophytic vegetation, and hydric soils. Wetlands generally include swamps, marshes, bogs, and similar areas. In order to be considered a wetland, an area must exhibit at least minimal hydric characteristics within the three parameters. However, problem areas may periodically or permanently lack certain indicators due to seasonal or annual variability of the nature of the soils or plant species on site. Atypical wetlands lack certain indicators due to recent human activities or natural events. Guidance for determining the presence of wetlands in these situations is presented in the regional supplement.

It should be noted that the RWQCB shares USACE jurisdiction unless isolated conditions are present. If isolated waters conditions are present, the RWQCB takes jurisdiction using the USACE’s definition of the OHWM and/or the three-parameter wetlands method pursuant to the 1987 Wetlands Manual. The CDFW’s jurisdiction is defined as the top of the bank to the top of the bank of the stream, channel, or basin or to the outer limit of riparian vegetation located within or immediately adjacent to the river, stream, creek, pond, or lake or other impoundment.

The analysis contained in this report uses the results of a field survey conducted by BonTerra Psomas Senior Biologist Allison Rudalevige and Biologist Tanessa Hartwig on July 8, 2015. Jurisdictional features were delineated using a 1 inch equals 300 feet (1" = 300') scale aerial photograph. Jurisdictional water resources were delineated as a drainage centerline with corresponding width measurements. Inaccessible areas (i.e., where the topography was very steep or vegetation was too dense) were mapped remotely on the aerial photograph. Datasheets that provide a summary of the drainages on the property are provided in Attachment C.

### 2.2.1 Vegetation

Hydrophytic vegetation (or hydrophytes) is defined as any macrophytic plant that “grows in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content; plants typically found in wet habitats” (Environmental Laboratory 1987). Specifically, these plant species have specialized morphological, physiological, or other adaptations for surviving in permanently saturated to periodically saturated soils where oxygen levels are very low or the soils are anaerobic. The USACE—as part of an interagency effort with the U.S. Environmental Protection Agency (USEPA), the U.S. Fish and Wildlife Service (USFWS), and the NRCS—approved a new National Wetland Plant List (NWPL) (Lichvar and Kartesz 2009) to replace the *National List of Plant Species that Occur in Wetlands* (Reed 1988). The current NWPL went into effect in 2014, and is to be used to determine whether the hydrophytic vegetation parameter is met when conducting wetland determinations under the CWA and the Wetland Conservation Provisions of the Food Security Act. The NWPL is also intended to be used for

wetland restoration, establishment, and enhancement projects. This report utilizes the indicator statuses for the Arid West Supplement portion of the NWPL.

The following revisions were made to Reed's *National List of Plant Species that Occur in Wetlands* (1988) pursuant to the NWPL:

1. The USACE eliminated the "probability-of-occurrence" categories (e.g., <1 percent, 1-33 percent, 34-66 percent, 67-99 percent, and >99 percent) due to the lack of numerical data to support these ratings.
2. The USACE determined that, because the wetland plant indicator statuses have shifted from a series of numerical categories to qualitative definitions, the use of +/- suffixes is difficult to apply accurately. Adding finer-scale +/- ratings implies there are data to support their assignments, which is generally not the case. Therefore, to improve the accuracy of the overall list, the USACE decided to drop the +/- suffixes.

Lichvar and Gillrich (2011) provide updated technical definitions of wetland plant indicator status categories as part of the procedures used in updating the NWPL:

- **Obligate Wetland (OBL):** These wetland-dependent plants (herbaceous or woody) require standing water or seasonally saturated soils (14 or more consecutive days) near the surface to assure adequate growth, development, and reproduction and to maintain healthy populations. These plants are of four types:
  - *submerged*: plants that conduct virtually all of their growth and reproductive activity under water.
  - *floating*: plants that grow with the leaves and most often their vegetative and reproductive organs floating on the water surface.
  - *floating-leaved*: plants that are rooted in sediment but also have leaves that float on the water surface.
  - *emergent*: herbaceous and woody plants that grow with their bases submerged and rooted in inundated sediment or seasonally saturated soil and their upper portions, including most of the vegetative and reproductive organs, growing above the water level.
- **Facultative Wetlands (FACW):** These plants depend on and predominantly occur with hydric soils, standing water, or seasonally high water tables in wet habitats for assuring optimal growth, development, and reproduction and for maintaining healthy populations. These plants often grow in geomorphic locations where water saturates soils or floods the soil surface at least seasonally.
- **Facultative (FAC):** These plants can occur in wetlands or non-wetlands. They can grow in hydric, mesic, or xeric habitats. The occurrence of these plants in different habitats represents responses to a variety of environmental variables other than just hydrology, such as shade tolerance, soil [hydrogen potential] pH, and elevation, and they have a wide tolerance of soil moisture conditions.
- **Facultative Upland (FACU):** These plants are not wetland dependent. They can grow on hydric and seasonally saturated soils, but they develop optimal growth and healthy populations on predominantly drier or more mesic sites. Unlike FACW plants, these plants are non-wetland plants by habitat preference.



- **Obligate Upland (UPL):** These plants occupy mesic to xeric non-wetland habitats. They almost never occur in standing water or saturated soils. Typical growth forms include herbaceous, shrubs, woody vines, and trees.

The following are three procedures for determining hydrophytic vegetation: Indicator 1, “Dominance Test”, using the “50/20 Rule”; Indicator 2, “Prevalence Index”; or Indicator 3, “Morphological Adaptation”, as identified in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008). Hydrophytic vegetation is present if any indicator is satisfied. If none of the indicators are satisfied, then hydrophytic vegetation is absent unless (1) indicators of hydric soil and wetland hydrology are present and (2) the site meets the requirements for a problematic wetland situation.

- **Dominance Test:** Vegetative cover is estimated and ranked according to its dominance. Dominant species are the most abundant species for each stratum of the community (i.e., tree, sapling/shrub, herb, or woody vine) that individually or collectively amounts to 50 percent of the total coverage of vegetation plus any other species that, by itself, accounts for 20 percent of the total vegetation cover (also known as the “50/20 Rule”). These species are recorded on the “Wetland Determination Data Form – Arid West Region”. The wetlands indicator status of each species is also recorded on the data forms based on the NWPL (Lichvar and Kartesz 2009). If more than 50 percent of the dominant species across all strata are OBL, FACW or FAC species, the criterion for wetland vegetation is considered to be met.
- **Prevalence Index:** The prevalence index considers all plant species in a community, not just the dominant ones. The prevalence index is the average of the wetland indicator status of all plant species in a sampling plot. Each indicator status category is given a numeric code (OBL = 1, FACW = 2, FAC = 3, FACU = 4, and UPL = 5) and is weighted by the species’ abundance (percent cover). Hydrophytic vegetation is present if the prevalence index is 3.0 or less.
- **Morphological Adaptation:** Morphological adaptations, such as adventitious roots (i.e., roots that take advantage of the wet conditions) and shallow root systems, must be observed on more than 50 percent of the individuals of a FACU species for the hydrophytic vegetation wetland criterion to be met.

### 2.2.2 Soils

The National Technical Committee for Hydric Soils (NTCHS) defines a hydric soil as a soil that is formed under conditions of saturation, flooding, or ponding that occurs long enough during the growing season to develop anaerobic conditions (or conditions of limited oxygen) at or near the soil surface and that favor the establishment of hydrophytic vegetation (USDA NRCS 2008). It should be noted that hydric soils created under artificial conditions of flooding and inundation sufficient for the establishment of hydrophytic vegetation would also meet this hydric soils indicator.

The soil conditions are verified by digging test pits along each transect to a depth of at least 20 inches (except where a restrictive layer occurs in areas containing hard pan, cobble, or solid rock). It should be noted that, at some sites, it may be necessary to make exploratory soil test pits up to 40 inches deep to more accurately document and understand the variability in soil properties and hydrologic relationships on the site. Soil test pit locations are usually dug within the drainage invert or at the edge of a drainage course in vegetated areas. Soil extracted from each soil test pit is then examined for texture and color using the standard plates on the Munsell Soil Color Chart (1994) and recorded on the Data Form. The Munsell Soil Color Chart aids in designating soils by color labels based on gradations of three simple variables: hue, value, and chroma. Any indicators of hydric soils, such as the following, are also recorded on the Data Form:

redoximorphic features (i.e., areas where iron is reduced under anaerobic conditions and oxidized following a return to aerobic conditions); buried organic matter; organic streaking; reduced soil conditions; gleyed (i.e., soils having a characteristic bluish-gray or greenish-gray color) or low-chroma soils; or sulfuric odor. If hydric soils are found, progressive pits are dug along the transect moving laterally away from the active channel area until hydric soil features are no longer present in the top 20 inches of the soil.

### **2.2.3 Hydrology**

Wetland hydrology indicators provide evidence that a site has a continuing wetland hydrologic regime. Wetlands hydrology is represented by either (1) all of the hydrological elements or characteristics of areas permanently or periodically inundated or (2) areas containing soils that are saturated for a sufficient duration of time to create hydric soils suitable for the establishment of plant species that are typically adapted to anaerobic soil conditions. The presence of wetland hydrology is evaluated at each intersect by recording the extent of observed surface flows; the depth of inundation; the depth to saturated soils; and the depth to free water in soil test pits. In instances where stream flow is divided into multiple channels with intervening sandbars, the entire area between the channels is considered to be within the “Active Floodplain” and within the OHWM. Therefore, an area containing these features would meet the indicator requirements for wetland hydrology.

### 3.0 **RESULTS**

#### 3.1 **U.S. ARMY CORPS OF ENGINEERS DETERMINATION**

##### 3.1.1 **“Waters of the U.S.” Determination (Non-Wetland)**

###### ***Connectivity to a Traditional Navigable Water***

Five separate drainage areas occur on the property.

The largest drainage areas on the property (Drainages 4 and 5) are tributaries<sup>1</sup> of Silverado Creek. Drainages 1 and 3 convey flow to the Baker Canyon drainage, which is a tributary of Silverado Creek. Silverado Creek conveys flow to Santiago Creek, which flows through the Santiago Creek Reservoir, Santiago Creek Recharge Basin, and into the Santa Ana River, which discharges into the Pacific Ocean between Huntington Beach and Newport Beach. Therefore, these Drainages (i.e., 1, 3, 4, and 5) and their tributaries would be considered under the jurisdiction of the USACE.

One drainage feature (Drainage 2) conveys water from a slope in the northwestern corner of the property. Evidence of bed, bank, and OHWM dissipate as the drainage feature runs along a dirt access road. There is no connectivity to a downstream water. This isolated drainage feature would not be considered under the jurisdiction of the USACE.

###### ***Limits of “Waters of the U.S.”***

The limits of non-wetland “waters of the U.S.” were defined by the presence of the OHWM. Evidence of an OHWM for the drainages consists of a break in bank slope, change in vegetation cover and average sediment texture, and the presence of drift deposits. Arid West Ephemeral and Intermittent Streams OHWM Datasheets were completed for representative areas within the drainages and are contained in Attachment D.

###### ***Results***

Based on the field observations and data collected, a total of approximately 0.814 acre of non-wetland “waters of the U.S.” occurs on the property (Table 2; Exhibit 5).

<sup>1</sup> “Tributaries” are defined as waters that are characterized by the presence of physical indicators of flow—bed, banks, and OHWM—and that contribute flow directly or indirectly to a traditional navigable water, interstate water, or territorial sea.

**TABLE 2  
SUMMARY OF JURISDICTIONAL  
RESOURCES ON THE PROPERTY**

Drainage Area	Amount of Jurisdictional Resources (Acres)			
	USACE	Isolated	RWQCB*	CDFW
Drainage 1	0.082	–	0.082	0.082
Drainage 2	–	0.005	0.005	0.005
Drainage 3	0.036	–	0.036	0.036
Drainage 4	0.514	–	0.514	2.139
Drainage 5	0.182	–	0.182	2.072
<b>Total</b>	<b>0.814</b>	<b>0.005</b>	<b>0.819</b>	<b>4.334</b>

USACE: U.S. Army Corps of Engineers; RWQCB: Regional Water Quality Control Board; CDFW: California Department of Fish and Wildlife; –: not present in this drainage.

\* RWQCB jurisdictional boundaries are defined as those determined for the USACE under “waters of the U.S.”; however, the RWQCB also takes jurisdiction over isolated waters.

**3.1.2 Wetlands Determination**

No portion of the property exhibited both evidence of hydrophytic vegetation and wetland hydrology. Therefore, soil test pits were not dug.

**Vegetation**

Vegetation types mapped on the property include southern mixed chaparral, open southern mixed chaparral, California sagebrush scrub, mixed sage scrub, annual grassland, ruderal, southern coast live oak riparian forest, poison oak scrub, and coast live oak woodland. Cliff/rock and disturbed areas are also present. Hydrophytic vegetation was not observed in any drainage feature.

**Soils**

The southwestern corner of the property has mapped areas of hydric soil. However, this portion of the property does not exhibit evidence of hydrophytic vegetation together with wetland hydrology.

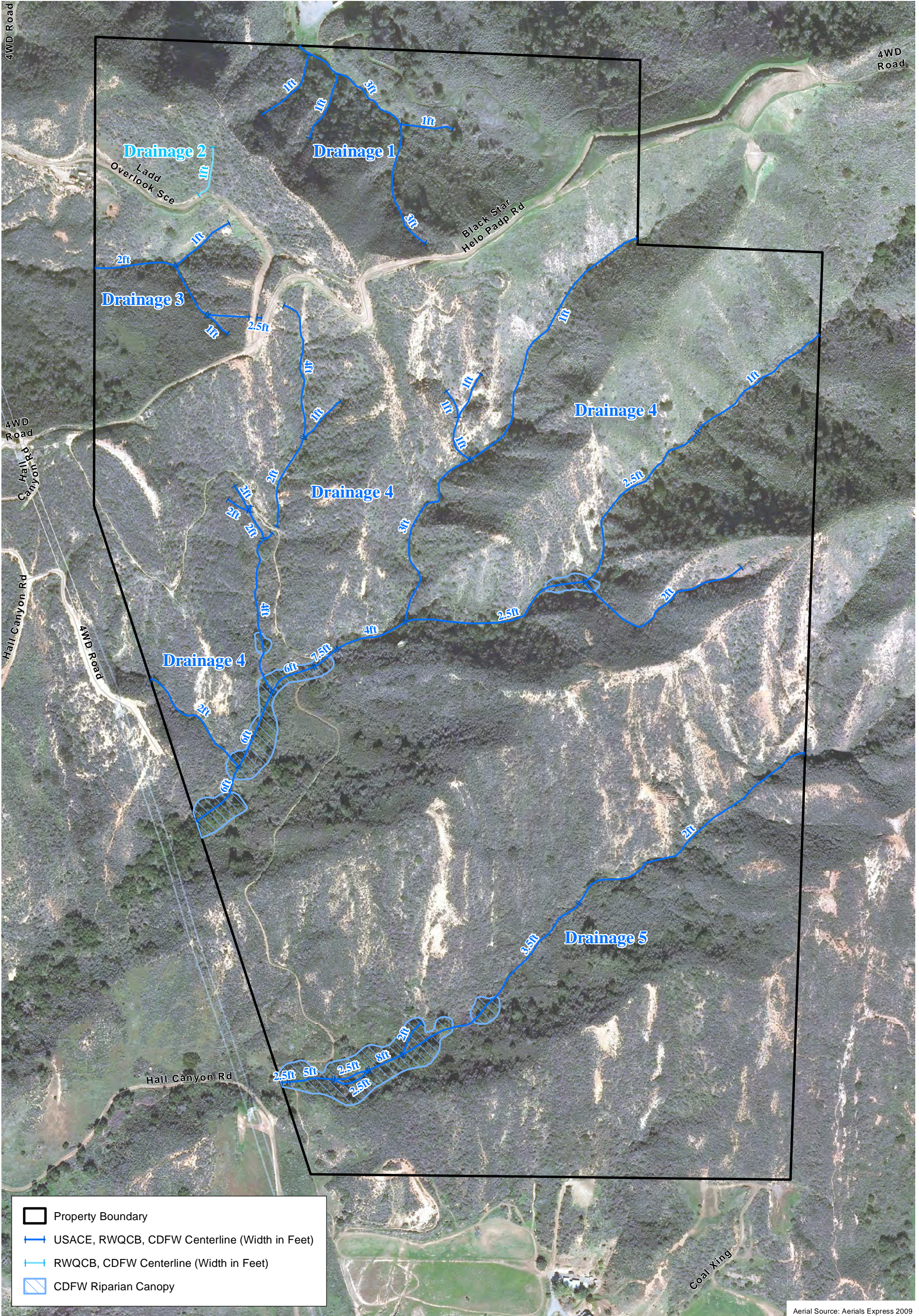
**Hydrology**

Evidence of wetland hydrology is indistinct throughout all but the largest drainages and consists of areas of drift deposits and drainage patterns.

No wetland “waters of the U.S.” are present on the property.

**3.2 CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD DETERMINATION**

The RWQCB has authority to take jurisdiction over the drainages that are also under the jurisdiction of the USACE. In addition, the isolated drainage is also subject to the jurisdiction of the RWQCB. Therefore, a total of approximately 0.819 acre of “waters of the State” under the jurisdiction of the RWQCB (of which 0.005 acre is isolated waters) occurs on the property (Table 2; Exhibit 5).



**Jurisdictional Resources**

Measure M2 Acquisition Properties Evaluation – MacPherson Property

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### **3.3 CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE DETERMINATION**

The limits of CDFW jurisdiction on the property were mapped according to the top of the stream bank for most drainages; the largest drainage features on the property contained riparian vegetation, and CDFW jurisdiction extends to the outer dripline in these areas. A total of approximately 4.334 acres of waters under the jurisdiction of the CDFW occurs on the property (Table 2; Exhibit 5).

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## **4.0 CONCLUSION OF REGULATORY APPROVAL PROCESS**

### **4.1 REGULATORY PERMIT REQUIREMENTS**

While no modifications to drainages on the property are anticipated at this time, the following is a general summary of the various permits, agreements, and certifications that are expected to be required prior to initiation of future habitat enhancement or restoration activities that would involve impacts to areas under the jurisdiction of the USACE, the RWQCB, and/or the CDFW:

- USACE Section 404 Permit;
- RWQCB Section 401 Water Quality Certification; and
- CDFW Section 1602 Notification of Lake or Streambed Alteration.

It should be noted that all regulatory permit applications can be processed concurrently. The USACE Section 404 Permit would be issued subject to the receipt of the RWQCB's Section 401 Water Quality Certification.

#### **4.1.1 U.S. Army Corps of Engineers**

Regulatory authorization from the USACE may be in the form of a Nationwide Permit (NWP) or an Individual Permit (IP), depending on the nature and amount of impacts to jurisdictional waters. The current set of NWPs became effective on March 19, 2012, and will expire in on March 18, 2017. NWPs authorize only those activities with minimal adverse effects on the aquatic environment and are valid only if the conditions applicable to the permits are met or waivers to these conditions are provided in writing from the USACE. One or more NWPs may be appropriate for future project activities. Note that NWPs do not authorize stream channelization or conversion of natural wetlands or streams except for relocation activities. There is no filing fee for the Section 404 Permit.

#### **4.1.2 Regional Water Quality Control Board**

As noted above, issuance of the USACE Section 404 Permit would be contingent upon the approval of a Section 401 Water Quality Certification from the Santa Ana RWQCB. Also, the RWQCB requires certification of a project's California Environmental Quality Act (CEQA) documentation before it will approve the Section 401 Water Quality Certification or ROWD. The RWQCB, as a responsible agency, will use the project's CEQA document to satisfy its own CEQA-compliance requirements.

The RWQCB requires the Applicant to address urban storm water runoff during and after construction in the form of Best Management Practices (BMPs). These BMPs are intended to address the treatment of pollutants carried by storm water runoff and are required in all complete applications. The notification/application for a CWA Section 401 Water Quality Certification must also address compliance with the Basin Plan. Please note that the application would also require the payment of an application fee, which would be based on project impacts.

#### **4.1.3 California Department of Fish and Wildlife**

Prior to construction, a Notification of Lake or Streambed Alteration (LSA) must be submitted to the CDFW that describes any proposed streambed alteration that a project might cause. If an LSA is required, the CDFW may want to conduct an on-site inspection.



In addition to the formal application materials and the fee, a copy of the appropriate environmental document (e.g., a Mitigated Negative Declaration) should be included in the submittal consistent with CEQA requirements. The CDFW will not deem the application complete until the application fees have been paid and the agency is provided with a certified CEQA document and a signed copy of the receipt of County Clerk filing fees for the Notice of Determination (NOD).

## 4.2 RECOMMENDATIONS

Based on the conclusions of this Jurisdictional Delineation Report, the following recommendations are identified:

1. If jurisdictional resources would be impacted in the future, a pre-application meeting with USACE, USFWS, CDFW, and RWQCB staff is recommended to discuss site conditions; biological and jurisdictional resources; the project; impacts to these resources resulting from the project; proposed minimization measures and the mitigation program to offset these impacts; and the regulatory permitting process, including the decision to prepare and submit an Approved Jurisdictional Determination or a Preliminary Jurisdictional Determination. The USACE is expected to approve a Preliminary Jurisdictional Determination given the extent of project impacts and the length of project construction.
2. The preparation and processing of a USACE Section 404 Permit; an RWQCB Section 401 Water Quality Certification; and a CDFW Section 1602 Notification of Lake or Streambed Alteration; and the appropriate jurisdictional determination form approved by the USACE is recommended.
3. It is recommended that the OCTA consider long-term permits for recurring maintenance activities such as a Routine Maintenance Streambed Alteration Agreement from the CDFW that covers long-term operation and maintenance activities. If habitat enhancement or restoration activities are planned for any of the mitigation properties, the California Rapid Assessment Method (CRAM) may be utilized as an evaluation tool to measure the success of these efforts. Metrics that may see a scoring increase as a result of enhancement activities include the number of co-dominant species, percent of invasive species, and vertical biotic structure.

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**ATTACHMENT A**  
**SUMMARY OF REGULATORY AUTHORITY**

## REGULATORY AUTHORITY

This attachment summarizes the regulatory authority of the U.S. Army Corps of Engineers (USACE), the Regional Water Quality Control Board (RWQCB), and the California Department of Fish and Wildlife (CDFW) over activities that have potential to impact jurisdictional resources.

### U.S. Army Corps of Engineers

The USACE Regulatory Branch regulates activities that discharge dredged or fill materials into “waters of the U.S.” under Section 404 of the Federal Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act. This permitting authority applies to all “waters of the U.S.” where the material (1) replaces any portion of “waters of the U.S.” with dry land or (2) changes the bottom elevation of any portion of any “waters of the U.S.”. These fill materials would include sand, rock, clay, construction debris, wood chips, and materials used to create any structure or infrastructure in these waters.

### *Waters of the United States*

“Waters of the U.S.” can be divided into three categories: territorial seas, tidal waters, or non-tidal waters. The term “waters of the U.S.” is defined by the *Code of Federal Regulations*<sup>1</sup> (CFR) and includes:

1. All waters that have, are, or may be used in interstate or foreign commerce (including sightseeing or hunting), including all waters subject to the ebb and flow of the tide (i.e., Traditional Navigable Waters [TNWs]).
2. All interstate waters including interstate wetlands.
3. All other waters such as intrastate lakes, rivers, or streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds where the use, degradation, or destruction of which could affect interstate or foreign commerce.
4. All impoundments of waters otherwise defined as “waters of the U.S.” under the definition.
5. All tributaries of waters identified above.
6. The territorial seas.
7. All wetlands adjacent to waters (other than waters that are themselves wetlands) identified above.

On June 19, 2006, a majority of the U.S. Supreme Court overturned two Sixth Circuit Court of Appeals decisions, finding that certain wetlands constituted “waters of the U.S.” under the CWA. In his plurality opinion, Justice Scalia argued that “waters of the U.S.” should not include channels through which water flows intermittently or ephemerally or channels that periodically provide drainage for rainfall. He also stated that a wetland may not be considered “adjacent to” remote “waters of the U.S.” based on a mere hydrologic connection. Justice Kennedy authored a separate concurring opinion concluding that wetlands are “waters of the U.S.” if they, either alone or in combination with similarly situated lands in the region, significantly affect the chemical, physical, and biological integrity of other covered waters more readily understood as “navigable”. Lacking a majority opinion, regulatory jurisdiction under the CWA exists over a water body if either the plurality’s or Justice Kennedy’s “significant nexus” standard is satisfied. On June 5, 2007, the

<sup>1</sup> Specifically, Title 33, Navigation and Navigable Waters; Part 328, Definition of waters of the United States; §328.3, Definitions.

USACE published a memorandum that provides guidance to both the U.S. Environmental Protection Agency (USEPA) regions and the USACE districts that implement the Supreme Court's decision in the Rapanos cases (which address the jurisdiction over "waters of the U.S." under the CWA).<sup>2</sup>

In summary, the USACE and the USEPA will assert jurisdiction over the following waters: (1) TNWs; (2) wetlands adjacent to a TNW; (3) relatively permanent, non-navigable tributaries of a TNW that typically flow year-round or have continuous flow at least seasonally (e.g., typically three months); and (4) wetlands that directly abut such tributaries.

The USACE and the USEPA will decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with a TNW: (1) non-navigable tributaries that are not relatively permanent; (2) wetlands adjacent to non-navigable tributaries that are not relatively permanent; and (3) wetlands adjacent to, but that do not directly abut, a relatively permanent, non-navigable tributary.

The USACE and the USEPA will apply the significant nexus standard based on the following:<sup>3</sup>

1. A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of downstream TNWs.
2. A significant nexus includes consideration of hydrologic and ecological factors.

The USACE and the USEPA generally will not assert jurisdiction over the following features: (1) swales or erosional features (e.g., gullies or small washes characterized by low volume, infrequent, or short duration flow) and (2) ditches (including roadside ditches) excavated wholly within and draining only into uplands and that do not carry a relatively permanent flow of water.

### **Ordinary High Water Mark**

The landward limit of tidal "waters of the U.S." is the high-tide line. In non-tidal waters where adjacent wetlands are absent, the lateral limits of USACE jurisdiction extend to the ordinary high water mark (OHWM).<sup>4</sup> The OHWM 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 the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas".<sup>5</sup> When wetlands are present, the lateral limits of USACE jurisdiction extend beyond the OHWM to the limits of the adjacent wetlands.<sup>6</sup>

### **Wetlands**

A wetland is a subset of jurisdictional waters and is defined by the USACE and the USEPA as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances, do support a prevalence of

<sup>2</sup> Consolidated cases: *Rapanos v. United States* and *Carabell v. United States* refer to the U.S. Supreme Court's decision concerning USACE jurisdiction over "waters of the U.S." under the CWA.

<sup>3</sup> U.S. Army Corps of Engineers and Environmental Protection Agency (USACE and USEPA). 2015 (June 29). Clean Water Rule: Definition of "Waters of the United States". *Federal Register* 80(124): 37054–37127. Washington, D.C.: USACE and USEPA.

<sup>4</sup> U.S. Army Corps of Engineers (USACE). 2005 (December 7). Regulatory Guidance Letter. Ordinary High Water Mark Identification. Washington, D.C.: USACE.

<sup>5</sup> 33 CFR §328.3(e)

<sup>6</sup> USACE 2005

vegetation typically adapted for life in saturated soil conditions”.<sup>7</sup> Wetlands generally include swamps, marshes, bogs, and areas containing similar features.

The definition and methods for identifying wetland resources can be found in the USACE’s *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region*,<sup>8</sup> a supplement to the USACE’s *Corps of Engineers Wetlands Delineation Manual*.<sup>9</sup> Both the 1987 Wetlands Manual and the Arid West Supplement to the manual provide technical methods and guidelines for determining the presence of wetland “waters of the U.S.”. Pursuant to these manuals, a three-parameter approach is used to identify wetlands and requires evidence of wetland hydrology, hydrophytic vegetation, and hydric soils. In order to be considered a wetland, an area must exhibit one or more indicators of all three of these parameters. However, problem areas may periodically or permanently lack certain indicators for reasons such as seasonal or annual variability of rainfall, vegetation, and other factors. Atypical wetlands lack certain indicators due to recent human activities or natural events. Guidance for determining the presence of wetlands in these situations is presented in the regional supplement.

### **Section 404 Permit**

Except as specified in Section 323.4 of the CFR, impacts to “waters of the U.S.” require a Section 404 Permit. Permit authorization may be in the form of (1) a “general permit” authorizing a category of activities in a specific geographical region or nationwide or (2) an “individual permit” (IP) following a review of an individual application form (to be obtained from the district office having jurisdiction over the waters in which the activity is proposed to be located).

Regulatory authorization in the form of a Nationwide Permit (NWP) is provided for certain categories of activities such as repair, rehabilitation, or replacement of a structure or fill which was previously authorized; utility line placement; or bank stabilization. The current set of NWPs became effective on March 19, 2012, and will expire in on March 18, 2017. NWPs authorize only those activities with minimal adverse effects on the aquatic environment and are valid only if the conditions applicable to the permits are met or waivers to these conditions are provided in writing from the USACE. Please note that waivers may require consultation with affected federal and State agencies, which can be a lengthy process with no mandated processing time frames. Certain activities do not require submission of an application form, but may require a separate notification. If the NWP conditions cannot be met, an IP will be required. “Waters of the U.S.” temporarily filled, flooded, excavated, or drained but restored to pre-construction contours and elevations after construction are not included in the measurement of loss of “waters of the U.S.”. The appropriate permit authorization will be based on the amount of impacts to “waters of the U.S.”, as determined by the USACE. There is no filing fee for the Section 404 Permit.

Approximately three or four months are typically required to process a routine permit application; large or complex activities may take longer to process. When a permit application is received, it will be assigned an identification number and reviewed for completeness by the District Engineer. If an application is incomplete, additional information will be requested within 15 days of receipt of the application. If an application is complete, the District Engineer will issue a public notice within 15 days unless specifically exempted by provisions of the CFR. Public comments will be accepted no more than 30 days but not less than 15 days from the date of public notice; these will become part of the administrative record of the application. Generally, the District Engineer will decide on the application no later than 60 days after receipt of the completed application.

<sup>7</sup> 33 CFR §328.3(b)

<sup>8</sup> USACE. 2008a. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)*. (J.S. Wakeley, R.W. Lichvar, and C.V. Noble, Eds.). Vicksburg, MS: U.S. Army Engineer Research and Development Center.

<sup>9</sup> Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual (Technical Report Y-87-1)*. Vicksburg, MS: U.S. Army Engineer Waterways Experiment Station.

Additional permit situations may increase the permit processing time (e.g., projects involving Section 401 Water Quality Certification, coastal zone management consistency, historic properties, federal projects, and Endangered species). The Project Applicant will be given time, not to exceed 30 days, to respond to requests of the District Engineer.

On January 31, 2007, the USACE published a memorandum clarifying the Interim Guidance for Amendments to the National Historic Preservation Act and the Advisory Council on Historic Preservation (ACHP) implementing regulations.<sup>10</sup> The Interim Guidance applies to all Department of the Army requests for authorization/verification, including IPs (standard permits and letters of permission) and all Regional General Permits (RGPs) and NWP. The State or Tribal Historic Preservation Officer (SHPO/THPO) has 30 days to respond to a determination that a proposed activity, which otherwise qualifies for an NWP or an RGP, has no effect or no adverse effect on a historic property. If the SHPO/THPO does not respond within 30 days of notification, the Los Angeles District may proceed with verification. If the SHPO/THPO disagrees with the District's determination, the District may work with the SHPO/THPO to resolve the disagreement or request an opinion from the ACHP. The USACE will submit the Draft Jurisdictional Delineation Report to the SHPO/THPO for review prior to initiating the actual regulatory process.

Please note that if the USACE determines that the drainages are jurisdictional and would be impacted by project implementation, the Applicant will be required to obtain a CWA Section 401 Water Quality Certification from the RWQCB before the USACE will issue the Section 404 Permit. If the USACE determines that the impacted drainage is not jurisdictional, the Applicant will be required to obtain RWQCB authorization under the provisions of a Report of Waste Discharge (ROWD).

### Jurisdictional Determinations

Pursuant to USACE Regulatory Guidance Letter (RGL) 08-02 (dated June 26, 2008), the USACE can issue two types of jurisdictional determinations to implement Section 404 of the CWA: Approved Jurisdictional Determinations and Preliminary Jurisdictional Determinations.<sup>11</sup> An Approved Jurisdictional Determination is an official USACE determination that jurisdictional "waters of the U.S.", "Navigable Waters of the U.S.", or both are either present or absent on a site. An Approved Jurisdictional Determination also identifies the precise limits of jurisdictional waters on a project site.

The USACE will provide an Approved Jurisdictional Determination when (1) an Applicant requests an official jurisdictional determination; (2) an Applicant contests jurisdiction over a particular water body or wetland; or (3) when the USACE determines that jurisdiction does not exist over a particular water body or wetland. The Approved Jurisdictional Determination then becomes the USACE's official determination that can then be relied upon over a five-year period to request regulatory authorization as part of the permit application.

In addition, an Applicant may decline to request an Approved Jurisdictional Determination and instead obtain a USACE IP or General Permit Authorization based on a Preliminary Jurisdictional Determination or, in certain circumstances (e.g., authorizations by non-reporting nationwide general permits), with no Jurisdictional Determination.

Preliminary Jurisdictional Determinations are non-binding, advisory in nature, and may not be appealed. They indicate that there may be "waters of the U.S." on a project site. An Applicant may elect to use a Preliminary Jurisdictional Determination to voluntarily waive or set aside questions

<sup>10</sup> USACE. 2007 (January 31). Memorandum: Interim Guidance for Amendments to the National Historic Preservation Act and the Advisory Council on Historic Preservation (ACHP) Implementing Regulations. Washington, D.C.: USACE.

<sup>11</sup> USACE. 2008b (June 26). Regulatory Guidance Letter. Jurisdictional Determinations. Washington, D.C.: USACE.



regarding CWA jurisdiction over a site, usually in the interest of expediting the permitting process. The USACE will determine what form of Jurisdictional Determination is appropriate for a particular project site.

The USACE Regulatory Branch Offices will coordinate with the USEPA Regional Office and USACE Headquarters (HQ), as outlined in its January 28, 2008, memorandum entitled "Process for Coordinating Jurisdictional Determinations Conducted Pursuant to Section 404 of the Clean Water Act in Light of the *Rapanos* and *SWANCC* Supreme Court Decisions".<sup>12</sup> The guidance provided in this memorandum is quoted as follows:

1. Effective immediately, unless and until paragraph 5(b) of the June 5, 2007, *Rapanos* guidance coordination memorandum is modified by a joint memorandum from Army and EPA, we will follow these procedures:
  - a. For jurisdictional determinations involving significant nexus determinations, USACE districts will send copies of draft jurisdictional delineations via e-mail to appropriate EPA regional offices. The EPA regional office will have 15 calendar days to decide whether to take the draft jurisdictional delineation as a special case under the January 19, 1989, "Memorandum of Agreement Between the Department of the Army and the USEPA Concerning the Determination of the Section 404 Program and the Application of the Exceptions under Section 404(f) of the Clean Water Act." If the EPA regional office does not respond to the district within 15 days, the district will finalize the jurisdictional determination.
  - b. For jurisdictional determinations involving isolated waters determinations, the agencies will continue to follow the procedure in paragraph 5(b) of June 5, 2007, coordination memorandum, until a new coordination memorandum is signed by USACE and EPA. (In accordance with paragraph 6 of the June 5, 2007, coordination memorandum, this is a 21-day timeline that can only be changed through a joint memorandum between agencies).
2. Approved JDs are not required for non-reporting NWP, unless the project proponent specifically requests an approved JD. For proposed activities that may qualify for authorization under a State Programmatic General Permit (SPGP) or RGP, an approved JD is not required unless requested by the project proponent.
3. The USACE will continue to work with EPA to resolve the JDs involving significant nexus and isolated waters determinations that are currently in the elevation process.
4. USACE districts will continue posting completed Approved JD Forms on their web pages.

### **Regional Water Quality Control Board**

The RWQCB is the primary agency responsible for protecting water quality in California through the regulation of discharges to surface waters under the CWA and the California Porter-Cologne Water Quality Control Act (Porter-Cologne Act). The RWQCB's jurisdiction extends to all "waters of the State" and to all "waters of the U.S.", including wetlands (isolated and non-isolated).

<sup>12</sup> USACE. 2008c (January 28). *Memorandum for Commander, Major Subordinate Commands and District Commands. Process for Coordinating Jurisdictional Determinations Conducted Pursuant to Section 404 of the Clean Water Act in Light of the *Rapanos* and *SWANCC* Supreme Court Decisions*. Washington, D.C.: USACE.

Section 401 of the CWA provides the RWQCB with the authority to regulate, through a Water Quality Certification, any proposed, federally permitted activity that may affect water quality. Among such activities are discharges of dredged or fill material permitted by the USACE pursuant to Section 404 of the CWA. Section 401 requires the RWQCB to provide certification that there is reasonable assurance that an activity which may result in discharge to navigable waters will not violate water quality standards. Water Quality Certification must be based on a finding that the proposed discharge will comply with water quality standards, which contain numeric and narrative objectives that can be found in each of the nine RWQCBs' Basin Plans.

The Porter-Cologne Act provides the State with 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 in the post-SWANCC (Solid Waste Agency of Northern Cook Counties vs. United States Army Corps of Engineers) and Rapanos era with respect to the State's authority over isolated waters. Generally, any person proposing to discharge waste into a water body that could affect its water quality must file an ROWD when there is no federal nexus, such as under Section 404(b)(1) of the CWA. Although "waste" is partially defined as any waste substance associated with human habitation, the RWQCB interprets this to include fill discharge into water bodies.

### **Section 401 Water Quality Certification**

Issuance of the USACE Section 404 Permit would be contingent upon the approval of a Section 401 Water Quality Certification from the RWQCB. Also, the RWQCB requires certification of the project's California Environmental Quality Act (CEQA) documentation before it will approve the Section 401 Water Quality Certification or ROWD. The RWQCB, as a responsible agency, will use the project's CEQA document to satisfy its own CEQA-compliance requirements.

Upon acceptance of a complete permit application, the RWQCB has between 60 days and one year to make a decision regarding the permit request. This is compliant with USACE regulations, which indicate that the RWQCB has 60 days from the date of receipt of a completed application that requests water quality certification to make a decision.<sup>13</sup> The RWQCB has the option of issuing a "Denial Without Prejudice", which does not mean that the request is denied, but that it requires more information in order to make a decision. This effectively stops the processing clock until this information is provided.

The RWQCB is required under the *California Code of Regulations* (CCR) to have a "minimum 21 day public comment period" before any action can be taken on the Section 401 application.<sup>14</sup> This period closes when the RWQCB acts on the application. Since projects often change or are revised during the Section 401 permit process, the comment period can remain open. The public comment period starts as soon as an application has been received. Generally, the RWQCB Section 401, USACE Section 404, and CDFW Section 1602 permit applications are submitted at the same time. However, the RWQCB Section 401 Water Quality Certification may take longer to process.

The RWQCB requires the Applicant to address urban storm water runoff during and after construction in the form of Best Management Practices (BMPs). These BMPs are intended to address the treatment of pollutants carried by storm water runoff and are required in all complete applications. The notification/application for a CWA Section 401 Water Quality Certification must also address compliance with the Basin Plan. Please note that filing an

<sup>13</sup> 33 CFR §325.2(b)(1)(ii)

<sup>14</sup> 23 CCR §3858(a)

application would also require the payment of an application fee, which would be based on project impacts.

### **California Department of Fish and Wildlife**

The CDFW has jurisdictional authority over wetland resources associated with rivers, streams, and lakes pursuant to the *California Fish and Game Code*.<sup>15</sup> Activities of State and local agencies as well as public utilities that are project proponents are regulated by the CDFW under Section 1602 of the *California Fish and Game Code*. This section regulates any work that will (1) substantially divert or obstruct the natural flow of any river, stream, or lake; (2) substantially change or use any material from the bed, channel, or bank of any river, stream, or lake; or (3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

The CDFW jurisdictional limits are not as clearly defined by regulation as those of the USACE. While they closely resemble the limits described by USACE regulations, they include riparian habitat supported by a river, stream, or lake regardless of the presence or absence of hydric and saturated soils conditions. In general, the CDFW takes jurisdiction from the top of a stream bank or to the outer limits of the adjacent riparian vegetation (outer drip line), whichever is greater. Notification is generally required for any project that will take place within or in the vicinity of a river, stream, lake or within or in the vicinity of tributaries to a river, stream, or lake. This includes rivers or streams that flow at least periodically or permanently through a bed or channel with banks that support fish and other aquatic plant and/or wildlife species. It also includes watercourses that have a surface or subsurface flow that support or have supported riparian vegetation.

### ***Section 1602 Notification of Lake or Streambed Alteration***

The CDFW enters into a Lake or Streambed Alteration Agreement (LSAA) with a project proponent in order to ensure protection of wildlife and habitat values and acreages. The notification process involves the completion of an application, which will serve as the basis for the CDFW's issuance of a Section 1602 LSAA. Section 1602 of the *California Fish and Game Code* applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the State.

The LSAA must address the initial construction and long-term operation and maintenance of any structures (such as a culvert or a desilting basin) included in the project design that are located within any river, stream, or lake.

Prior to construction, a Notification (an LSAA application) must be submitted to the CDFW that describes any proposed streambed alteration that would occur with implementation of the project. In addition to the formal application materials and the fee, a copy of the appropriate environmental document (e.g., a Mitigated Negative Declaration) should be included in the submittal, consistent with CEQA requirements. The CDFW will prepare a draft LSAA, which will include standard measures to protect sensitive plant and wildlife resources during project construction and during ongoing operation and maintenance of any project element that occurs within a CDFW jurisdictional area.

If an LSAA is required, the CDFW may want to conduct an on-site inspection. The CDFW then prepares a draft Agreement, which will include measures to protect fish and wildlife resources that will be directly or indirectly impacted by project construction. The draft Agreement must be transmitted to the Applicant within 60 calendar days of the CDFW's determination that the

<sup>15</sup> See §§1600–1616.

notification is complete. It should be noted that the 60-day timeframe might not apply to long-range agreements.

Following receipt of a draft LSAA from the CDFW, the Applicant has 30 calendar days to notify the CDFW concerning the acceptability of the proposed terms, conditions, and measures. If the Applicant agrees with these terms, conditions and measures, the Agreement must be signed and returned to the CDFW. The Agreement becomes final once the CDFW executes it and an LSAA is issued. Please note that all application fees must be paid, and the final certified CEQA documentation must be provided prior to the CDFW's execution of the Agreement.

If the CDFW does not respond in writing concerning the completeness of the Notification within 30 days of its submittal, the Notification automatically becomes complete. If the CDFW does not submit a draft LSAA to the Applicant within 60 days of the determination of a completed Notification package, the CDFW will issue a letter that either (1) identifies the final date to transmit a draft LSAA or (2) indicates that an LSAA was not required. The CDFW will also indicate that it was unable to meet this mandated compliance date and that, by law, the Applicant is authorized to complete the project without an LSAA as long as the Applicant constructs the project as proposed and complies with all avoidance, minimization, and mitigation measures described in the submitted Notification package. Please note that if the project requires revisions to the design or project construction, the CDFW may require submittal of a new Notification/application with an additional 90-day permit process.

**ATTACHMENT B**  
**LITERATURE REVIEW DETAILS**

This attachment provides detailed results of the literature review.

## **SOIL SERIES**

The description identified below was obtained from the U.S. Department of Agriculture, Natural Resources Conservation Service (USDA NRCS).<sup>1</sup>

### **Anaheim Series**

The Anaheim series is a fine-loamy, mixed, superactive, thermic Pachic Haploxeroll. It consists of well-drained, moderately deep soils over weathered, fine-grained sandstone and shale. Anaheim soils are on foothills and formed in material weathered from fine-grained sandstone or shell.<sup>2</sup> The mean annual precipitation is about 16 inches and the mean annual air temperature is about 61 degrees Fahrenheit (°F).

#### ***Range in Characteristics***

Depth to a paralithic contact ranges from 20 to 40 inches. Usually the soil between depths of 5 to 15 inches is continuously dry in all parts from late April or May until late October or November and is moist in some parts all the rest of the year. The mean annual soil temperature at a depth of 20 inches is 60°F to 65°F, and the soil temperature is usually not below 47°F at any time. In some pedons, a few vertical cracks up to ¼ inch wide occur to a depth of 20 inches or more, but slickensides are absent.

The A horizon is brown, grayish brown, or dark grayish brown in 10YR hue. It has 1 to 3 percent organic matter to a depth of more than 20 inches. This horizon ranges from slightly acidic to slightly alkaline.

The Cr horizon is weathered sandstone or shale or both. It lacks lime coatings on the upper fracture faces in some pedons.

#### ***Drainage and Permeability***

Anaheim soils are well drained, have rapid to very rapid runoff, and have moderate to moderately slow permeability.

### **Cieneba Series**

The Cieneba series is a loamy, mixed, superactive, nonacid, thermic, shallow Typic Xerorthent. It consists of very shallow and shallow, somewhat excessively drained soils that formed in material weathered from granitic rock. Cieneba soils are on uplands and have slopes of 9 to 85 percent. The mean annual precipitation is about 25 inches, and the mean annual temperature is 60°F.

#### ***Range in Characteristics***

Depth to a paralithic contact is 4 to 20 inches. Soil below a depth of about 4 to 6 inches usually is moist all of the time after November until sometime in May. It is dry the rest of the time. The mean annual soil temperature just above the weathered rock is 59°F to 65°F. Fragments larger than 2 millimeters (mm) make up 0 to 35 percent of the soil. The soil is neutral to strongly acidic, though

<sup>1</sup> U.S. Department of Agriculture, Natural Resources Conservation Service (USDA NRCS). 2015 (June 8, access date). Official Soil Series Descriptions by List of Series Names (with FTP Option) [Information for Soils Mapped on the Property]. Lincoln, NE: USDA NRCS. <https://soilseries.sc.egov.usda.gov/osdlist.asp>.

<sup>2</sup> This most likely refers to "shale".

moist pedons have slight or medium acidity. It is coarse sandy loam, gravelly sandy loam, light loam, or gravelly light loam and has less than 18 percent clay throughout the profile. The amount of coarse and very coarse sand is 15 to 25 percent. Organic matter content is less than 1 percent below a depth of about one inch to about four inches.

The A horizon is dark grayish brown to light brown (10YR 4/2, 4/3, 5/2, 5/3, 6/2, 6/3; 7.5YR 5/2, 6/4). Dry values of four or five extend to a depth of one to five inches in protected pedons that have not been burned or eroded.

### ***Drainage and Permeability***

Cieneba soils are somewhat excessively drained with low to medium runoff and moderately rapid permeability in the soil, but with much slower permeability in the weathered granite.

### **Myford Series**

The Myford series is a fine-loamy, mixed, superactive, thermic Typic Palexeralf. It consists of deep, moderately well-drained soils formed on terraces. The mean annual precipitation is about 16 inches, and the mean annual air temperature is about 62°F.

### ***Range in Characteristics***

The solum ranges from 45 to 75 inches thick. Mean annual soil temperature at a depth of 20 inches is 60°F to 63°F. The soil between depths of about 5 and 15 inches is usually moist in some part from about November 15 until late May, and is continuously dry the rest of the year.

The A horizon is pinkish gray or light brown, light brownish gray, pale brown, grayish brown, or brown in 7.5YR or 10YR hue. It is sandy loam or fine sandy loam. This horizon has weak structure or is massive and ranges from strongly acidic to slightly acidic. The A3 horizon is one unit higher in value than the A1 horizon.

The Bt horizon is brown, dark brown, or yellowish brown in 7.5YR or 10YR hue. It is sandy clay or heavy clay loam in the upper part and sandy clay loam or clay loam in the lower part and averages 28 to 30 percent clay in the entire horizon. The upper boundary of the Bt horizon is abrupt, and the clay increase from the A horizon to the Bt horizon is 18 to 28 percent. This horizon has a prismatic or angular, blocky structure. It ranges from having medium acidity to being moderately alkaline in the upper part and is moderately alkaline in the lower part. Exchangeable sodium is 15 to 35 percent below a depth of one meter.

### ***Drainage and Permeability***

Myford soils are moderately well drained, have medium to rapid runoff, and have very slow permeability.

### **Soper Series**

The Soper series is a fine-loamy, mixed, superactive, thermic Typic Argixeroll. It consists of moderately deep, well-drained soils that formed in material weathered from conglomerate and sandstone. Soper soils are on hills and uplands and have slopes of 15 to 50 percent. The mean annual precipitation is about 18 inches, and the mean annual air temperature is about 60°F.

### **Range in Characteristics**

Depth to a paralithic contact is 24 to 40 inches. The mean annual soil temperature is 60°F to 65°F at 20 inches deep, and the soil temperature usually is not below 47°F at any time. The soil between depths of about 6 and 16 inches is continuously dry in all parts from late April or May until late October or November and is usually moist in some part for the rest of the year.

The A horizon is grayish brown, dark grayish brown, or brown in 10YR hue. It is loam or less commonly sandy loam, and is commonly gravelly or cobbly with 0 to 20 percent rock fragments by volume. The horizon usually has weak or moderate granular or subangular blocky structure and is slightly hard or hard. In some pedons, it is massive in some part and slightly hard. The A horizon contains neutral to medium acidity. It contains 1 to 4 percent organic matter to depth of about 10 inches, and the amount decreases regularly to less than 1 percent at a depth of about 15 inches.

The B2t horizon is brown, dark brown, or light yellowish brown in 10YR or 7.5YR hue or reddish brown in 5YR hue. It is gravelly or cobbly clay loam or gravelly or cobbly sandy clay loam, and has 25 to 35 percent clay. This horizon is slightly acidic to mildly alkaline. Some pedons have horizons transitional to the B2t horizon and have either or both B1 or B3 horizons. Some pedons have a C horizon above the paralithic contact that is gravelly or cobbly loam or gravelly or cobbly sandy loam.

### **Drainage and Permeability**

Soper soils are well drained, have rapid runoff, and have moderately slow permeability.

### **NATIONAL WETLANDS INVENTORY**

The following resources are mapped on the property:

- **R: System RIVERINE.** The Riverine System includes all wetlands and deep-water habitats contained in natural or artificial channels which periodically or continuously contain flowing water or which form a connecting link between the two bodies of standing water. Upland islands or Palustrine wetlands may occur in the channel, but they are not part of the Riverine System.
  - **4: Subsystem INTERMITTENT.** This Subsystem includes channels that contain flowing water only part of the year, but may contain isolated pools when the flow stops.
    - **SB: Class STREAMBED.** Includes all wetlands within the Intermittent Subsystem of the Riverine System and all channels of the Estuarine System or of the Tidal Subsystem of the Riverine System that are completely dewatered at low tide.
      - **L: Water Regime TEMPORARY FLOODED.** Surface water is present for brief periods during growing season, but the water table usually lies well below the soil surface for most of the growing season. Plants that grow both in uplands and wetlands may be characteristic of this water regime.



- **P: System PALUSTRINE.** The Palustrine System includes all non-tidal wetlands dominated by trees, shrubs, emergents, mosses, or lichens and all such wetlands that occur in tidal areas where salinity due to ocean-derived salts is below 0.5 part per trillion (ppt). Wetlands lacking such vegetation are also included if they (1) are less than 8 hectares (20 acres); (2) do not have an active wave-formed or bedrock shoreline feature; (3) have, at low water, a depth of less than 6.6 feet in the deepest part of the basin; and (4) have salinity due to ocean-derived salts of less than 0.5 ppt.
  - **FO: Class FORESTED.** This Class is characterized by woody vegetation that is 6 meters (20 feet) tall or taller.
  - **SS: Class SCRUB-SHRUB.** This Class includes areas dominated by woody vegetation less than 6 meters (20 feet) tall. The species include true shrubs, young trees (saplings), and trees or shrubs that are small or stunted because of environmental conditions.
    - **C: Water Regime Modifier SEASONALLY FLOODED.** Surface water is present for extended periods especially early in the growing season, but is absent by the end of the growing season in most years. The water table after flooding ceases is variable, extending from saturated to the surface to a water table well below the ground surface.

## BASIN PLAN BENEFICIAL USES

The *Water Quality Control Plan: Santa Ana River Basin (8)* (Basin Plan) identifies a number of beneficial uses, some or all of which may apply to a specific hydrologic subarea (HSA), including Municipal and Domestic Water Supply (MUN) waters; Agricultural Supply (AGR) waters; Industrial Service Supply waters (IND); Industrial Process Supply (PROC) waters; Groundwater Recharge (GWR) waters; Navigation (NAV) waters; Hydropower Generation (POW) waters; Water Contact Recreation (REC1) waters; Non-Contact Water Recreation (REC2) waters; Commercial and Sport Fishing (COMM) waters; Warm Fresh Water Habitat (WARM) waters; Limited Warm Water Habitat (LWARM) waters; Cold Fresh Water Habitat (COLD) waters; Preservation of Biological Habitats of Special Significance (BIOL) waters; Wildlife Habitat (WILD) waters; Rare, Threatened or Endangered Species (RARE) waters; Spawning, Reproduction and Development (SPWN) waters; and Estuarine Habitat (EST) waters. Beneficial uses associated with Silverado Creek are described in detail below; beneficial uses not described below do not apply to the property.

- MUN waters support community, military, or individual water supply systems including, but not limited to, drinking water supply.
- GWR waters are used for natural or artificial recharge of groundwater for purposes that may include, but are not limited to, future extraction, maintaining water quality, or halting saltwater intrusion into freshwater aquifers.
- REC1 waters are used for recreational activities involving body contact with water where ingestion of water is reasonably possible. These uses may include, but are not limited to, swimming, wading, water-skiing, skin and SCUBA diving, surfing, whitewater activities, fishing, and use of natural hot springs. Please note that while this beneficial use designation is assigned to surface water bodies in this region, it should not be construed as encouraging recreational activities.
- REC2 waters are used for recreational activities involving proximity to water, but not normally involving body contact with water where ingestion of water would be reasonably possible. These uses may include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, and aesthetic enjoyment in conjunction with the above activities. Please note that while this

beneficial use designation is assigned to surface water bodies in this region, it should not be construed as encouraging recreational activities.

- WARM waters support warm water ecosystems that may include, but are not limited to, preservation and enhancement of aquatic habitats, vegetation, fish, and wildlife (including invertebrates).
- WILD waters support wildlife habitats that may include, but are not limited to, the preservation and enhancement of vegetation and prey species used by waterfowl and other wildlife.

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**ATTACHMENT C**

**DATASHEETS DESCRIBING OVERALL CONDITIONS  
OF JURISDICTIONAL WATERS**

## Jurisdictional Delineation Summary Datasheet

Project/Task No. 30CT000801/2	Project Name MacPherson Property
Field Staff A Rudalevige, J Hartwig	Date 7/8/15

Feature ID	Drainage 4
Preliminary Jurisdictional Status <sup>1</sup>	USACE, CDFW, RWQCB
Potential Wetland (y/n) <sup>2</sup>	no
Hydrologic Indicators	drift deposits
Wetland Plant Indicators	none
Preliminary Hydrologic Regime <sup>3</sup>	ephemeral or intermittent
Surface Water Present (y/n), Depth	no
OHWM Width(s)	varies 1' to 7.5'
CDFW Width(s)	varies based on riparian canopy
Side Slope Estimate <sup>4</sup>	mostly vertical
Characteristic Vegetation <sup>5</sup>	upland (chaparral and CSS species)
Chemical Indicators <sup>6</sup>	Unknown
Anthropogenic Modifications <sup>7</sup>	trail crosses
Surrounding Land Use	undeveloped open space
Other Notes	Major onsite drainage w/ multiple smaller tributaries.

<sup>1</sup> USACE/Isolated Water/CDFW.

<sup>2</sup> Note if wetland plants/hydrology present; if both present, proceed to dig soil test pit and fill out Wetland Determination Data Form.

<sup>3</sup> Hydrology is **ephemeral** when it occurs only during and immediately following precipitation; **intermittent** if occurs for extended period of time, e.g., due to groundwater influence; and **perennial** if flow is year-round. **Nuisance** flow varies and is a function of anthropogenic influences; can be in addition to natural flow.

<sup>4</sup> Percent slope, degrees, rise over run, or qualitative description.

<sup>5</sup> Describe vegetation within and surrounding drainage/waterbody – herbaceous wetland/shrubland, riparian woodland/forest, upland, etc.

<sup>6</sup> Describe any chemical influences on waters – e.g., potential toxics from road, oil film observed.

<sup>7</sup> Describe any anthropogenic modifications to channel – e.g., artificial channel, riprap, concrete banks, culverts, storm drains.

### Jurisdictional Delineation Summary Datasheet

Project/Task No. 30CT000801 / 2	Project Name MacPherson Property
Field Staff A Rudalovic, T Hartwig	Date 7/8/15

Feature ID	Drainage 5
Preliminary Jurisdictional Status <sup>1</sup>	USACE, CDFW, RWQCB
Potential Wetland (y/n) <sup>2</sup>	no
Hydrologic Indicators	drift deposits
Wetland Plant Indicators	none
Preliminary Hydrologic Regime <sup>3</sup>	ephemeral or intermittent
Surface Water Present (y/n), Depth	no
OHWM Width(s)	varies 2' to 8'
CDFW Width(s)	varies based on riparian canopy
Side Slope Estimate <sup>4</sup>	gently sloping
Characteristic Vegetation <sup>5</sup>	upland; oak riparian canopy
Chemical Indicators <sup>6</sup>	unknown
Anthropogenic Modifications <sup>7</sup>	trail crosses
Surrounding Land Use	open space
Other Notes	major on-site drainage with multiple smaller tributaries

<sup>1</sup> USACE/Isolated Water/CDFW.  
<sup>2</sup> Note if wetland plants/hydrology present; if both present, proceed to dig soil test pit and fill out Wetland Determination Data Form.  
<sup>3</sup> Hydrology is **ephemeral** when it occurs only during and immediately following precipitation; **intermittent** if occurs for extended period of time, e.g., due to groundwater influence; and **perennial** if flow is year-round. **Nuisance** flow varies and is a function of anthropogenic influences; can be in addition to natural flow.  
<sup>4</sup> Percent slope, degrees, rise over run, or qualitative description.  
<sup>5</sup> Describe vegetation within and surrounding drainage/waterbody – herbaceous wetland/shrubland, riparian woodland/forest, upland, etc.  
<sup>6</sup> Describe any chemical influences on waters – e.g., potential toxics from road, oil film observed.  
<sup>7</sup> Describe any anthropogenic modifications to channel – e.g., artificial channel, riprap, concrete banks, culverts, storm drains.

**ATTACHMENT D**  
**ORDINARY HIGH WATER MARK DATASHEETS**

## Arid West Ephemeral and Intermittent Streams OHWM Datasheet

<b>Project:</b> MacPherson Property <b>Project Number:</b> 30CT000801 <b>Stream:</b> Drainage 4 <b>Investigator(s):</b> A Ruddle, T Hartwig	<b>Date:</b> 7/8/15 <b>Town:</b> <b>Photo begin file#:</b>	<b>Time:</b> <b>State:</b> CA <b>Photo end file#:</b>
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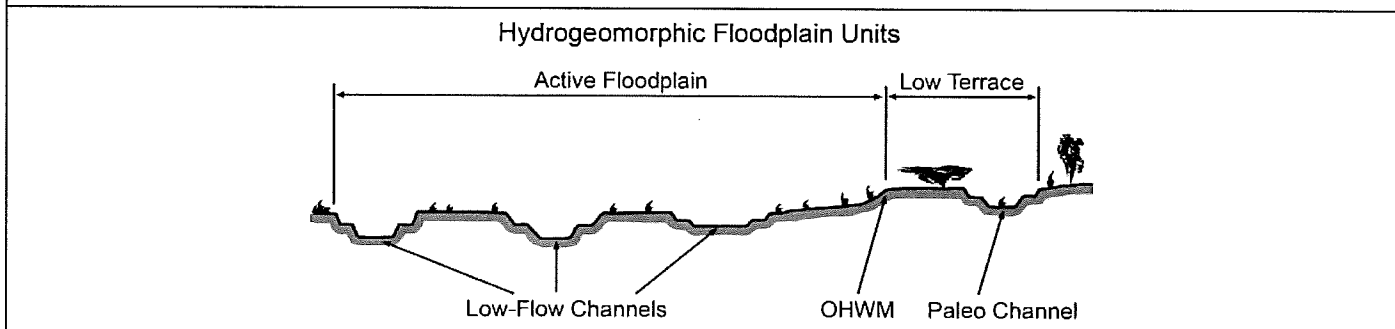
Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Do normal circumstances exist on the site?  Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Is the site significantly disturbed?	<b>Location Details:</b>  <b>Projection:</b> _____ <b>Datum:</b> _____ <b>Coordinates:</b> _____
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**Potential anthropogenic influences on the channel system:**  
 foot traffic, trails

**Brief site description:**  
 major on-site drainage

**Checklist of resources (if available):**

<input checked="" type="checkbox"/> Aerial photography Dates: 2009 <input checked="" type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input checked="" type="checkbox"/> Vegetation maps <input checked="" type="checkbox"/> Soils maps <input type="checkbox"/> Rainfall/precipitation maps <input type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies	<input type="checkbox"/> Stream gage data Gage number: Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event
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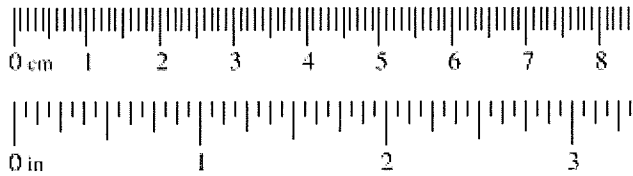
- Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:**
1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
  2. Select a representative cross section across the channel. 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:
 

<input checked="" type="checkbox"/> Mapping on aerial photograph	<input checked="" type="checkbox"/> GPS
<input type="checkbox"/> Digitized on computer	<input type="checkbox"/> Other:



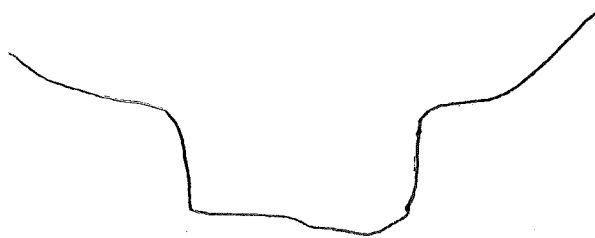
### Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class
10.08	256	Boulder
2.56	64	Cobble
0.157	4	Pebble
0.079	2.00	Granule
0.039	1.00	Very coarse sand
0.020	0.50	Coarse sand
1/2 0.0098	0.25	Medium sand
1/4 0.005	0.125	Fine sand
1/8 0.0025	0.0625	Very fine sand
1/16 0.0012	0.031	Coarse silt
1/32 0.00061	0.0156	Medium silt
1/64 0.00031	0.0078	Fine silt
1/128 0.00015	0.0039	Very fine silt
		Clay



Project ID: MacPherson Cross section ID: 4 Date: 7/8/15 Time:

**Cross section drawing:**



**OHW**

GPS point: \_\_\_\_\_

**Indicators:**

- Change in average sediment texture
- Change in vegetation species
- Change in vegetation cover
- Break in bank slope
- Other: drift deposits
- Other: \_\_\_\_\_

Comments:

**Floodplain unit:**  Low-Flow Channel  Active Floodplain  Low Terrace

GPS point: \_\_\_\_\_

**Characteristics of the floodplain unit:**

Average sediment texture: silt

Total veg cover: 5 % Tree: \_\_\_\_\_ % Shrub: \_\_\_\_\_ % Herb: 5 %

Community successional stage:

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

**Indicators:**

- Mudcracks
- Ripples
- Drift and/or debris
- Presence of bed and bank
- Benches
- Soil development
- Surface relief
- Other: \_\_\_\_\_
- Other: \_\_\_\_\_
- Other: \_\_\_\_\_

Comments:

Project ID: MacNesson Cross section ID: 4 Date: 7/8/15 Time:

**Floodplain unit:**  Low-Flow Channel  Active Floodplain  Low Terrace

GPS point: \_\_\_\_\_

**Characteristics of the floodplain unit:**  
Average sediment texture: coarse sand  
Total veg cover: 5 % Tree: \_\_\_\_\_ % Shrub: \_\_\_\_\_ % Herb: 5 %  
Community successional stage:  
 NA  Mid (herbaceous, shrubs, saplings)  
 Early (herbaceous & seedlings)  Late (herbaceous, shrubs, mature trees)

**Indicators:**  
 Mudcracks  Soil development  
 Ripples  Surface relief  
 Drift and/or debris  Other: \_\_\_\_\_  
 Presence of bed and bank  Other: \_\_\_\_\_  
 Benches  Other: \_\_\_\_\_

**Comments:**  
intermittent active floodplain

**Floodplain unit:**  Low-Flow Channel  Active Floodplain  Low Terrace

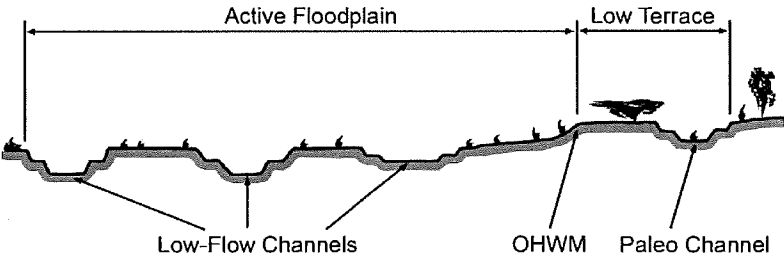
GPS point: \_\_\_\_\_

**Characteristics of the floodplain unit:**  
Average sediment texture: \_\_\_\_\_  
Total veg cover: \_\_\_\_\_ % Tree: \_\_\_\_\_ % Shrub: \_\_\_\_\_ % Herb: \_\_\_\_\_ %  
Community successional stage:  
 NA  Mid (herbaceous, shrubs, saplings)  
 Early (herbaceous & seedlings)  Late (herbaceous, shrubs, mature trees)

**Indicators:**  
 Mudcracks  Soil development  
 Ripples  Surface relief  
 Drift and/or debris  Other: \_\_\_\_\_  
 Presence of bed and bank  Other: \_\_\_\_\_  
 Benches  Other: \_\_\_\_\_

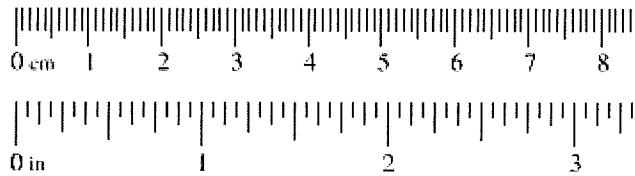
**Comments:**  
N/A

## Arid West Ephemeral and Intermittent Streams OHWM Datasheet

<b>Project:</b> Macpherson Property <b>Project Number:</b> 30CT000801 <b>Stream:</b> Drainage 5 <b>Investigator(s):</b> ARudalevige, T Hartwig	<b>Date:</b> 7/8/15 <b>Town:</b> <b>Photo begin file#:</b>	<b>Time:</b> <b>State:</b> CA <b>Photo end file#:</b>				
Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Do normal circumstances exist on the site?  Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Is the site significantly disturbed?	<b>Location Details:</b>  <b>Projection:</b> _____ <b>Datum:</b> _____ <b>Coordinates:</b> _____					
<b>Potential anthropogenic influences on the channel system:</b>  <div style="text-align: center; font-family: cursive;">trails, trash</div>						
<b>Brief site description:</b>  						
<b>Checklist of resources (if available):</b> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input checked="" type="checkbox"/> Aerial photography            Dates: 2009  <input checked="" type="checkbox"/> Topographic maps  <input type="checkbox"/> Geologic maps  <input checked="" type="checkbox"/> Vegetation maps  <input checked="" type="checkbox"/> Soils maps  <input type="checkbox"/> Rainfall/precipitation maps  <input type="checkbox"/> Existing delineation(s) for site  <input checked="" type="checkbox"/> Global positioning system (GPS)  <input type="checkbox"/> Other studies         </td> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Stream gage data            Gage number:            Period of record:  <input type="checkbox"/> History of recent effective discharges  <input type="checkbox"/> Results of flood frequency analysis  <input type="checkbox"/> Most recent shift-adjusted rating  <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event         </td> </tr> </table>			<input checked="" type="checkbox"/> Aerial photography Dates: 2009 <input checked="" type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input checked="" type="checkbox"/> Vegetation maps <input checked="" type="checkbox"/> Soils maps <input type="checkbox"/> Rainfall/precipitation maps <input type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies	<input type="checkbox"/> Stream gage data Gage number: Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event		
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<b>Hydrogeomorphic Floodplain Units</b> 						
<b>Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:</b> <ol style="list-style-type: none"> <li>1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.</li> <li>2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.</li> <li>3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.           <ol style="list-style-type: none"> <li>a) Record the floodplain unit and GPS position.</li> <li>b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.</li> <li>c) Identify any indicators present at the location.</li> </ol> </li> <li>4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.</li> <li>5. Identify the OHWM and record the indicators. Record the OHWM position via:           <table style="width: 100%; border: none; margin-top: 5px;"> <tr> <td style="width: 50%;"><input checked="" type="checkbox"/> Mapping on aerial photograph</td> <td style="width: 50%;"><input checked="" type="checkbox"/> GPS</td> </tr> <tr> <td><input type="checkbox"/> Digitized on computer</td> <td><input type="checkbox"/> Other:</td> </tr> </table> </li> </ol>			<input checked="" type="checkbox"/> Mapping on aerial photograph	<input checked="" type="checkbox"/> GPS	<input type="checkbox"/> Digitized on computer	<input type="checkbox"/> Other:
<input checked="" type="checkbox"/> Mapping on aerial photograph	<input checked="" type="checkbox"/> GPS					
<input type="checkbox"/> Digitized on computer	<input type="checkbox"/> Other:					

### Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class
10.08	256	Boulder
2.56	64	Cobble
0.157	4	Pebble
0.079	2.00	Granule
0.039	1.00	Very coarse sand
0.020	0.50	Coarse sand
1/2 0.0098	0.25	Medium sand
1/4 0.005	0.125	Fine sand
1/8 0.0025	0.0625	Very fine sand
1/16 0.0012	0.031	Coarse silt
1/32 0.00061	0.0156	Medium silt
1/64 0.00031	0.0078	Fine silt
1/128 0.00015	0.0039	Very fine silt
		Clay



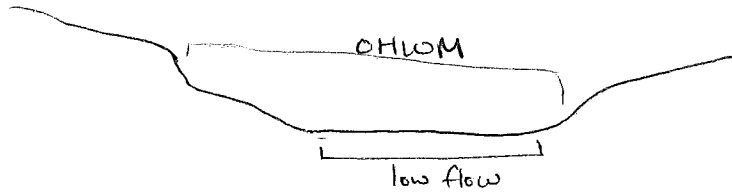
Project ID: MacPherson

Cross section ID: 5

Date: 7/8/15

Time:

**Cross section drawing:**



**OHWM**

GPS point: \_\_\_\_\_

**Indicators:**

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Change in average sediment texture | <input checked="" type="checkbox"/> Break in bank slope          |
| <input type="checkbox"/> Change in vegetation species                  | <input checked="" type="checkbox"/> Other: <u>drift deposits</u> |
| <input type="checkbox"/> Change in vegetation cover                    | <input type="checkbox"/> Other: _____                            |

Comments:

**Floodplain unit:**

- Low-Flow Channel     
  Active Floodplain     
  Low Terrace

GPS point: \_\_\_\_\_

**Characteristics of the floodplain unit:**

Average sediment texture: silt over sand

Total veg cover: 1 %    Tree: \_\_\_\_\_ %    Shrub: \_\_\_\_\_ %    Herb: 1 %

Community successional stage:

- |  |  |
|--|--|
| <input type="checkbox"/> NA  | <input type="checkbox"/> Mid (herbaceous, shrubs, saplings)      |
| <input checked="" type="checkbox"/> Early (herbaceous & seedlings) | <input type="checkbox"/> Late (herbaceous, shrubs, mature trees) |

**Indicators:**

- |  |   |
|--|---|
| <input type="checkbox"/> Mudcracks                           | <input type="checkbox"/> Soil development |
| <input type="checkbox"/> Ripples                             | <input type="checkbox"/> Surface relief   |
| <input checked="" type="checkbox"/> Drift and/or debris      | <input type="checkbox"/> Other: _____     |
| <input checked="" type="checkbox"/> Presence of bed and bank | <input type="checkbox"/> Other: _____     |
| <input checked="" type="checkbox"/> Benches                  | <input type="checkbox"/> Other: _____     |

Comments:

Project ID: MacPherson

Cross section ID: 5

Date: 7/8/15

Time:

**Floodplain unit:**  Low-Flow Channel  Active Floodplain  Low Terrace

GPS point: \_\_\_\_\_

**Characteristics of the floodplain unit:**

Average sediment texture: coarse sand

Total veg cover: 3 % Tree: 0 % Shrub: 1 % Herb: 2 %

Community successional stage:

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

**Indicators:**

- Mudcracks
- Ripples
- Drift and/or debris
- Presence of bed and bank
- Benches
- Soil development
- Surface relief
- Other: \_\_\_\_\_
- Other: \_\_\_\_\_
- Other: \_\_\_\_\_

**Comments:**

leaf litter present

**Floodplain unit:**  Low-Flow Channel  Active Floodplain  Low Terrace

GPS point: \_\_\_\_\_

**Characteristics of the floodplain unit:**

Average sediment texture: silt/loam

Total veg cover: 75 % Tree: 75 % Shrub: 50 % Herb: 20 %

Community successional stage:

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

**Indicators:**

- Mudcracks
- Ripples
- Drift and/or debris
- Presence of bed and bank
- Benches
- Soil development
- Surface relief
- Other: \_\_\_\_\_
- Other: \_\_\_\_\_
- Other: \_\_\_\_\_

**Comments:**

oak woodland between OHWM and CSS vegetation