Jurisdictional Delineation Report

Soft Bottom Channel Reaches 101 through 110
Los Angeles County, California

Prepared for

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April 2018

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LIST OF ACRONYMS

§	Section
ACHP	President's Advisory Council on Historic Preservation
BMP	Best Management Practices
CCR	*California Code of Regulations*
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFR	*Code of Federal Regulations*
CWA	Clean Water Act
FAC	Facultative Vegetation
FACU	Facultative Upland Vegetation
FACW	Facultative Wetland Vegetation
HQ	Headquarters
I	Interstate
IP	Individual Permit
JD	Jurisdictional Determination
LACFCD	Los Angeles County Flood Control District
NOD	Notice of Determination
NRCS	Natural Resources Conservation Service
NRPW	Non-Relatively Permanent Waters
NWP	Nationwide Permit
NWPL	National Wetland Plant List
NWI	National Wetland Inventory
OBL	Obligate Wetland Vegetation
OHWM	Ordinary High Water Mark
PD	Private Drain
pH	Hydrogen potential
ppt	Parts per Thousand
RGP	Regional General Permit
RMD	Road Maintenance Division
ROWD	Report of Waste Discharge
RPW	Relatively Permanent Waters
RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
SBC	Soft Bottom Channel
SHPO	State Historic Preservation Officer
SWANCC	*Solid Waste Agency of Northern Cook Counties vs. United States Corps of Engineers*
SWRCB	State Water Resources Control Board
THPO	Tribal Historic Preservation Officer
TNW	Traditional Navigable Waterway
UPL	Obligate Upland Vegetation
USACE	United States Army Corps of Engineers

USEPA	United States Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey

1.0 INTRODUCTION

This Jurisdictional Delineation Report (report) has been prepared for the Los Angeles County Flood Control District (LACFCD) 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) in Soft Bottom Channel (SBC) Reaches 101 through 110. This report is based on jurisdictional delineation surveys performed on August 5, 18, and 19, 2015, and September 9, 2016.

1.1 PROJECT LOCATION

The project sites consist of ten soft (earthen) bottom channels located in unincorporated areas of northern Los Angeles County around the communities of Santa Clarita and Castaic (Exhibit 1). The locations of the various reaches are provided in more detail below and are summarized in Table 1. Each reach is given an identifying number and is identified in the following subsections as a Private Drain (PD) or as a Road Maintenance Division (RMD) drain that will be transferred to the LACFCD for maintenance.

TABLE 1
SUMMARY OF PROJECT SITE LOCATIONS

SBC Reach No.	City/ Community	USGS Quadrangle Map(s)	Township Range	Upstream End	Downstream End
101	Castaic	Warm Springs Mtn, Newhall	T5N, R17W, Section 24	34° 30′ 11.65″ 118° 37′ 33.23″	34° 29′ 57.17″ 118° 37′ 21.41″
102	Castaic	Whitaker Peak	T5N, R17W, Section 23	34° 30′ 29.51″ 118° 38′ 23.98″	34° 30′ 29.68″ 118° 38′ 13.57″
103	Santa Clarita	Newhall	T4N, R16W, Section 15	34° 25′ 40.94″ 118° 32′ 25.02″	34° 25′ 32.55″ 118° 32′ 38.19″
104	Castaic	Newhall	T4N, R17W, Section 12	34° 26′ 49.24″ 118° 36′ 57.62″	34° 26′ 32.48″ 118° 36′ 47.78″
105	Santa Clarita	Newhall	T4N, R16W, Section 9	34° 26′ 46.02″ 118° 37′ 29.32″	34° 26′ 35.92″ 118° 33′ 30.71″
106	Castaic	Newhall	T5N, R17W, Section 25	34° 29′ 07.13″ 118° 36′ 54.88″	34° 29′ 01.52″ 118° 36′ 52.17″
107	Newhall	Oat Mountain	T3N, R16W, Section 10	34° 21′ 20.05″ 118° 33′ 10.12″	34° 21′ 24.73″ 118° 33′ 14.86″
108	Stevenson Ranch	Newhall	T4N, R16W, Section 32	34° 22′ 54.82″ 118° 34′ 53.96″	34° 23′ 10.52″ 118° 34′ 23.06″
109	Santa Clarita	Newhall	T4N, R16W, Section 16	34° 25′ 26.87″ 118° 33′ 47.53″	34° 25′ 27.32″ 118° 33′ 51.75″
110	Castaic	Val Verde, Newhall	T4N, R17W, Section 11	34° 27′ 07.03″ 118° 38′ 04.21″	34° 26′ 43.91″ 118° 37′ 27.35″

SBC: Soft Bottom Channel; USGS: U.S. Geological Survey

1.1.1 Reach 101: Violin Canyon (PD 2312)

Reach 101, Violin Canyon (PD 2312), is located east of Interstate (I) 5, north of Lake Hughes Road and west of Emerald Lane in the community of Castaic in unincorporated Los Angeles County (Exhibit 2a). The reach is located on the U.S. Geological Survey's (USGS') Warm Springs Mountain and Newhall 7.5-minute quadrangle map and is part of the Castaic Creek Watershed

(Exhibit 3a). The downstream limit of this reach is approximately 775 feet north of Lake Hughes Road where the channel transitions to a concrete-lined channel and extends approximately 1,650 feet upstream of that point.

1.1.2 Reach 102: Violin Canyon (PD 2275)

Reach 102, Violin Canyon (PD 2275), is located south of West Highland Court, east of adjacent open space, north of Oak Valley Road, and west of Sierra Oak Trail and I-5 in the community of Castaic in unincorporated Los Angeles County (Exhibit 2b). The reach is located on the USGS' Whitaker Peak 7.5-minute quadrangle map and is part of the Castaic Creek Watershed (Exhibit 3b). This reach is approximately 978 feet in length, with the upstream limit approximately 1,072 feet upstream of the Sierra Oak Trail Bridge and the downstream limit is 94 feet upstream of the same bridge.

1.1.3 Reach 103: Bouquet Canyon Channel (PD 2225)

Reach 103 is located south of Newhall Ranch Road, west of Bouquet Canyon Road and east of Barnacle Lane in the City of Santa Clarita (Exhibit 2c). This reach is located on the USGS' Newhall 7.5-minute quadrangle map and is part of the Santa Clara River Watershed (Exhibit 3c). The upstream limit of this reach begins approximately 20 feet downstream of the Newhall Ranch Road overpass where the channel transitions from a concrete-lined storm drain and extends in a southwesterly direction to its confluence with the main stem of the Santa Clara River. This reach is 1,360 feet in length.

1.1.4 Reach 104: Castaic Creek (PD 2441 Unit 2)

Reach 104 is located east of I-5, running alongside the east side of Hancock Parkway (Exhibit 2d). This reach is located on the USGS' Newhall 7.5-minute quadrangle map (Exhibit 3d) and is part of the main stem of Castaic Creek. The reach's upstream limit is 669 feet upstream of Muirfield Lane and the downstream limit is 478 feet downstream of Turnberry Lane. The reach is approximately 2,186 feet in length.

1.1.5 Reach 105: San Francisquito Canyon Channel (PD 2456)

Reach 105, San Francisquito Canyon Channel (PD 2456), is located in San Francisquito Creek north and south of Decoro Drive, west of Sunny Creek Drive, and east of North Dickason Drive and I-5 in unincorporated Los Angeles County near the northern border of the City of Santa Clarita (Exhibit 2e). The reach is located on the USGS' Newhall 7.5-minute quadrangle map and is part of the Santa Clara River Watershed (Exhibit 3e). The reach's upstream limit is 417 feet upstream of Decoro Drive and the downstream limit is 416 feet downstream of Decoro Drive. The reach is approximately 833 feet in length.

1.1.6 Reach 106: Castaic Drain Outlet (RMD Channel)

Reach 106, Castaic Drain Outlet (RMD Channel), is located south of Ridge Route Road, west of Castaic Regional Sports Complex, north of Tapia Canyon Road, east of Castaic Road and I-5 in the community of Castaic in unincorporated Los Angeles County (Exhibit 2f). The reach is located on the USGS' Newhall 7.5-minute quadrangle map (Exhibit 3f) and is part of the Santa Clara River Watershed. The reach's upstream limit is the toe of the grouted riprap apron and the downstream limit is 147 feet downstream of the grouted riprap apron. The reach is approximately 147 feet in length.

1.1.7 Reach 107: The Old Road Channel (RMD Channel)

Reach 107, The Old Road Channel (RMD Channel), is located south of the intersection of Calgrove Boulevard and The Old Road, west of I-5, north of 24136 The Old Road, east of The Old Road and Towsley Canyon Park in unincorporated Los Angeles County (Exhibit 2g). The reach is located on the USGS' Oat Mountain 7.5-minute quadrangle map (Exhibit 3g) and is part of the Santa Clara River Watershed. The reach's upstream limit is 230 feet upstream of the driveway into 24136 The Old Road, while the reach's downstream limit is its transition to a concrete-lined channel. The reach is approximately 943 feet in length.

1.1.8 Reach 108: Pico Canyon Channel (PD 2528)

Reach 108 is located west of I-5 and north of Pico Canyon Road in the community of Stevenson Ranch (Exhibit 2h). The Stevenson Ranch Debris Basin is located immediately upstream of this reach; the downstream limit of this reach is where it transitions to a concrete-lined channel, approximately 180 feet west of The Old Road. This reach is located on the USGS' Newhall 7.5-minute quadrangle map (Exhibit 3h) and is part of the Santa Clara River Watershed. This reach is 3,145 feet in length.

1.1.9 Reach 109: Santa Clara River

Reach 109 consists of a portion of the southern bank of the Santa Clara River main stem, immediately west of McBean Parkway in the City of Santa Clarita (Exhibit 2i). This reach is located on the USGS' Newhall 7.5-minute quadrangle map (Exhibit 3i). The upstream end of Reach 109 is the western edge of McBean Parkway, extending approximately 370 feet westward. This reach is 370 feet in length.

1.1.10 Reach 110: Hasley Canyon Channel (PD 2262)

Reach 110 is located west of I-5, south of Hasley Canyon Road, and north of Witherspoon Parkway in the community of Castaic (Exhibit 2j). Commerce Center Drive bisects the reach. This reach is approximately 3,730 feet in length, with the upstream end occurring 2,720 feet upstream of the Commerce Center Drive centerline and the downstream end occurring 1,010 feet downstream of this point. This reach is located on the USGS' Val Verde and Newhalll 7.5-minute quadrangle maps (Exhibit 3j) and is part of the Castaic Creek Watershed.

1.2 PROJECT DESCRIPTION

The LACFCD proposes to perform necessary regular maintenance to the ten channels described above to allow them to safely convey storm water. Maintenance activities generally consist of mechanically removing vegetation in select portions of these reaches along with other activities such as trash removal. This section provides a summary of proposed maintenance activities at each of the reaches.

Please note that many of the descriptions of proposed maintenance activities refer to the left or right banks. This refers to the side of the channel when facing downstream.

1.2.1 Reach 101: Violin Canyon (PD 2312)

The initial clearing activities for Reach 101 include mechanical removal of vegetation along a 15-foot wide path along the toe of both left and right bank levee slopes. Both banks of the channel will be cleared annually. Vegetation clearing and grading will be performed to create 10-foot-wide entrainment channels from all outlets, extending to the channel centerline at a 45-degree angle. Trash, debris, and non-native vegetation will be cleared by hand outside of the impact areas but

within easement boundaries. Native vegetation will be allowed to establish in the remainder of the LACFCD right-of-way.

Maintenance activities in subsequent years would not differ from initial clearing activities.

1.2.2 Reach 102: Violin Canyon (PD 2275)

Initial year activities for Reach 102 will include vegetation removal and sediment removal. All vegetation will be mechanically removed within a 15-foot-wide path along the toe of the slope. Vegetation clearing and grading will be performed to create 10-foot-wide entrainment channels from all outlets, extending to the channel centerline at a 45-degree angle. Mature trees in the entrainment channel at the downstream outlet will not be removed but instead will have their lower limbs trimmed (i.e., “lollipopped”). Vegetation will be mechanically removed, bank to bank over the three drop structures, which are currently hidden from view by sediment. Removal of 750 cubic yards of accumulated sediment will occur from the three drop structures in order to expose them and provide flow velocity control. The cleared drop structure areas would also be used as pathways for equipment transport. Native vegetation will be allowed to establish in the remainder of the LACFCD right-of-way.

Annual maintenance activities include clearing vegetation within a 15-foot-wide path along the toe of the slope. Re-grading of 200 cubic yards of sediment will only occur during subsequent years over the same footprint as the initial removal. Trash, debris, and non-native vegetation will be cleared by hand outside of the impact areas but within easement boundaries.

1.2.3 Reach 103: Bouquet Canyon Channel (PD 2225)

Initial activities for Reach 103 will include clearing woody vegetation from a 15-foot wide path along the toe of both bank slopes. Grouted riprap occurs from the Newhall Ranch Road bridge and extending 300 feet downstream of the bridge. Approximately 3,000 cubic yards of sediment that occurs on the grouted riprap will be removed and all vegetation in this area will be permanently removed.

After the initial clearing of Reach 103, regular annual maintenance would involve: (1) mechanical removal of woody vegetation that may regrow within 15-feet of the bottom of the bank slopes and (2) removal of sediment and vegetation from the grouted riprap area (within 300 feet downstream of the Newhall Ranch Road bridge). Trash, debris, and non-native vegetation will be cleared by hand outside of the impact areas but within easement boundaries.

1.2.4 Reach 104: Castaic Creek (PD 2441 Unit 2)

All activities for Reach 104 will follow the 2002 General Maintenance Plan for Castaic Creek and Hasley Canyon Drain as summarized in this section. Woody vegetation, including large trees, will be cleared by hand within a 15-foot-wide path along the toe of the left bank’s slope lining. A 10-foot-wide entrainment channel (at a 45-degree angle) will be cleared and graded from all outlets up to 30 feet from the toe of the levee. Trees with a trunk diameter of at least four inches will be avoided in the entrainment channel clearing area. Light equipment such as a Caterpillar D-6 or equivalent may be used to clear and grade the entrainment channels and will avoid ponded water. Native vegetation will be allowed to establish in the remainder of the LACFCD right-of-way. Trash, debris, and non-native vegetation will be cleared by hand outside of the impact areas but within easement boundaries.

Maintenance activities in subsequent years would not differ from initial clearing activities.

1.2.5 Reach 105: San Francisquito Canyon Channel (PD 2456)

All activities for Reach 105 will follow the Natural Rivers Management Plan as summarized in this section. Maintenance of Reach 105 will require mechanically removing all woody vegetation and debris within 15 feet of the toe of the slope lining along the left bank. Trees within 15 feet of the levee toe will be removed to maintain the structural integrity of the levee. The work area will be limited to a 30-foot-wide zone that extends outward from the levee at the invert, 15-feet-upstream and 15-feet-downstream of either side of the tree to be removed.

A 10-foot-wide entrainment channel will be graded at a 45-degree angle, extending 60 feet outward from the outlet at Station 7+34 (south of Decoro Drive) to remove sediment buildup and to allow water to drain. The entrainment channel would not extend outside of the LACFCD easement boundaries. Trees with a trunk diameter of at least four inches will be avoided in the entrainment channel clearing area. Light equipment such as a Caterpillar D-6 or equivalent may be used to clear and grade the entrainment channels and will avoid ponded water. Native vegetation will be allowed to establish in the remainder of the LACFCD right-of-way. Trash, debris, and non-native vegetation will be cleared by hand outside of the impact areas but within easement boundaries.

In addition, the following maintenance activities will be performed as needed per Natural River Management Plan standards: periodic removal of ponded water that cause odor problems and as-needed repairs of bank protection.

1.2.6 Reach 106: Castaic Drain Outlet (RMD Channel)

Proposed maintenance activities will involve mechanized removal of vegetation along the 15 foot-wide access path aligned along the toe of the east bank. The equipment access path will be installed and maintained with crushed aggregate base. The LACFCD will clear trash and debris by hand outside the impact areas, but within easement boundaries.

1.2.7 Reach 107: The Old Road Channel (RMD Channel)

Proposed maintenance activities will involve mechanized or hand removal of all vegetation up to approximately eight feet high from bank to bank along the entire channel length. The LACFCD will clear trash and debris by hand outside of the impact areas, but within easement boundaries.

1.2.8 Reach 108: Pico Canyon Channel (PD 2528)

Reach 108 will require removal of accumulated sediment, debris, and vegetation from the channel to ensure proper functioning of the flood control infrastructure. Weeds and grasses will be controlled by mowing and/or hand labor. Reach 108 will be cleared annually to the baseline conditions approved for clearing activities.

1.2.9 Reach 109: Santa Clara River

The LACFCD will mechanically remove all vegetation within a 15-foot-wide path along the toe of the reach's left bank slope for the entire reach. A 10-foot-wide entrainment channel (at a 45-degree angle) will be cleared and graded from the outlet up to 30 feet from the toe of the levee. Trees in the entrainment channel at the downstream outlet will be lollipopped instead of cleared. Native vegetation will be allowed to establish in the remainder of the LACFCD right-of-way. Trash, debris, and non-native vegetation will be cleared by hand outside of the impact areas but within easement boundaries.

1.2.10 Reach 110: Hasley Canyon Channel (PD 2262)

All activities for Reach 110 will follow the 2002 General Maintenance Plan for Castaic Creek and Hasley Canyon Creek as summarized in this section. The initial clearing activities include mechanical removal of existing vegetation growing along the channel bottom whenever there is more than 50 percent vegetative cover over 3 feet tall within the channel. When these criteria are met or exceeded, only one side of the channel bottom (extending out 40 feet from the toe of the lining with the existing channel bottom) will be cleared in any one year. Heavy equipment will be used to clear the vegetation. A 10-foot-wide entrainment channel (at a 45-degree angle) will be cleared and graded from all outlets up to 30 feet from the toe of the levee. Trees with a trunk diameter of at least four inches will be avoided in the entrainment channel clearing area. Light equipment such as a Caterpillar D-6 or equivalent may be used to clear and grade the entrainment channels and will avoid ponded water.

Sediment removal is not a covered activity in the 2002 General Maintenance Plan for Castaic Creek and Hasley Canyon Creek. Sediment removal activities must be permitted separately.

Maintenance activities in subsequent years will involve hand clearing all woody vegetation, including large trees, within a 15-foot-wide path along one bank's slope lining. Only one side will be cleared in any given year. Trash, debris, and non-native vegetation will be cleared by hand outside of the impact areas but within easement boundaries.

1.3 REGULATORY AUTHORITY

1.3.1 Summary of Regulations

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 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.". These fill materials would include sand, rock, clay, construction debris, wood chips, and materials used to create any structure or infrastructure in these waters. The selection of disposal sites for dredged or fill material was done in accordance with Section 404(b)(1) guidelines, which were developed by the U.S. Environmental Protection Agency (USEPA).

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* (CFR, Title 33, Navigation and Navigable Waters; Part 328, Definition of waters of the United States; Section 328.3, Definitions) and includes those listed below.

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.
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.

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, jurisdiction extends to the ordinary high water mark (OHWM). In the absence of wetlands in non-tidal waters, the extent of jurisdictional limits is determined by the OHWM. 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" (33 CFR §328.3[e]).

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 vegetation typically adapted for life in saturated soil conditions" (33 CFR §328.3[b]). Wetlands generally include swamps, marshes, bogs, and areas containing similar features. The definition and methodology for identifying wetland resources can be found in the USACE's 2008 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region,* a supplement to the USACE's *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987). The methodology contained in the supplement was used to identify the type and extent of wetland resources in the project survey area.

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. 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. On June 5, 2007, the USACE published a memorandum that provides guidance to both the 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).[1] The memorandum includes a chart that summarizes its key points, which is intended to be used as a reference tool along with a complete discussion of issues and guidance furnished throughout the memorandum.

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).

[1] 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 Clean Water Act.

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 the discharge to 'waters of the U.S.' 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. Unites States 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 a "Report of Waste Discharge" (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.

Los Angeles Region Water Quality Control Plan

There are nine Regional Water Quality Control Boards in California. The project site is located within Regional Water Quality Control Board Region 4, the Los Angeles Region. The State Water Resources Control Board (SWRCB) and the Los Angeles RWQCB have adopted a Water Quality Control Plan (or "Basin Plan") for the Los Angeles 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 CWA Section 401 for Water Quality Certifications and Section 402 for Report of Waste Discharge permits.

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* (§§1600–1616). 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.

Because the CDFW includes streamside habitats under its jurisdiction that, under the federal definition, may not qualify as wetlands on a particular project site, its jurisdiction may be broader than that of the USACE. Riparian forests in California often lie outside the plain of ordinary high water regulated under Section 404 of the CWA and often do not have all three parameters (wetland hydrology, hydrophytic vegetation, and hydric soils) sufficiently present to be regulated as a wetland. However, riparian forests are frequently within CDFW regulatory jurisdiction under Section 1602 of the *California Fish and Game Code.*

The CDFW enters into a Lake or Streambed Alteration Agreement (SAA) with a project proponent and can impose conditions on the agreement. The notification process involves the completion of applications which will serve as the basis for the CDFW's issuance of a Section 1602 SAA.

Section 1602 of the *California Fish and Game Code* applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the state.

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 in or in the vicinity of a river, stream, lake, or their tributaries. 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, and watercourses that have a surface or subsurface flow that support or have supported riparian vegetation.

2.0 METHODS

The analysis contained in this report uses the results of field surveys conducted by BonTerra Psomas Regulatory Specialists David Hughes and Katie Gallagher on August 5, 18, and 19, 2015 and September 9, 2016. The three-parameter approach used to identify USACE wetlands is summarized in Sections 2.1 through 2.3; the literature reviewed for the preparation of the delineation is outlined in Section 2.4; and the field delineation is outlined in Section 2.5.

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 USEPA, the U.S. Fish and Wildlife Service (USFWS), and the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS)—has 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 NWPL went into effect on June 1, 2012, and is to be used to determine whether the hydrophytic vegetation parameter is met when conducting wetland determinations under the Clean Water Act 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 utilized the indicator statuses for the Arid West Supplement portion of the NWPL.

The following revisions were made to the Reed (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 (i.e., for 14 or more consecutive days) near the surface to ensure 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 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 (e.g., 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 FAC 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.

As identified in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region,* 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" (USACE 2008c). 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 is 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 amount 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 greater 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 an FACU species for the hydrophytic vegetation wetland criterion to be met.

2.2 SOILS

The National Technical Committee for Hydric Soils 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 in the drainage invert or at the edge of a drainage course within vegetated areas. Soil extracted from each soil test pit is then examined for texture and color using the standard plates within 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 in 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 within the top 20 inches of the soil.

2.3 HYDROLOGY

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 within the OHWM. Therefore, an area containing these features would meet the indicator requirements for wetland hydrology.

2.4 LITERATURE

Prior to conducting the field investigations, BonTerra Psomas reviewed USGS topographic maps; the Report and General Soil Map, Los Angeles County, California (USDA NRCS 1969); the National Hydric Soils List (USDA NRCS 2012); the National Wetlands Inventory's (NWI) Wetland Mapper (USFWS 2015); the Thomas Brothers mapbook for Los Angeles County (Public Works Edition) (Rand McNally 2002); and digital color aerial photography to identify areas on the Project site that may fall under an agency's jurisdiction. A description of this literature is 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.

Color Aerial Photography. BonTerra Psomas reviewed color aerial photographs prior to the delineation field investigations to identify the extent of any drainages and riparian vegetation occurring on the Project site.

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 the U.S. Department of Agriculture (USDA) soil data for the Project site (USDA NRCS 2012).

U.S. Fish and Wildlife Service, National Wetlands Inventory. The NWI 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 that 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. Wetlands that are identified in the NWI are summarized below in Table 2.

TABLE 2
NATIONAL WETLAND INVENTORY

SBC Reach No.	Cowardin Codes*
101	R4SBAx
102	R4SBA
103	R4SBAx
104	PEMC
105	PEMA
106	None
107	R4SBCx
108	R4SBA
109	R4SBA
110	R4SBC

SBC: Soft-Bottom Channel
* from Cowardin et al. 1979.

It should be noted that the NWI defines the term wetland differently than the USACE. The USACE uses a three-parameter approach to identify wetlands (presence of hydrophytic vegetation, hydric soils, and wetland hydrology), while the NWI defines wetlands as having at least one of the following three attributes: (1) at least periodically, the land supports predominantly hydrophytes; (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is not a soil and is saturated with water or covered by shallow water at some time during the growing season of each year (Cowardin et al. 1979).

Descriptions for the Cowardin Codes listed in Table 2 are defined below.

2.4.1 PEMA and PEMC

- **P: System PALUSTRINE.** The Palustrine System includes all nontidal 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 parts per trillion (ppt). Wetlands lacking such vegetation are also included if they exhibit all of the following characteristics: (1) they are on a site that is less than 8 hectares (20 acres); (2) there is a lack of an active wave-formed or bedrock shoreline feature; (3) they have a depth that is less than 2 meters (6.6 feet) in the deepest part of the basin at low water; and (4) the salinity due to ocean-derived salts is less than 0.5 ppt.
    - **Subsystem NONE.**
        - **EM: Class EMERGENT.** Characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. These wetlands are usually dominated by perennial plants.
            - **A: Water Regime Modifier TEMPORARY FLOODED.** Surface water is present for brief periods during the 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.
            - **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.

2.4.2 R4SBA

- **R: System RIVERINE.** The Riverine System includes all wetlands and deepwater habitats contained in natural or artificial channels periodically or continuously containing flowing water or which forms 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 contained in 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.
            - **A: Water Regime Modifier TEMPORARY FLOODED.** Surface water is present for brief periods during the 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.
            - **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.
                - **x: Special Modifier EXCAVATED.** This modifier is used to identify wetland basins or channels that were excavated by humans.

2.5 JURISDICTIONAL DELINEATION

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 2008 Arid West Supplement to the manual provide technical methods and guidelines for determining the presence of wetland "waters of the U.S.". 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.

Non-wetland "waters of the U.S." are delineated based on the limits of the OHWM, which can be determined by a number of factors including erosion, the deposition of vegetation or debris, and changes in vegetation. The OHWM limits (i.e., active floodplain) occurring in the survey area were further verified using methods contained in *A Field Guide for 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). For purposes of concrete channels with vertical side walls, the OHWM was determined to the entire width of the channel.

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.

Jurisdictional features were delineated using a 1 inch equals 100 foot (1″ = 100′) scale aerial photograph. The field survey included the collection of vegetation, soils, and hydrologic data from sampling points at each reach; this information was recorded on Wetland Determination Data Forms (Attachment B). Data related to the OHWM in each reach were recorded on Ordinary High Water Mark forms (Attachment C).

3.0 RESULTS

3.1 VEGETATION

Vegetative conditions varied widely at the various reaches. Reaches 101, 102, and 105 are alluvial washes characterized by moderately sparse shrubby vegetation. Reaches 103, 106, and 110 have slightly wetter conditions that have allowed for the establishment of dense willow trees with a sparse understory. Reaches 104 and 109 contain dense willow and cottonwood habitat supported by urban runoff along the edges of otherwise dry alluvial washes. Reach 108 contains uniformly dense willows and cattail habitat that is supported by urban runoff, while Reach 107 is a poorly vegetated ditch with an even mixture of native and non-native vegetation.

Hydrophytic vegetation was recorded at all reaches, except Reach 101. That said, hydrophytic vegetation was only found in limited portions of Reaches 102, 105, 107, and 110. Areas containing hydrophytic vegetation were sought out for sampling points in order to determine if wetland conditions exist anywhere in these reaches.

The following is a summary of vegetative conditions observed at the various reaches:

3.1.1 Reach 101: Violin Canyon (PD 2312)

Reach 101 is a very dry alluvial wash with concrete side levees. Vegetation is dominated by scale broom (*Lepidospartum squamatum*), mule fat (*Baccharis salicifolia*), yerba santa (*Eriodictyon crassifolium*), and California buckwheat (*Eriogonum fasciculatum*). No wetland vegetation was encountered at this reach.

3.1.2 Reach 102: Violin Canyon (PD 2275)

This reach is the downstream end of Violin Canyon where it transitions to a concrete-lined channel. Upper portions of the reach are dominated by alluvial scrub species such as scale broom, mule fat, and California buckwheat. FAC and FACW species such as red willow (*Salix laevigata*) and Fremont cottonwood (*Populus fremontii*) are located at the downstream end of the reach. These species occur at the downstream end because stream stabilizers have been installed there to slow water flow and a storm drain outlet provides urban runoff. A soil test pit for this reach was placed at the downstream end of the site. Wetland vegetation occurs at this downstream end as the dominance test indicator was satisfied.

3.1.3 Reach 103: Lower Bouquet Canyon Channel (PD 2225)

Vegetation along the left bank of this reach is fairly sparse, consisting mostly of mule fat. The right bank of the reach contains dense vegetation consisting of red willow, arroyo willow (*Salix lasiolepis*), Fremont cottonwood, and cattails (*Typha latifolia*) in the upstream portion of the reach where surface water was present. Hydrophytic vegetation was detected throughout the site as the dominance and prevalence index indicators were satisfied at all three sampling locations.

3.1.4 Reach 104: Castaic Creek (PD 2441 Unit 2)

Generally, this portion of Castaic Creek is a wide alluvial wash dominated by mule fat. However, the survey area for this reach is limited to the toe of the left bank. The survey area was dominated by dense mule fat, red willow, Fremont cottonwood, and salt cedar (*Tamarix ramosissima*). A soil test pit was located near a storm drain outlet as this was the wettest portion of the site. The dominance and prevalence index indicators for hydrophytic vegetation were both satisfied in this area.

3.1.5 Reach 105: San Francisquito Canyon Channel (PD 2456)

This portion of San Francisquito Canyon Channel is a wide alluvial wash dominated by mule fat and scale broom. However, similar to Reach 104, the survey area for this reach is limited to the left bank near the Decoro Drive Bridge. Vegetation adjacent to and under the bridge consists of sparse mule fat. A soil test pit was established in dense vegetation near the outlet of a storm drain immediately downstream of the bridge. This area contains dense red willow, Fremont cottonwood, and mule fat. The dominance test and prevalence index indicators for hydrophytic vegetation were both satisfied in this area.

3.1.6 Reach 106: Castaic Drain Outlet (RMD Channel)

This reach occurs at the outlet of a vertical wall, concrete storm drain. At the outlet of the concrete drain, dense red willows occur along with an understory of cattails. Progressing downstream, willows become co-dominant with salt cedar as conditions become drier. A soil test pit was established in the upstream portion of the site where the dominance test and prevalence index indicators were satisfied to document the presence of hydrophytic vegetation.

3.1.7 Reach 107: The Old Road Channel (RMD Channel)

This reach is essentially a roadside ditch with moderate cover of native species. Common species in the channel include mule fat and mugwort (*Artemisia douglasiana*), with lesser quantities of red willow and Fremont cottonwood. Coast live oak trees (*Quercus agrifolia*) are rooted in the adjacent upland area and shade much of the channel. A soil test pit was established in the upstream portion of the site where the dominance test and prevalence index indicators were satisfied to document the presence of hydrophytic vegetation.

3.1.8 Reach 108: Pico Canyon Channel (PD 2528)

This reach is a fairly narrow channel (as compared to most of the other reaches) with concrete side levees. Dense residential areas occur along both banks. These residential areas presumably provide more urban runoff, which accounts for the saturated soil conditions and common presence of cattails throughout the reach. Additionally, dense willow growth (trees and saplings of red willows and arroyo willows) occurs throughout the reach. The dominance test and prevalence index test indicators were satisfied at the upstream soil test pit.

3.1.9 Reach 109: Santa Clara River

Similar to Reaches 104 and 105, this portion of the Santa Clara River is a wide alluvial wash dominated by mule fat, but the survey area for this reach consists only along the toe of the left bank. Vegetation in this area consists mostly of arroyo willow and Fremont cottonwood. The dense tree cover generally discourages understory vegetation, but smilo grass (*Stipa miliaceum*) was observed where canopy gaps occur. Vegetation in this reach satisfied the prevalence index to indicate the presence of hydrophytic vegetation.

3.1.10 Reach 110: Hasley Canyon Channel (PD 2262)

Vegetation in Reach 110 was fairly dense at the downstream end and is dominated by red willow trees and mule fat with lesser amounts of Fremont cottonwood, sandbar willow (*Salix exigua*), and salt cedar. Vegetation generally becomes less dense moving upstream with a greater prevalence of mule fat. Twelve soil test pits were established at the foot of some outlets, where vegetation met the criteria to pass the dominance test and prevalence index. Vegetation composition at the soil test pits were consistent with the entire reach.

3.2 HYDROLOGY

Evidence of wetland hydrology was observed throughout all of the reaches in this report. Indicators of wetland hydrology consisted of the presence of surface water at Reaches 103, 106, 108, 109, and 110. Secondary indicators of wetland hydrology were observed at the other reaches including presence of water marks, sediment deposits, and drift deposits.

3.3 SOIL

Soil test pits were dug at each reach to determine the depth to free water and/or the presence of hydric soils. Hydric soil indicators were observed at Reaches 103 and 110. Therefore, the hydric soils criterion for wetlands was met at both these locations (Table 3).

3.4 WETLANDS

As described in Section 1.3.1 of this report, an area must exhibit all three wetland parameters, as provided in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region and the* 1987 *Corps of Engineers Wetlands Delineation Manual*, to be considered a jurisdictional wetland. As described above, wetland hydrology occurs at all of the reaches described in this report, and wetland vegetation occurs at all but one of the reaches. Hydric soil conditions were encountered in portions of Reaches 103 and 110. Though hydric soil indicators were not encountered at Reach 108, site access was limited to sample the entire reach. Furthermore, given the presence of obligate (OBL) wetland vegetation throughout the channel, wetland conditions are assumed to exist. Table 3 provides a summary of wetland vegetation, hydrology, and soil conditions that were observed at the various reaches.

TABLE 3
SUMMARY OF HYDROPHYTIC VEGETATION, HYDRIC SOILS, AND WETLANDS HYDROLOGY INDICATOR STATUS

Reach	Sampling Point	Passed Dominance Test	Passed Prevalence Index	Meets Hydrophytic Vegetation Criterion	Meets Hydric Soils Criterion	Meets Wetlands Hydrology Criterion	Wetland Conditions Present
101	1					x	
102	1	x		x		x	
103	1	x	x	x		x	
	2	x	x	x	x	x	x
	3	x	x	x		x	
104	1	x	x	x		x	
105	1	x	x	x		x	
106	1	x	x	x		x	
107	1	x	x	x		x	
108*	1	x	x	x		x	x
109	1		x	x		x	
110	1	x	x	x		x	
	2	x	x	x		x	
	3	x	x	x		x	
	4	x	x	x		x	
	5	x	x	x		x	
	6	x	x	x		x	
	7	x	x	x		x	
	8	x	x	x	x	x	x
	9		x	x		x	
	10					x	
	11	x	x	x		x	
	12	x	x	x		x	

* wetland conditions in Reach 108 are inferred from the presence of OBL wetland vegetation

3.5 SIGNIFICANT NEXUS ANALYSIS

Because the drainage features described above may not be considered relatively permanent waters (RPW) (i.e., features that contain continuous flowing water at least seasonally) and because they do not fit into categories over which the USACE regularly asserts jurisdiction (see Section 1.3.1), a significant nexus analysis is needed to determine their connection to a TNW and thus determine if they fall under the jurisdiction of the USACE; this significance analysis is provided below.

The Santa Clara River flows directly to the Pacific Ocean (a territorial sea), so for purposes of this analysis, any water that has a direct connection to the Santa Clara River would be considered a tributary to jurisdictional waters and thus “waters of the U.S.”.

Reach 109 is located within the main stem of the Santa Clara River. Therefore, this reach has a direct connection to the Pacific Ocean.

Reaches 101, 102, 104, and 110 are either part of or tributaries to Castaic Creek, which has a direct connection to the Santa Clara River and thus the Pacific Ocean.

Reach 103 consists of the lower portion of Hasley Canyon, which drains directly into the Santa Clara River and later the Pacific Ocean.

Reach 105 consists of a portion of San Francisquito Canyon Channel, which drains directly into the Santa Clara River and later the Pacific Ocean.

Reaches 107 and 108 both enter underground storm drains that eventually outlet into the South Fork of the Santa Clara River. The South Fork eventually connects to the main stem of the Santa Clara River and later the Pacific Ocean.

Reach 106 is the only reach that does not have a direct connection to the Pacific Ocean. Water that is conveyed through this reach eventually sheet-flows over to Castaic Creek (a “covered tributary” as described in the 2015 Water Rule). Because the reach is in close proximity to Castaic Creek (within 4,000 feet per the Water Rule), this reach would be considered “waters of the U.S.”.

4.0 DISCUSSION

This section discusses the characteristics of the various features described in Section 1.2 and whether these features would likely be considered to be under the jurisdiction of the USACE, the RWQCB, and/or the CDFW. Exhibits 4a through 4u illustrate the location and extent of jurisdictional resources in the various reaches. Exhibits 5a through 5r provide photographic documentation of site conditions.

4.1 U.S. ARMY CORPS OF ENGINEERS DETERMINATION

4.1.1 Wetland "Waters of the U.S." Determination

As described above in Section 3.4, wetland conditions were identified throughout Reach 108 and portions of Reaches 103 and 110. The other reaches had only one or two of the wetland parameters and are, therefore, not considered wetlands under the jurisdictional authority of the USACE. Based on field observations and data collection, approximately 1.70 acres of jurisdictional wetlands occur in Reaches 103, 108, and 110.

4.1.2 "Waters of the U.S." Determination (Non-Wetland)

The various reaches described herein exhibit evidence of hydrology sufficient to document that the OHWM meets the criteria for USACE jurisdictional waters. The limits of USACE jurisdiction are defined by the presence of an OHWM, determined by water marks on the concrete side levees of several reaches and scour marks on natural stream banks. Based on field observations and data collection, approximately 43.24 acres of USACE jurisdictional non-wetland "waters of the U.S." occur at the various reaches (Exhibits 4a–4u).

4.1.3 Impacts

Proposed project impacts consist of maintenance activities such as mechanically removing vegetation in select portions of these reaches along with other activities such as trash removal. The LACFCD intends to perform these maintenance activities outside the avian breeding and nesting season to minimize impacts on wildlife and would allow the habitat to re-establish between maintenance activities.

Removal of vegetation from the reaches may be considered a permanent impact by the USACE and RWQCB due to the permanent reduction in ecological functioning of the sites. Removal of wetland conditions (e.g., Reaches 103, 108, and 110) will likely be considered a permanent impact because wetland conditions would be permanently disrupted by maintenance activities. A summary of proposed impacts at each facility is shown in Exhibits 6a-6u and are summarized below in Table 4.

4.2 REGIONAL WATER QUALITY CONTROL BOARD DETERMINATION

Because none of the facilities described in this report are considered to be "isolated waters", the RWQCB jurisdictional boundaries are equal to those of the USACE. As noted above, the jurisdictional limits were defined by the potential flood line or OHWM at each facility.

4.2.1 Impacts

The project consists of the periodic maintenance of the reaches described in this report. Ongoing maintenance of these reaches will involve the periodic removal of vegetation and minor grading to ensure their proper functioning. The LACFCD intends to perform these maintenance activities outside the avian breeding and nesting season to minimize impacts on wildlife and would allow the habitat to re-establish between maintenance activities.

A summary of proposed impacts to USACE and RWQCB jurisdictional areas at each facility is provided in Table 4.

TABLE 4
U.S. ARMY CORPS OF ENGINEERS AND
REGIONAL WATER QUALITY CONTROL BOARD
JURISDICTIONAL WATERS IMPACT SUMMARY

Reach	Existing (acres)			Proposed Maintenance Impacts (acres)				
				Annual Vegetation Clearing		Bi-Annual Clearing		
	Non-Wetland Waters	Wetlands	Total	Non-Wetlands	Wetlands	Non-Wetlands	Wetlands	Total
101	4.14	0.00	4.14	0.90	0.00	0.00	0.00	0.90
102	0.85	0.00	0.85	0.17	0.00	0.00	0.00	0.25
103	6.20	0.08	6.28	0.26	0.06	0.00	0.00	0.32
104	10.93	0.00	10.93	0.69	0.00	0.00	0.00	0.69
105	6.30	0.00	6.30	0.18	0.00	0.00	0.00	0.18
106	1.32	0.00	1.32	0.15	0.00	0.00	0.00	0.15
107	0.61	0.00	0.61	0.45	0.00	0.00	0.00	0.45
108	0.00	1.61	1.61	0.00	1.39	0.00	0.00	1.39
109	5.05	0.00	5.05	0.13	0.00	0.00	0.00	0.13
110	7.84	0.01	7.85	0.00	0.00	6.97	0.01	6.98
Total	**43.24**	**1.70**	**44.94**	**2.93**	**1.45**	**6.97**	**0.01**	**11.36**

4.3 CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE DETERMINATION

As with the RWQCB, the *California Fish and Game Code* gives the CDFW significant flexibility in asserting jurisdiction over drainage features. The CDFW will assert jurisdiction over "waters of the U.S.", with the limits of their jurisdiction extending from the top of the bank to the top of the bank. For drainage features that support riparian vegetation, CDFW jurisdiction extends to the outer canopy of that vegetation.

Many of the reaches described herein have concrete or riprap side levees extending the length of the reach. The CDFW's jurisdiction for such reaches extends to the top of the side levee structure. For reaches that do not have concrete or riprap side levees (e.g., Reaches 106 and 107) the CFDW's jurisdiction extends to the top of the bank on each side or to the outer canopy limit of associated riparian vegetation, whichever is greater. Based on field observations and data collection, approximately 67.76 acres of CDFW jurisdictional waters occur at the various reaches (Exhibits 4a–4u).

4.3.1 Impacts

The project consists of the periodic maintenance of the various reaches described in this report. Implementation of long-term and ongoing maintenance of these reaches will involve the periodic removal of vegetation to ensure their proper functioning. The LACFCD intends to perform these maintenance activities during the avian non-breeding and non-nesting season to minimize impacts on wildlife and would allow the habitat to re-establish between maintenance activities. Though habitat would be allowed to re-establish between maintenance events, habitat would not attain the ecological value that it now provides between the proposed maintenance events. As a result, project impacts would likely be considered to be permanent by the CDFW.

Proposed project activities would impact a total of 13.80 acres of CDFW jurisdictional areas. A summary of impacts at each reach is provided in Table 5. Vegetation and other areas located within CDFW jurisdictional areas that would be impacted are summarized in Table 6.

TABLE 5
CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE JURISDICTIONAL WATERS IMPACT SUMMARY

Reach	Existing Waters (Acres)	Proposed Impacts (Acres)		
		Annual Vegetation Clearing	Bi-Annual Clearing	Total
101	6.59	1.16	N/A	**1.16**
102	2.26	0.40	N/A	**0.40**
103	14.74	1.67	N/A	**1.67**
104	12.36	0.73	N/A	**0.73**
105	7.43	0.29	N/A	**0.29**
106	1.89	0.22	N/A	**0.22**
107	1.11	0.41	N/A	**0.41**
108	4.93	1.39	N/A	**1.39**
109	5.58	0.12	N/A	**0.12**
110	10.87	N/A	7.41	**7.41**
Total	**67.76**	**6.39**	**7.41**	**13.80**

TABLE 6
SUMMARY OF PROPOSED IMPACTS TO VEGETATION WITHIN CDFW JURISDICTION

Vegetation Types	**Reach Impacts (acres)**										**Total**
	101	**102**	**103**	**104**	**105**	**106**	**107**	**108**	**109**	**110**	
Native Vegetation Types											
Cattail Marsh		0.01						0.25			**0.26**
Cottonwood – Coast Live Oak Woodland							0.18				**0.18**
Cottonwood – Tamarisk Woodland				0.22							**0.22**
Cottonwood – Willow – Mulefat Woodland				0.13					0.08	1.02	**1.23**
Cottonwood Forest		0.02	0.40	0.01	0.06	0.22				0.43	**1.14**
Gooding's Willow – Red Willow Woodland										2.34	**2.34**
Mulefat – Tamarisk Shrubland	0.17	0.02								0.07	**0.26**
Mulefat Shrubland			1.05	0.14	0.05		0.23			0.55	**2.02**
Red Willow – Arroyo Willow Shrubland								1.14			**1.14**
Sandbar Willow Shrubland										0.22	**0.22**
Scale-broom – Buckwheat Alluvial Shrubland	0.54	0.23								0.25	**1.02**
Disturbed Sagebrush – Buckwheat Shrubland				0.02							**0.02**
Disturbed Scale-broom – Buckwheat Alluvial Shrubland	0.12										**0.12**
Non-Native Vegetation Types											
Giant Reed Stand			0.22							0.02	**0.24**
Tamarisk Shrubland				0.17						0.03	**0.20**
Upland Mustards		0.02			0.10						**0.12**
Other Areas											
Developed					0.03						**0.03**
Ephemeral Scoured Streambed	0.33	0.10		0.04	0.05				0.04	2.48	**3.04**
Total	**1.16**	**0.40**	**1.67**	**0.73**	**0.29**	**0.22**	**0.41**	**1.39**	**0.12**	**7.41**	**13.80**

5.0 CONCLUSION OF REGULATORY APPROVAL PROCESS

5.1 REGULATORY PERMIT REQUIREMENTS

The following is a general summary of the various permits, agreements, and certifications required prior to initiation of Project 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
- CDFW Section 1602 Streambed Alteration Agreement

It should be noted that all regulatory permit applications can be processed concurrently. The USACE permit would be issued subject to the receipt of the RWQCB's Section 401 Water Quality Certification. There is no filing fee for the Section 404 Permit. As of November 7, 2017, the Section 401 Water Quality Certification requires a $1,500 application fee and a $1,500 annual discharge fee. Additional fees are based on the size of the dredge or fill unless the project qualifies for a flat fee. For fill and excavation discharges, there is an additional fee of $13,268 per acre of discharge that does not exceed the maximum fee of $128,500.

The CDFW's Streambed Alteration Agreement filing fee is based on project cost and the permit authorization's length. As of January 1, 2018, For projects lasting 5 years or less, the maximum fee is $5,145 for projects costing $350,000 or more; the fee decreases as costs decrease. For projects lasting longer than five years, there is a base fee of $6,946.75 plus a maximum of $11,576.75. The current fee schedule can be found on the CDFW website at https://www.wildlife.ca.gov/Conservation/LSA/Forms. Projects, such as the City's maintenance program, that affect multiple stream courses may be subject to more than one fee as described above.

The CDFW will not deem an application complete until the application fees have been paid and the agency is provided with a certified California Environmental Quality Act (CEQA) document and a signed copy of the receipt of County Clerk filing fees for the Notice of Determination (NOD). In addition, land use jurisdictions can no longer make "de minimis" findings if they determine that the project will not impact resources under the CDFW's jurisdiction. Therefore, the finding of "No Impact" to the CDFW jurisdictional resources must now be made by the CDFW prior to the payment of CDFW fees.

A detailed explanation of the regulatory permitting requirements for impacts to jurisdictional resources is provided in Sections 5.2 through 5.5.

5.2 U.S. ARMY CORPS OF ENGINEERS

Regulatory authorization in the form of a Nationwide Permit (NWP) is provided for certain categories of activities (including linear transportation projects). The current set of NWPs became effective on March 19, 2017, and will expire in on March 18, 2022. 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; this is a lengthy process with no mandated processing time frames. If these conditions cannot be met, an Individual Permit (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.

5.2.1 Jurisdictional Determinations

Pursuant to USACE Regulatory Guidance Letter 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 (JDs) and Preliminary JDs (USACE 2008a). An Approved JD 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 JD 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 regarding CWA jurisdiction over a site, usually in the interest of allowing the applicant to move ahead expeditiously with the permitting process. The USACE will determine what form of Jurisdictional Determination is appropriate for a particular project site. Given the type and extent of project impacts and duration of construction, the USACE will likely approve the Jurisdictional Delineation Report through a Preliminary Jurisdictional Determination.

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 implementing regulations (USACE 2007). The Interim Guidance applies to all Department of the Army requests for authorization/verification, including Individual Permits (standard permits and letters of permission) and all Regional General Permits and NWPs. The State or Tribal Historic Preservation Officer (SHPO/THPO) has 30 days to respond to a determination that a proposed activity, that otherwise qualifies for an NWP or a Regional General Permit (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 President's Advisory Council on Historic Preservation (ACHP). The USACE will submit the Draft Jurisdictional Delineation Report to the SHPO/THPO for review prior to initiating the actual regulatory process.

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 the "Process for Coordinating Jurisdictional Delineations Conducted Pursuant to Section 404 of

the Clean Water Act in Light of the *Rapanos* and *SWANCC* Supreme Court Decisions" (USACE 2008b). 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 NWPs, 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.

Please note that if the USACE determines that the channels 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. That is, the USACE may issue a "Denial Without Prejudice" as part of the issuance of the Section 404 permit that makes the permit valid once the Section 401 Water Quality Certification is issued. If the USACE determines that the impacted drainage is not jurisdictional, the Applicant will be required to obtain RWQCB authorization under the provisions of an ROWD.

5.3 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 Los Angeles RWQCB. Also, the RWQCB requires certification of the project's 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 1 year to make a decision regarding the permit request. That is, USACE regulations 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 (33 CFR §325.2[b][1][ii]). The USACE District Engineer may specify a longer time (up to one year) or shorter time based on his/her determination of a reasonable processing time (33 CFR §325.2[b][1][ii]). If the RWQCB determines that more than

60 days are needed to process the request, it has the option of requesting additional time from the USACE. Also, 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 *California Code of Regulations* (CCR) (Title 23, §3858[a]) to have a "minimum 21 day public comment period" before any action can be taken on the Section 401 application. 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. Please note that the application would also require the payment of an application fee, which would be based on project impacts.

5.4 CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

The CDFW regulates all work (including initial construction and ongoing operation and maintenance) that may substantially divert or obstruct the natural flow of or substantially change or use any material from the bed, channel, or bank of any river, stream, or lake through its Streambed Alteration Program. An Applicant must enter into an agreement with the CDFW to ensure no net loss of wetland values and acreages.

Impacts resulting from Project implementation will require a Section 1602 Streambed Alteration Agreement. The Streambed Alteration Agreement must address the initial construction and long-term operation and maintenance of any structures in areas identified as "waters of the State" (such as a culvert or desilting basin) that may require periodic maintenance if these are included in the project design.

Prior to construction, a notification (Streambed Alteration Agreement application) must be submitted to the CDFW that describes any proposed streambed alteration contemplated by the proposed Project. In addition to the formal application materials and the fee, a copy of the appropriate CEQA document should be included in the submittal, consistent with CEQA requirements. The CDFW will prepare a draft Streambed Alteration Agreement, 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 a Streambed Alteration Agreement is required, the CDFW may want to conduct an on-site inspection. The CDFW will then prepare 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 will be transmitted to the Applicant within 60 calendar days of the CDFW's determination that the notification is complete. It should be noted that the 60-day timeframe may not apply to long-range agreements.

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 a Streambed Alteration Agreement 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 Streambed Alteration Agreement 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 Streambed Alteration Agreement or (2) indicates that a Streambed Alteration Agreement was not required. The CDFW will also indicate that it was unable to meet this date and that by law the Applicant must complete the project without a Streambed Alteration Agreement and must comply with all avoidance, minimization, and mitigation measures described in the submitted Notification package.

6.0 REFERENCES

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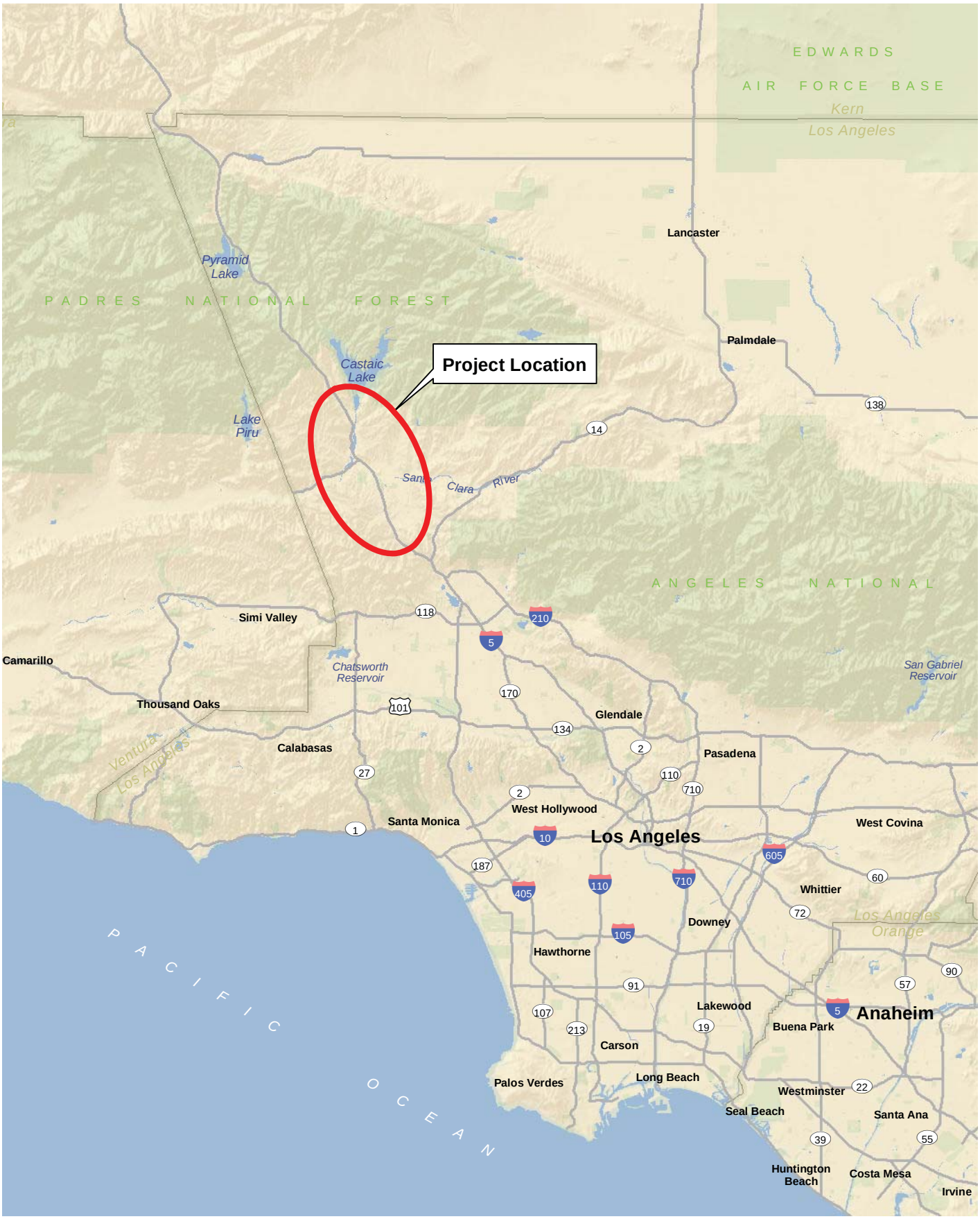
ATTACHMENT A

EXHIBITS



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Regional Location

Exhibit 1

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N
W
E
S

10 5 0 10 Miles

PSOMAS

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Local Vicinity – Reach 101 – Violin Canyon (PD 2312)

Exhibit 2a

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N
W E
S

1,000 500 0 1,000
Feet

PSOMAS

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Local Vicinity - Reach 102 - Violin Canyon (PD 2275)

Exhibit 2b

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N
W E
S

1,000 500 0 1,000
Feet

PSOMAS

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Local Vicinity - Reach 103 - Bouquet Canyon Channel (PD 2225)

Exhibit 2c

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

1,000 500 0 1,000 Feet

PSOMAS

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Local Vicinity - Reach 104 - Castaic Creek (PD 2441 Unit 2)

Exhibit 2d

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

1,000 500 0 1,000 Feet

PSOMAS

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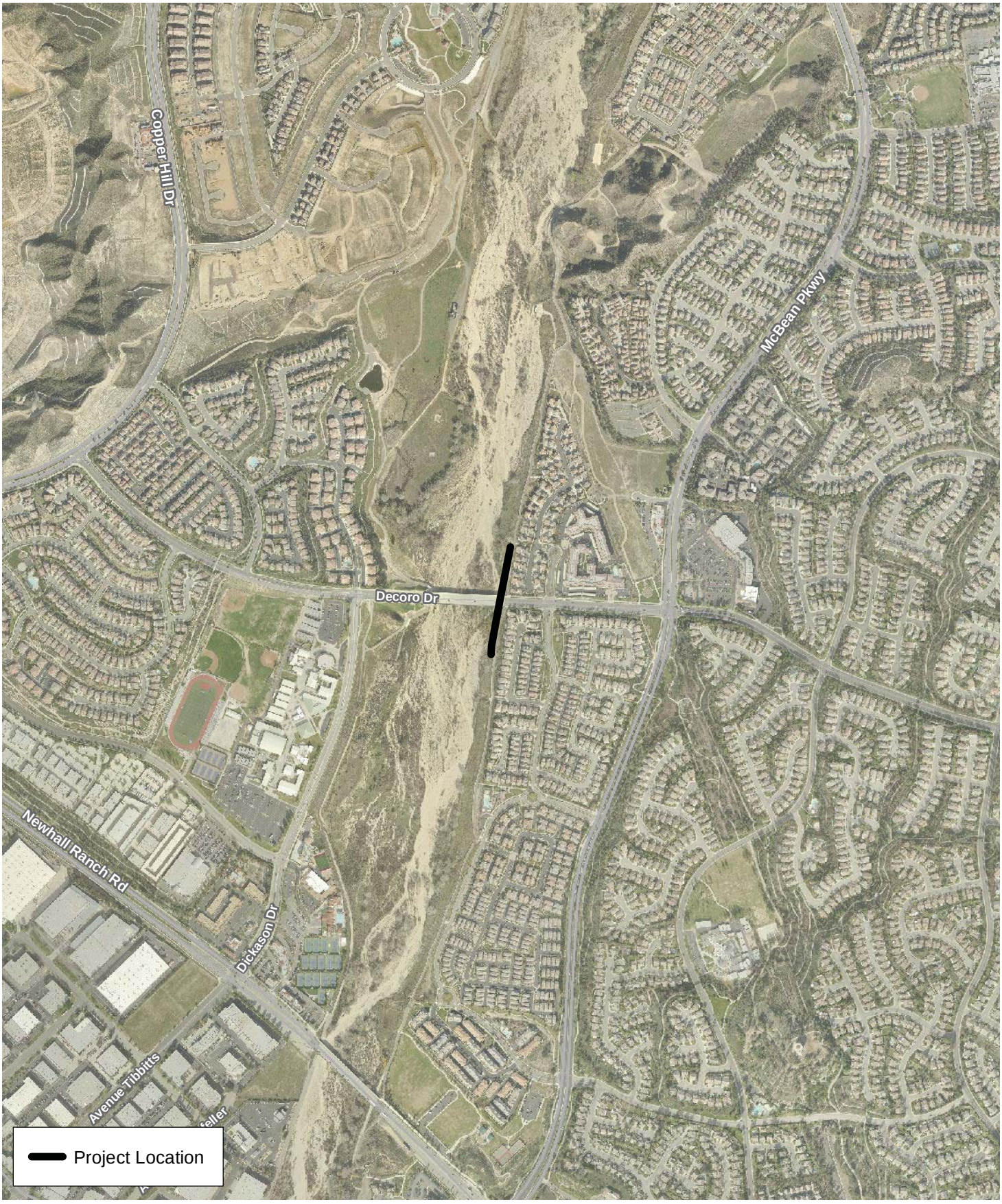

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Local Vicinity - Reach 105 - San Fracisquito Canyon Channel (PD 2456)

Exhibit 2e

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N
W E
S

1,000 500 0 1,000
Feet

PSOMAS

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Local Vicinity - Reach 106 - Castaic Drain Outlet

Exhibit 2f

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N
W E
S

1,000 500 0 1,000
Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex2_LV.pdf



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Local Vicinity - Reach 107 - The Old Road Channel

Exhibit 2g

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

1,000 500 0 1,000 Feet

PSOMAS

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Local Vicinity - Reach 108 - Pico Canyon (PD 2528)

Exhibit 2h

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N
W E
S

1,000 500 0 1,000
Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex2_LV.pdf



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Local Vicinity - Reach 109 - Santa Clara River

Exhibit 2i

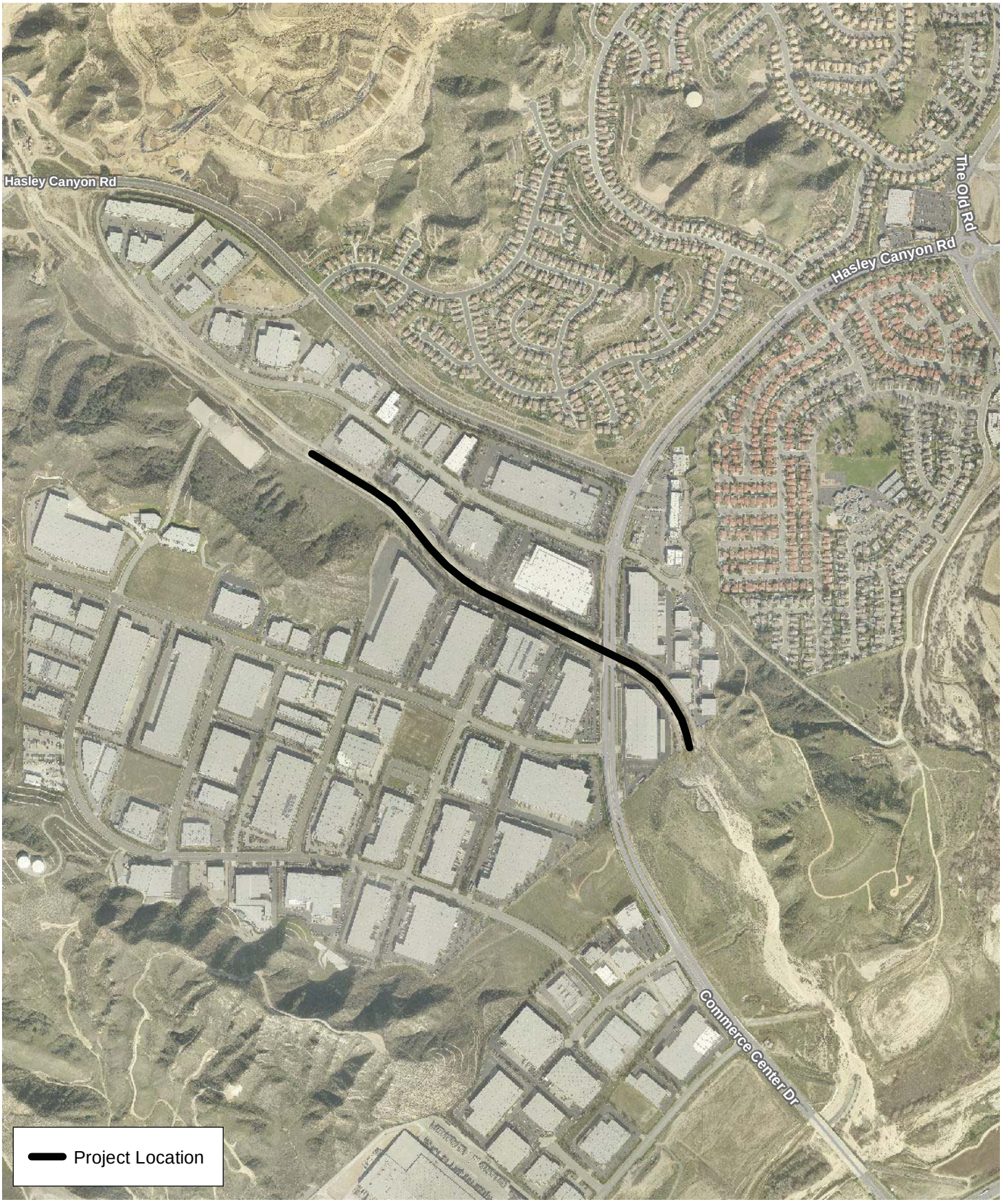
Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N
W E
S

1,000 500 0 1,000 Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex2_LV.pdf



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Local Vicinity - Reach 110 - Hasley Canyon Channel (PD 2262)

Exhibit 2j

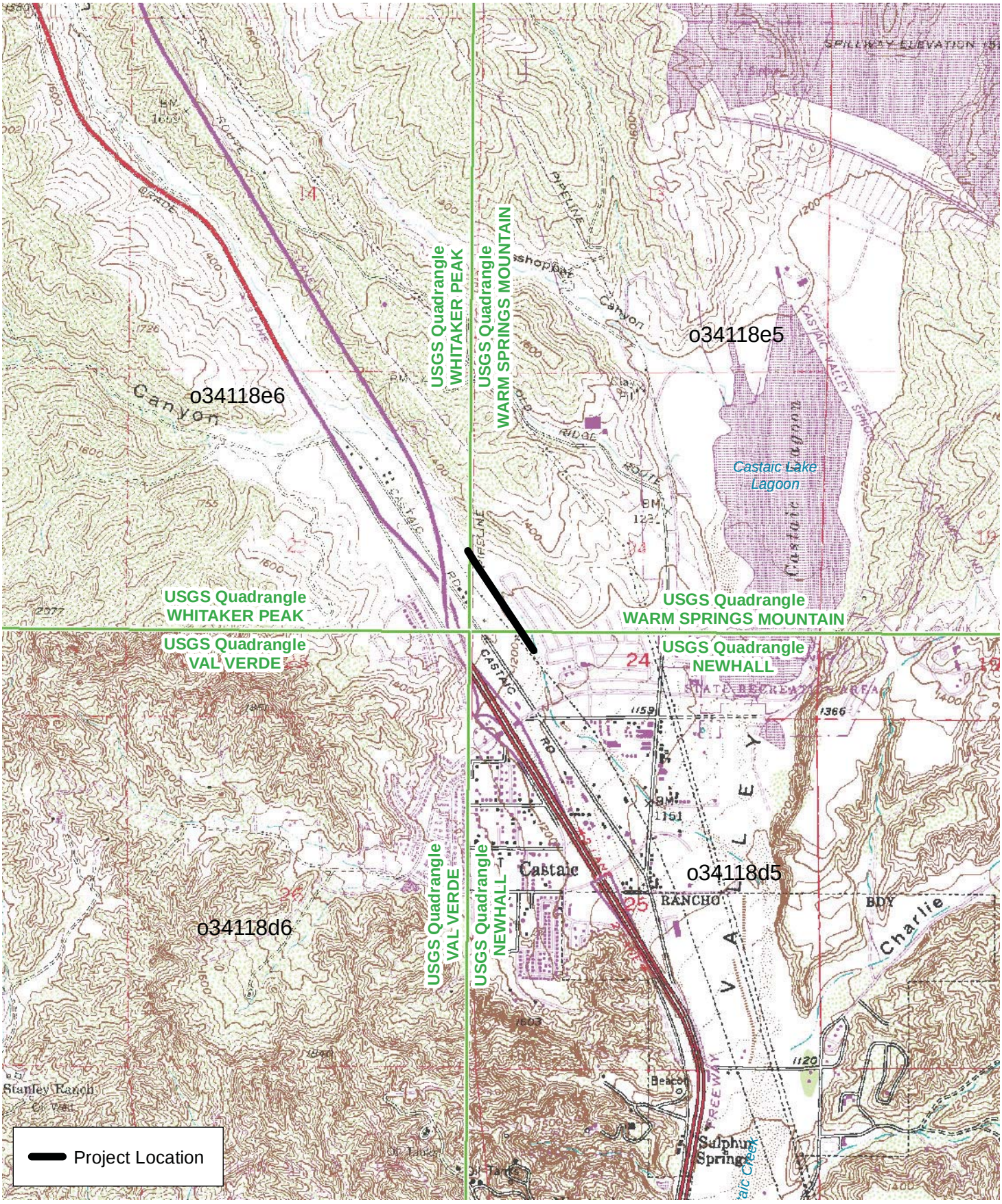
Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N
W E
S

1,000 500 0 1,000
Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex2_LV.pdf



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USGS Quadrangle - Reach 101 - Violin Canyon (PD 2312)

Exhibit 3a

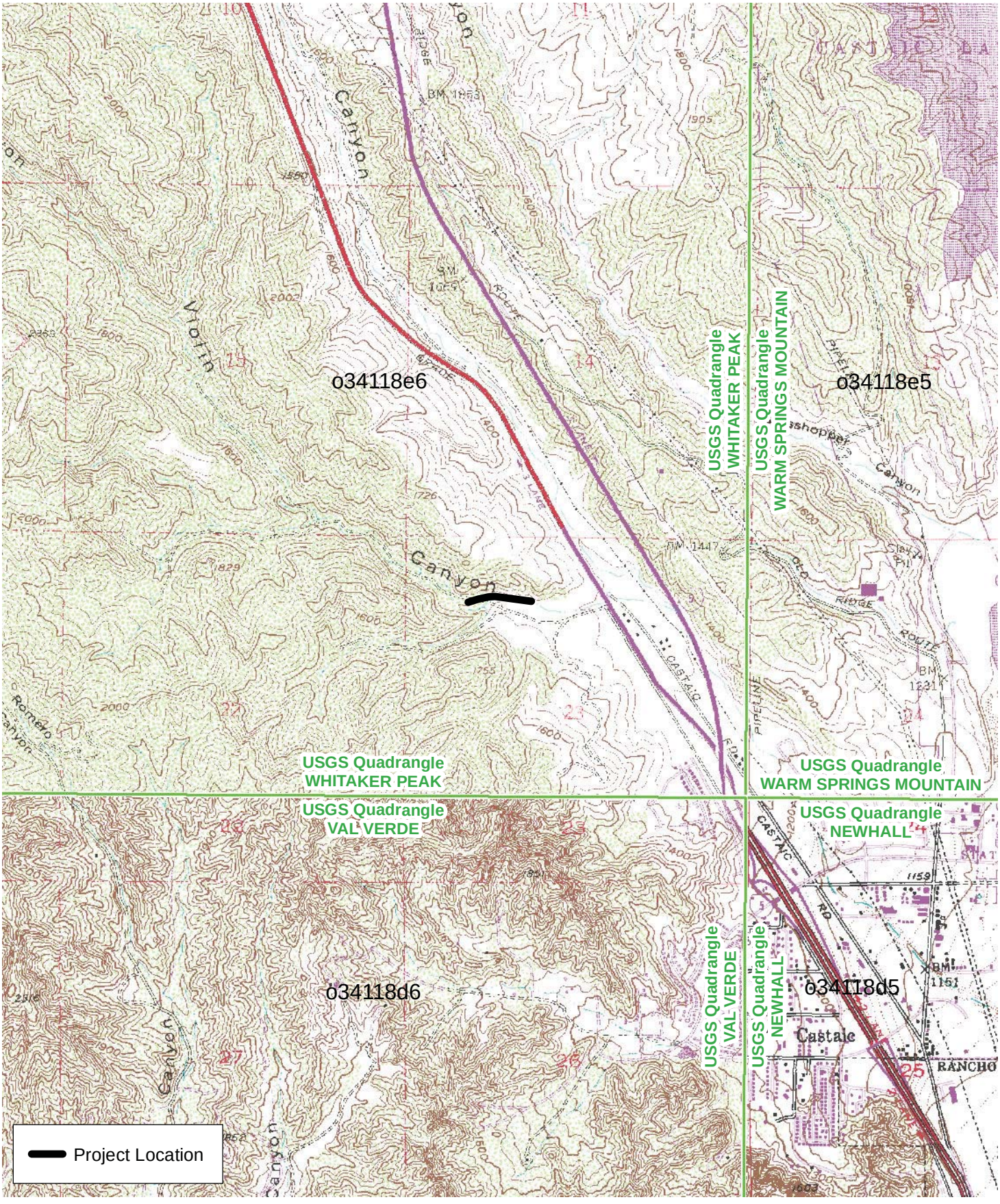
Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

2,000 1,000 0 2,000 Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex3_USGS.pdf



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USGS Quadrangle - Reach 102 - Violin Canyon (PD 2275)

Exhibit 3b

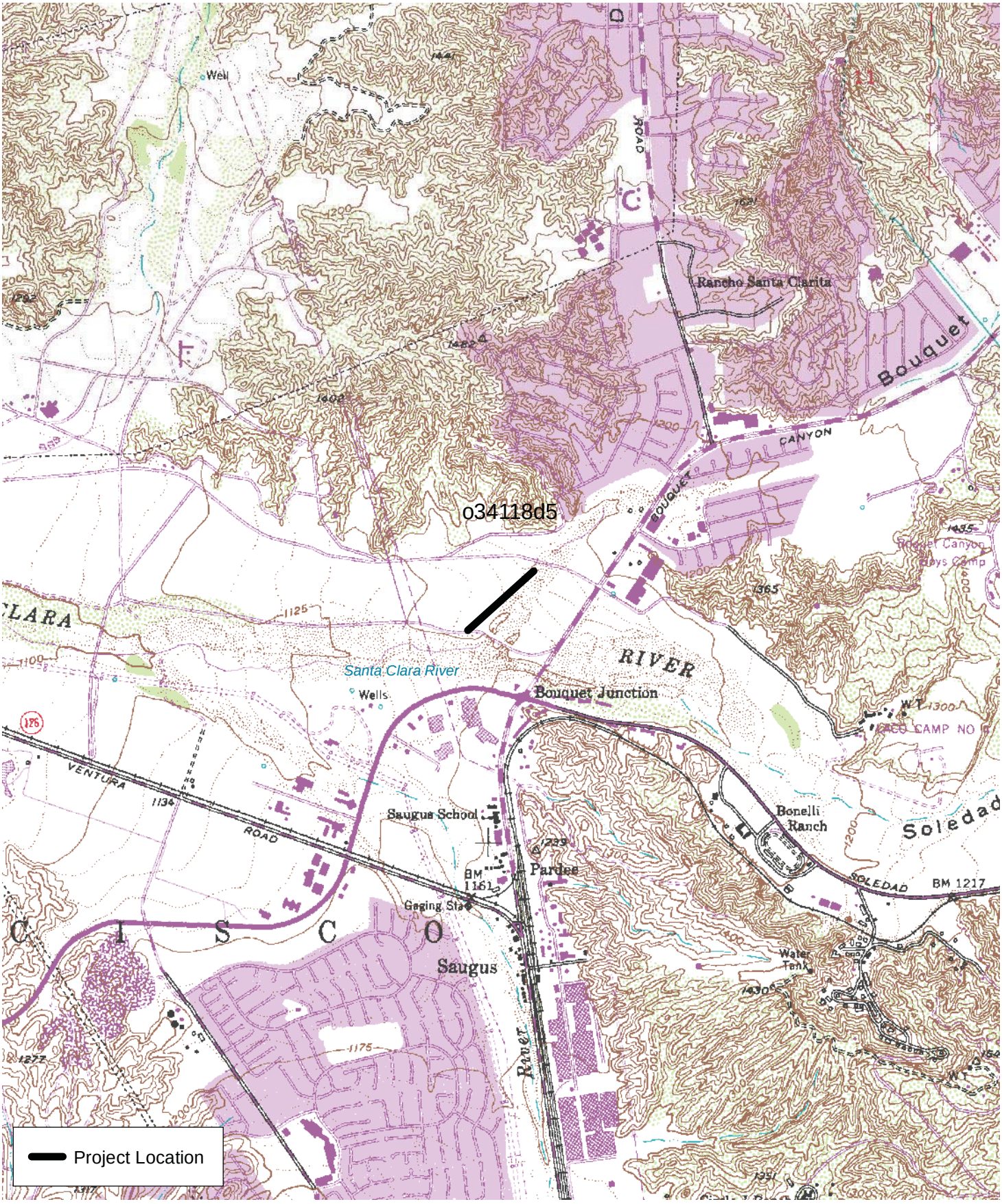
Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

2,000 1,000 0 2,000 Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex3_USGS.pdf



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USGS Quadrangle - Reach 103 - Bouquet Canyon Channel (PD 2225)

Exhibit 3c

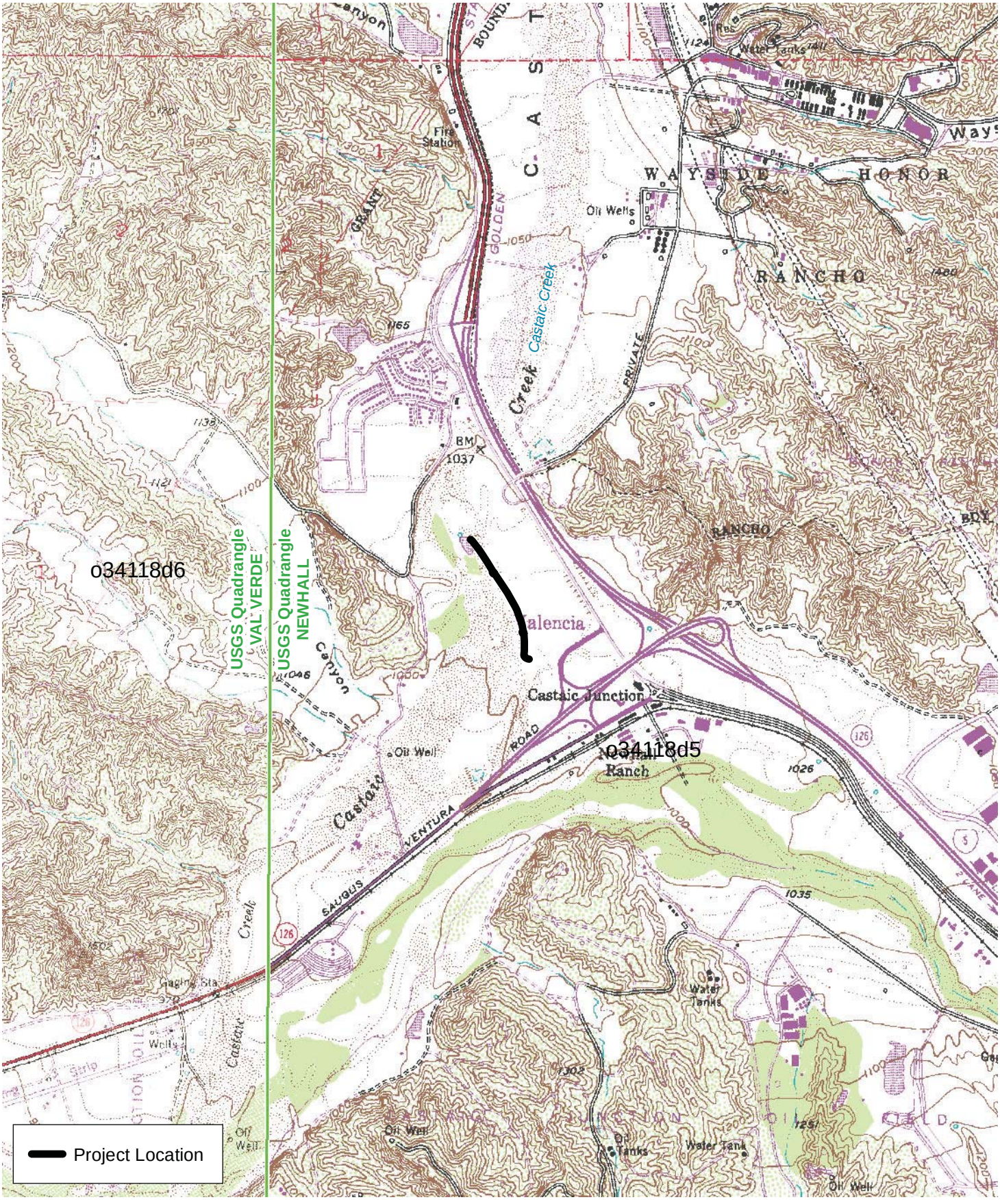
Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

2,000 1,000 0 2,000 Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex3_USGS.pdf



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USGS Quadrangle - Reach 104 - Castaic Creek (PD 2441 Unit 2)

Exhibit 3d

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

2,000 1,000 0 2,000 Feet

PSOMAS

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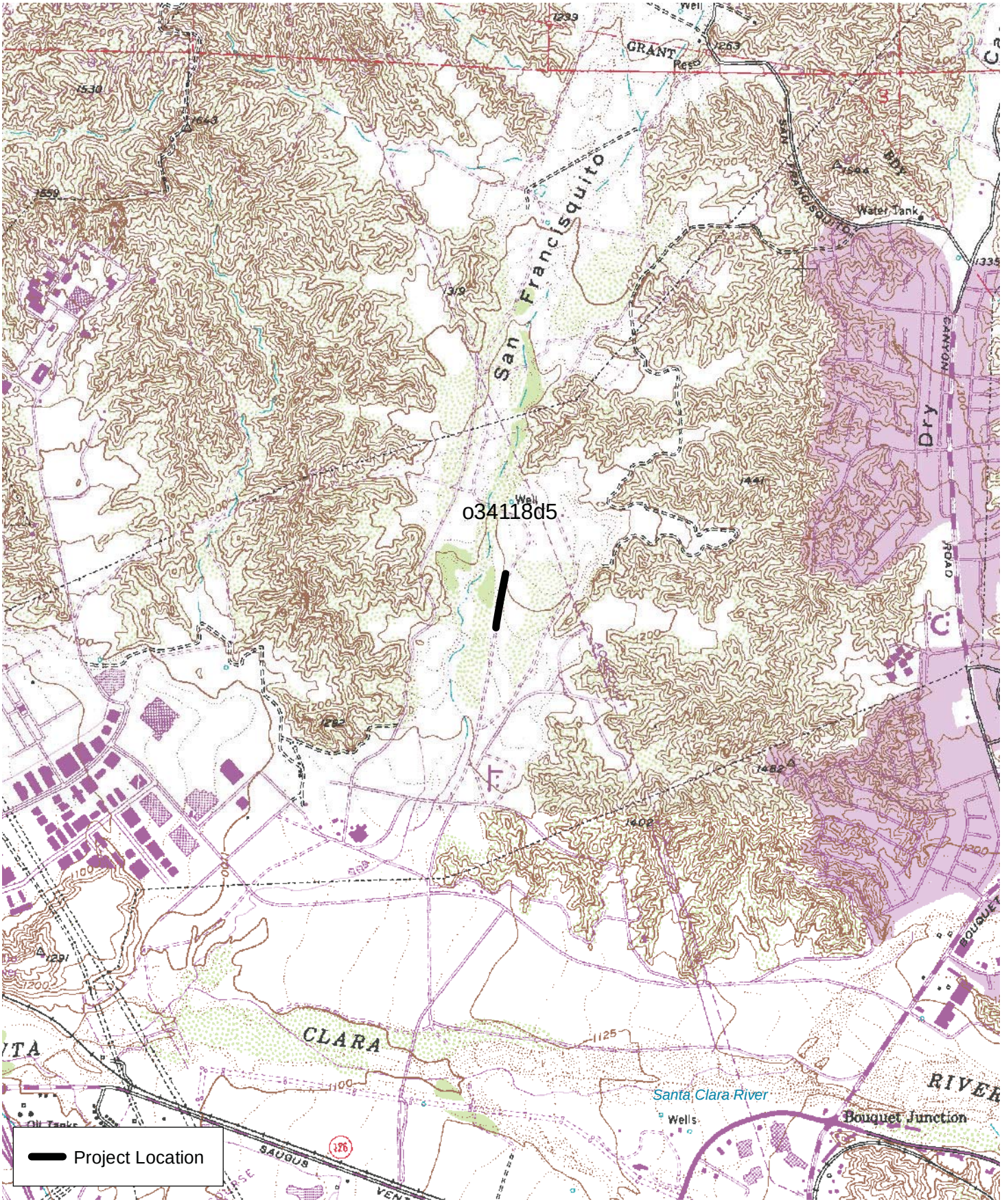

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USGS Quadrangle - Reach 105 - San Fracisquito Canyon Channel (PD 2456)

Exhibit 3e

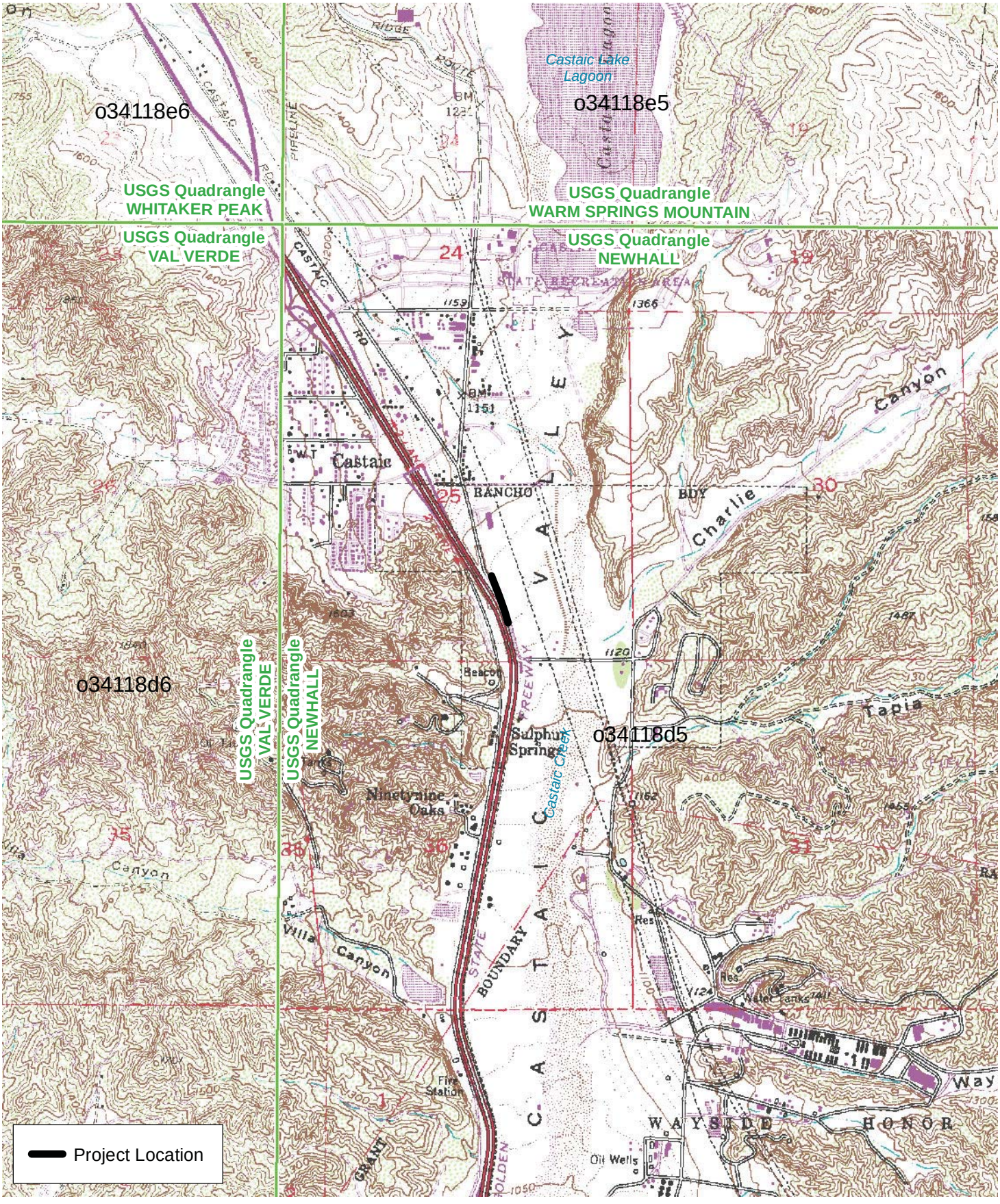
Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

2,000 1,000 0 2,000 Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex3_USGS.pdf



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USGS Quadrangle – Reach 106 – Castaic Drain Outlet

Exhibit 3f

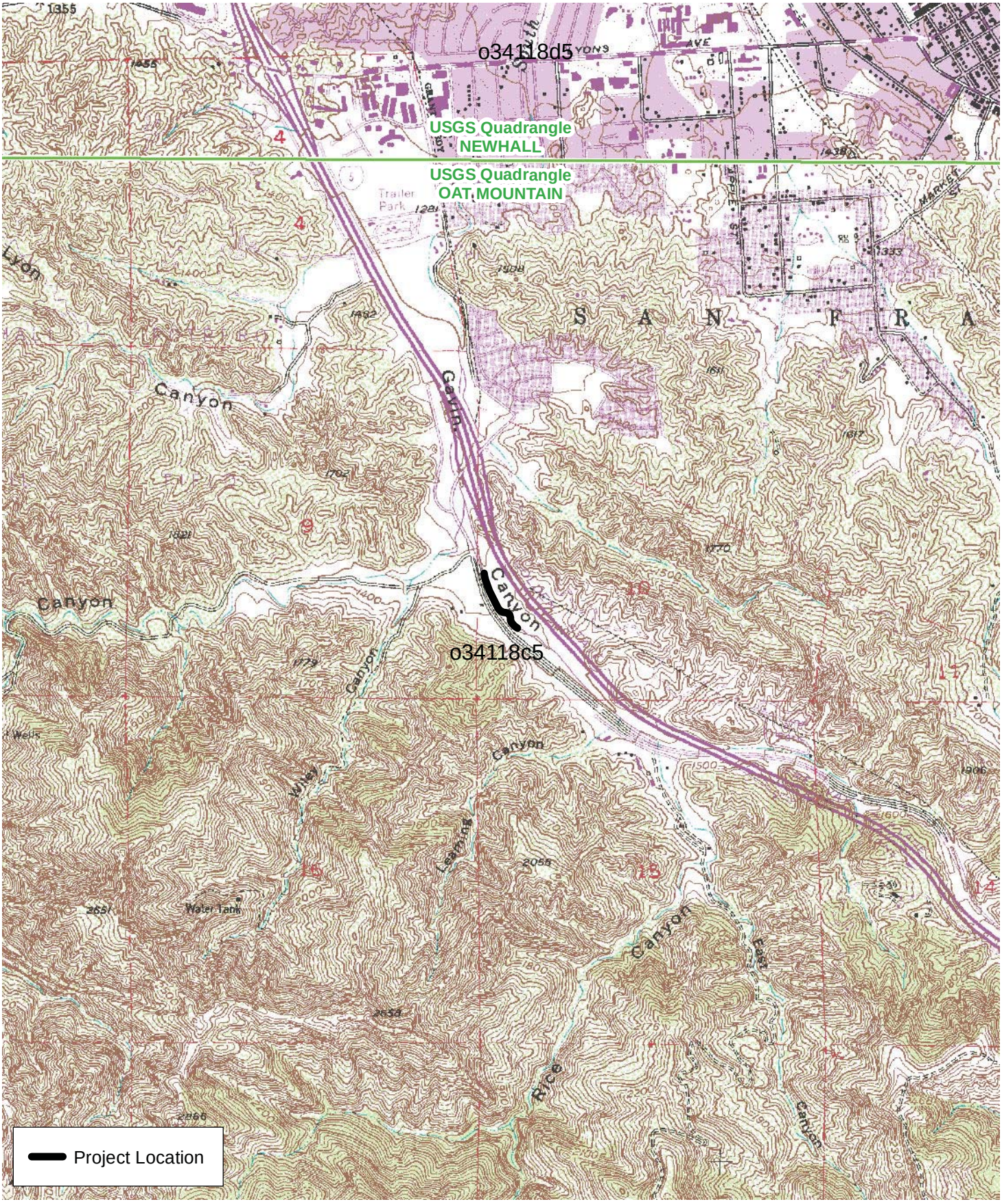
Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

2,000 1,000 0 2,000 Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex3_USGS.pdf



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USGS Quadrangle – Reach 107 – The Old Road Channel

Exhibit 3g

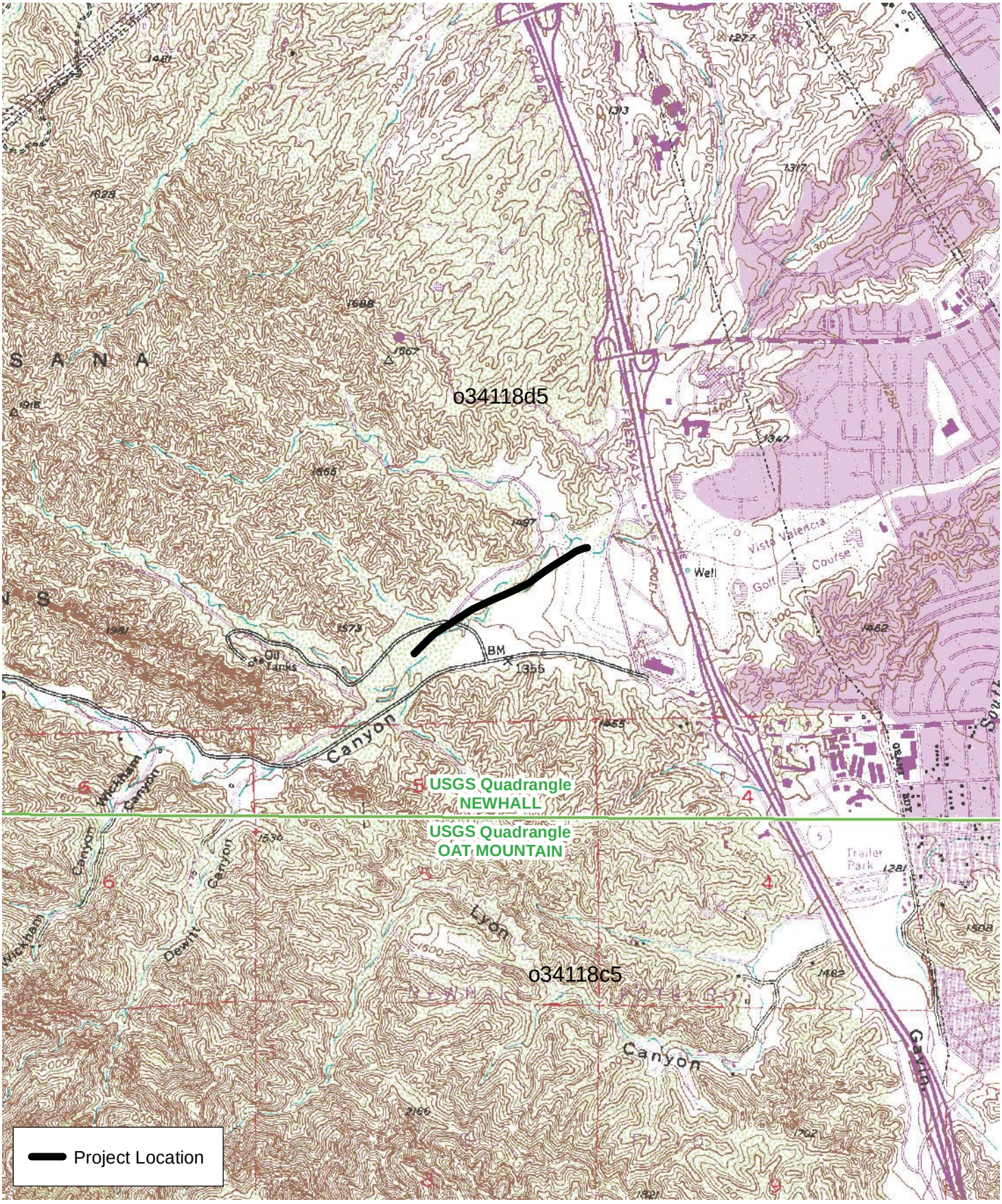
Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

2,000 1,000 0 2,000 Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex3_USGS.pdf



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USGS Quadrangle - Reach 108 - Pico Canyon (PD 2528)

Exhibit 3h

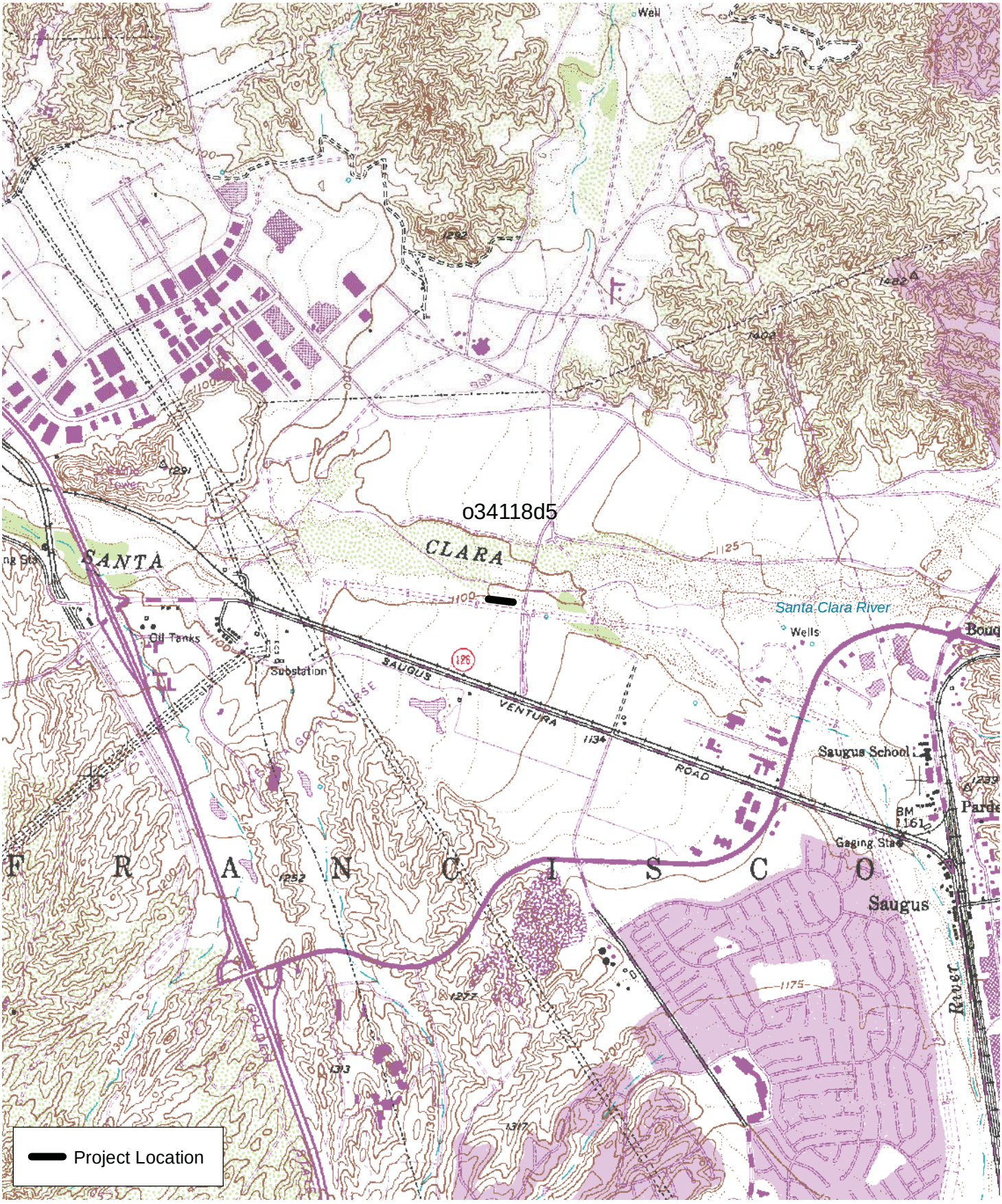
Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N
W E
S

2,000 1,000 0 2,000
Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex3_USGS.pdf



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USGS Quadrangle - Reach 109 - Santa Clara River

Exhibit 3i

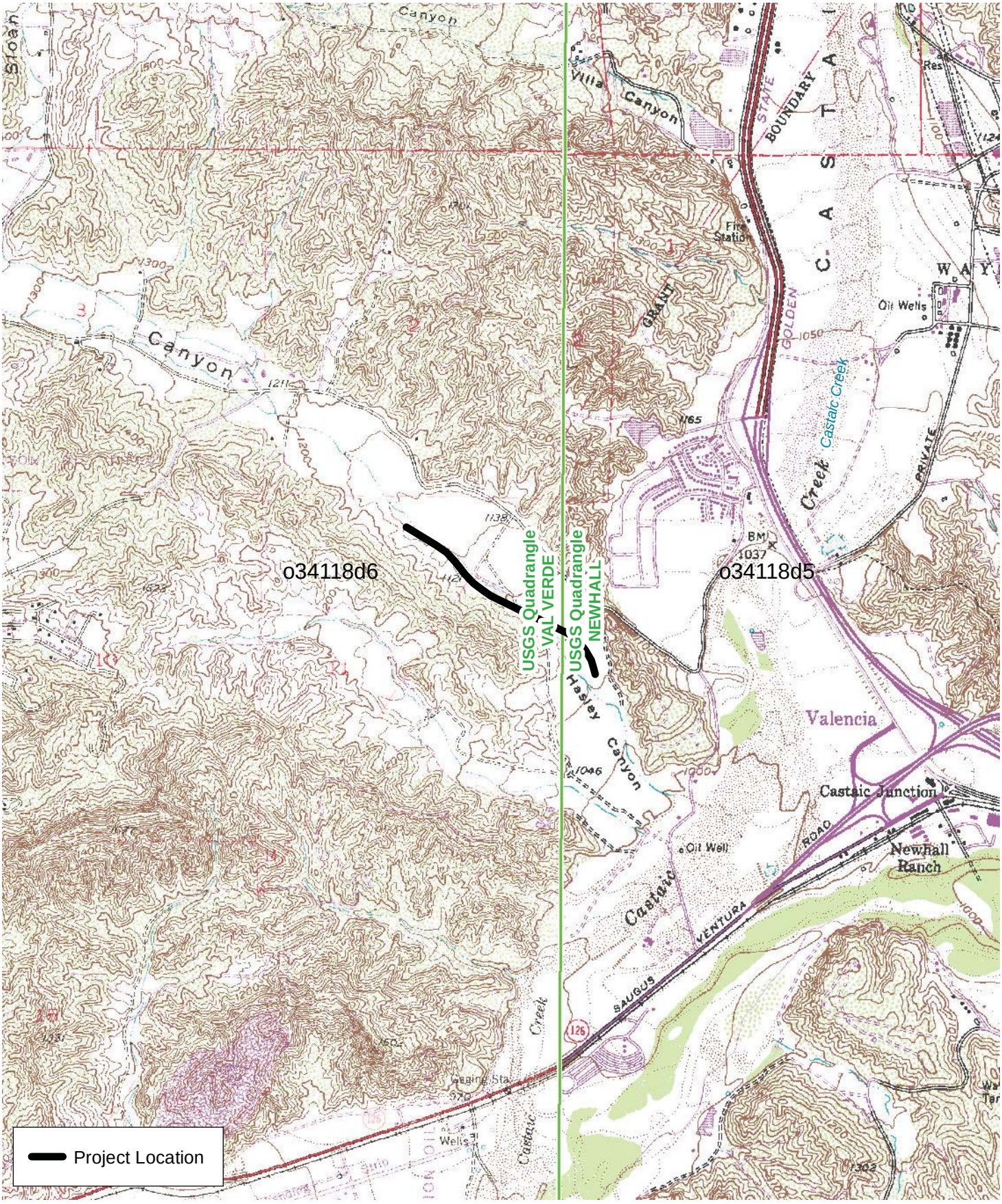
Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

2,000 1,000 0 2,000 Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex3_USGS.pdf



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USGS Quadrangle - Reach 110 - Hasley Canyon Channel (PD 2262)

Exhibit 3j

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

2,000 1,000 0 2,000 Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex3_USGS.pdf



- Photo Location
- Outlet
- Survey Area
- LACFCD Easement Boundary

Project Features

- Annual Clearing
- Access Ramp
- Access Road

Vegetation Types and Other Areas

- Developed
- Disturbed Scale-broom – Buckwheat Alluvial Shrubland
- Ephemeral Scoured Streambed
- Mulefat Shrubland
- Mulefat – Tamarisk Shrubland
- Scale-broom – Buckwheat Alluvial Shrubland

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Vegetation Types – Reach 101 – Violin Canyon (PD 2312)

Exhibit 4a

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100 Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex4_101-110_veg.pdf



- Photo Location
- Outlet
- Soil Test Pit
- Survey Area
- LACFCD Easement Boundary

Project Features

- Annual Clearing
- Access Road

Vegetation Types and Other Areas

- Developed
- Ephemeral Scoured Streambed
- Mulefat – Tamarisk Shrubland
- Scale-broom – Buckwheat Alluvial Shrubland

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Vegetation Types – Reach 101 – Violin Canyon (PD 2312)

Exhibit 4b

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100 Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex4_101-110_veg.pdf



Photo Location
Outlet
Soil Test Pit
Survey Area
LACFCD Easement Boundary

Project Features

Annual Clearing
Lollipop Trees
Permanent Structure
Access Ramp
Access Road

Vegetation Types and Other Areas

Cattail Marsh
Cottonwood Forest
Developed
Ephemeral Scoured Streambed
Mulefat – Tamarisk Shrubland
Scale-broom – Buckwheat Alluvial Shrubland
Upland Mustards

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Vegetation Types - Reach 102 - Violin Canyon (PD 2275)

Exhibit 4c

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100

Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex4_101-110_veg.pdf



- Photo Location
- Soil Test Pit
- Survey Area
- LACFCD Easement Boundary

Project Features

- Annual Clearing
- Permanent Structure
- Access Ramp
- Access Road
- USACE "Waters of the U.S"

Vegetation Types and Other Areas

- Cottonwood Forest
- Developed
- Giant Reed Stand
- Mulefat Shrubland

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Vegetation Types - Reach 103 - Bouquet Canyon Channel (PD 2225)

Exhibit 4d

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100 Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex4_101-110_veg.pdf



- Photo Location
- Outlet
- Soil Test Pit
- Survey Area
- LACFCD Easement Boundary

Project Features

- Annual Clearing
- Access Ramp
- Access Road
- USACE "Waters of the U.S"

Vegetation Types and Other Areas

- Cottonwood Forest
- Developed
- Ephemeral Scoured Streambed
- Giant Reed Stand
- Mulefat Shrubland

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Vegetation Types – Reach 103 – Bouquet Canyon Channel (PD 2225)

Exhibit 4e

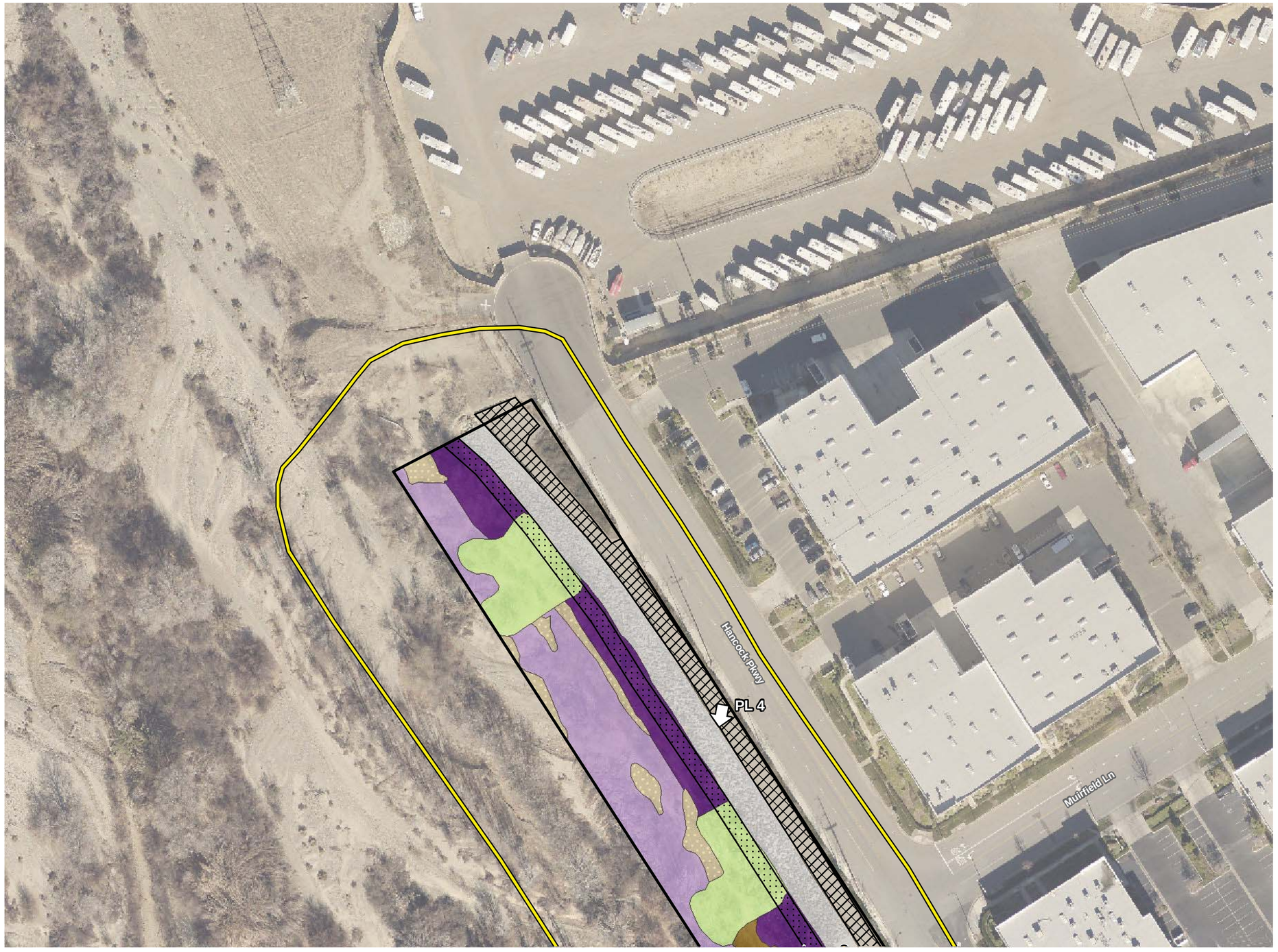
Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100 Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex4_101-110_veg.pdf



- Photo Location
- Outlet
- Soil Test Pit
- Survey Area
- LACFCD Easement Boundary

Project Features

- Annual Clearing
- Access Road

Vegetation Types and Other Areas

- Cottonwood – Tamarisk Woodland
- Cottonwood – Willow – Mulefat Woodland
- Developed
- Ephemeral Scoured Streambed
- Mulefat Shrubland
- Tamarisk Shrubland

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Vegetation Types – Reach 104 – Castaic Creek (PD 2441 Unit 2)

Exhibit 4f

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100 Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex4_101-110_veg.pdf



- Photo Location
- Outlet
- Soil Test Pit
- Survey Area
- LACFCD Easement Boundary

Project Features

- Annual Clearing
- Access Ramp
- Access Road

Vegetation Types and Other Areas

- Cottonwood Forest
- Cottonwood – Tamarisk Woodland
- Cottonwood – Willow – Mulefat Woodland
- Developed
- Ephemeral Scoured Streambed
- Mulefat Shrubland
- Mulefat – Tamarisk Shrubland
- Tamarisk Shrubland
- Ungrouted Riprap

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Vegetation Types – Reach 104 – Castaic Creek (PD 2441 Unit 2)

Exhibit 4g

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

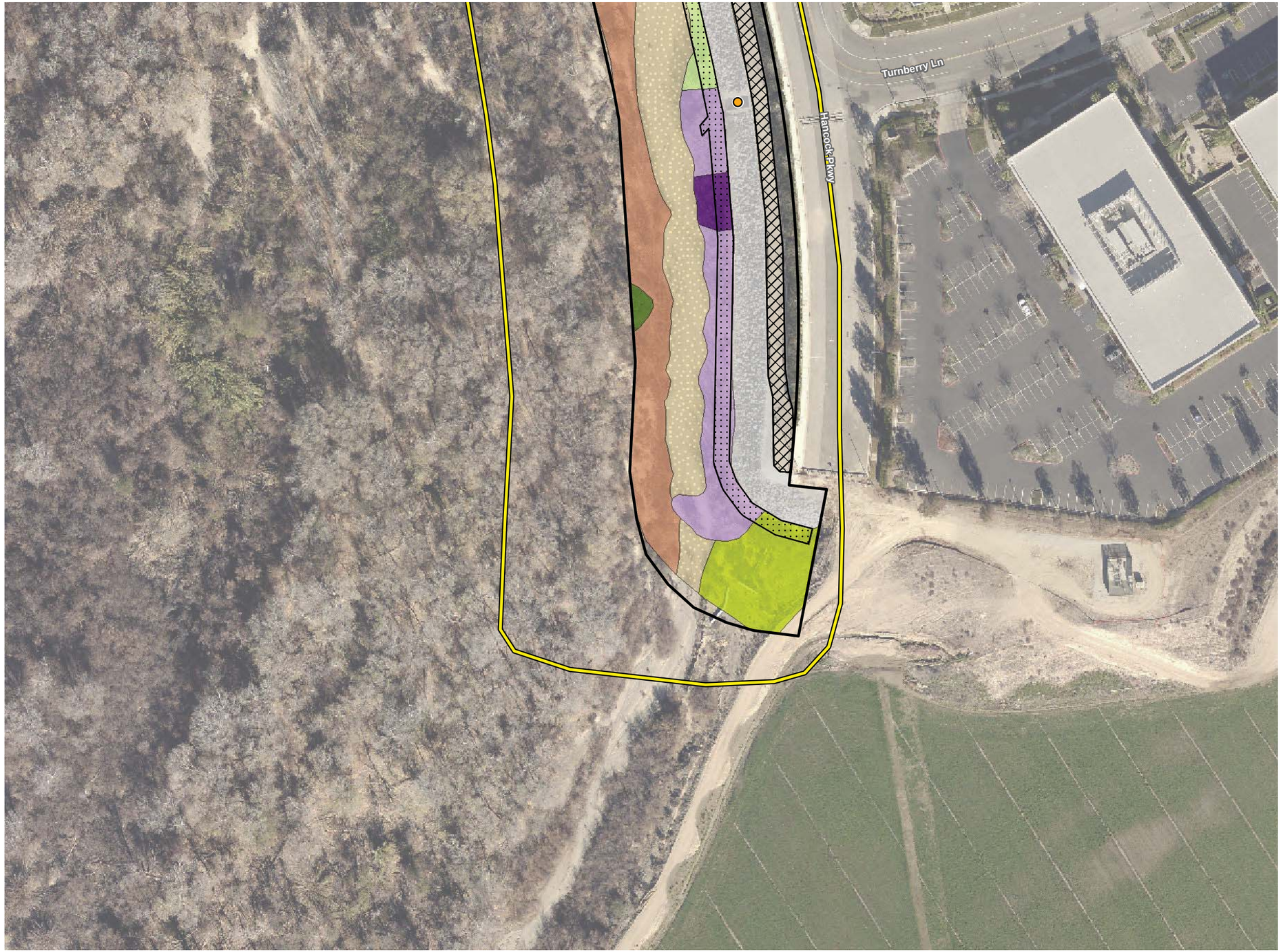
N W E S

100 50 0 100

Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex4_101-110_veg.pdf



- Outlet
- Survey Area
- LACFCD Easement Boundary

Project Features

- Annual Clearing
- Access Road

Vegetation Types and Other Areas

- Cottonwood Forest
- Cottonwood – Tamarisk Woodland
- Cottonwood – Willow – Mulefat Woodland
- Developed
- Disturbed Sagebrush – Buckwheat Shrubland
- Ephemeral Scoured Streambed
- Mulefat – Tamarisk Shrubland
- Tamarisk Shrubland

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Vegetation Types – Reach 104 – Castaic Creek (PD 2441 Unit 2)

Exhibit 4h

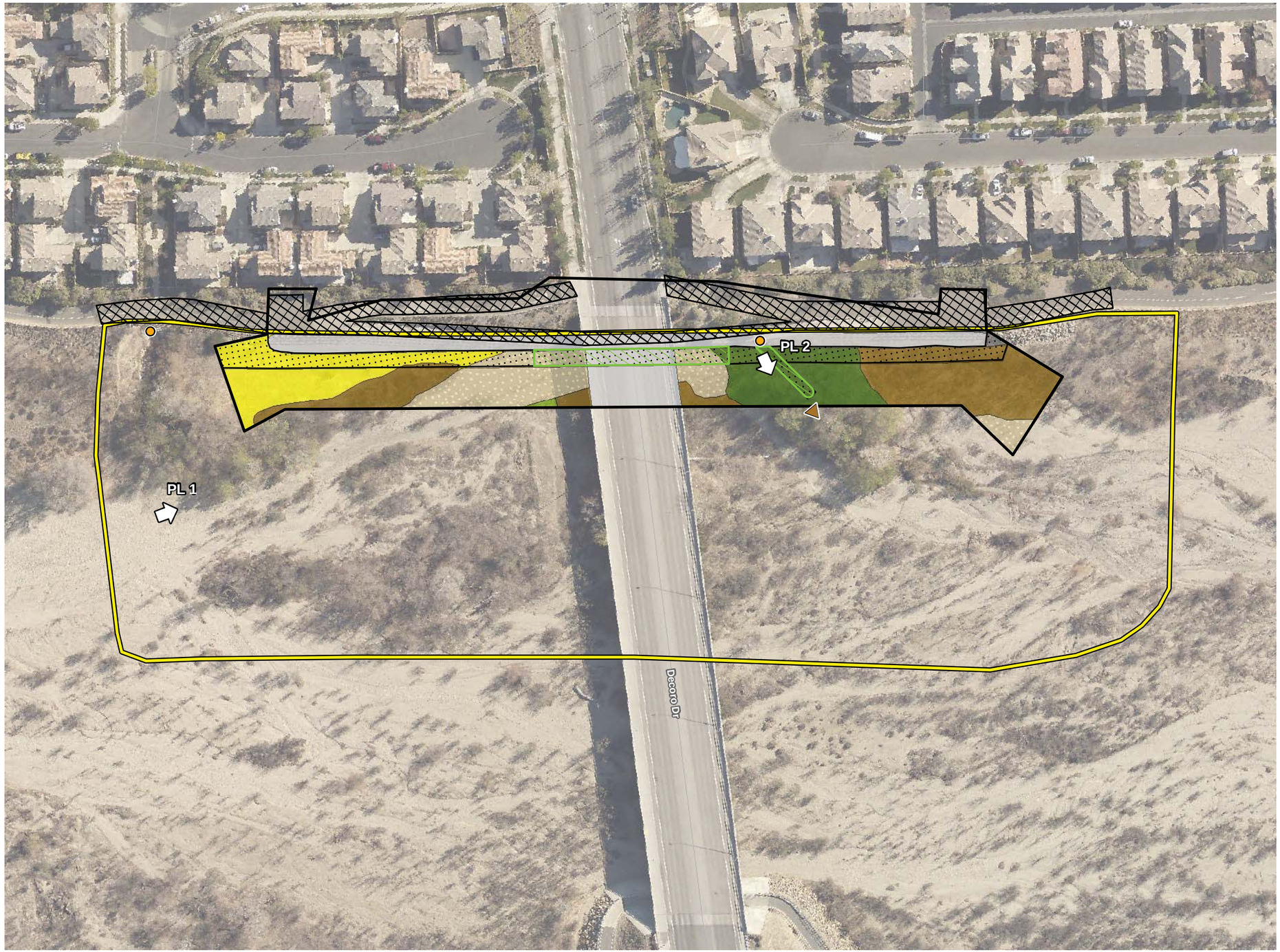
Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100 Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex4_101-110_veg.pdf



- Photo Location
- Outlet
- Soil Test Pit
- Survey Area
- LACFCD Easement Boundary

Project Features

- Annual Clearing
- Access Road
- Original NRMP Impact Area (permitted separately)

Vegetation Types and Other Areas

- Cottonwood Forest
- Developed
- Disturbed Mulefat Shrubland
- Ephemeral Scoured Streambed
- Mulefat Shrubland
- Ungrouted Riprap
- Upland Mustards

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Vegetation Types – Reach 105 – San Fracisquito Canyon Channel (PD 2456)

Exhibit 4i

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

100 50 0 100 Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex4_101-110_veg.pdf



- Photo Location
- Soil Test Pit
- Survey Area

Project Features

- Annual Clearing
- Access Ramp
- Access Road

Vegetation Types and Other Areas

- Annual Brome Grassland
- Cottonwood Forest
- Ephemeral Scoured Streambed
- Mulefat Shrubland

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Vegetation Types - Reach 106 - Castaic Drain Outlet

Exhibit 4j

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100 Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex4_101-110_veg.pdf

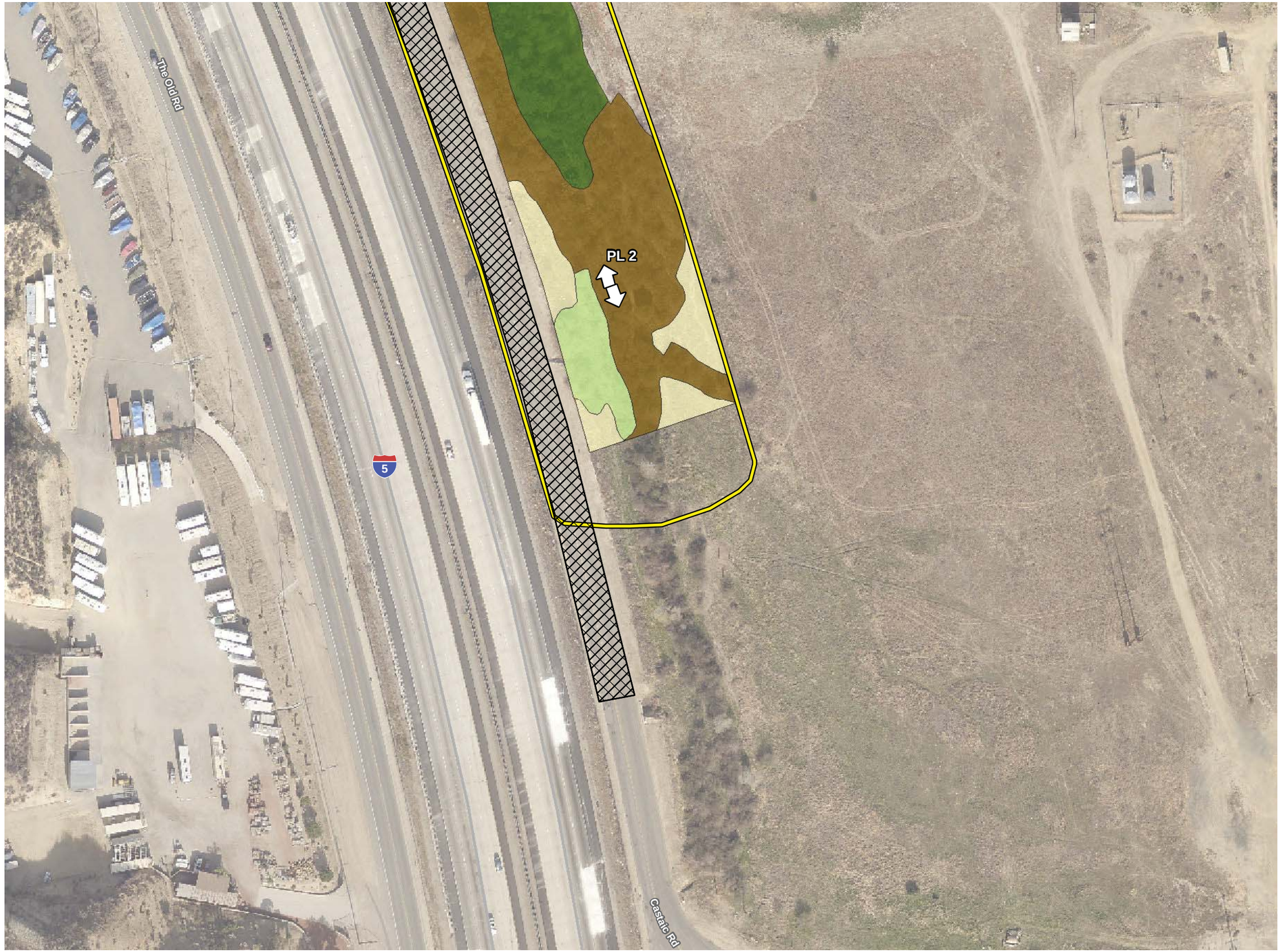

Photo Location

Survey Area

Access Road

Vegetation Types and Other Areas

Annual Brome Grassland

Cottonwood Forest

Mulefat Shrubland

Tamarisk Shrubland

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Vegetation Types – Reach 106 – Castaic Drain Outlet

Exhibit 4k

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100

Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex4_101-110_veg.pdf



Photo Location

Survey Area

Project Features

Annual Clearing

Access Road

USACE "Waters of the U.S"

Vegetation Types and Other Areas

Mulefat Shrubland

Vegetation Types - Reach 107 - The Old Road Channel

Exhibit 4l

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100

Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex4_101-110_veg.pdf

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Photo Location

Soil Test Pit

Survey Area

Project Features

Annual Clearing

Access Road

USACE "Waters of the U.S"

Vegetation Types and Other Areas

Cottonwood – Coast Live Oak Woodland

Mulefat Shrubland

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Vegetation Types – Reach 107 – The Old Road Channel

Exhibit 4m

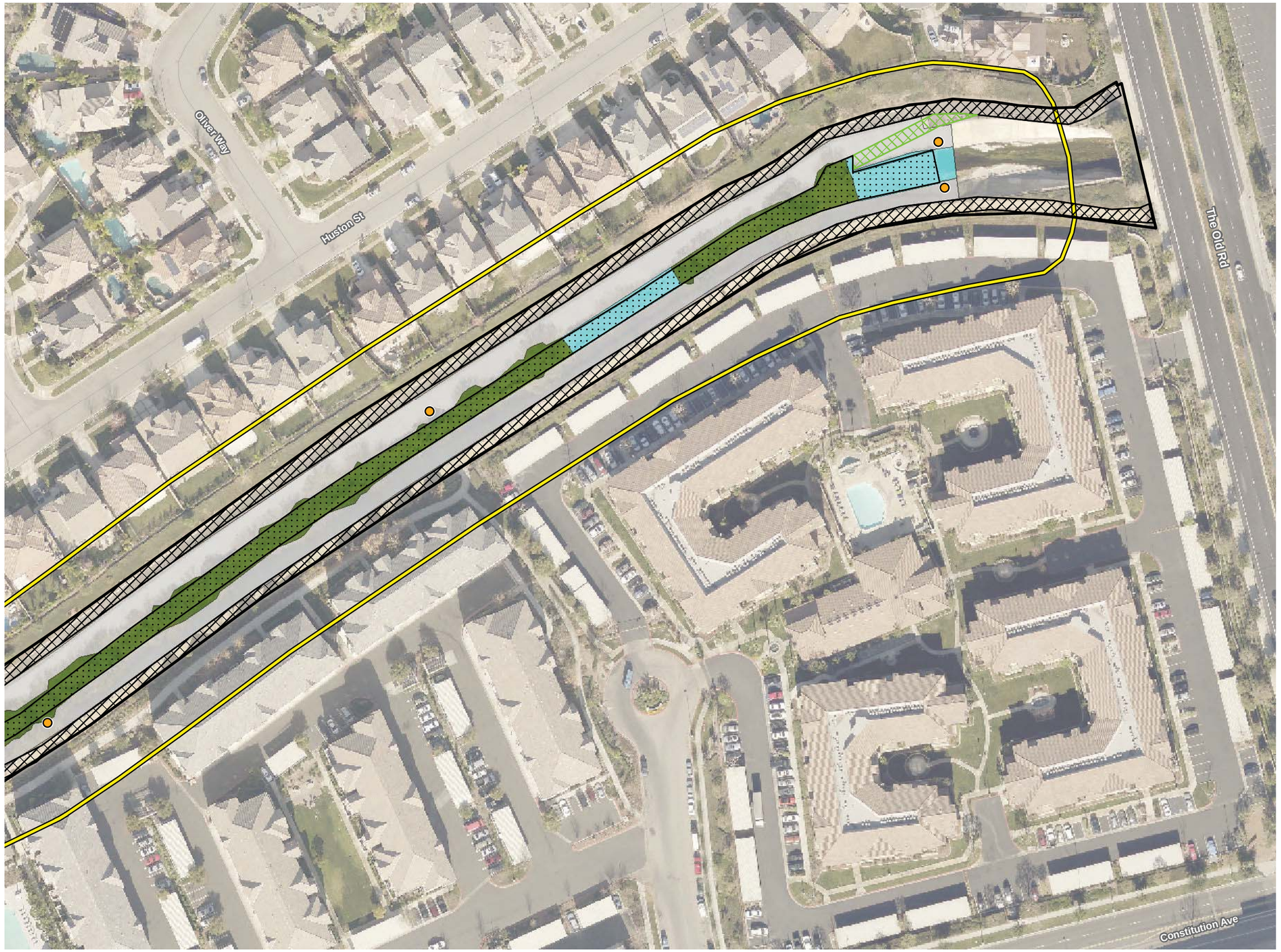
Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100 Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex4_101-110_veg.pdf



- Outlet
- Survey Area
- LACFCD Easement Boundary

Project Features

- Annual Clearing
- Access Ramp
- Access Road

Vegetation Types and Other Areas

- Cattail Marsh
- Developed
- Red Willow – Arroyo Willow Shrubland

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Vegetation Types – Reach 108 – Pico Canyon (PD 2528)

Exhibit 4n

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100 Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex4_101-110_veg.pdf

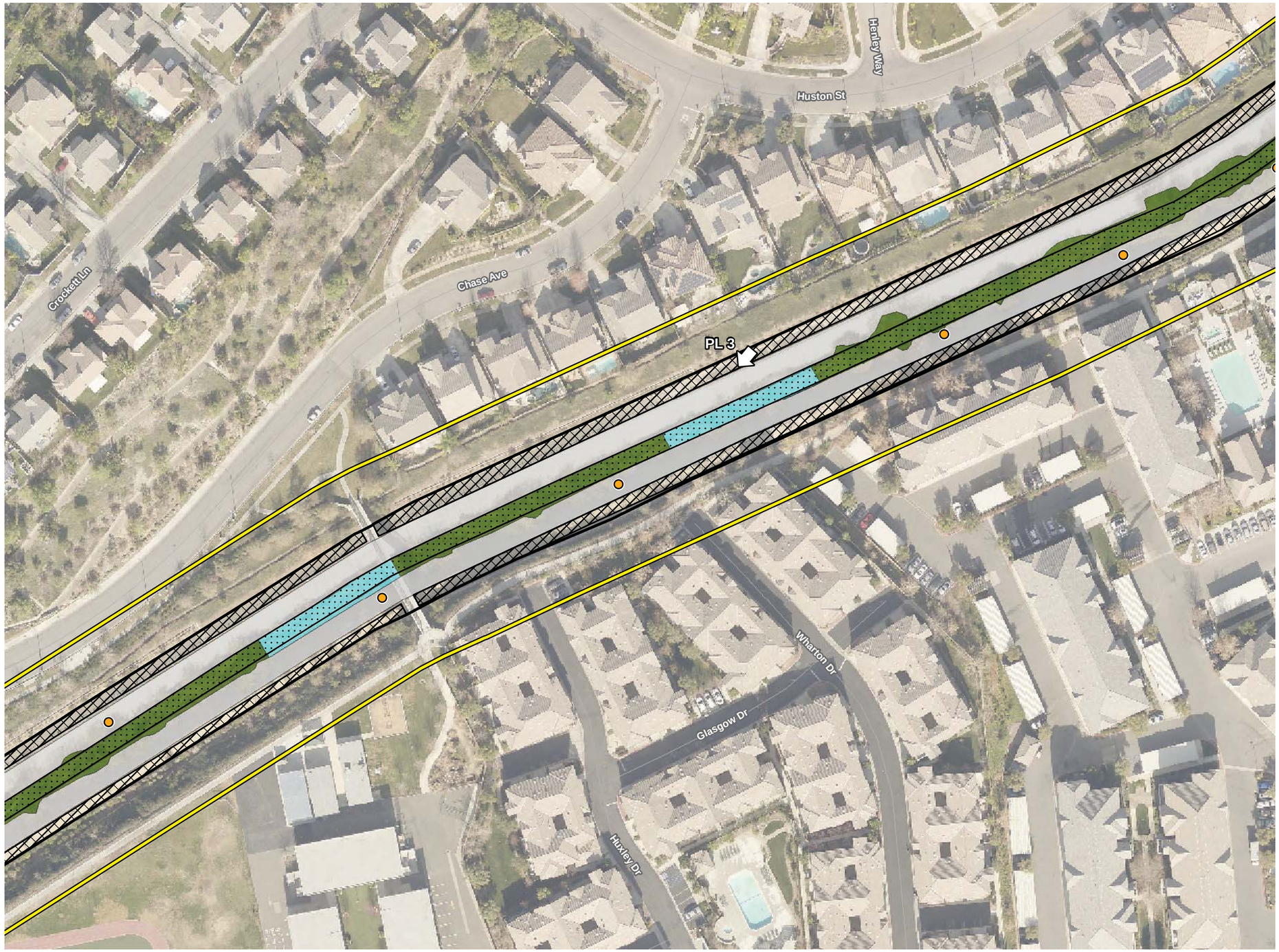

Photo Location
Outlet
Survey Area
LACFCD Easement Boundary

Project Features

Annual Clearing
Access Road

Vegetation Types and Other Areas

Cattail Marsh
Developed
Red Willow – Arroyo Willow Shrubland

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Vegetation Types – Reach 108 – Pico Canyon (PD 2528)

Exhibit 4o

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100 Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex4_101-110_veg.pdf



Photo Location
Outlet
Soil Test Pit
Survey Area
LACFCD Easement Boundary

Project Features

Annual Clearing
Access Ramp
Access Road

Vegetation Types and Other Areas

Cattail Marsh
Developed
Red Willow – Arroyo Willow Shrubland

D:\Projects\CoLADPW\J279\MXD\JD\Ex_101-110_veg_20180327.mxd

Vegetation Types – Reach 108 – Pico Canyon (PD 2528)

Exhibit 4p

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100 Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex4_101-110_veg.pdf

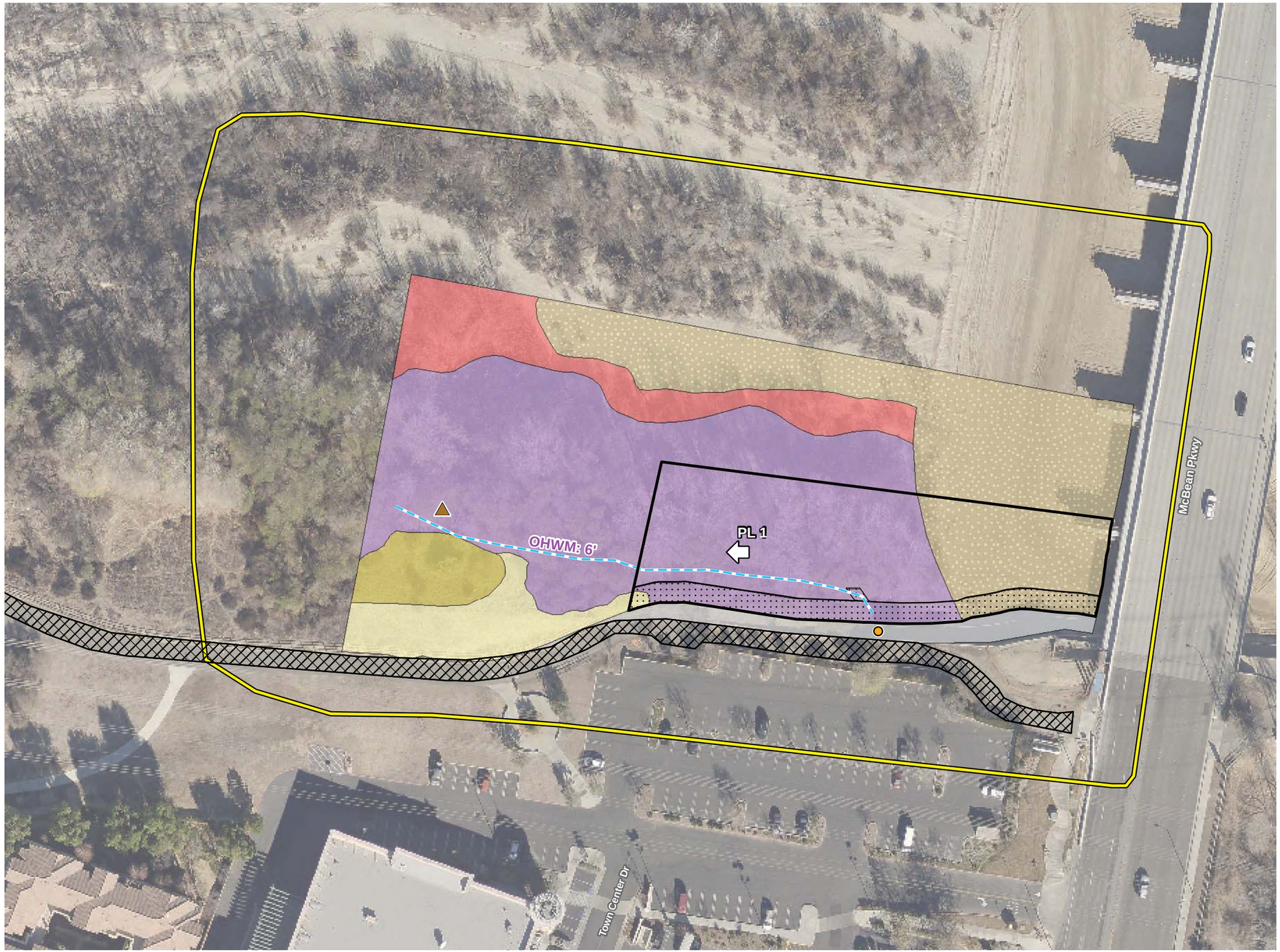

Photo Location
Outlet
Soil Test Pit
Survey Area
LACFCD Easement Boundary

Project Features

Annual Clearing
Lollipop Trees
Access Road
Low Flow Channel

Vegetation Types and Other Areas

Annual Brome Grassland
California Sagebrush – California Buckwheat Shrubland
Cottonwood – Willow – Mulefat Woodland
Developed
Ephemeral Scoured Streambed
Giant Reed Stand

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Vegetation Types – Reach 109 – Santa Clara River

Exhibit 4q

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

75 37.5 0 75 Feet

PSOMAS

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- Photo Location
- Outlet
- Soil Test Pit
- Survey Area
- LACFCD Easement Boundary

Project Features

- Annual Clearing
- Permanent Structure
- Access Road

Vegetation Types and Other Areas

- Developed
- Ephemeral Scoured Streambed
- Gooding's Willow – Red Willow Woodland
- Scale-broom – Buckwheat Alluvial Shrubland

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Vegetation Types – Reach 110 – Hasley Canyon Channel (PD 2262)

Exhibit 4r

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100 Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex4_101-110_veg.pdf



Photo Location
Outlet
Soil Test Pit
Survey Area
LACFCD Easement Boundary

Project Features

Annual Clearing
Permanent Structure
Access Road

Vegetation Types and Other Areas

Cottonwood Forest
Developed
Ephemeral Scoured Streambed
Gooding's Willow – Red Willow Woodland
Mulefat Shrubland
Scale-broom – Buckwheat Alluvial Shrubland

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Vegetation Types – Reach 110 – Hasley Canyon Channel (PD 2262)

Exhibit 4s

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100 Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex4_101-110_veg.pdf

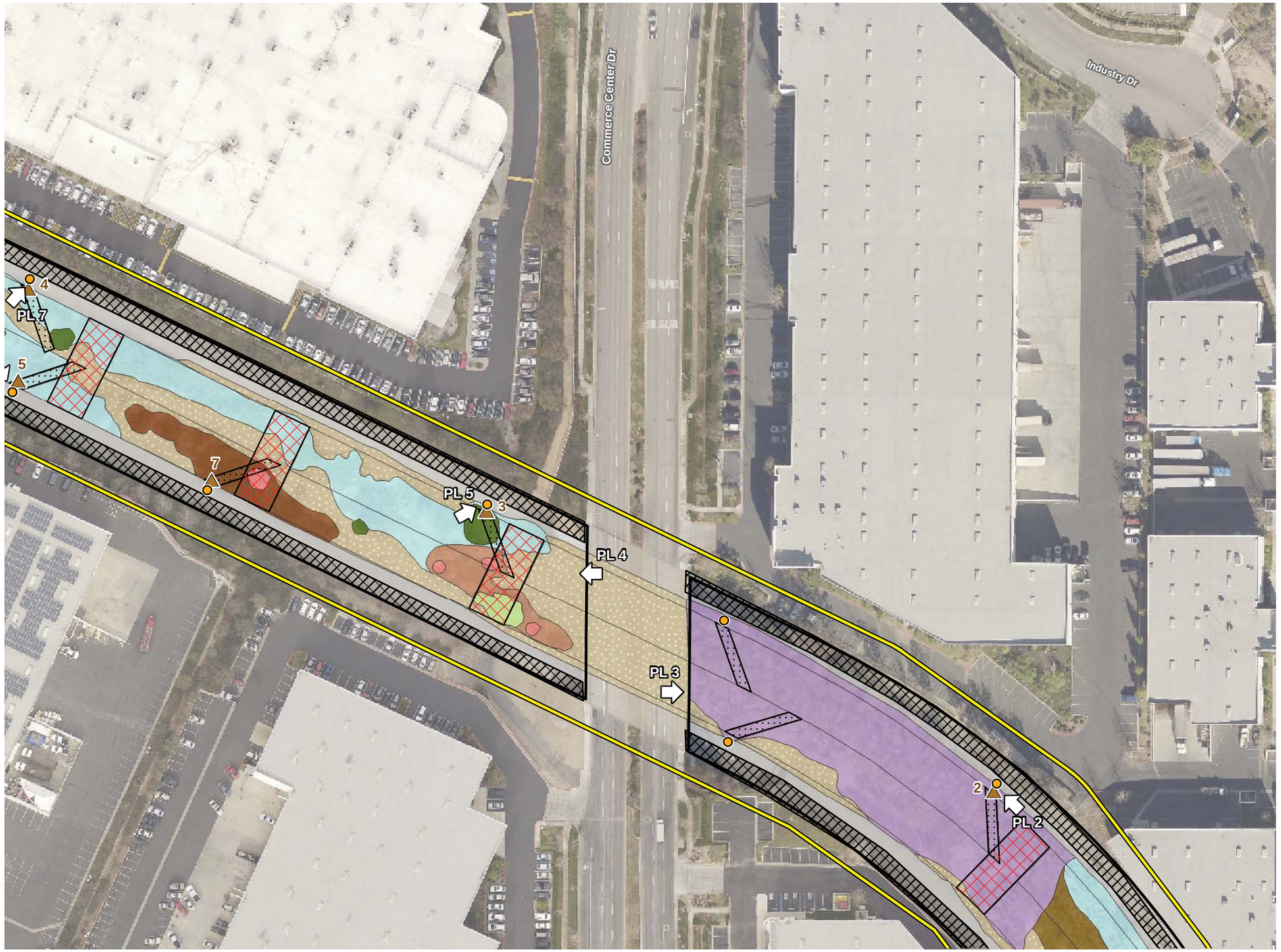

Photo Location
Outlet
Soil Test Pit
Survey Area
LACFCD Easement Boundary

Project Features

Annual Clearing
Permanent Structure
Access Road

Vegetation Types and Other Areas

Cottonwood Forest
Cottonwood – Willow – Mulefat Woodland
Developed
Ephemeral Scoured Streambed
Giant Reed Stand
Gooding's Willow – Red Willow Woodland
Mulefat Shrubland
Mulefat – Tamarisk Shrubland
Scale-broom – Buckwheat Alluvial Shrubland
Tamarisk Shrubland

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Vegetation Types – Reach 110 – Hasley Canyon Channel (PD 2262)

Exhibit 4t

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100 Feet

PSOMAS

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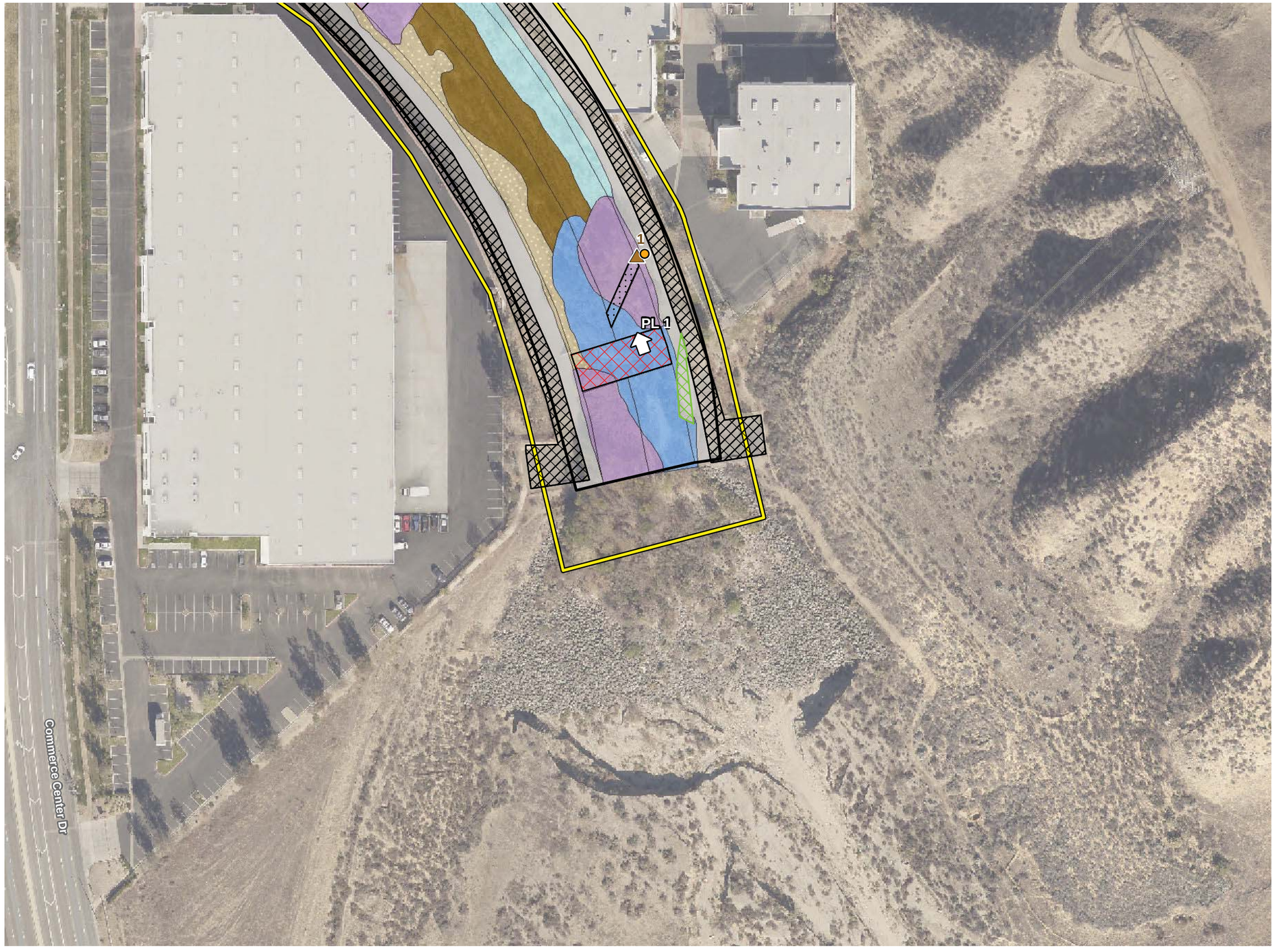

- Photo Location
- Outlet
- Soil Test Pit
- Survey Area
- LACFCD Easement Boundary

Project Features

- Annual Clearing
- Permanent Structure
- Access Ramp
- Access Road

Vegetation Types and Other Areas

- Cottonwood – Willow – Mulefat Woodland
- Developed
- Ephemeral Scoured Streambed
- Gooding's Willow – Red Willow Woodland
- Mulefat Shrubland
- Sandbar Willow Shrubland

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Vegetation Types - Reach 110 - Hasley Canyon Channel (PD 2262)

Exhibit 4u

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100 Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex4_101-110_veg.pdf



- Outlet
- Photo Location
- Survey Area
- LACFCD Easement Boundary
- Access Road
- Access Ramp
- CDFW Jurisdictional Waters
- USACE Non-wetland “Waters of the U.S.”

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Jurisdictional Resources – Reach 101 – Violin Canyon (PD 2312)

Exhibit 5a

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100 Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex5_101-110_JD.pdf



- Outlet
- Photo Location
- Soil Test Pit
- Survey Area
- LACFCD Easement Boundary
- Access Road
- CDFW Jurisdictional Waters
- USACE Non-wetland “Waters of the U.S.”

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Jurisdictional Resources – Reach 101 – Violin Canyon (PD 2312)

Exhibit 5b

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100 Feet

PSOMAS

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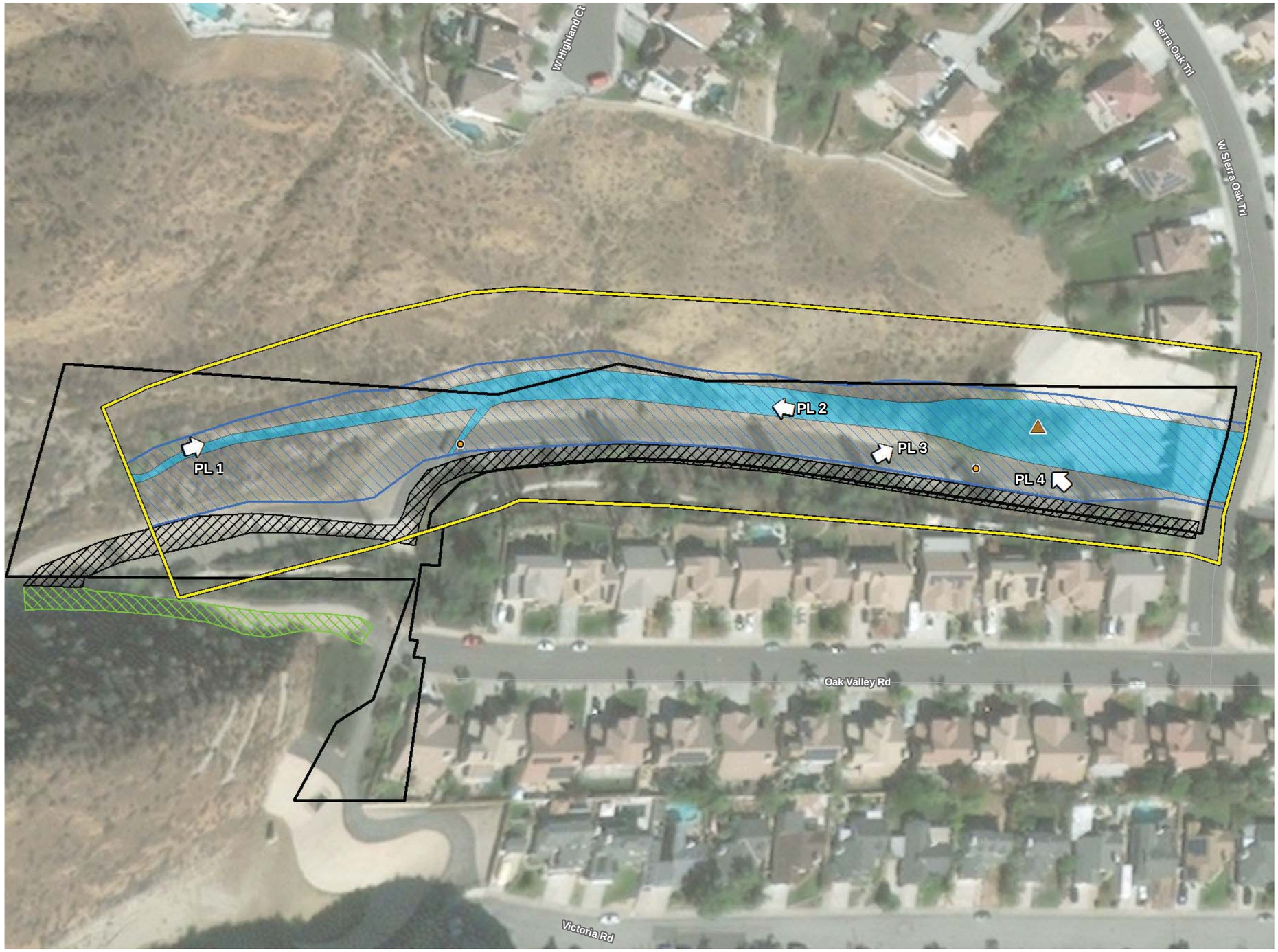

- Outlet
- Photo Location
- Soil Test Pit
- Survey Area
- LACFCD Easement Boundary
- Access Road
- Access Ramp
- CDFW Jurisdictional Waters
- USACE Non-wetland “Waters of the U.S.”

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Jurisdictional Resources – Reach 102 – Violin Canyon (PD 2275)

Exhibit 5c

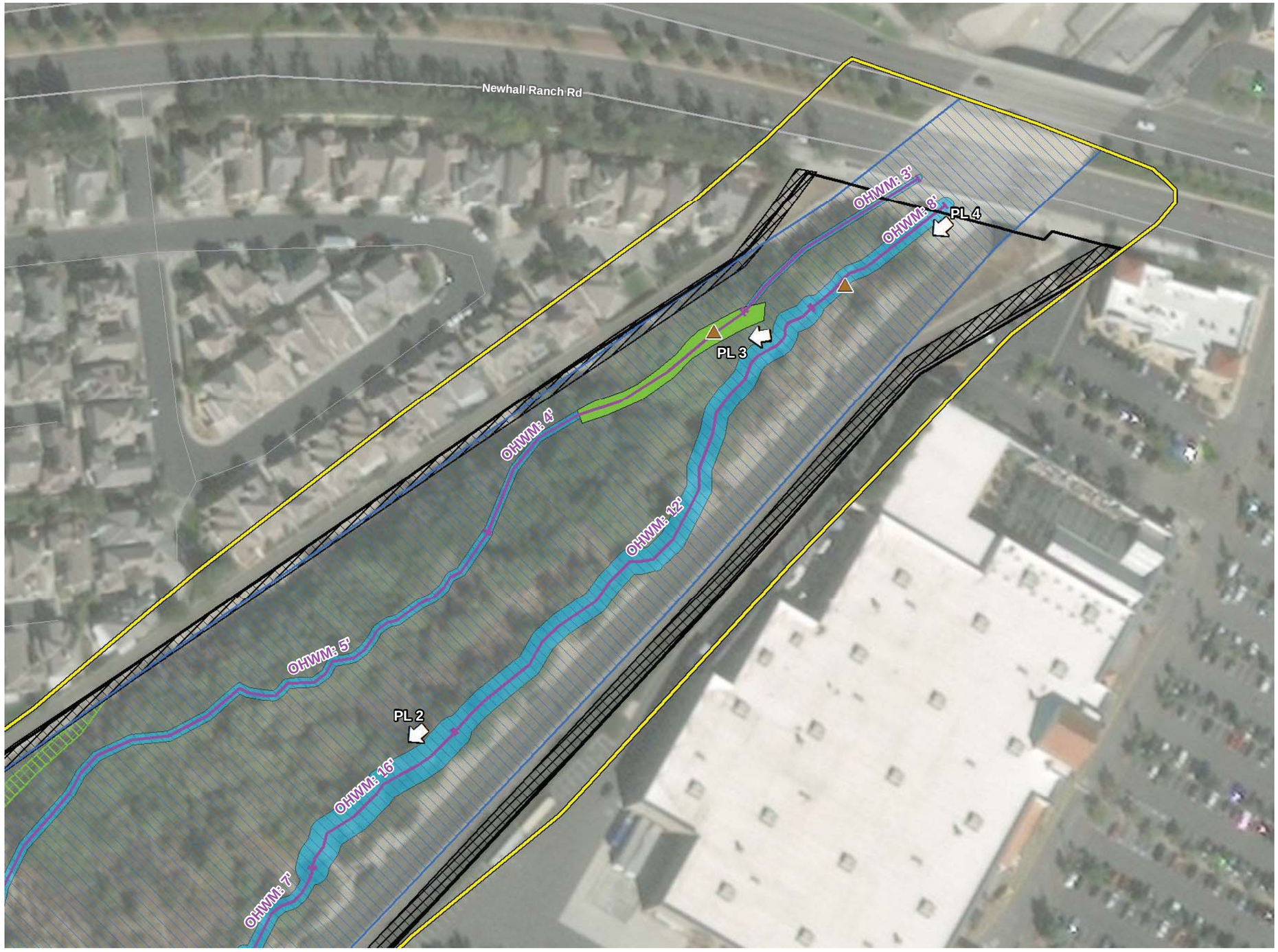
Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100 Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex5_101-110_JD.pdf



- Photo Location
- Soil Test Pit
- USACE "Waters of the U.S"
- Survey Area
- LACFCD Easement Boundary
- Access Road
- Access Ramp
- CDFW Jurisdictional Waters
- USACE Non-wetland “Waters of the U.S.”
- USACE Wetland “Waters of the U.S.”

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Jurisdictional Resources - Reach 103 - Bouquet Canyon Channel (PD 2225)

Exhibit 5d

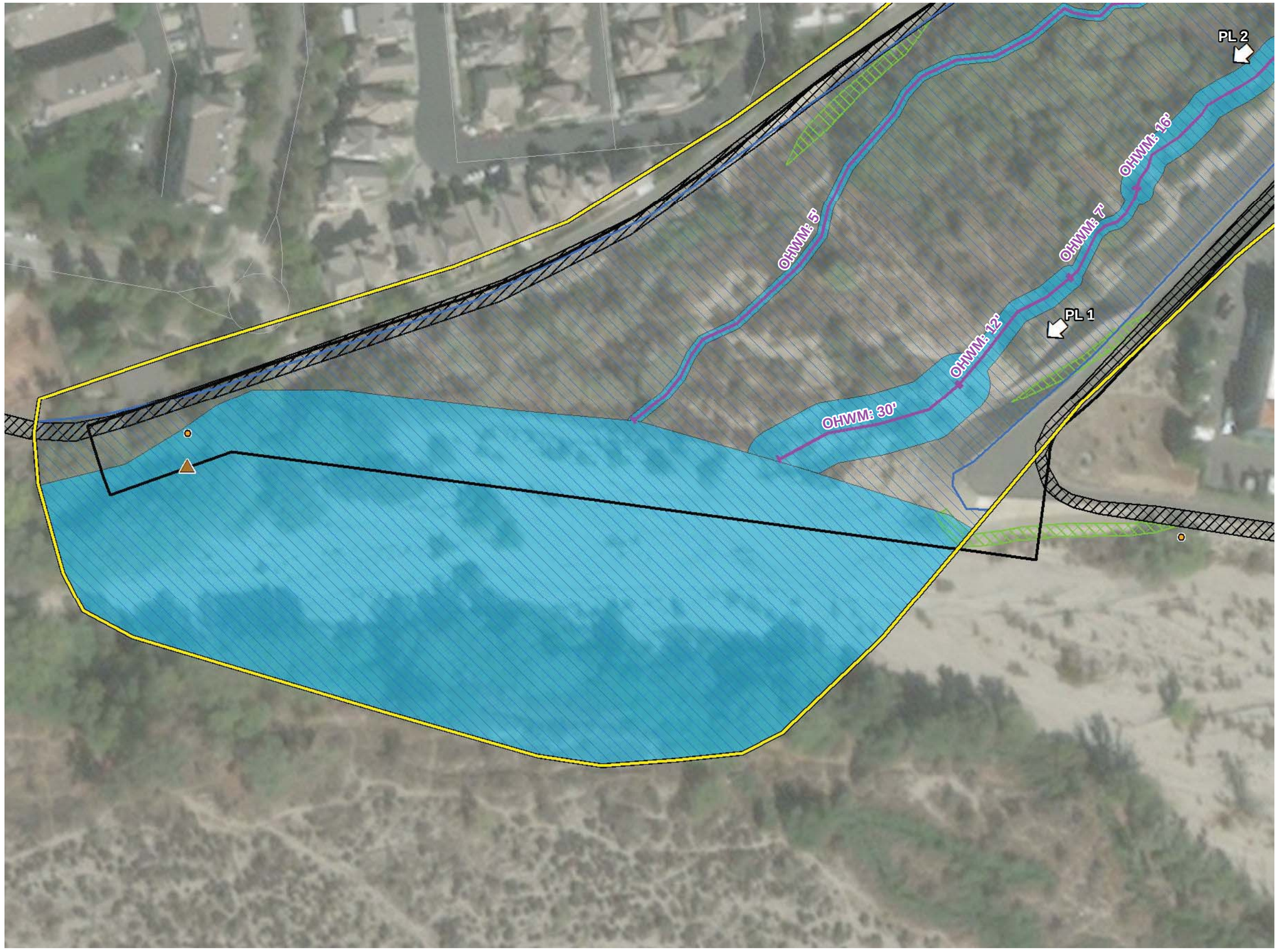
Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100 Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex5_101-110_JD.pdf



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Jurisdictional Resources – Reach 103 – Bouquet Canyon Channel (PD 2225)

Exhibit 5e

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100

Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex5_101-110_JD.pdf



- Outlet
- Photo Location
- Soil Test Pit
- Survey Area
- LACFCD Easement Boundary
- Access Road
- CDFW Jurisdictional Waters
- USACE Non-wetland “Waters of the U.S.”

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Jurisdictional Resources – Reach 104 – Castaic Creek (PD 2441 Unit 2)

Exhibit 5f

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100 Feet

PSOMAS

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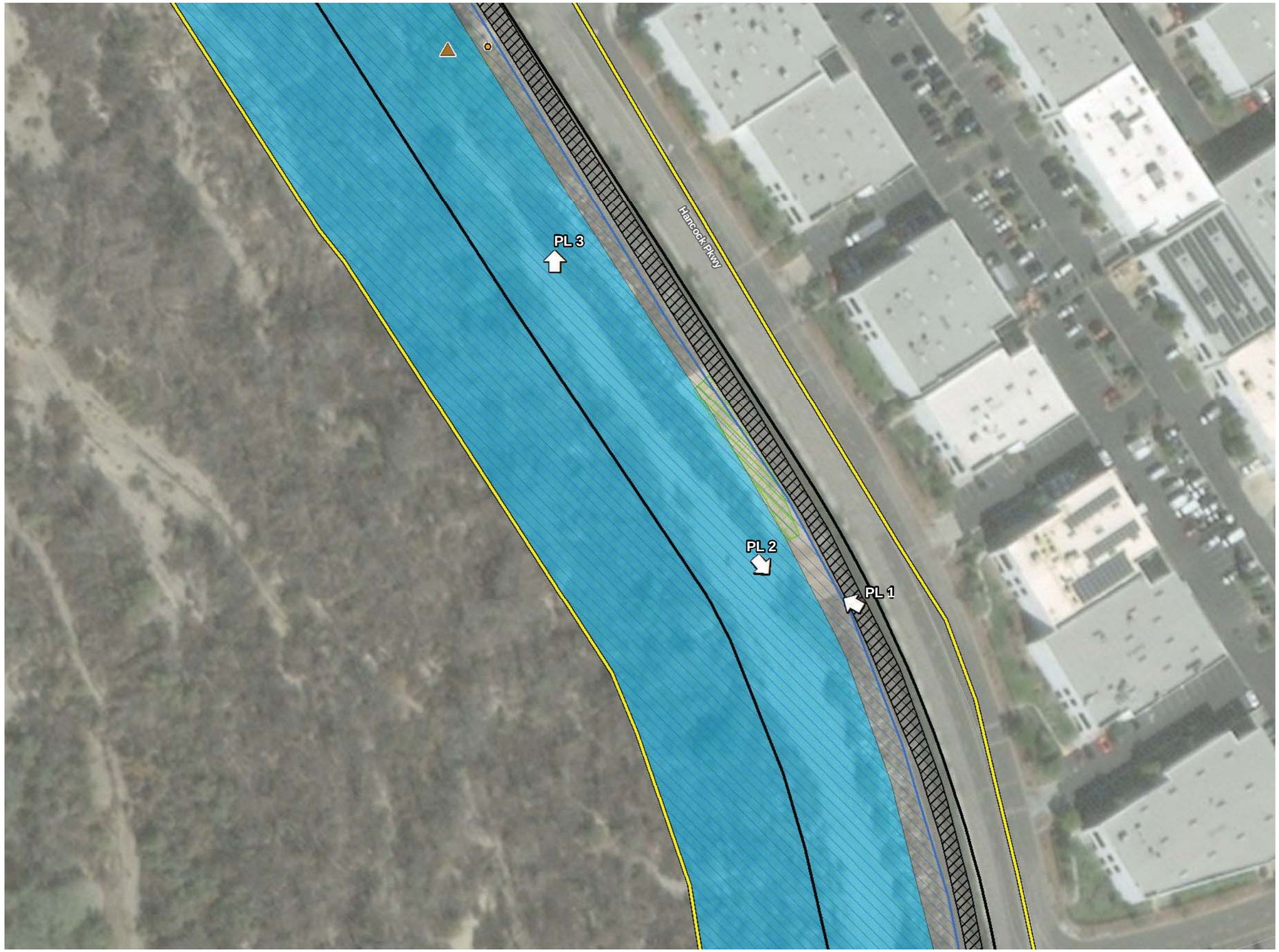

- Outlet
- Photo Location
- Soil Test Pit
- Survey Area
- LACFCD Easement Boundary
- Access Road
- Access Ramp
- CDFW Jurisdictional Waters
- USACE Non-wetland “Waters of the U.S.”

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Jurisdictional Resources – Reach 104 – Castaic Creek (PD 2441 Unit 2)

Exhibit 5g

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

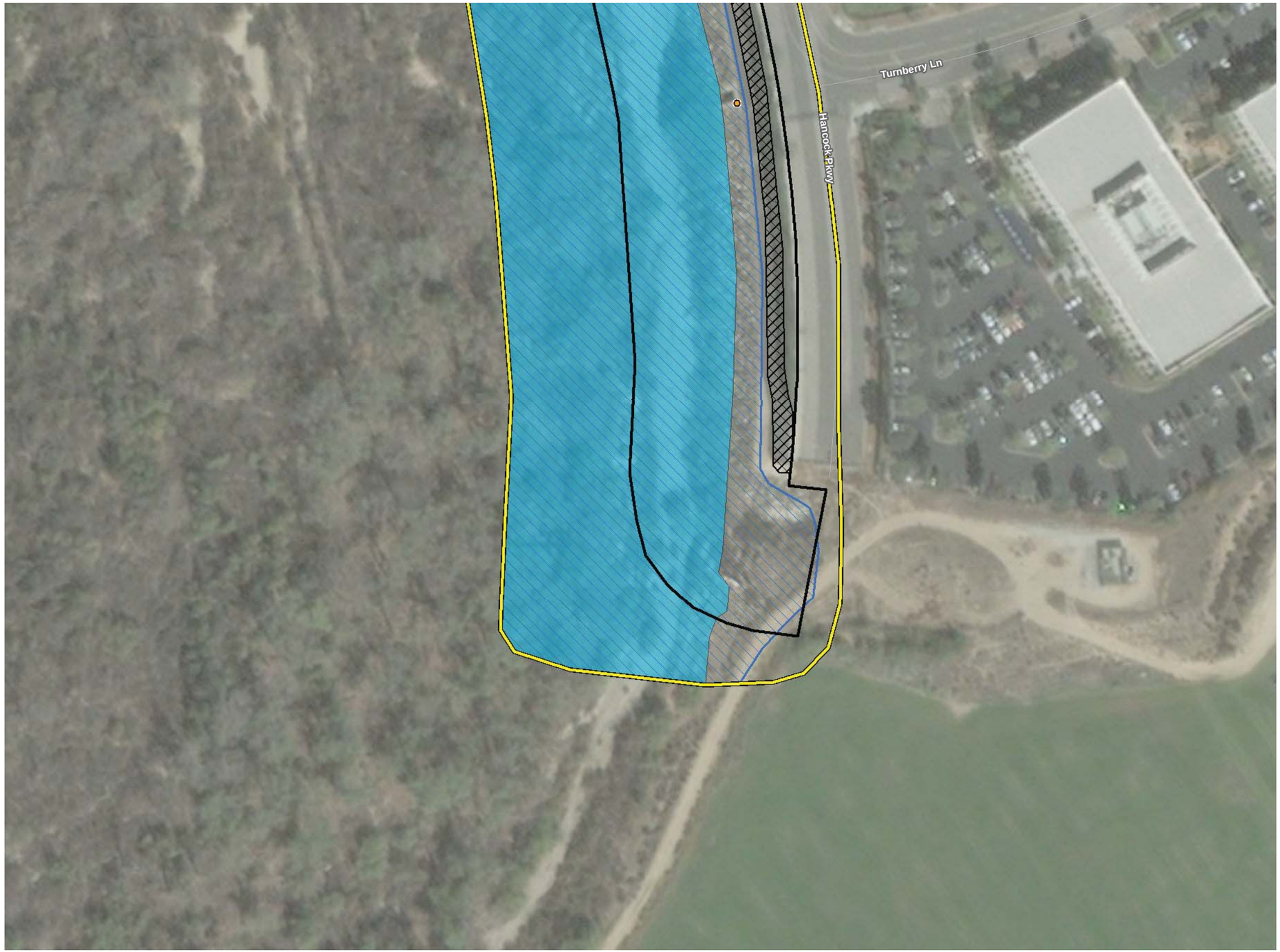
N W E S

100 50 0 100

Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex5_101-110_JD.pdf



- Outlet
- Survey Area
- LACFCD Easement Boundary
- Access Road
- CDFW Jurisdictional Waters
- USACE Non-wetland “Waters of the U.S.”

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Jurisdictional Resources – Reach 104 – Castaic Creek (PD 2441 Unit 2)

Exhibit 5h

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100 Feet

PSOMAS

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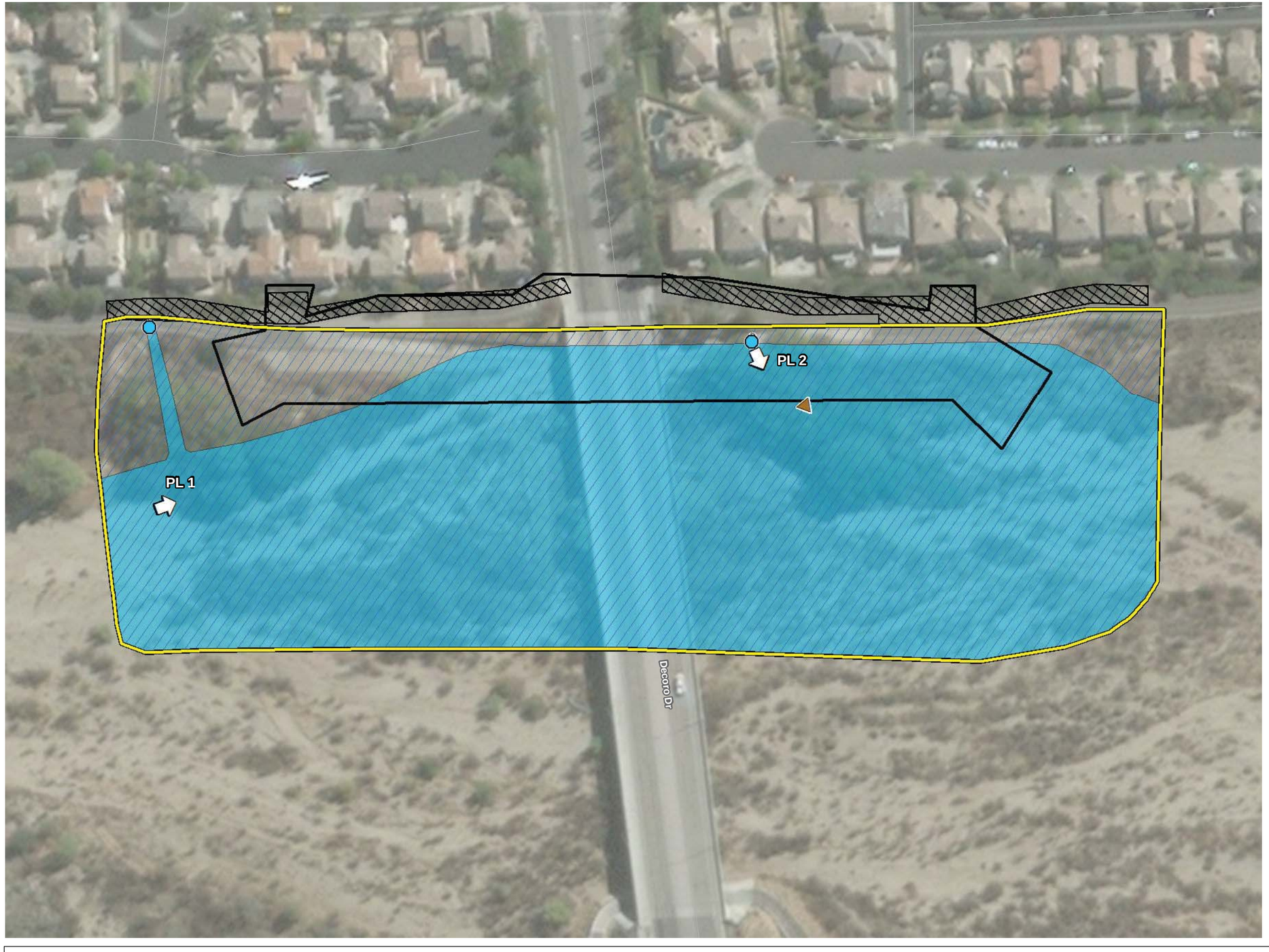

- Outlet
- Storm Drainage Outlet
- Photo Location
- Soil Test Pit
- Survey Area
- LACFCD Easement Boundary
- Access Road
- CDFW Jurisdictional Waters
- USACE Non-wetland “Waters of the U.S.”

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Jurisdictional Resources – Reach 105 – San Fracisquito Canyon Channel (PD 2456)

Exhibit 5i

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N E S W

100 50 0 100

Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex5_101-110_JD.pdf



- Photo Location
- Soil Test Pit
- Survey Area
- Access Road
- Access Ramp
- CDFW Jurisdictional Waters
- USACE Non-wetland “Waters of the U.S.”

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Jurisdictional Resources – Reach 106 – Castaic Drain Outlet

Exhibit 5j

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100 Feet

PSOMAS

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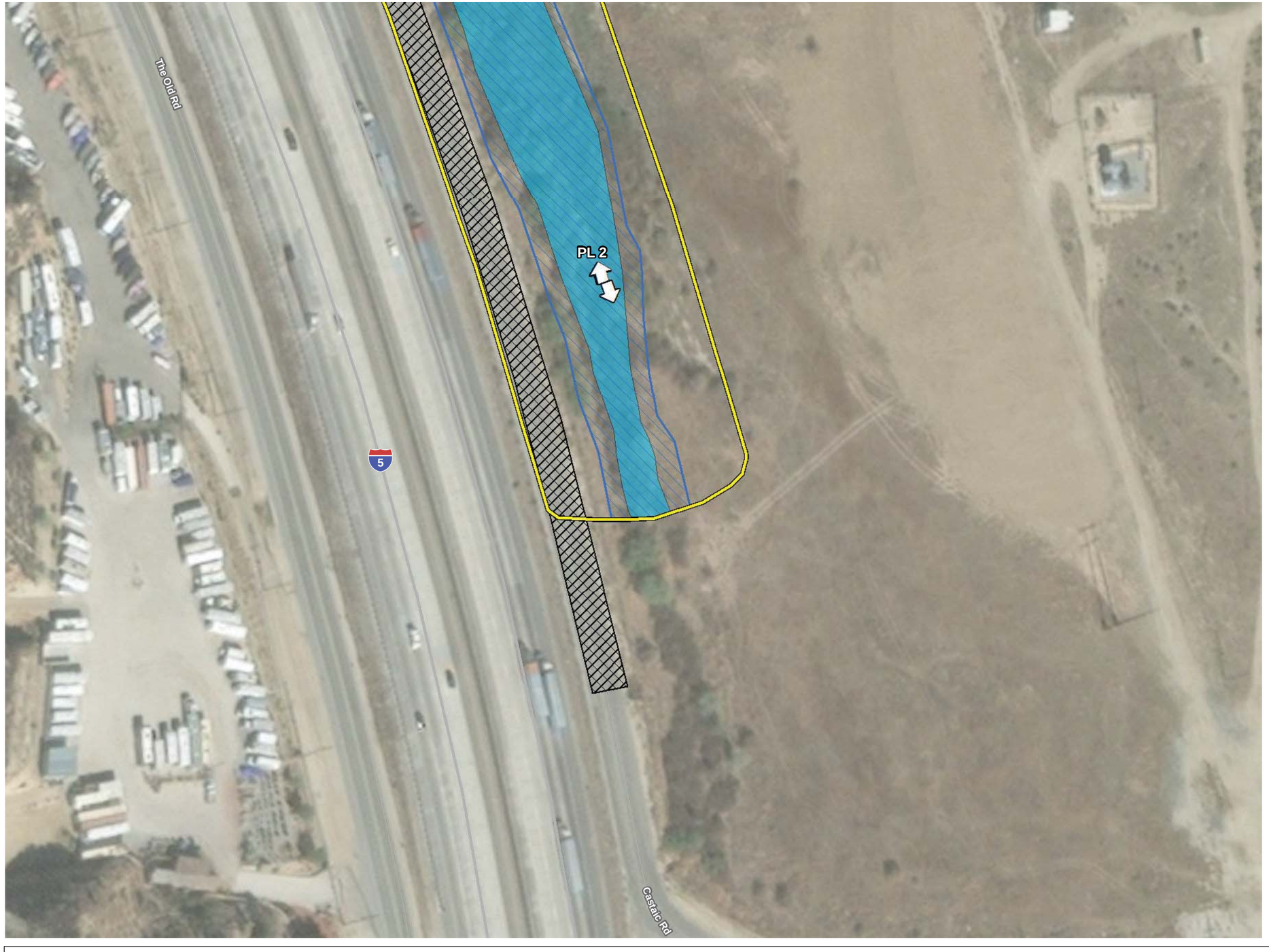

- Photo Location
- Survey Area
- Access Road
- CDFW Jurisdictional Waters
- USACE Non-wetland “Waters of the U.S.”

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Jurisdictional Resources – Reach 106 – Castaic Drain Outlet

Exhibit 5k

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100 Feet

PSOMAS

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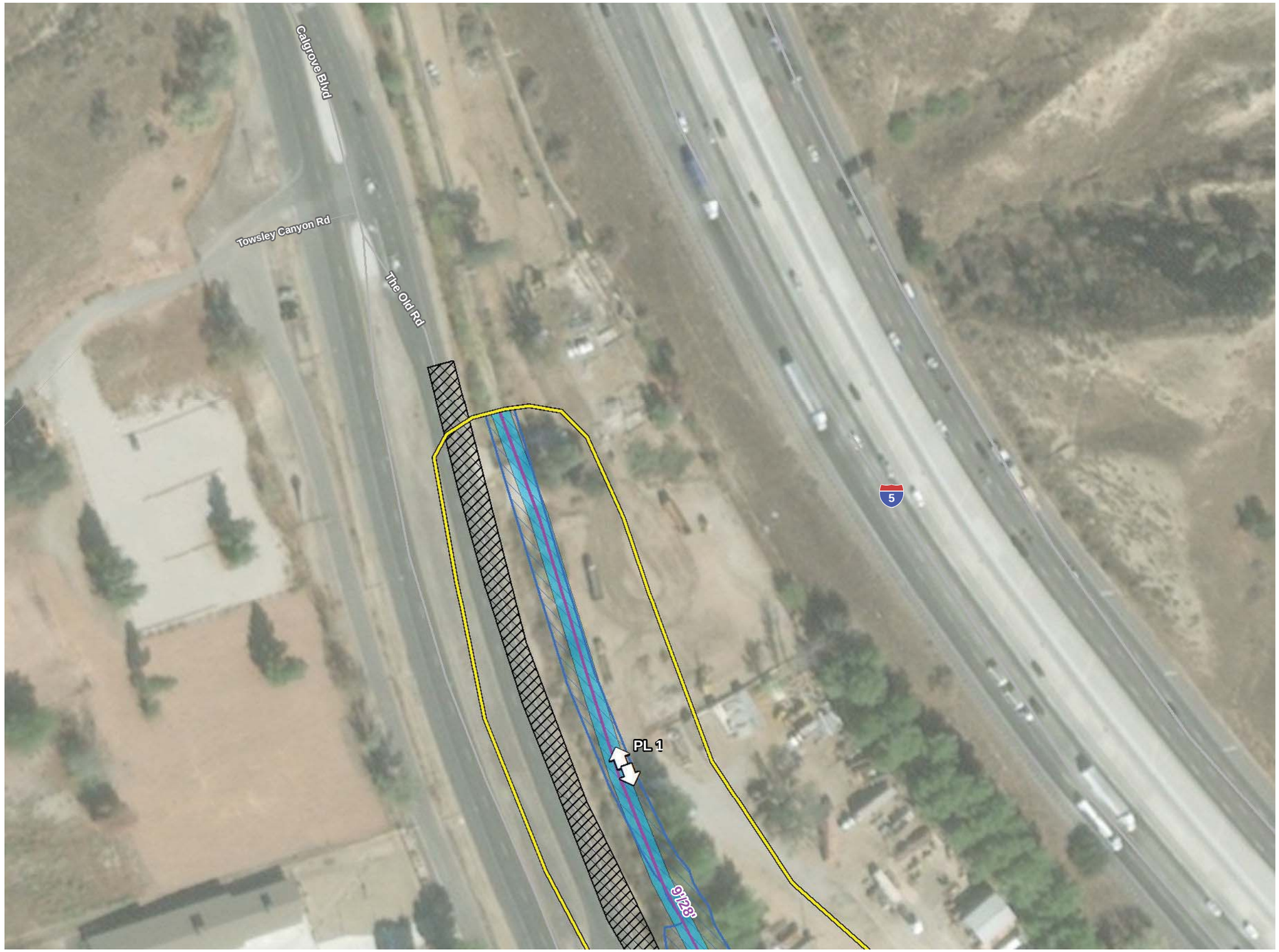

Photo Location
USACE "Waters of the U.S"
Survey Area
Access Road
CDFW Jurisdictional Waters
USACE Non-wetland "Waters of the U.S."

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Jurisdictional Resources – Reach 107 – The Old Road Channel

Exhibit 5l

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100 Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex5_101-110_JD.pdf



- Photo Location
- Soil Test Pit
- USACE "Waters of the U.S"
- Survey Area
- Access Road
- CDFW Jurisdictional Waters
- USACE Non-wetland “Waters of the U.S.”

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Jurisdictional Resources – Reach 107 – The Old Road Channel

Exhibit 5m

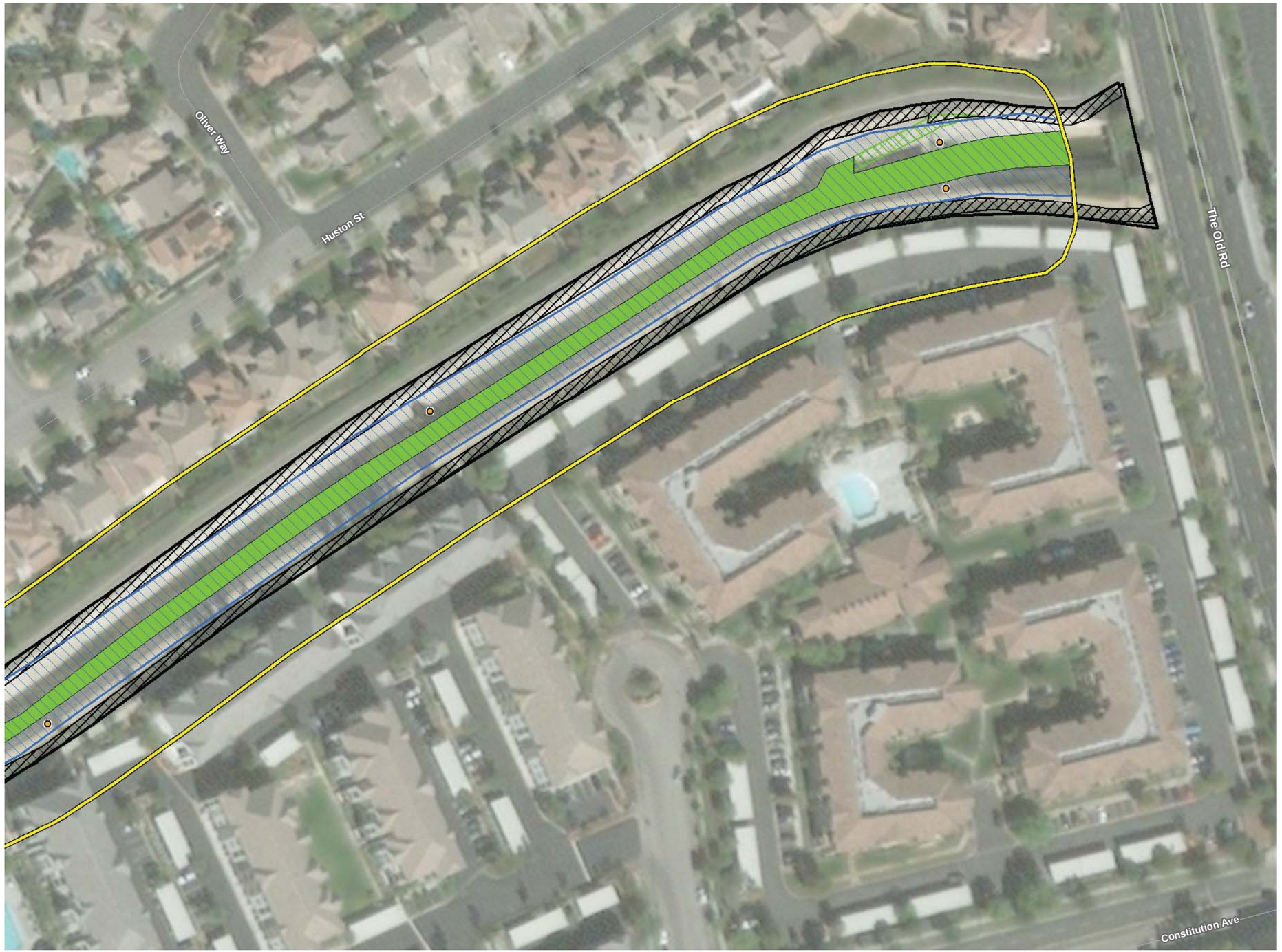
Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100 Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex5_101-110_JD.pdf



- Outlet
- Survey Area
- LACFCD Easement Boundary
- Access Road
- Access Ramp
- CDFW Jurisdictional Waters
- USACE Wetland “Waters of the U.S.”

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Jurisdictional Resources – Reach 108 – Pico Canyon (PD 2528)

Exhibit 5n

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100

Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex5_101-110_JD.pdf



- Outlet
- Photo Location
- Survey Area
- LACFCD Easement Boundary
- Access Road
- CDFW Jurisdictional Waters
- USACE Wetland “Waters of the U.S.”

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Jurisdictional Resources – Reach 108 – Pico Canyon (PD 2528)

Exhibit 5o

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100 Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex5_101-110_JD.pdf



- Outlet
- Photo Location
- Soil Test Pit
- Survey Area
- LACFCD Easement Boundary
- Access Road
- Access Ramp
- CDFW Jurisdictional Waters
- USACE Wetland “Waters of the U.S.”

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Jurisdictional Resources – Reach 108 – Pico Canyon (PD 2528)

Exhibit 5p

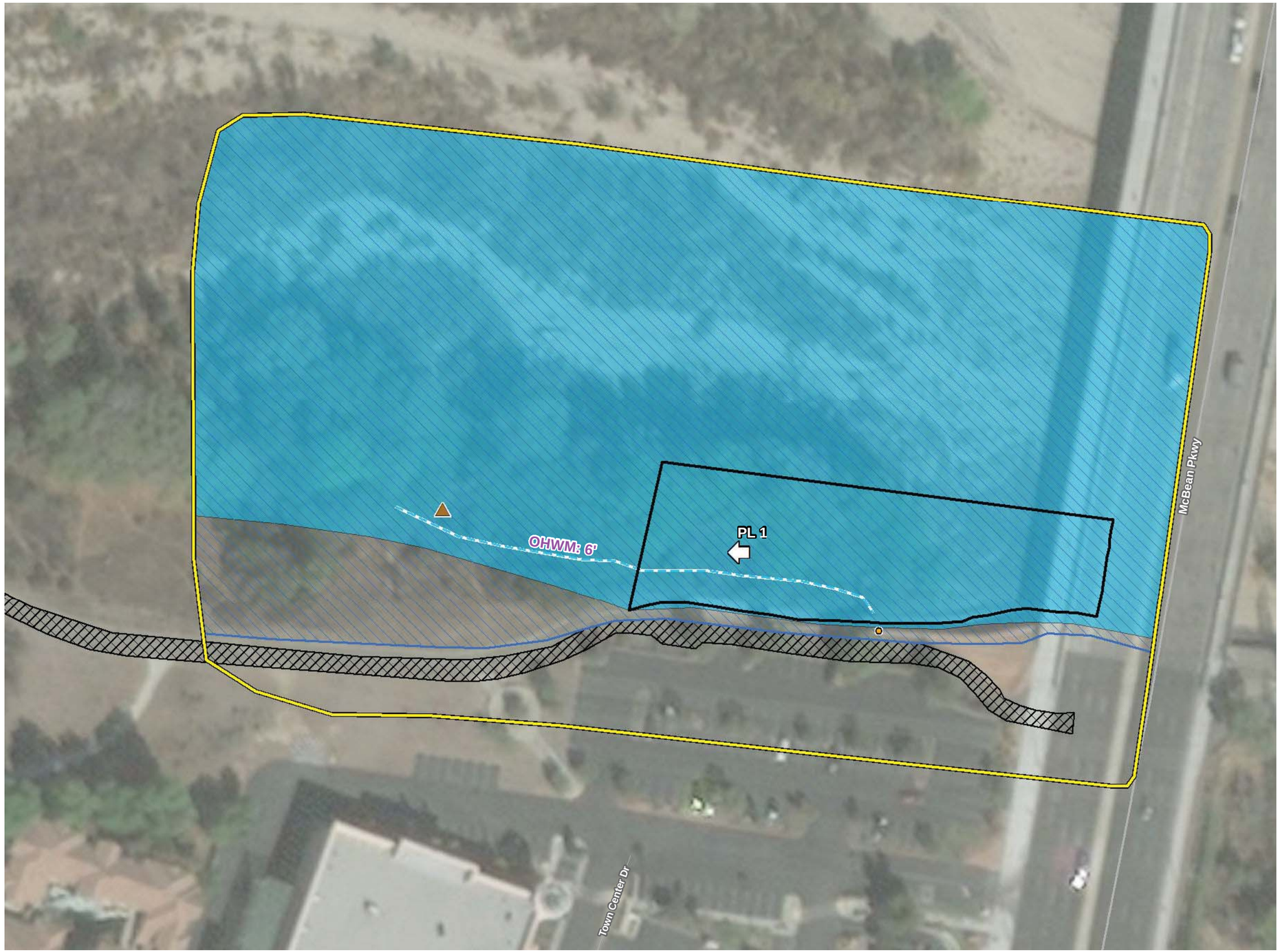
Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100 Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex5_101-110_JD.pdf



- Outlet
- Photo Location
- Soil Test Pit
- Low Flow Channel
- Survey Area
- LACFCD Easement Boundary
- Access Road
- CDFW Jurisdictional Waters
- USACE Non-wetland “Waters of the U.S.”

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Jurisdictional Resources – Reach 109 – Santa Clara River

Exhibit 5q

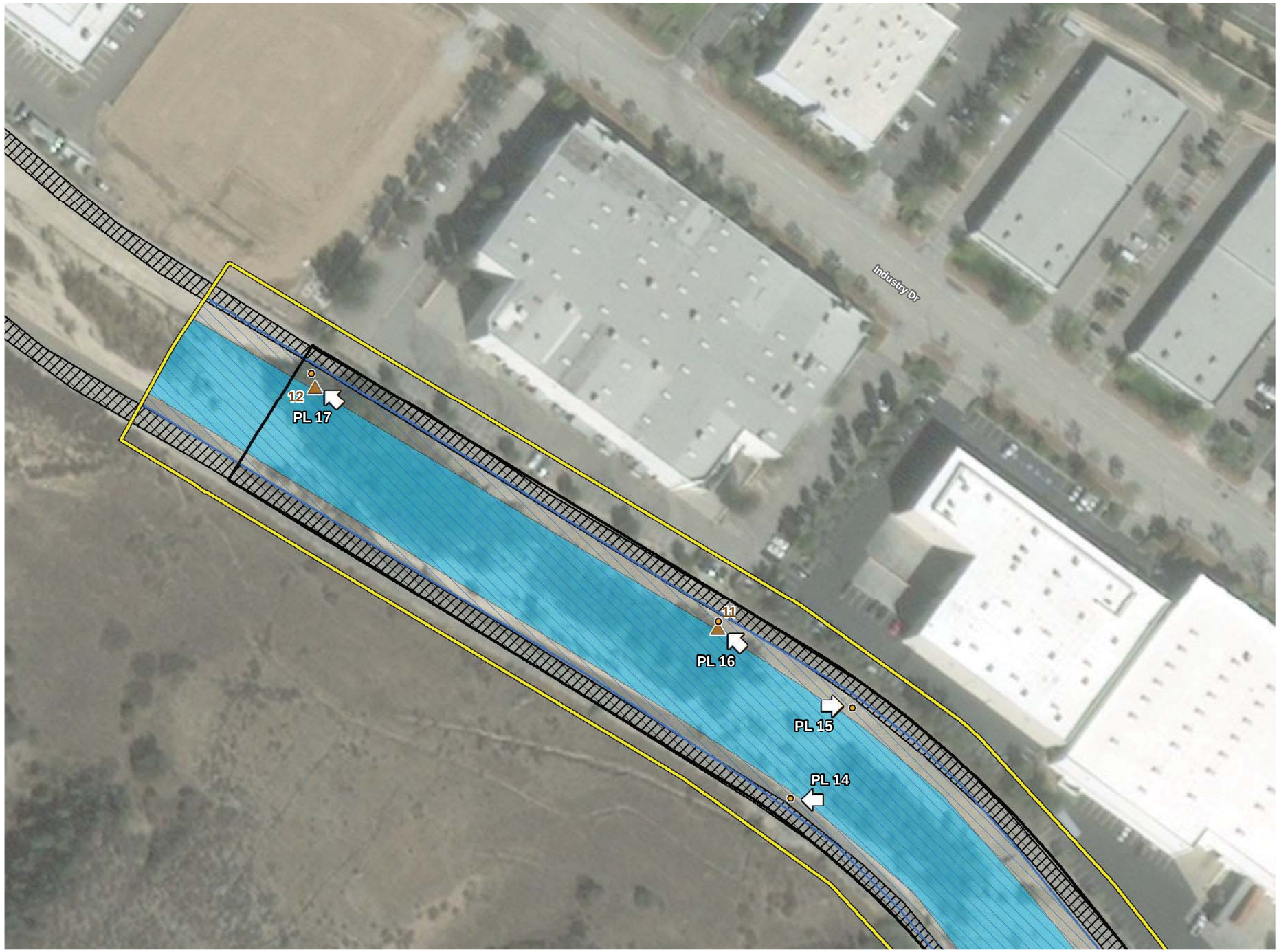
Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

75 37.5 0 75 Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex5_101-110_JD.pdf



- Outlet
- Photo Location
- Soil Test Pit
- Survey Area
- LACFCD Easement Boundary
- Access Road
- CDFW Jurisdictional Waters
- USACE Non-wetland “Waters of the U.S.”

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Jurisdictional Resources – Reach 110 – Hasley Canyon Channel (PD 2262)

Exhibit 5r

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100 Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex5_101-110_JD.pdf



- Outlet
- Photo Location
- Soil Test Pit
- Survey Area
- LACFCD Easement Boundary
- Access Road
- CDFW Jurisdictional Waters
- USACE Non-wetland “Waters of the U.S.”
- USACE Wetland “Waters of the U.S.”

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Jurisdictional Resources – Reach 110 – Hasley Canyon Channel (PD 2262)

Exhibit 5s

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100 Feet

PSOMAS

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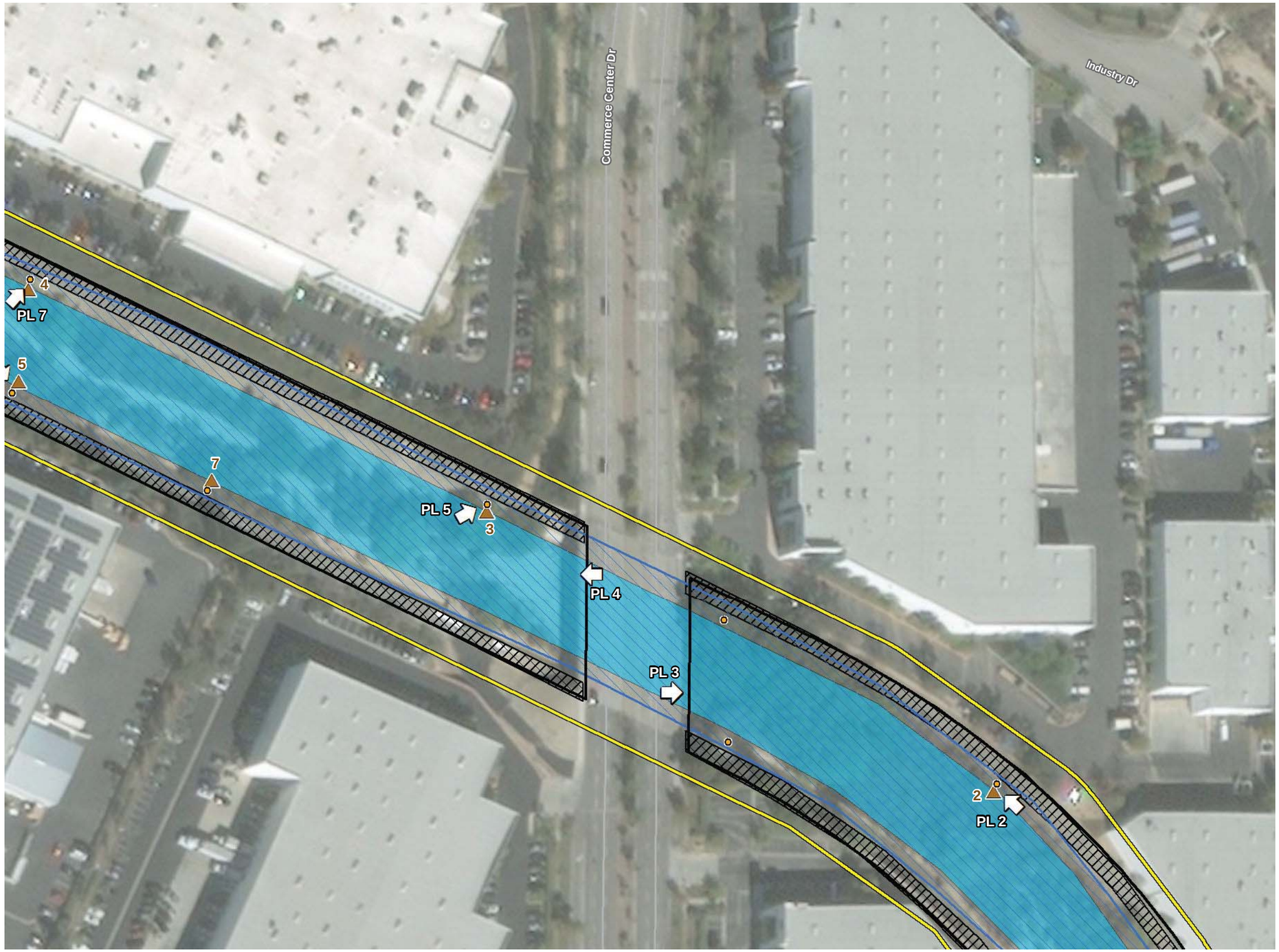

- Outlet
- Photo Location
- Soil Test Pit
- Survey Area
- LACFCD Easement Boundary
- Access Road
- CDFW Jurisdictional Waters
- USACE Non-wetland “Waters of the U.S.”

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Jurisdictional Resources – Reach 110 – Hasley Canyon Channel (PD 2262)

Exhibit 5t

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100

Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex5_101-110_JD.pdf



- Outlet
- Photo Location
- Soil Test Pit
- Survey Area
- LACFCD Easement Boundary
- Access Road
- Access Ramp
- CDFW Jurisdictional Waters
- USACE Non-wetland “Waters of the U.S.”

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Jurisdictional Resources – Reach 110 – Hasley Canyon Channel (PD 2262)

Exhibit 5u

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100

Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex5_101-110_JD.pdf



August 18, 2015. Reach 101, photo location 1. View of upstream end of Reach 101, facing downstream.



August 18, 2015. Reach 101, photo location 2. View of upstream portion of Reach 101, facing West.

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Site Photographs

Exhibit 6a

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

PSOMAS



August 18, 2015. Reach 101, photo location 3. Overview of channel conditions, facing West.



August 18, 2015. Reach 101, photo location 3. Overview of channel conditions, facing South.

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Site Photographs

Exhibit 6b

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

PSOMAS



August 18, 2015. Reach 102, photo location 1. View of upstream end of Reach 102, facing downstream.



August 18, 2015. Reach 102, photo location 2. View of Reach 102, facing upstream.

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Site Photographs

Exhibit 6c

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

PSOMAS



August 18, 2015. Reach 102, photo location 3. Overview of the downstream end of Reach 102.



August 18, 2015. Reach 102, photo location 4. Overview of the downstream end of Reach 102.

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Site Photographs

Exhibit 6d

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

PSOMAS



August 5, 2015. Reach 103, photo location 1. View of the southern bank of Reach 103, facing west.



August 5, 2015. Reach 103, photo location 2. View of channel conditions, facing West.

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Site Photographs

Exhibit 6e

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

PSOMAS



August 5, 2015. Reach 103, photo location 3. View of channel conditions, facing West.



August 5, 2015. Reach 103, photo location 4. View of channel conditions, facing West.

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Site Photographs

Exhibit 6f

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

PSOMAS



August 19, 2015. Reach 104, photo location 1. Overview of Reach 104, facing Northwest.



August 19, 2015. Reach 104, photo location 2. View of western bank of Reach 104.

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Site Photographs

Exhibit 6g

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

PSOMAS



August 19, 2015. Reach 104, photo location 3. View of low flow channel, facing North.



August 19, 2015. Reach 104, photo location 4. Overview of channel conditions, facing Southwest.

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Site Photographs

Exhibit 6h

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

PSOMAS



August 5, 2015. Reach 105, photo location 1. View of conditions at storm drain outlet.



August 5, 2015. Reach 105, photo location 2. View of general channel conditions, facing South.

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Site Photographs

Exhibit 6i

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

PSOMAS



August 18, 2015. Reach 106, photo location 1. View of channel conditions, facing upstream.



August 18, 2015. Reach 106, photo location 1. View of channel conditions, facing downstream.

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Site Photographs

Exhibit 6j

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

PSOMAS



August 18, 2015. Reach 106, photo location 2. View of channel conditions, facing upstream.



August 18, 2015. Reach 106, photo location 2. View of channel conditions, facing downstream.

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Site Photographs

Exhibit 6k

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

PSOMAS



August 19, 2015. Reach 107, photo location 1. View of channel conditions, facing upstream.



August 19, 2015. Reach 107, photo location 1. View of channel conditions, facing downstream.

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August 19, 2015. Reach 107, photo location 2. View of channel conditions, facing upstream.



August 19, 2015. Reach 107, photo location 2. View of channel conditions, facing downstream.

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Site Photographs

Exhibit 6m

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

PSOMAS



August 5, 2015. Reach 108, photo location 1. View of channel conditions, facing downstream.



August 5, 2015. Reach 108, photo location 2. Overview of channel conditions, facing South.

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Site Photographs

Exhibit 6n

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

PSOMAS



August 5, 2015. Reach 108, photo location 2. Overview of channel conditions, facing East.



August 5, 2015. Reach 108, photo location 3. Overview of channel conditions, facing South.

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Site Photographs

Exhibit 6o

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

PSOMAS



August 5, 2015. Reach 109, photo location 1. View of low flow channel conditions, facing upstream.



August 5, 2015. Reach 109, photo location 2. View of low flow channel conditions, facing downstream.

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August 19, 2015. Reach 110, photo location 1. View of low flow channel, facing upstream.



September 9, 2016. Reach 110, photo location 2. View of soil pit #2.

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Site Photographs

Exhibit 6q

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

PSOMAS



September 9, 2016. Reach 110, photo location 2. View outlet under which soil pit #2 was dug.



August 19, 2015. Reach 110, photo location 4. Overview of channel conditions from Commercial Center Drive, facing East.

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Site Photographs

Exhibit 6r

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

PSOMAS



August 19, 2015. Reach 110, photo location 4. Overview of channel conditions from Commercial Center Drive, facing West.



September 9, 2016. Reach 110, photo location 5. View of soil pit #3.

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Site Photographs

Exhibit 6s

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

PSOMAS



September 9, 2016. Reach 110, photo location 5. View outlet under which soil pit #3 was dug.



September 9, 2016. Reach 110, photo location 6. View of soil pit #5.

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September 9, 2016. Reach 110, photo location 6. View outlet under which soil pit #5 was dug.



September 9, 2016. Reach 110, photo location 7. View of soil pit #4.

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Site Photographs

Exhibit 6u

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

PSOMAS



September 9, 2016. Reach 110, photo location 7. View outlet under which soil pit #4 was dug.



September 9, 2016. Reach 110, photo location 8. View of soil strata in soil pit #8.

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Site Photographs

Exhibit 6v

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

PSOMAS



September 9, 2016. Reach 110, photo location 8. View outlet under which soil pit #8 was dug.



September 9, 2016. Reach 110, photo location 9. View outlet under which soil pit #9 was dug.

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Site Photographs

Exhibit 6w

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

PSOMAS



September 9, 2016. Reach 110, photo location 10. View of dry outlet where no soil pit was dug.



September 9, 2016. Reach 110, photo location 11. View outlet under which soil pit #10 was dug.

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Site Photographs

Exhibit 6x

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

PSOMAS



August 19, 2015. Reach 110, photo location 12. Overview of channel conditions from northern bank, facing West.



September 9, 2016. Reach 110, photo location 13. View of dry outlet where no soil pit was dug.

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Site Photographs

Exhibit 6y

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

PSOMAS



September 9, 2016. Reach 110, photo location 14. View of dry outlet where no soil pit was dug.



September 9, 2016. Reach 110, photo location 15. View of dry outlet where no soil pit was dug.

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Site Photographs

Exhibit 6z

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

PSOMAS



September 9, 2016. Reach 110, photo location 16. View of soil pit #11.



September 9, 2016. Reach 110, photo location 16. View outlet under which soil pit #11 was dug.

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Site Photographs

Exhibit 6aa

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

PSOMAS



September 9, 2016. Reach 110, photo location 17. View of soil pit #12.



September 9, 2016. Reach 110, photo location 17. View of outlet under which soil pit #12 was dug.

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Site Photographs

Exhibit 6bb

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

PSOMAS

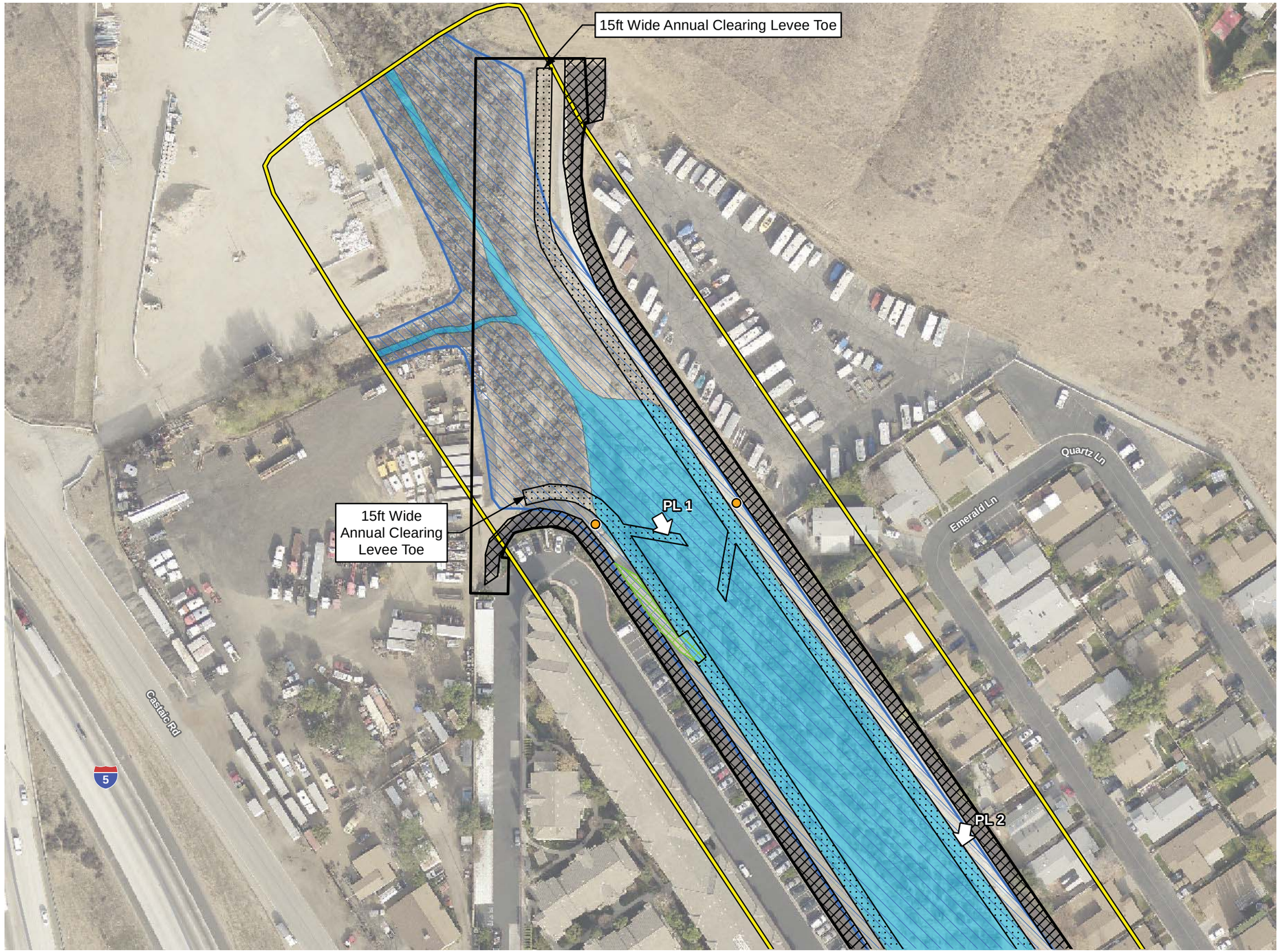

Photo Location
Outlet
Survey Area
LACFCD Easement Boundary

Project Features

Annual Clearing
Access Ramp
Access Road

Jurisdictional Designation

CDFW Jurisdictional Waters
USACE Non-wetland "Waters of the U.S."

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Project Impacts – Reach 101 – Violin Canyon (PD 2312)

Exhibit 7a

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100 Feet

PSOMAS

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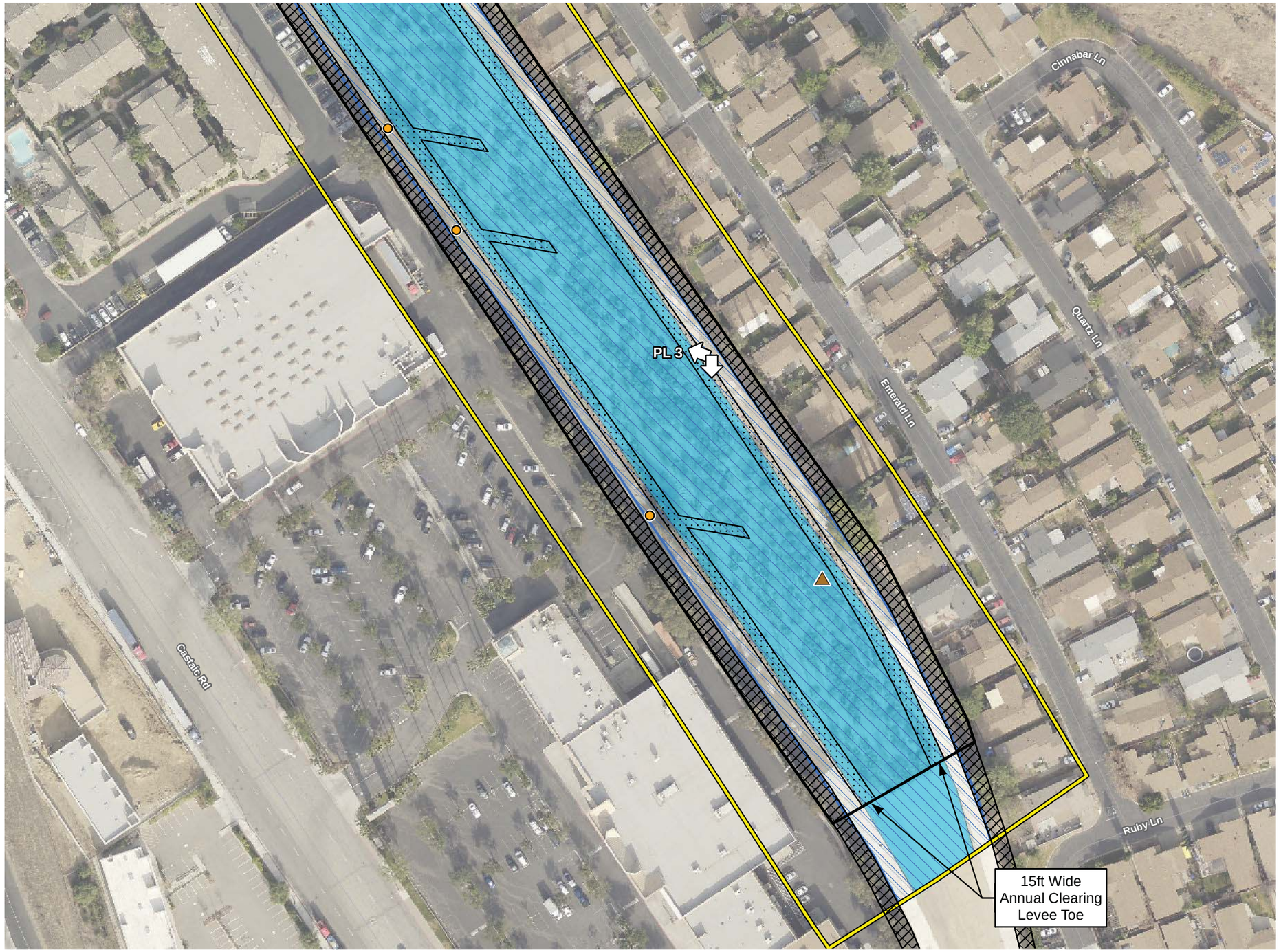

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Project Impacts – Reach 101 – Violin Canyon (PD 2312)

Exhibit 7b

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N
W E
S

100 50 0 100
Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex7_101-110_JD_Impacts.pdf

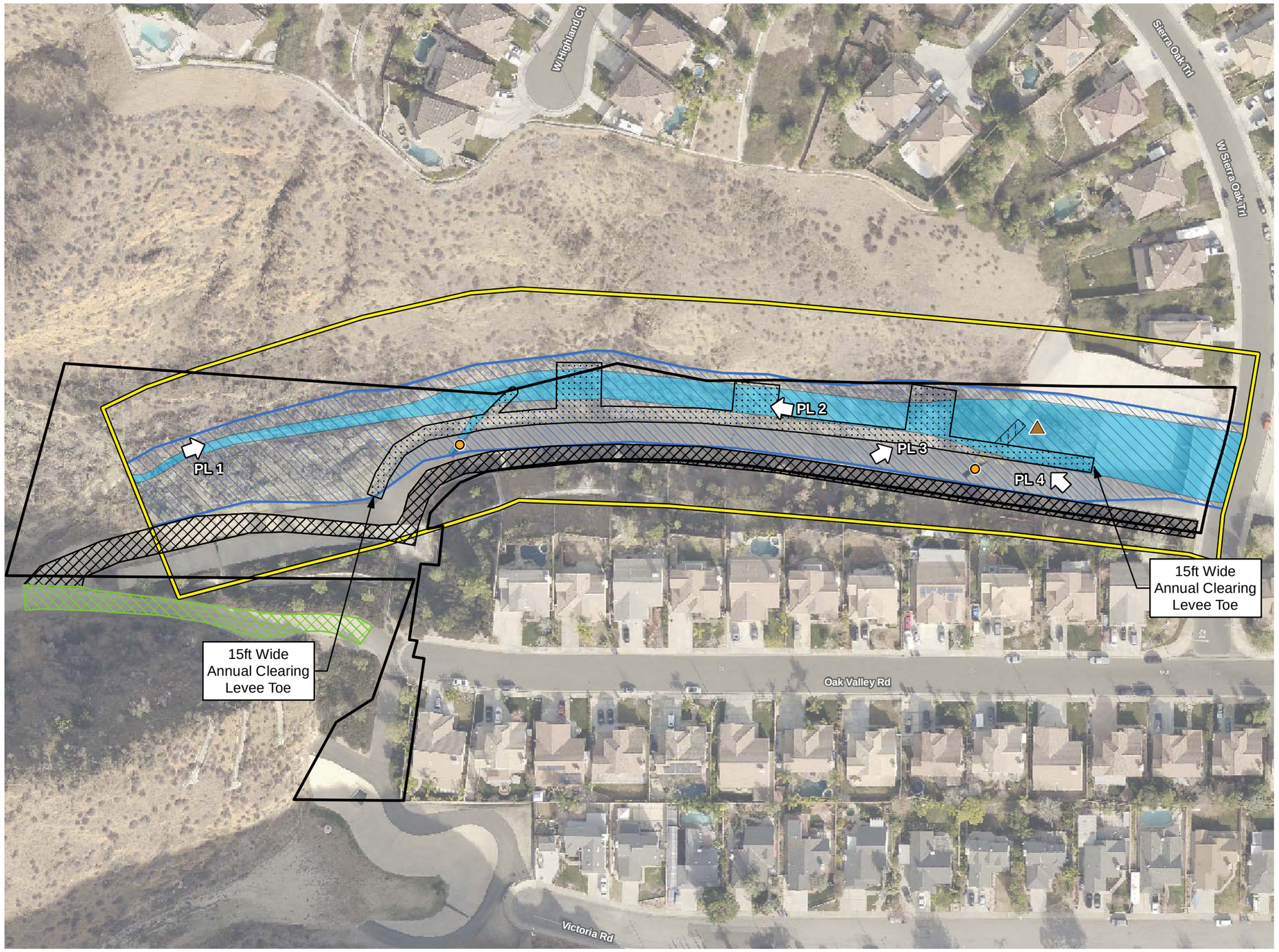

Photo Location
Outlet
Soil Test Pit
Survey Area
LACFCD Easement Boundary

Project Features

Annual Clearing
Lollipop Trees
Access Ramp
Access Road

Jurisdictional Designation

CDFW Jurisdictional Waters
USACE Non-wetland "Waters of the U.S."

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Project Impacts – Reach 102 – Violin Canyon (PD 2275)

Exhibit 7c

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100 Feet

PSOMAS

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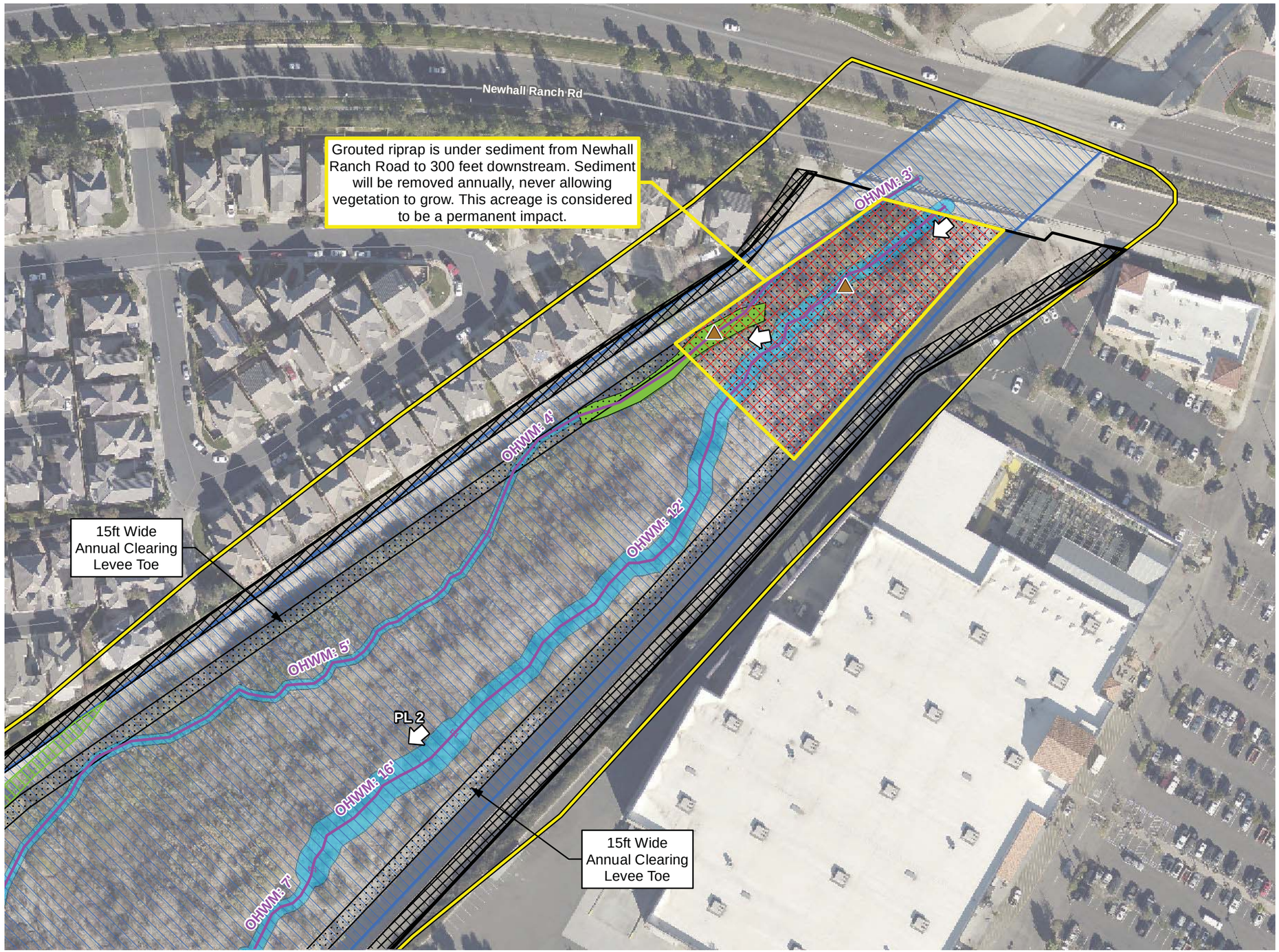

Photo Location
Soil Test Pit
Survey Area
LACFCD Easement Boundary

Project Features

Annual Clearing
Permanent Structure
Access Ramp
Access Road

Jurisdictional Designation

CDFW Jurisdictional Waters
USACE Non-wetland "Waters of the U.S."
USACE Wetland "Waters of the U.S."
USACE "Waters of the U.S"

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Project Impacts – Reach 103 – Bouquet Canyon Channel (PD 2225)

Exhibit 7d

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100 Feet

PSOMAS

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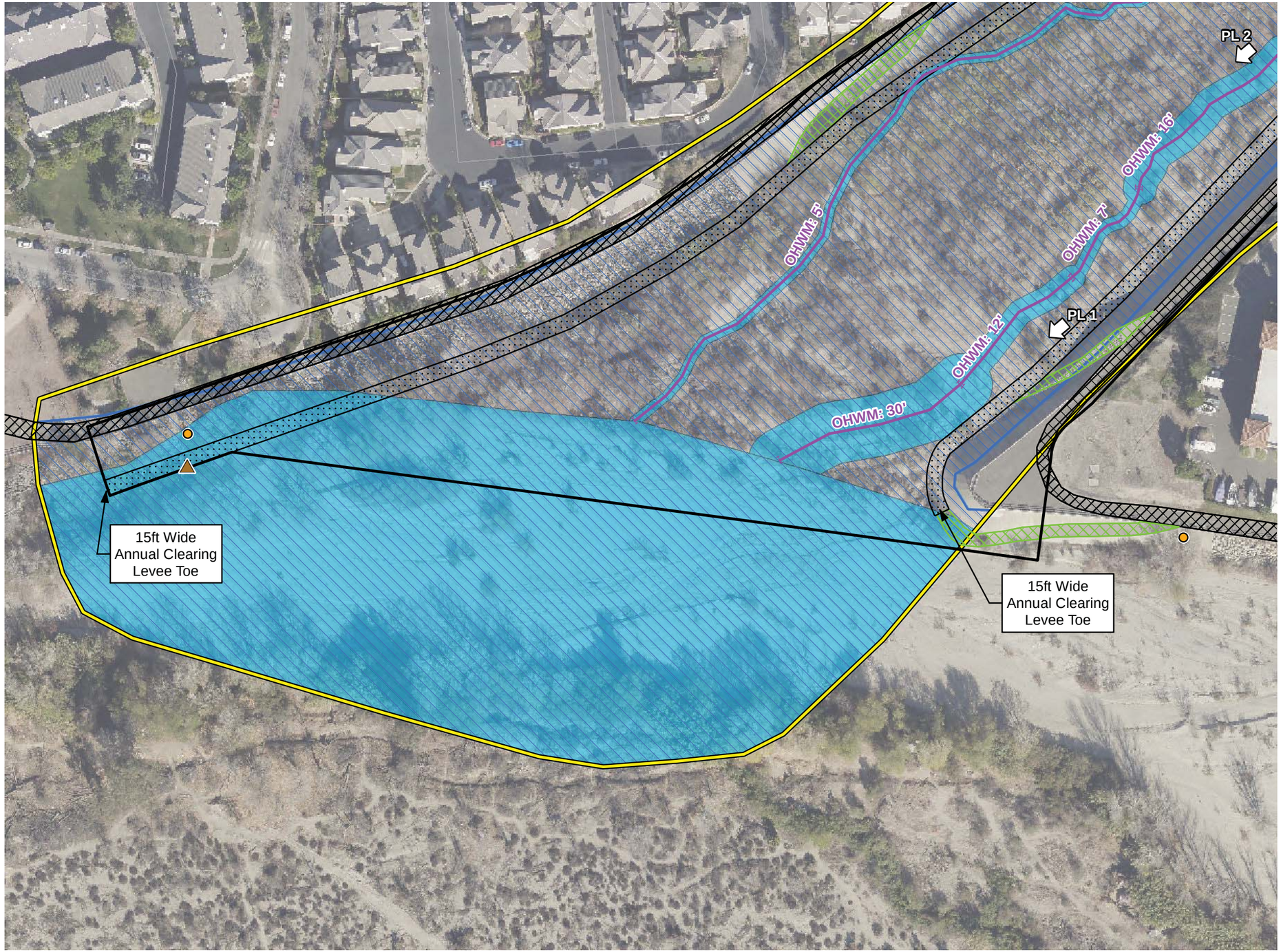

Photo Location
Outlet
Soil Test Pit
Survey Area
LACFCD Easement Boundary

Project Features

Annual Clearing
Access Ramp
Access Road

Jurisdictional Designation

CDFW Jurisdictional Waters
USACE Non-wetland “Waters of the U.S.”
USACE "Waters of the U.S"

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Project Impacts – Reach 103 – Bouquet Canyon Channel (PD 2225)

Exhibit 7e

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100 Feet

PSOMAS

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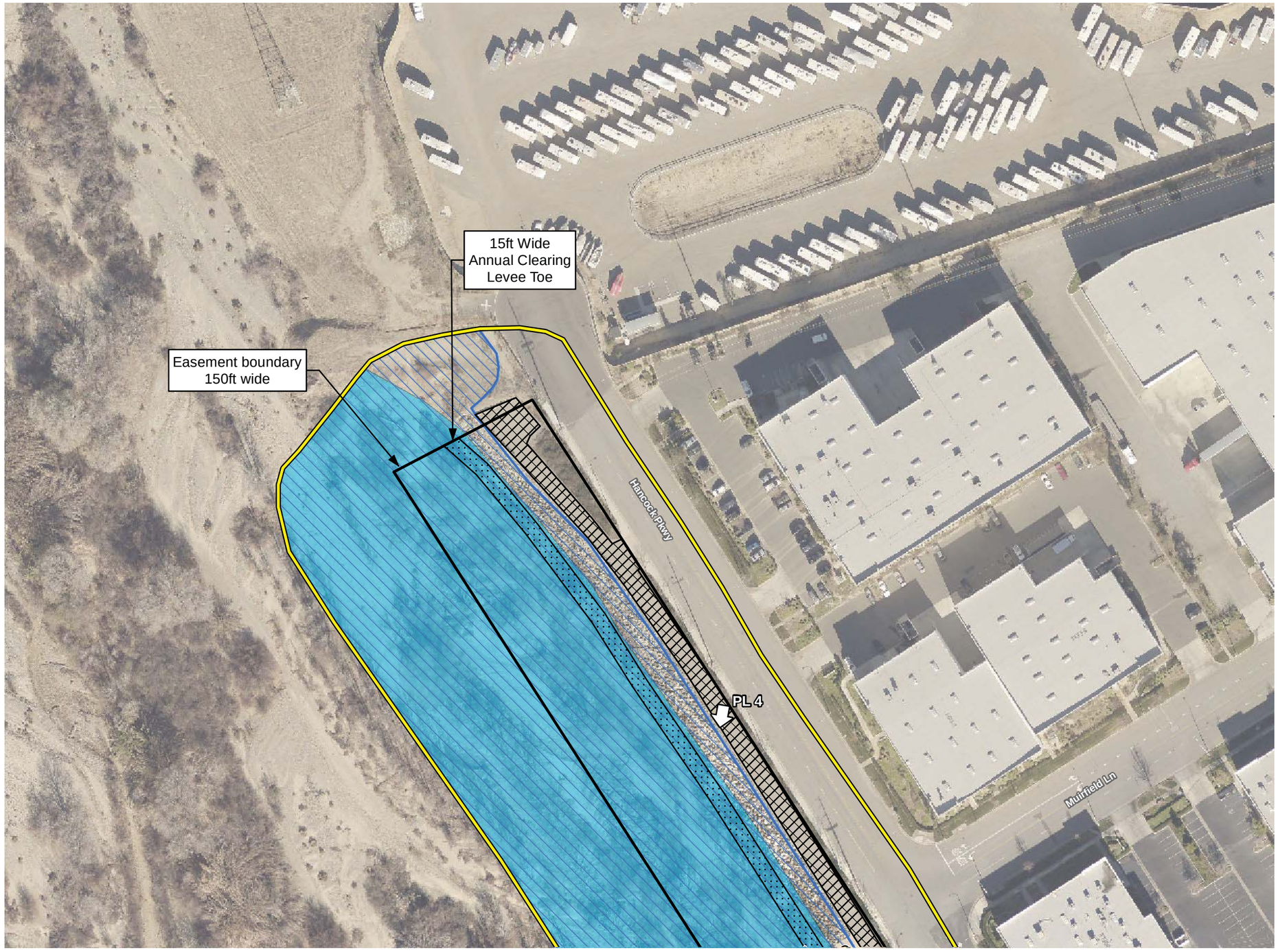

Photo Location
Outlet
Soil Test Pit
Survey Area
LACFCD Easement Boundary

Project Features

Annual Clearing
Access Road

Jurisdictional Designation

CDFW Jurisdictional Waters
USACE Non-wetland “Waters of the U.S.”

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Project Impacts – Reach 104 – Castaic Creek (PD 2441 Unit 2)

Exhibit 7f

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N
W E
S

100 50 0 100
Feet

PSOMAS

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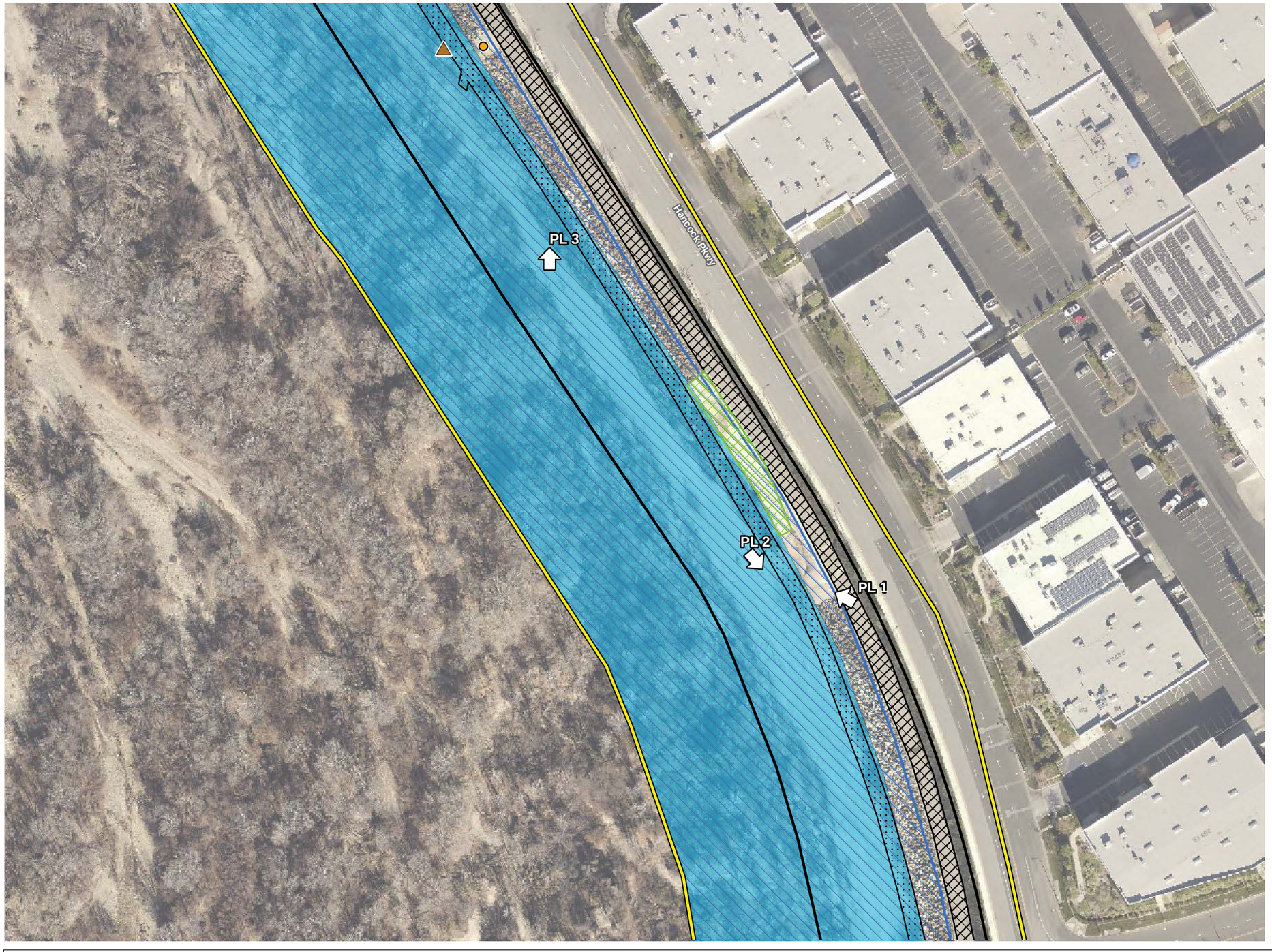

- Photo Location
- Outlet
- Soil Test Pit
- Survey Area
- LACFCD Easement Boundary

Project Features

- Annual Clearing
- Access Ramp
- Access Road

Jurisdictional Designation

- CDFW Jurisdictional Waters
- USACE Non-wetland "Waters of the U.S."

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Project Impacts – Reach 104 – Castaic Creek (PD 2441 Unit 2)

Exhibit 7g

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100

Feet

PSOMAS

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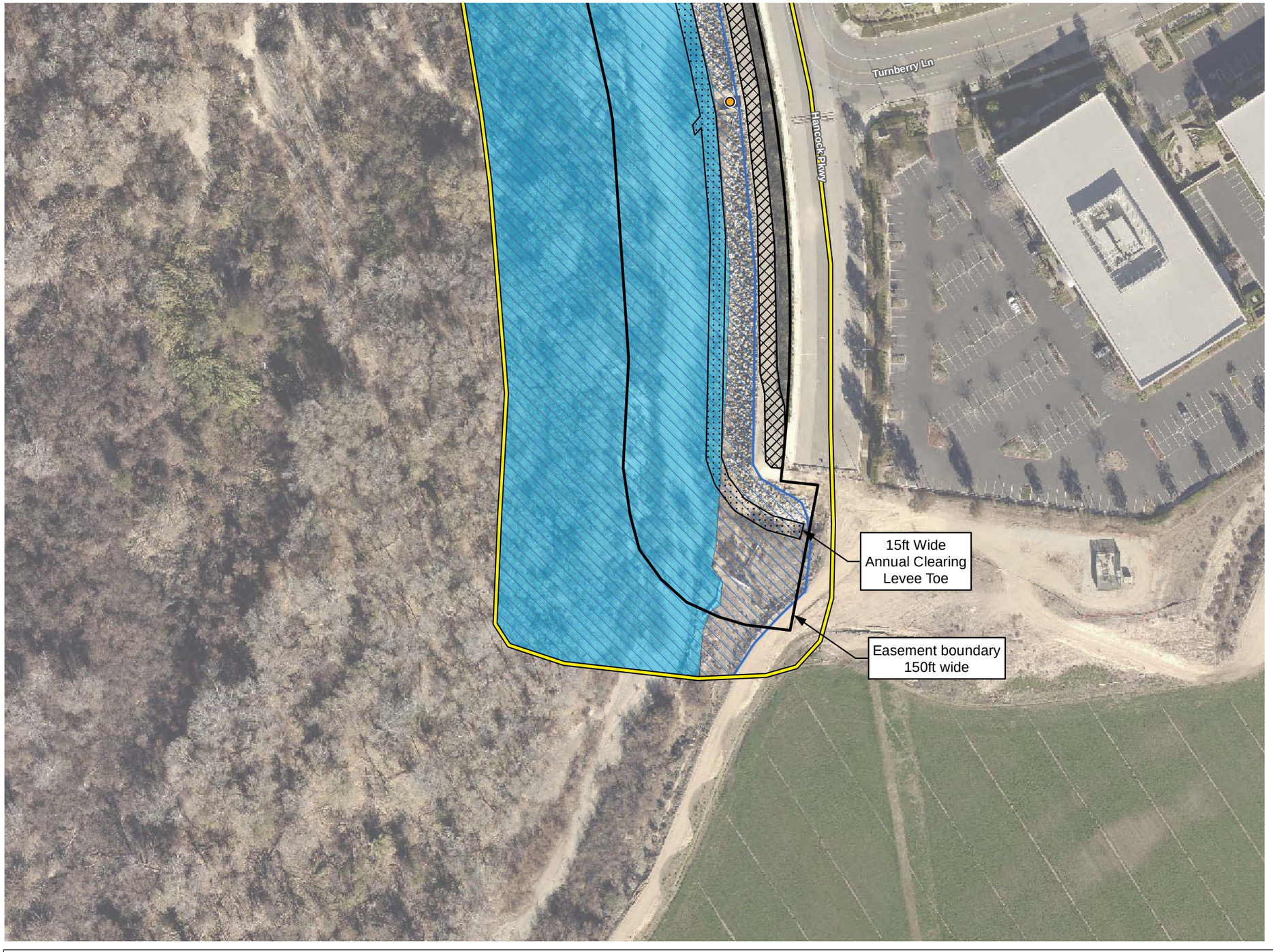

- Outlet
- Survey Area
- LACFCD Easement Boundary

Project Features

- Annual Clearing
- Access Road

Jurisdictional Designation

- CDFW Jurisdictional Waters
- USACE Non-wetland "Waters of the U.S."

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Project Impacts - Reach 104 - Castaic Creek (PD 2441 Unit 2)

Exhibit 7h

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100 Feet

PSOMAS

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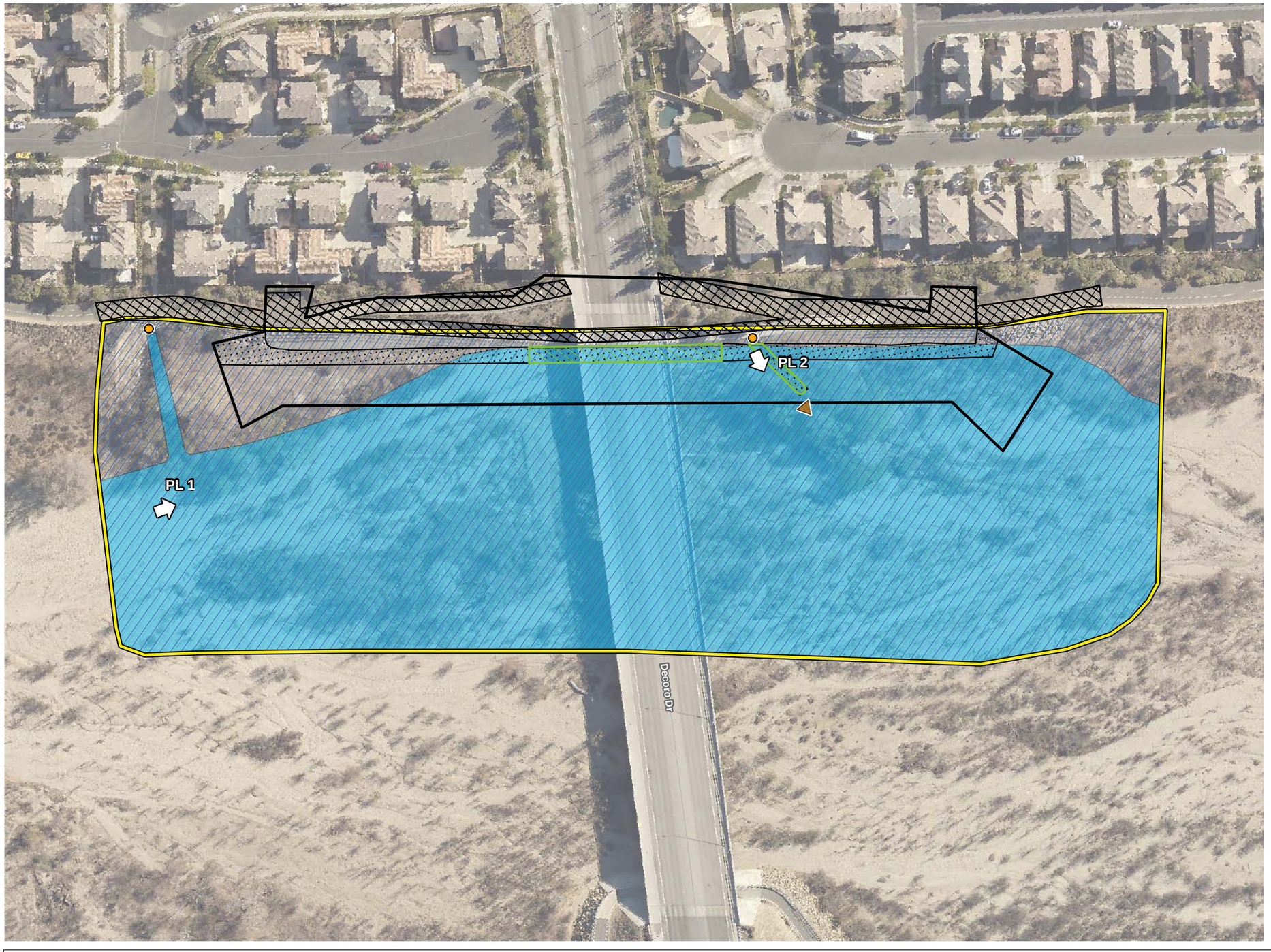

- Photo Location
- Outlet
- Soil Test Pit
- Survey Area
- LACFCD Easement Boundary

Project Features

- Annual Clearing
- Access Road
- Original NRMP Impact Area (permitted separately)

Jurisdictional Designation

- CDFW Jurisdictional Waters
- USACE Non-wetland "Waters of the U.S."

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Project Impacts – Reach 105 – San Fracisquito Canyon Channel (PD 2456)

Exhibit 7i

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

100 50 0 100 Feet

PSOMAS

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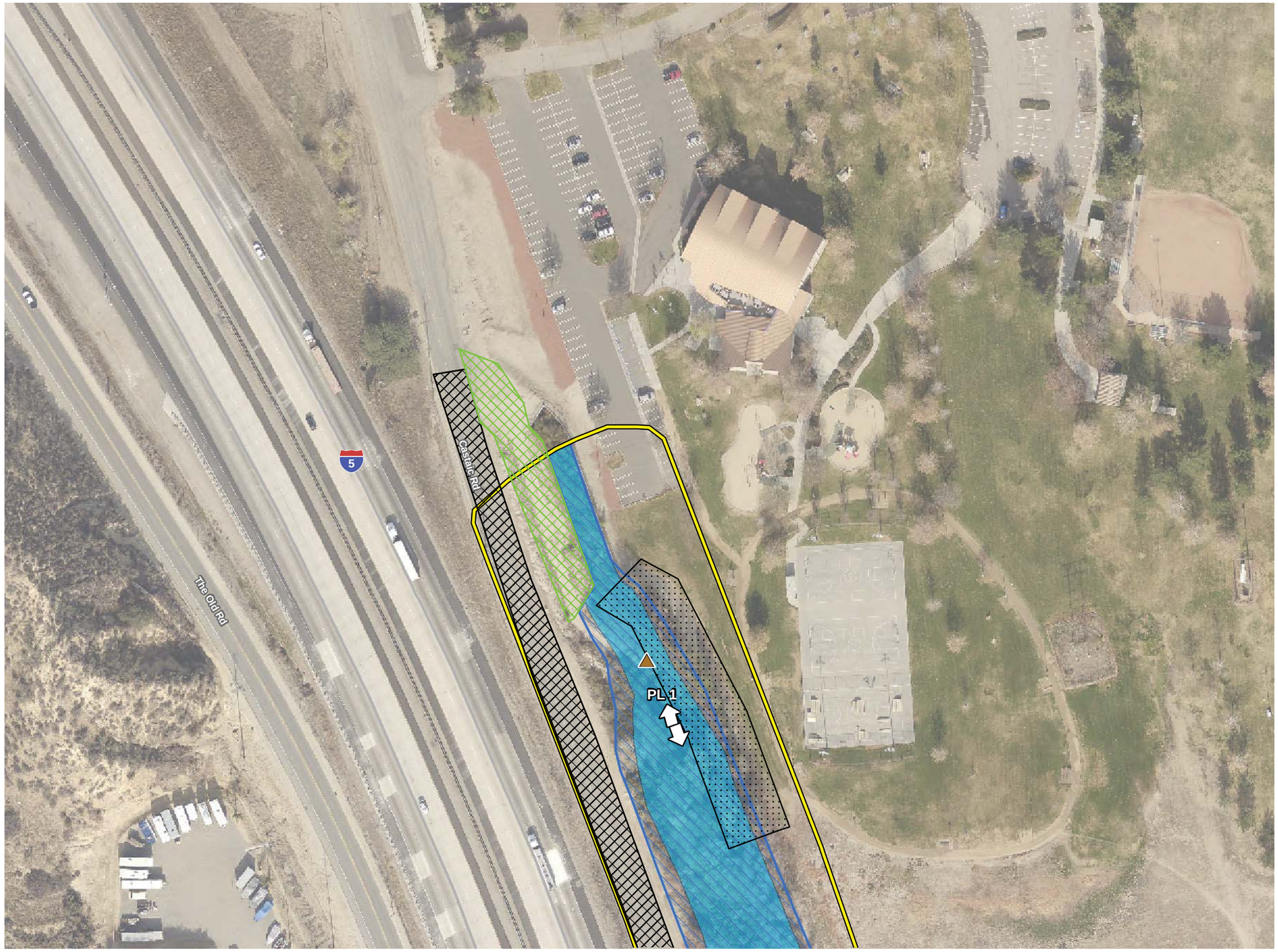

Photo Location

Soil Test Pit

Survey Area

Project Features

Annual Clearing

Access Ramp

Access Road

Jurisdictional Designation

CDFW Jurisdictional Waters

USACE Non-wetland "Waters of the U.S."

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Project Impacts - Reach 106 - Castaic Drain Outlet

Exhibit 7j

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100

Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex7_101-110_JD_Impacts.pdf



Photo Location

Survey Area

Access Road

Jurisdictional Designation

CDFW Jurisdictional Waters

USACE Non-wetland "Waters of the U.S."

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Project Impacts – Reach 106 – Castaic Drain Outlet

Exhibit 7k

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100

Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex7_101-110_JD_Impacts.pdf



Photo Location

Survey Area

Project Features

Annual Clearing

Access Road

Jurisdictional Designation

CDFW Jurisdictional Waters

USACE Non-wetland “Waters of the U.S.”

USACE "Waters of the U.S"

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Project Impacts – Reach 107 – The Old Road Channel

Exhibit 7l

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100 Feet

PSOMAS

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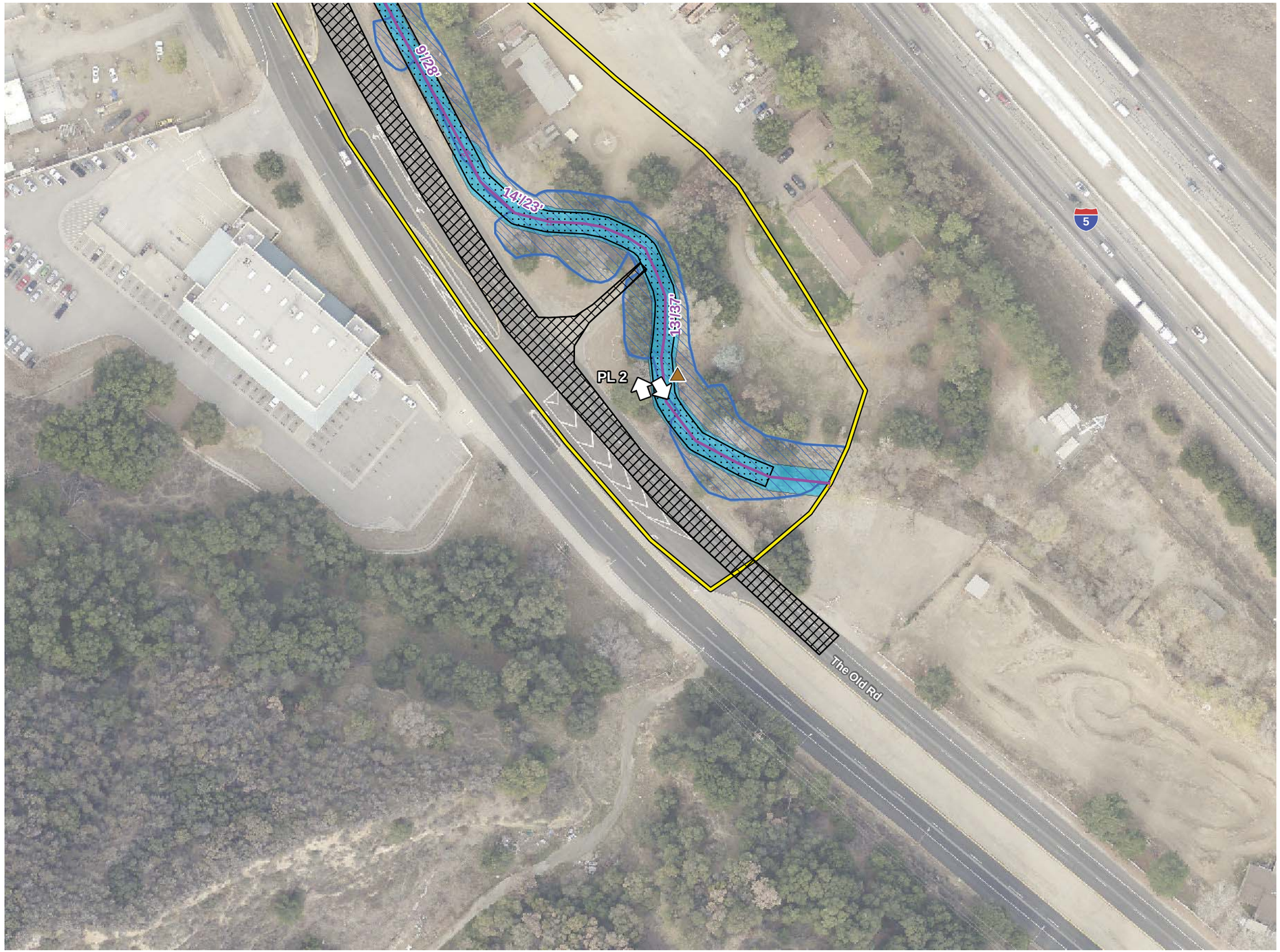

- Photo Location
- Soil Test Pit
- Survey Area

Project Features

- Annual Clearing
- Access Road

Jurisdictional Designation

- CDFW Jurisdictional Waters
- USACE Non-wetland “Waters of the U.S.”
- USACE "Waters of the U.S"

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Project Impacts – Reach 107 – The Old Road Channel

Exhibit 7m

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100 Feet

PSOMAS

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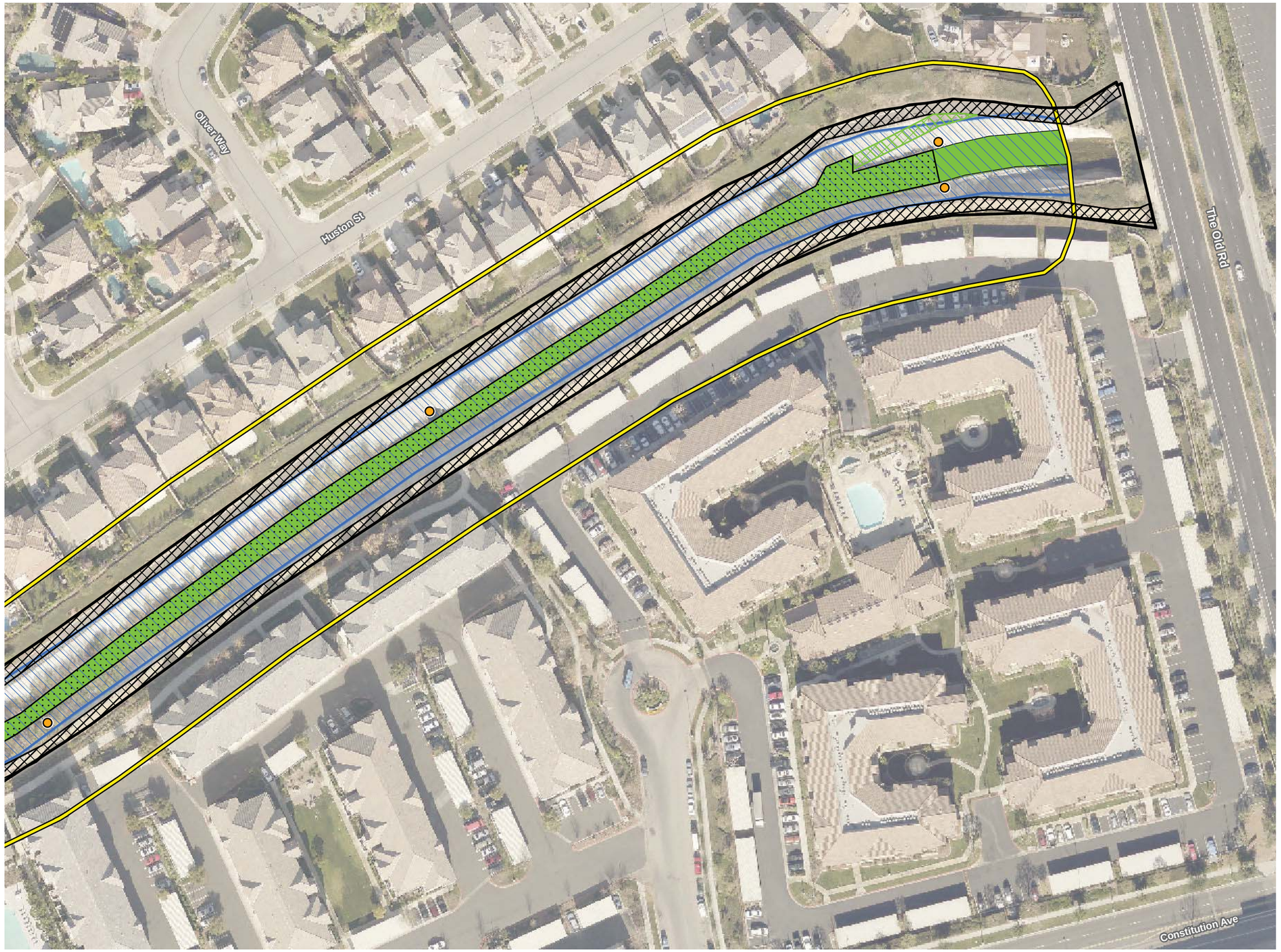

- Outlet
- Survey Area
- LACFCD Easement Boundary

Project Features

- Annual Clearing
- Access Ramp
- Access Road

Jurisdictional Designation

- CDFW Jurisdictional Waters
- USACE Wetland "Waters of the U.S."

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Project Impacts - Reach 108 - Pico Canyon (PD 2528)

Exhibit 7n

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100

Feet

PSOMAS

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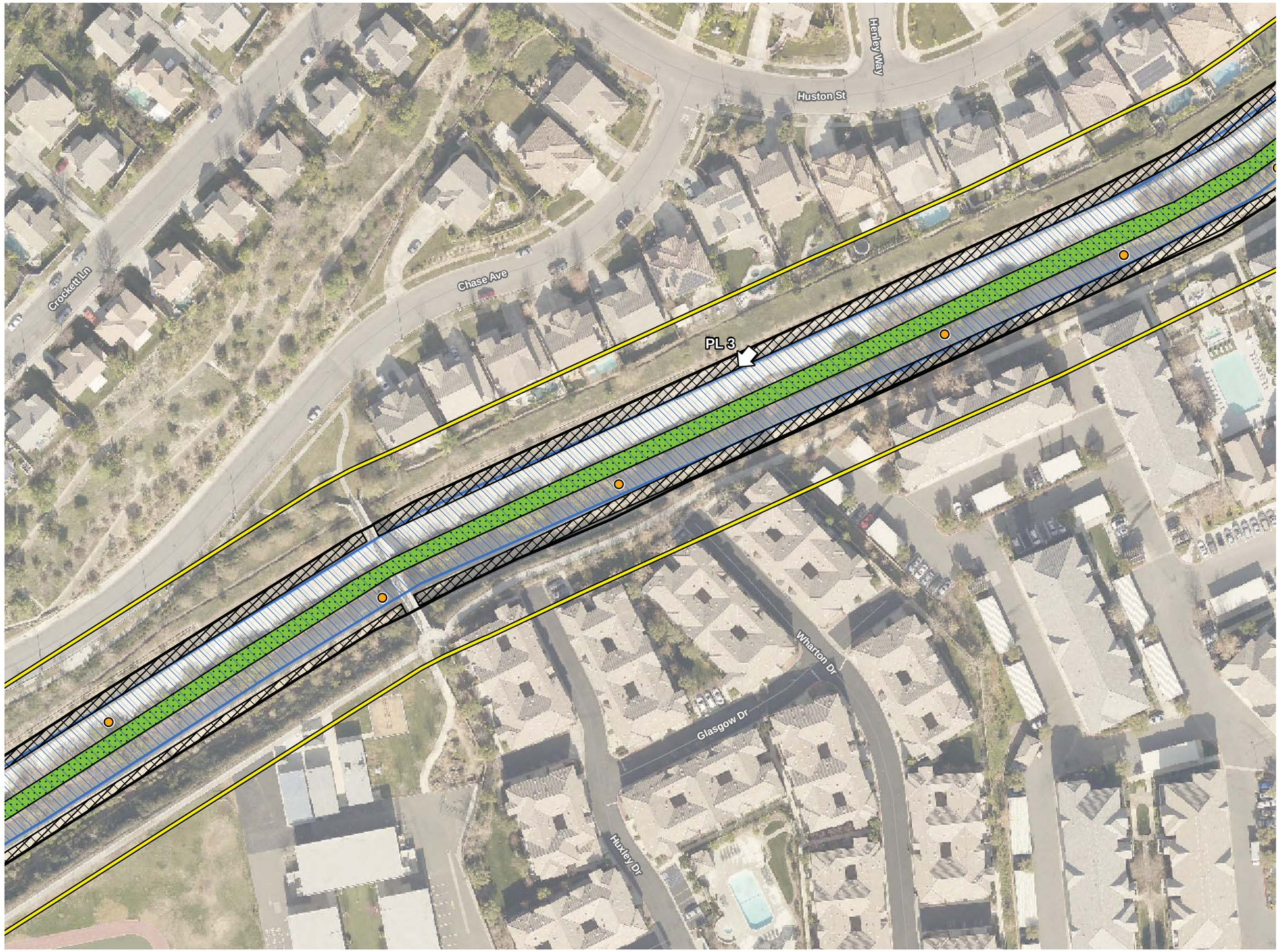

Photo Location

Outlet

Survey Area

LACFCD Easement Boundary

Project Features

Annual Clearing

Access Road

Jurisdictional Designation

CDFW Jurisdictional Waters

USACE Wetland "Waters of the U.S."

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Project Impacts – Reach 108 – Pico Canyon (PD 2528)

Exhibit 7o

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100

Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex7_101-110_JD_Impacts.pdf

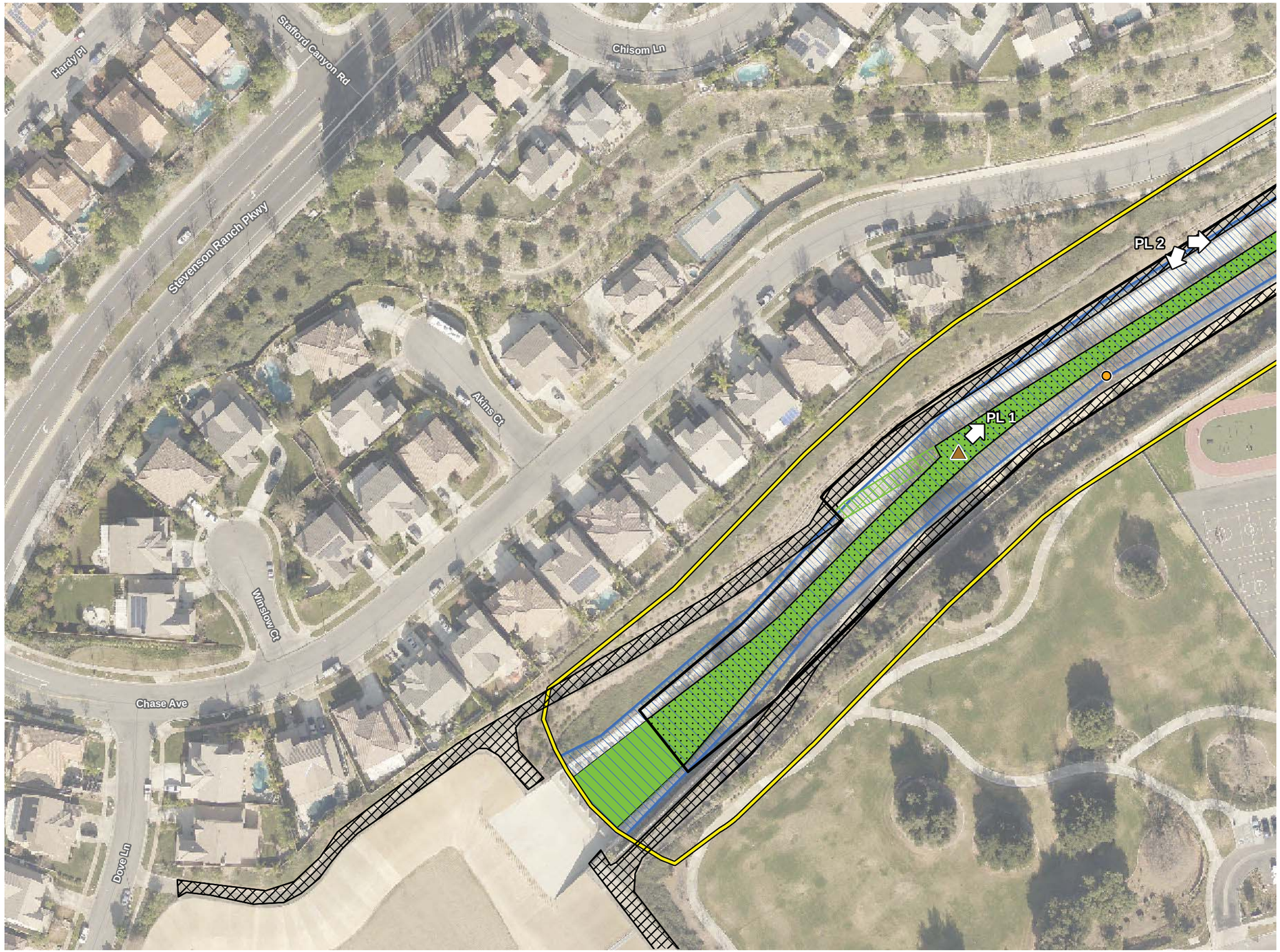

Photo Location
Outlet
Soil Test Pit
Survey Area
LACFCD Easement Boundary

Project Features

Annual Clearing
Access Ramp
Access Road

Jurisdictional Designation

CDFW Jurisdictional Waters
USACE Wetland "Waters of the U.S."

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Project Impacts – Reach 108 – Pico Canyon (PD 2528)

Exhibit 7p

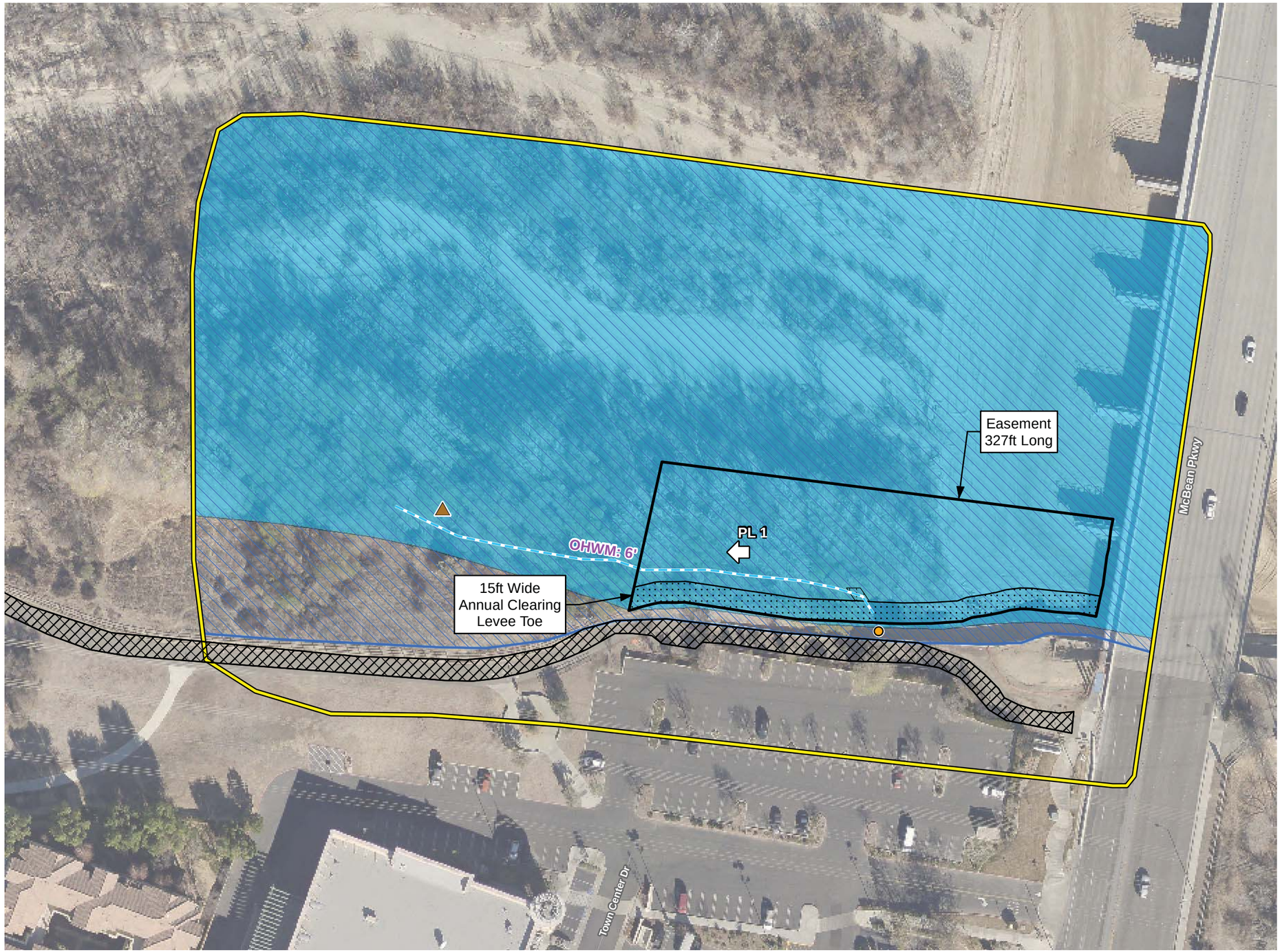
Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100 Feet

PSOMAS

(Rev: 04-06-2018 MMD) R:\Projects\CoLADPW (DPW)\J279\Graphics\JD\Ex7_101-110_JD_Impacts.pdf



- Photo Location
- Outlet
- Soil Test Pit
- Survey Area
- LACFCD Easement Boundary

Project Features

- Annual Clearing
- Lollipop Trees
- Access Road

Jurisdictional Designation

- CDFW Jurisdictional Waters
- USACE Non-wetland "Waters of the U.S."
- Low Flow Channel

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Project Impacts – Reach 109 – Santa Clara River

Exhibit 7q

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

75 37.5 0 75 Feet

PSOMAS

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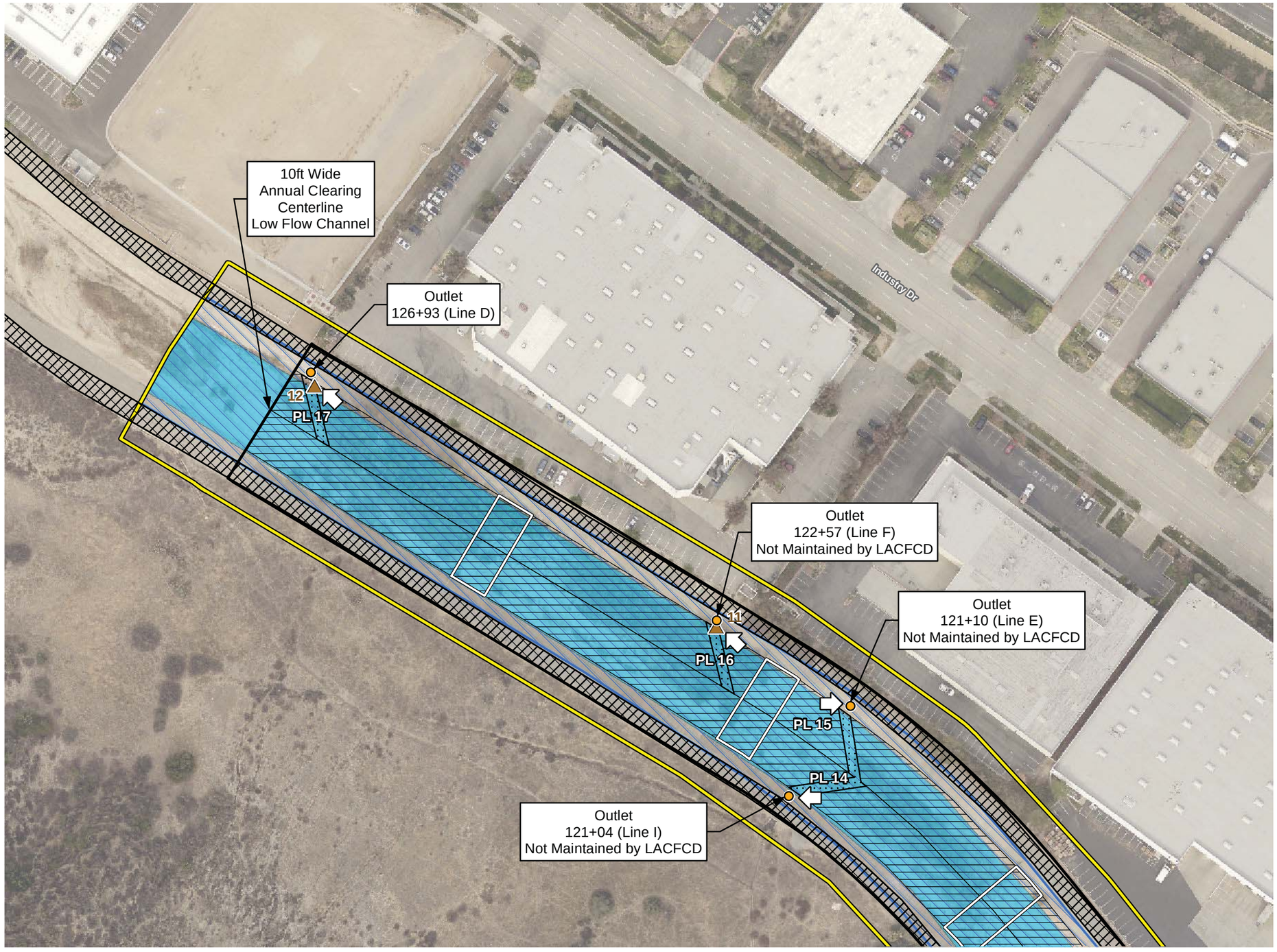

Photo Location
Outlet
Soil Test Pit
Survey Area
LACFCD Easement Boundary

Project Features

Annual Clearing
Bi-annual Clearing
Access Road
Drop Structure

Jurisdictional Designation

CDFW Jurisdictional Waters
USACE Non-wetland "Waters of the U.S."

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Project Impacts - Reach 110 - Hasley Canyon Channel (PD 2262)

Exhibit 7r

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100 Feet

PSOMAS

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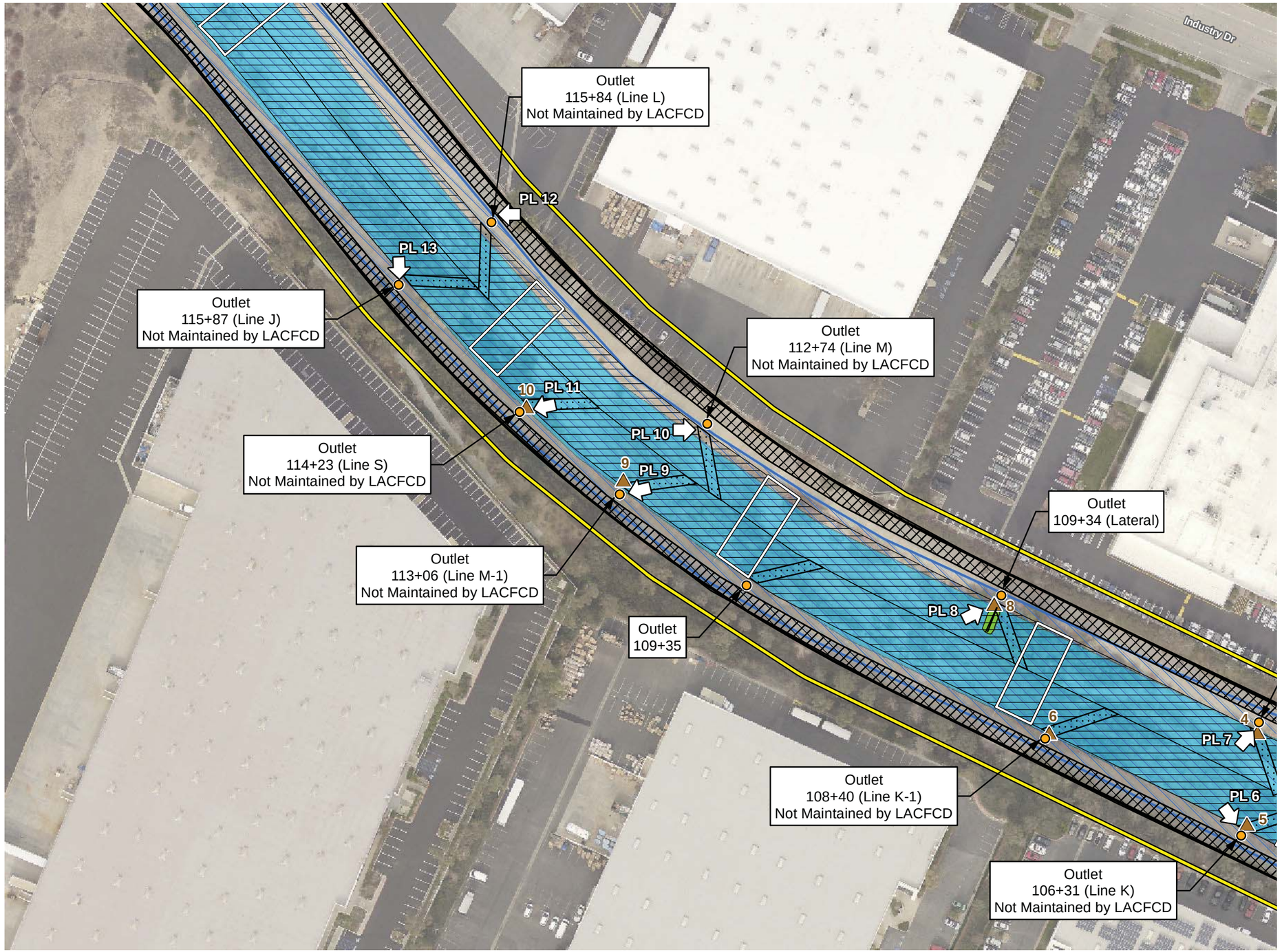

- Photo Location
- Outlet
- Soil Test Pit
- Survey Area
- LACFCD Easement Boundary

Project Features

- Annual Clearing
- Bi-annual Clearing
- Access Road
- Drop Structure

Jurisdictional Designation

- CDFW Jurisdictional Waters
- USACE Non-wetland "Waters of the U.S."
- USACE Wetland "Waters of the U.S."

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Project Impacts – Reach 110 – Hasley Canyon Channel (PD 2262)

Exhibit 7s

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100 Feet

PSOMAS

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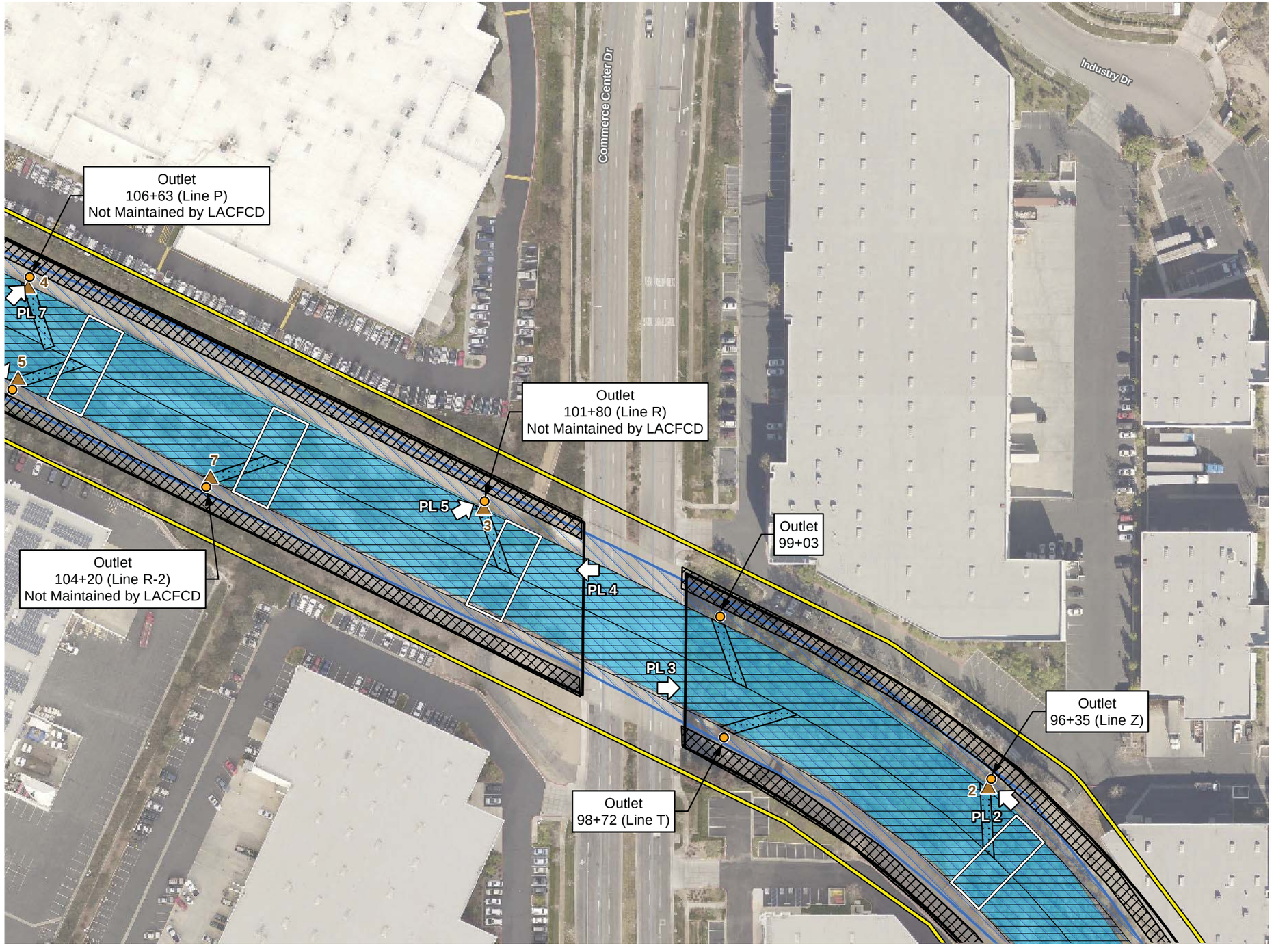

Photo Location
Outlet
Soil Test Pit
Survey Area
LACFCD Easement Boundary

Project Features

Annual Clearing
Bi-annual Clearing
Access Road
Drop Structure

Jurisdictional Designation

CDFW Jurisdictional Waters
USACE Non-wetland "Waters of the U.S."

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Project Impacts - Reach 110 - Hasley Canyon Channel (PD 2262)

Exhibit 7t

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100 Feet

PSOMAS

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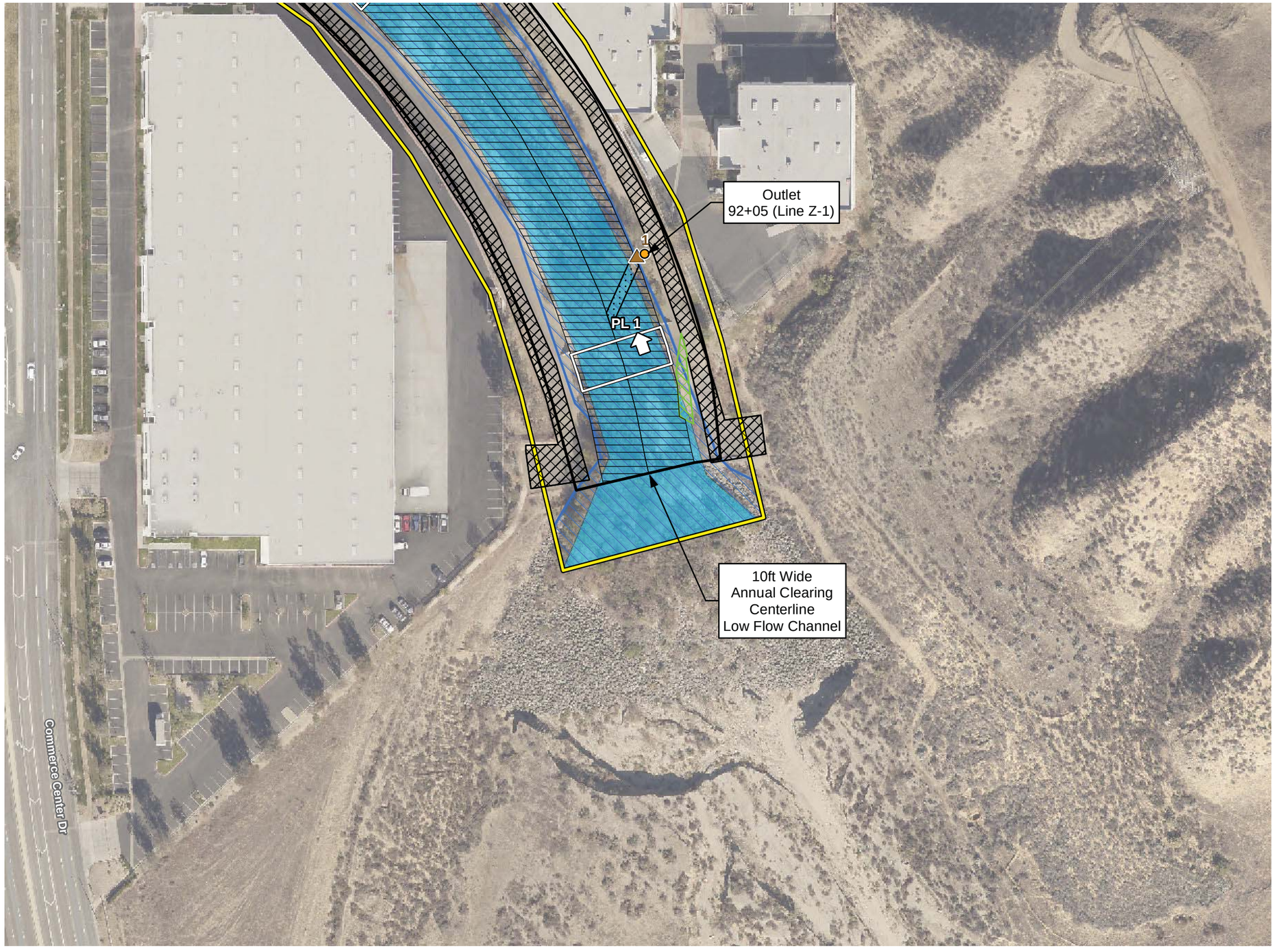

Photo Location
Outlet
Soil Test Pit
Survey Area
LACFCD Easement Boundary

Project Features

Annual Clearing
Bi-annual Clearing
Access Ramp
Access Road
Drop Structure

Jurisdictional Designation

CDFW Jurisdictional Waters
USACE Non-wetland "Waters of the U.S."

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Project Impacts - Reach 110 - Hasley Canyon Channel (PD 2262)

Exhibit 7u

Jurisdictional Delineation Report for Soft Bottom Channel Reaches 101-110

N W E S

100 50 0 100 Feet

PSOMAS

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ATTACHMENT B

WETLAND DATA FORMS

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Soft Bottom Channel Reach 101 City/County: Castaic / Los Angeles Sampling Date: 8/18/2015

Applicant/Owner: Los Angeles County Department of Public Works State: CA Sampling Point: 1

Investigator(s): David Hughes Section, Township, Range: T5N, R17W, Section 24

Landform (hillslope, terrace, etc.): canyon Local relief (concave, convex, none): concave Slope (%): 5

Subregion (LRR): Mediterranean California (LRR C) Lat: 34° 29' 59.18" Long: 118° 37' 22.63" Datum: NAD 83

Soil Map Unit Name: _____ NWI classification: _____

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5')			
1. Baccharis salicifolia	30	Y	FAC
2. Eriogonum fasciculatum	10	Y	UPL
3.			
4.			
5.			
	40	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Avena fatua	10	Y	UPL
2. Ambrosia acanthicarpa	5	Y	UPL
3.			
4.			
5.			
6.			
7.			
8.			
	15	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 85% % Cover of Biotic Crust 0%

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 25% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species 30	x 3 =	90
FACU species	x 4 =	
UPL species 25	x 5 =	125
Column Totals: 55 (A)		215 (B)

Prevalence Index = B/A = 3.91

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: 1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-9	10 YR 3/2	100					sand	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: rock

Depth (inches): 9"

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Soft Bottom Channel Reach 102 City/County: Castaic / Los Angeles Sampling Date: 8/18/2015

Applicant/Owner: Los Angeles County Department of Public Works State: CA Sampling Point: 1

Investigator(s): David Hughes Section, Township, Range: T5N, R17W, Section 23

Landform (hillslope, terrace, etc.): canyon Local relief (concave, convex, none): concave Slope (%): 5

Subregion (LRR): Mediterranean California (LRR C) Lat: 34° 30′ 29.81″ Long: 118° 38′ 15.16″ Datum: NAD 83

Soil Map Unit Name: NWI classification:

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

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

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

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

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

Remarks:

Site is a soft bottom channel with concrete side levees.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix laevigata	30	Y	FACW
2.			
3.			
4.			
	30 = Total Cover		
Sapling/Shrub Stratum (Plot size: 5')			
1. Tamarix ramosissima	30	Y	FAC
2. Baccharis salicifolia	20	Y	FAC
3. Salix laevigata	20	Y	FACW
4.			
5.			
	70 = Total Cover		
Herb Stratum (Plot size: 5')			
1. Pennisetum clandestinum	50	Y	UPL
2. Bromus diandrus	10	Y	UPL
3.			
4.			
5.			
6.			
7.			
8.			
	60 = Total Cover		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 40% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species 50	x 2 = 100
FAC species 50	x 3 = 150
FACU species	x 4 =
UPL species 60	x 5 = 300
Column Totals: 160 (A)	550 (B)

Prevalence Index = B/A = 3.44

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

Prevalence Index is ≤3.0[1]

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

Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No

Remarks:

SOIL

Sampling Point: 1

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

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

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: rock

Depth (inches): 6"

Hydric Soil Present? Yes ____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): ____

Water Table Present? Yes ____ No ✓ Depth (inches): ____

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

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Soft Bottom Channel Reach 103 City/County: Santa Clarita / Los Angeles Sampling Date: 8/5/2015

Applicant/Owner: Los Angeles County Department of Public Works State: CA Sampling Point: 1

Investigator(s): David Hughes, Katie Gallagher Section, Township, Range: T4N, R16W, Section 15

Landform (hillslope, terrace, etc.): canyon Local relief (concave, convex, none): concave Slope (%): 5

Subregion (LRR): Mediterranean California (LRR C) Lat: 34° 25' 40.21" Long: 118° 32' 26.31" Datum: NAD 83

Soil Map Unit Name: NWI classification:

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

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

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

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

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

Remarks:

Site is a densely vegetated channel. Flowing water occurs in the upstream portion of the site only in a narrow low flow channel. Approximately 500 ft downstream of concrete storm drain, surface water ceases.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix laevigata	70	Y	FACW
2.			
3.			
4.			
	70	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5')			
1. Salix laevigata	30	Y	FACW
2. Baccharis salicifolia	20	Y	FAC
3.			
4.			
5.			
	50	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Typha latifolia	60	Y	OBL
2. Cyperus involucratus	10	N	FACW
3.			
4.			
5.			
6.			
7.			
8.			
	70	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 30% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	60	x 1 =	60
FACW species	110	x 2 =	220
FAC species	20	x 3 =	60
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	190 (A)		340 (B)

Prevalence Index = B/A = 1.79

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

__ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No

Remarks:

SOIL

Sampling Point: 1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2"	10 YR 3/1	100					sand	
2-6"	10 YR 2/1	100					sand	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: rock

Depth (inches): 6"

Hydric Soil Present? Yes ____ No ✓

Remarks:

Lower layer is quite dark but no hydric soil indicators observed. Much of the channel appears to be hardened and the vegetation that occurs is growing in accumulated sandy sediment.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ✓ No ____ Depth (inches): 0

Water Table Present? Yes ✓ No ____ Depth (inches): 4"

Saturation Present? (includes capillary fringe) Yes ✓ No ____ Depth (inches): 1"

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:

Flowing water is adjacent to soil pit. Pit location is on banks of low flow channel.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Soft Bottom Channel Reach 103 City/County: Santa Clarita / Los Angeles Sampling Date: 8/5/2015

Applicant/Owner: Los Angeles County Department of Public Works State: CA Sampling Point: 2

Investigator(s): David Hughes, Katie Gallagher Section, Township, Range: T4N, R16W, Section 15

Landform (hillslope, terrace, etc.): canyon Local relief (concave, convex, none): concave Slope (%): 5

Subregion (LRR): Mediterranean California (LRR C) Lat: 34° 25' 39.64" Long: 118° 32' 27.74" Datum: NAD 83

Soil Map Unit Name: NWI classification:

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

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

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

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

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

Remarks:

Wetland conditions exist in a narrow along the bank of low flow channel, approximately 2 feet wide X 150 feet long.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix laevigata	90	Y	FACW
2.			
3.			
4.			
	90	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5')			
1. Salix laevigata	30	Y	FACW
2. Arundo donax	20	Y	FACW
3.			
4.			
5.			
	50	= Total Cover	
Herb Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 100% % Cover of Biotic Crust 0%

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species 140	x 2 =	280
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: 140 (A)		280 (B)

Prevalence Index = B/A = 2.0

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

__ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No

Remarks:

SOIL

Sampling Point: 2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4"	10 YR 2/1	100					fibric	
4-8"	10 YR 2/1	100					sand	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: rock

Depth (inches): 8"

Hydric Soil Present? Yes ✓ No ___

Remarks:

Soil has a four inch layer of organic matter on top of coarse sand. Faint H2S smell detected.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 0

Water Table Present? Yes ✓ No ___ Depth (inches): 4"

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 1"

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

Soil pit located on bank next to low flow channel.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Soft Bottom Channel Reach 103 City/County: Santa Clarita / Los Angeles Sampling Date: 8/5/2015

Applicant/Owner: Los Angeles County Department of Public Works State: CA Sampling Point: 3

Investigator(s): David Hughes, Katie Gallagher Section, Township, Range: T4N, R16W, Section 15

Landform (hillslope, terrace, etc.): alluvial wash Local relief (concave, convex, none): concave Slope (%): 5

Subregion (LRR): Mediterranean California (LRR C) Lat: 34° 25' 34.37" Long: 118° 32' 36.57" Datum: NAD 83

Soil Map Unit Name: NWI classification:

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5')			
1. Arundo donax	80	Y	FACW
2.			
3.			
4.			
5.			
	80	= Total Cover	
Herb Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 100% % Cover of Biotic Crust 0%

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species 80	x 2 =	160
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: 80 (A)		160 (B)

Prevalence Index = B/A = 2.0

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No

Remarks:

giant reed growing at the outlet of a storm drain

SOIL

Sampling Point: 3

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-20"	10 YR 4/2	100					sand	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Deep sand accumulation.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

Flowing water exiting from nearby storm drain outlet.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Soft Bottom Channel Reach 104 City/County: Castaic / Los Angeles Sampling Date: 8/19/2015

Applicant/Owner: Los Angeles County Department of Public Works State: CA Sampling Point: 1

Investigator(s): David Hughes Section, Township, Range: T4N, R17W, Section 12

Landform (hillslope, terrace, etc.): alluvial wash Local relief (concave, convex, none): concave Slope (%): 5

Subregion (LRR): Mediterranean California (LRR C) Lat: 34° 26' 44.71" Long: 118° 36' 53.11" Datum: NAD 83

Soil Map Unit Name: NWI classification:

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus fremontii	70	Y	FAC
2.			
3.			
4.			
	70	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5')			
1. Salix exigua	70	Y	FACW
2. Tamarix ramosissima	20	Y	FAC
3.			
4.			
5.			
	90	= Total Cover	
Herb Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 100% % Cover of Biotic Crust 0%

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species 70	x 2 = 140
FAC species 90	x 3 = 270
FACU species	x 4 =
UPL species	x 5 =
Column Totals: 160 (A)	410 (B)

Prevalence Index = B/A = 2.56

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No

Remarks:

heavy leaf litter discouraging establishment of herb species

SOIL

Sampling Point: 1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12"	10 YR 3/3	100					sand	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: rock

Depth (inches): 12"

Hydric Soil Present? Yes ____ No ✓

Remarks:

Deep sand.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): ____

Water Table Present? Yes ____ No ✓ Depth (inches): ____

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

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:

Flowing water exiting from nearby storm drain outlet.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Soft Bottom Channel Reach 105 City/County: Santa Clarita / Los Angeles Sampling Date: 8/5/2015

Applicant/Owner: Los Angeles County Department of Public Works State: CA Sampling Point: 1

Investigator(s): David Hughes, Katie Gallagher Section, Township, Range: T4N, R16W, Section 9

Landform (hillslope, terrace, etc.): alluvial wash Local relief (concave, convex, none): concave Slope (%): 5

Subregion (LRR): Mediterranean California (LRR C) Lat: 34° 26' 38.05" Long: 118° 33' 29.07" Datum: NAD 83

Soil Map Unit Name: Sandy alluvial land / riverwash NWI classification: PEMA

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

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

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

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

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

Remarks:

Soil pit location at only portion of survey area that had water. This location is near the outlet of a storm drain where nuisance flow had encouraged the establishment of cottonwood/willow.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus fremontii	60	Y	FAC
2. Salix laevigata	60	Y	FACW
3.			
4.			
	120	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5')			
1. Salix exigua	5	Y	FACW
2. Tamarix ramosissima	5	Y	FAC
3.			
4.			
5.			
	10	= Total Cover	
Herb Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 100% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species 65	x 2 =	130
FAC species 65	x 3 =	195
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: 130 (A)		325 (B)

Prevalence Index = B/A = 2.5

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2"	10 YR 2/2	100					sand	
2-24"	10 YR 3/3	100					sand	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ✓ No _____ Depth (inches): 0

Water Table Present? Yes ✓ No _____ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes ✓ No _____ Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No _____

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

Remarks:

Flowing water exiting from nearby storm drain outlet, site also within OHWM of San Francisquito Wash.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Soft Bottom Channel Reach 106 City/County: Castaic / Los Angeles Sampling Date: 8/18/2015

Applicant/Owner: Los Angeles County Department of Public Works State: CA Sampling Point: 1

Investigator(s): David Hughes Section, Township, Range: T5N, R17W, Section 25

Landform (hillslope, terrace, etc.): urban storm drain outlet Local relief (concave, convex, none): concave Slope (%): 5

Subregion (LRR): Mediterranean California (LRR C) Lat: 34° 29' 06.49" Long: 118° 36' 34.51" Datum: NAD 83

Soil Map Unit Name: NWI classification:

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

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

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

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

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

Remarks:

Upstream end of this reach has water from nuisance flow. Soil pit location at only portion of survey area that had water. This location is near the outlet of a storm drain where nuisance flow had encouraged the establishment of cottonwood/willow.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix laevigata	70	Y	FACW
2.			
3.			
4.			
	70	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5')			
1. Salix exigua	5	Y	FACW
2. Tamarix ramosissima	5	Y	FAC
3.			
4.			
5.			
	10	= Total Cover	
Herb Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 100% % Cover of Biotic Crust 0%

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species 75	x 2 =	150
FAC species 5	x 3 =	15
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: 80 (A)		165 (B)

Prevalence Index = B/A = 2.06

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: 1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2"	10 YR 2/2	100					sand	
2-24"	10 YR 3/3	100					sand	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ✓ No _____ Depth (inches): 0

Water Table Present? Yes ✓ No _____ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes ✓ No _____ Depth (inches): 0

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

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

Remarks:

Flowing water exiting from nearby storm drain outlet.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Soft Bottom Channel Reach 107 City/County: Newhall / Los Angeles Sampling Date: 8/19/2015

Applicant/Owner: Los Angeles County Department of Public Works State: CA Sampling Point: 1

Investigator(s): David Hughes Section, Township, Range: T3N, R16W, Section 10

Landform (hillslope, terrace, etc.): storm drain Local relief (concave, convex, none): concave Slope (%): 5

Subregion (LRR): Mediterranean California (LRR C) Lat: 34° 21′ 20.45″ Long: 118° 33′ 11.09″ Datum: NAD 83

Soil Map Unit Name: NWI classification:

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

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

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

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

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

Remarks:

Upstream end of this reach has water from nuisance flow. Soil pit location at only portion of survey area that had water. This location is near the outlet of a storm drain where nuisance flow had encouraged the establishment of cottonwood/willow.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix laevigata	10	Y	FACW
2. Populus fremontii	10	Y	FAC
3.			
4.			
	20	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Artemisia douglasiana	50	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	50	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	0	= Total Cover	

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species 10	x 2 =	20
FAC species 60	x 3 =	180
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: 70 (A)		200 (B)

Prevalence Index = B/A = 2.86

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No

Remarks:

SOIL

Sampling Point: 1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5"	10 YR 4/2	100					sand	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: rock

Depth (inches): 5"

Hydric Soil Present? Yes ____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): 0

Water Table Present? Yes ____ No ✓ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Soft Bottom Channel Reach 108 City/County: Stevenson Ranch/ Los Angeles Sampling Date: 8/5/2015

Applicant/Owner: Los Angeles County Department of Public Works State: CA Sampling Point: 1

Investigator(s): David Hughes, Katie Gallagher Section, Township, Range: T4N, R16W, Section 32

Landform (hillslope, terrace, etc.): storm drain Local relief (concave, convex, none): concave Slope (%): 5

Subregion (LRR): Mediterranean California (LRR C) Lat: 34° 22′ 57.06″ Long: 118° 34′ 51.14″ Datum: NAD 83

Soil Map Unit Name: NWI classification:

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiolepis	80	Y	FACW
2. Salix laevigata	30	Y	FACW
3. Populus fremontii	5	N	FAC
4.			
	115	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5')			
1. Salix lasiolepis	20	Y	FACW
2. Salix laevigata	20	Y	FACW
3.			
4.			
5.			
	40	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Typha latifolia	50	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	50	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	0	= Total Cover	

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	50	x 1 =	50
FACW species	150	x 2 =	300
FAC species	5	x 3 =	15
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	205 (A)		365 (B)

Prevalence Index = B/A = 1.78

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No

Remarks:

SOIL

Sampling Point: 1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-24"	10 YR 3/2	100					silt	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

No hydric soil indicators were detected, but wetland conditions are assumed based on the ubiquitous presence of cattails and other hydrophytic vegetation.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 0

Water Table Present? Yes ✓ No ___ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

entire length of storm drain is inundated

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Soft Bottom Channel Reach 109 City/County: Santa Clarita/ Los Angeles Sampling Date: 8/5/2015

Applicant/Owner: Los Angeles County Department of Public Works State: CA Sampling Point: 1

Investigator(s): David Hughes, Katie Gallagher Section, Township, Range: T4N, R16W, Section 16

Landform (hillslope, terrace, etc.): alluvial wash Local relief (concave, convex, none): concave Slope (%): 5

Subregion (LRR): Mediterranean California (LRR C) Lat: 34° 25' 27.02" Long: 118° 33' 49.88" Datum: NAD 83

Soil Map Unit Name: _____ NWI classification: _____

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiolepis	90	Y	FACW
2. Populus fremontii	5	N	FAC
3.			
4.			
	95	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Stipa miliaceum	5	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	5	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 95% % Cover of Biotic Crust 0%

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species 90	x 2 =	180
FAC species 5	x 3 =	15
FACU species	x 4 =	
UPL species 5	x 5 =	25
Column Totals: 100 (A)		220 (B)

Prevalence Index = B/A = 2.20

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 1

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

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

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: rock

Depth (inches): 10"

Hydric Soil Present? Yes ___ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 0

Water Table Present? Yes ✓ No ___ Depth (inches): 5"

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

nuisance water from nearby storm drain outlet

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Soft Bottom Channel Reach 110 City/County: Castaic/ Los Angeles Sampling Date: 8/19/2015

Applicant/Owner: Los Angeles County Department of Public Works State: CA Sampling Point: 1

Investigator(s): David Hughes Section, Township, Range: T4N, R17W, Section 11

Landform (hillslope, terrace, etc.): alluvial wash Local relief (concave, convex, none): concave Slope (%): 5

Subregion (LRR): Mediterranean California (LRR C) Lat: 34° 26' 45.47" Long: 118° 37' 27.65" Datum: NAD 83

Soil Map Unit Name: NWI classification:

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix laevigata	80	Y	FACW
2. Populus fremontii	20	Y	FAC
3.			
4.			
	100 = Total Cover		
Sapling/Shrub Stratum (Plot size: 5')			
1. Baccharis salicifolia	60	Y	FAC
2. Salix exigua	30	Y	FACW
3. Tamarix ramosissima	20	N	FAC
4.			
5.			
	110 = Total Cover		
Herb Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 100% % Cover of Biotic Crust 0%

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species 110	x 2 = 220
FAC species 100	x 3 = 300
FACU species	x 4 =
UPL species	x 5 =
Column Totals: 210 (A)	520 (B)

Prevalence Index = B/A = 2.48

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No

Remarks:

SOIL

Sampling Point: 1

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

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

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: rock

Depth (inches): 15"

Hydric Soil Present? Yes ____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): 0"

Water Table Present? Yes ____ No ✓ Depth (inches): 0"

Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:

ATTACHMENT C

ORDINARY HIGH WATER MARK DATASHEETS

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project:
Project Number:
Stream: Reach 101
Investigator(s): David Hughes

Date: 8/18/2015 **Time:**
Town: **State:**
Photo begin file#: **Photo end file#:**

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

Y ☐ / N ☒ Is the site significantly disturbed?

Location Details:

Projection: **Datum:**
Coordinates:

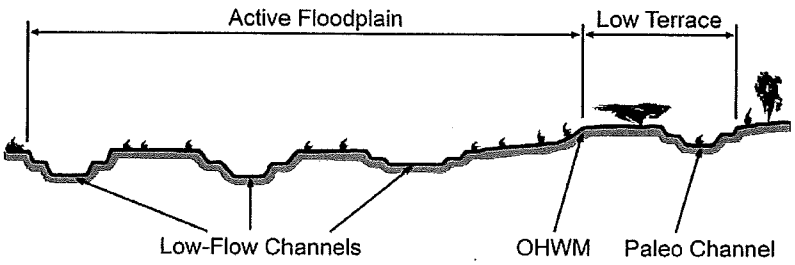
Potential anthropogenic influences on the channel system:

Brief site description:
Alluvial wash constrained by concrete side levees, dominated by Lepidospartum squamatum, Baccharis pilularis

Checklist of resources (if available):

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

Hydrogeomorphic Floodplain Units

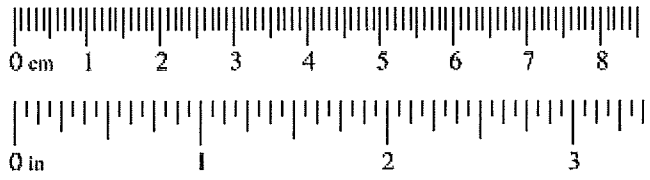


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

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

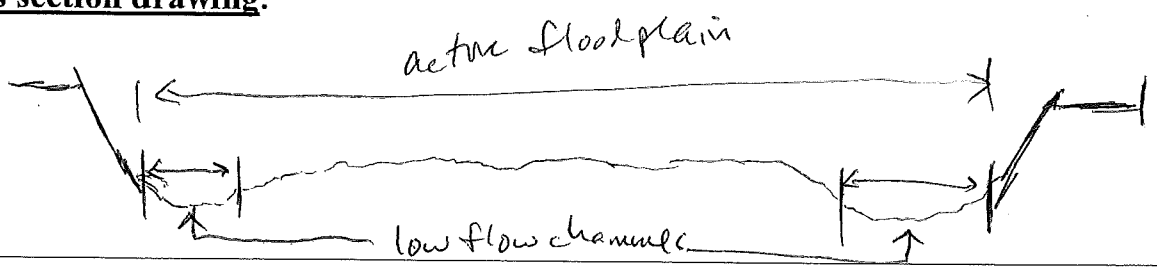
Wentworth Size Classes

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



Project ID: **Cross section ID:** **Date:** **Time:**

Cross section drawing:



OHWM

GPS point: _____

Indicators:

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

Comments:

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

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: 5 % Tree: / % Shrub: / % Herb: 5 %

Community successional stage:

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

Indicators:

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

Comments:

low flow channels run along both left and right banks along concrete side levees.

Project ID: **Cross section ID:** **Date:** **Time:**

Floodplain unit: ☐ Low-Flow Channel ☒ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: 70 % Tree: / % Shrub: 60 % Herb: 10 %

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:

Active floodplain dominated by Leptospartum + Baccharis salicifolia + Eriogonum fasc.

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

GPS point: _____

No low terrace present

Characteristics of the floodplain unit:

Average sediment texture: _____

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

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:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project:	**Date:** 8/18/15	**Time:**
Project Number: Reach 102	**Town:**	**State:**
Stream:	**Photo begin file#:**	**Photo end file#:**
Investigator(s): David Hughes		

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

Y ☐ / N ☒ Is the site significantly disturbed?

Location Details:

Projection: **Datum:**

Coordinates:

Potential anthropogenic influences on the channel system:

Channel transitions to concrete lined storm drain, urban runoff enters the downstream portion of site via outlet

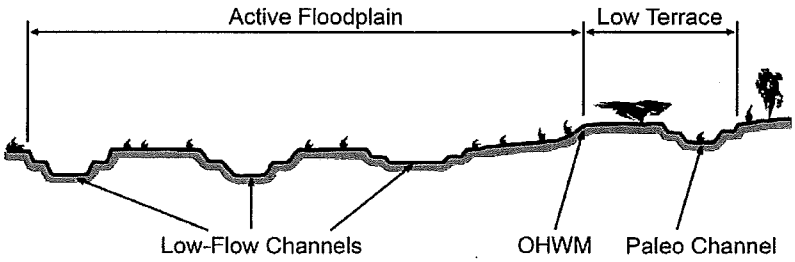
Brief site description:

Soft bottom channel Reach 102 is downstream end of Violin Cyn, alluvial wash with Tamarisk/Mulefat dominated

Checklist of resources (if available):

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

Hydrogeomorphic Floodplain Units

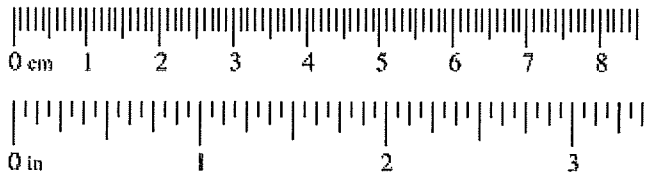


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

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

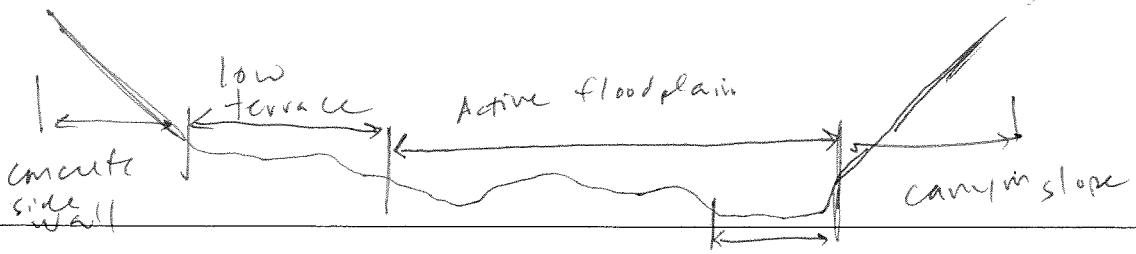
Wentworth Size Classes

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



Project ID: **Cross section ID:** **Date:** **Time:**

Cross section drawing:



OHWM

low flow channel

GPS point: _____

Indicators:

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

Comments:

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

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: silty sand

Total veg cover: ____ % Tree: 10 % Shrub: 30 % Herb: 10 %

Community successional stage:

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

Indicators:

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

Comments:

natural section of Reach used for this analysis, downstream portions of site have drop structures which cause water to spread out

Project ID: **Cross section ID:** **Date:** **Time:**

Floodplain unit: ☐ Low-Flow Channel ☒ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand

Total veg cover: 75 % Tree: 0 % Shrub: 20 % Herb: 50 %

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:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand / rock

Total veg cover: 50 % Tree: 0 % Shrub: 0 % Herb: 50 %

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:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project:	**Date:** 8.5.15	**Time:** 12:25
Project Number:	**Town:**	**State:**
Stream: Reach 103	**Photo begin file#:**	**Photo end file#:**
Investigator(s): David Hughes + Katie Gallagher		

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

Y ☐ / N ☒ Is the site significantly disturbed?

Location Details:

Projection: **Datum:**

Coordinates:

Potential anthropogenic influences on the channel system:

~~Upstream~~ ~~&~~ Area immediately upstream of site is concrete, hard bottom channel. Vegetation within channel is maintained for flood protection.

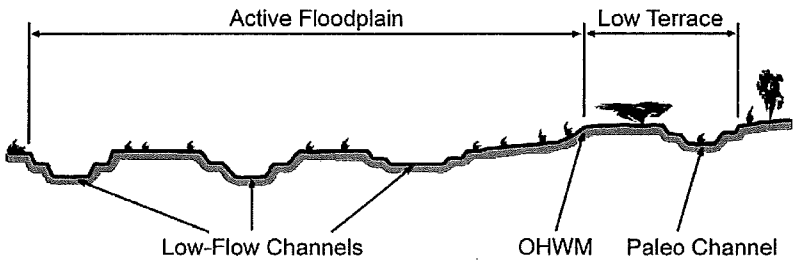
Brief site description:

Reach 103 is a soft bottom channel, immediately downstream of concrete storm drain.

Checklist of resources (if available):

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

Hydrogeomorphic Floodplain Units

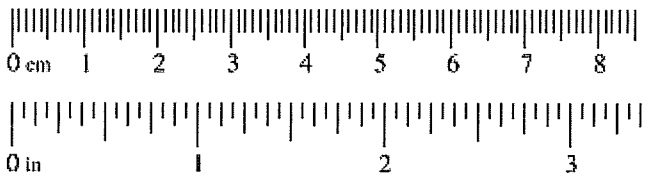


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

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

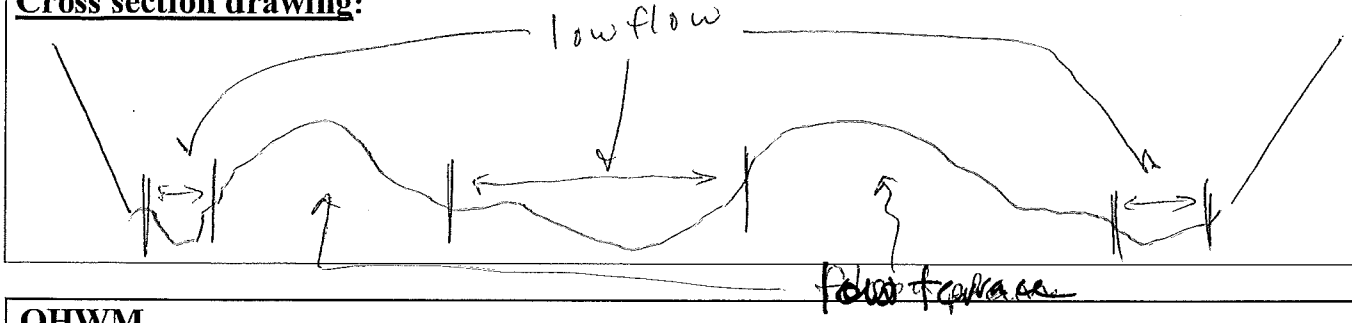
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
2.56	64	Cobble	Gravel
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	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	Silt
1/64 0.00031	0.0078	Fine silt	
1/128 0.00015	0.0039	Very fine silt	
		Clay	Mud



Project ID: **Cross section ID:** **Date:** **Time:**

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☒ Change in vegetation cover
- ☒ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

low flow channel in middle of site is very rocky while adjacent areas are densely vegetated and distinguished by a break in slope. Small low flow channels are evident along levees.

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: 10 %

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:

well defined bed / banks for central low-flow channel.

Project ID: **Cross section ID:** **Date:** **Time:**

Floodplain unit: ☐ Low-Flow Channel ☒ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: 100 % Tree: 100 % Shrub: 20 % Herb: 10 %

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:

floodplain areas are raised areas along main channel (approximately 3-4' above low flow. Densely vegetated with willows arundo,

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
- ☐ 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:

low terrace areas eliminated by levee presence.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project:	**Date:** 8/19/2015 **Time:**
Project Number: Reach 104	**Town:** **State:**
Stream:	**Photo begin file#:** **Photo end file#:**
Investigator(s):	
Y ☒ / N ☐ Do normal circumstances exist on the site?	**Location Details:**
Y ☐ / N ☒ Is the site significantly disturbed?	**Projection:** **Datum:** **Coordinates:**

Potential anthropogenic influences on the channel system:

side levee, rip-rap

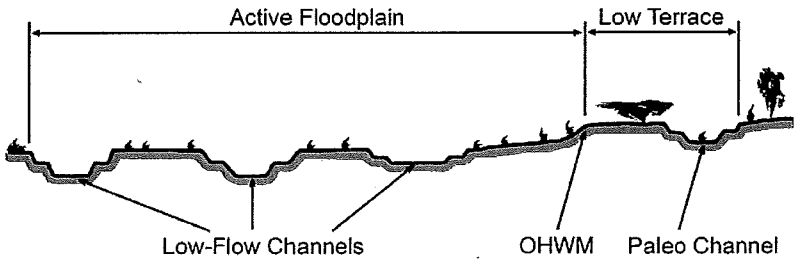
Brief site description:

The CACDPW work area is just along the base of the side levee, so much of the data contained in this form is unnecessary

Checklist of resources (if available):

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

Hydrogeomorphic Floodplain Units

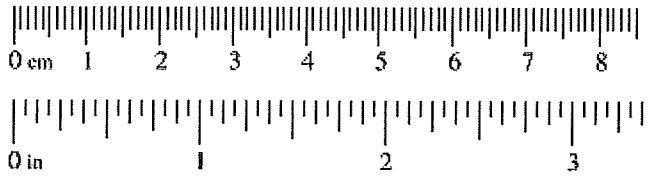


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

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

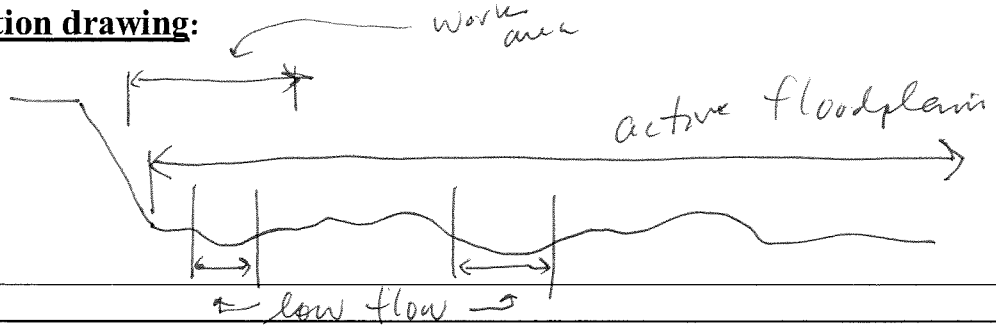
Wentworth Size Classes

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



Project ID: **Cross section ID:** **Date:** **Time:**

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☒ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

side levee is boundary for OHWM

Floodplain unit:

☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand

Total veg cover: 80 % Tree: 60 % Shrub: 40 % Herb: 10 %

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: **Cross section ID:** **Date:** **Time:**

Floodplain unit: ☐ Low-Flow Channel ☒ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:
Average sediment texture: sand
Total veg cover: 90 % Tree: 50 % Shrub: 60 % 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:

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

GPS point: _____

N/A

Characteristics of the floodplain unit:
Average sediment texture: _____
Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %
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:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: SBC Reach 105 – main stem	**Date:** 8/5/15	**Time:**
Project Number:	**Town:**	**State:**
Stream:	**Photo begin file#:**	**Photo end file#:**
Investigator(s):		

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

Y ☐ / N ☒ Is the site significantly disturbed?

Location Details:

Projection: **Datum:**

Coordinates:

Potential anthropogenic influences on the channel system:

Concrete + riprap bank slopes

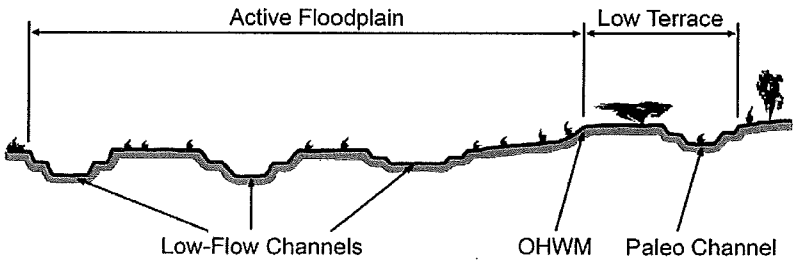
Brief site description:

wide alluvial wash with mostly mulefat + cottonwoods, wash consists of several braided channels with Bacsal dominated bunches between the low-flow areas

Checklist of resources (if available):

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

Hydrogeomorphic Floodplain Units

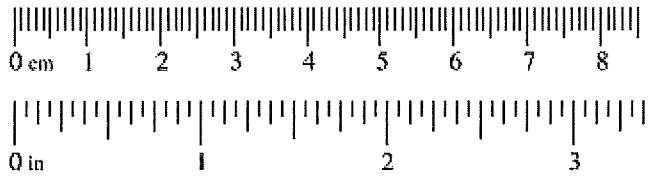


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

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

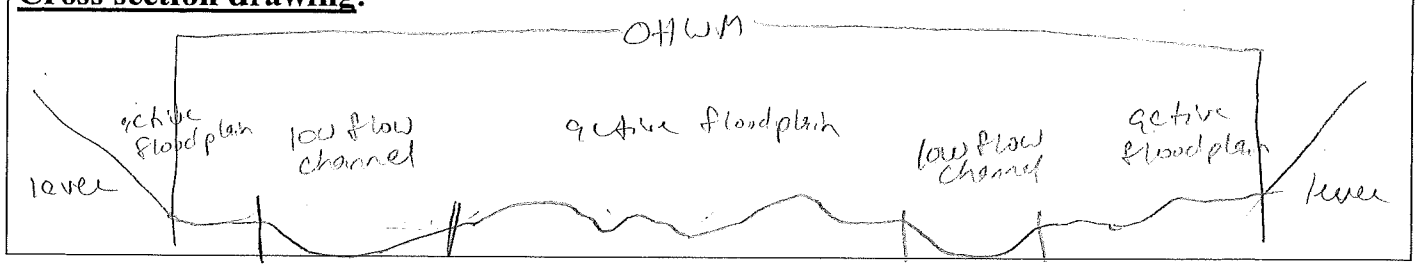
Wentworth Size Classes

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



Project ID: **Cross section ID:** **Date:** **Time:**

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☒ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sandy

Total veg cover: 10 % Tree: 1 % Shrub: 10 % Herb: / %

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: **Cross section ID:** **Date:** **Time:**

Floodplain unit: ☐ Low-Flow Channel ☒ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: sandy

Total veg cover: 60 % Tree: 10 % Shrub: 60 % Herb: _____ %

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:

Dominated by mulefat
floodplain is on benches between the braided low flow channels

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
- ☐ 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:

low terrace is eliminated by the side levees

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project:
Project Number:
Stream: Reach 10C
Investigator(s):

Date: 8/10/15 **Time:**
Town: **State:**
Photo begin file#: **Photo end file#:**

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

Y ☐ / N ☒ Is the site significantly disturbed?

Location Details:

Projection: **Datum:**
Coordinates:

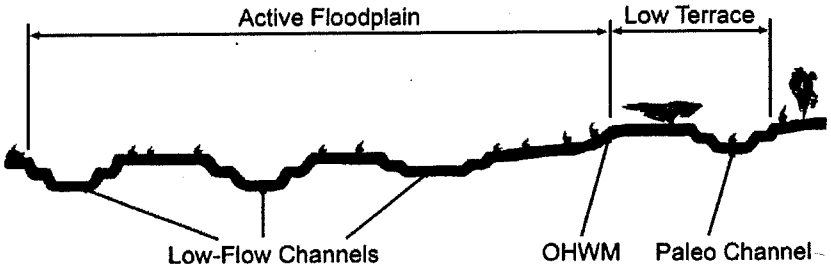
Potential anthropogenic influences on the channel system:
storm drain outlet

Brief site description:
site is densely vegetated with willows / mulefat, well-defined channel, water eventually sheet flows to Cactus Creek

Checklist of resources (if available):

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

Hydrogeomorphic Floodplain Units

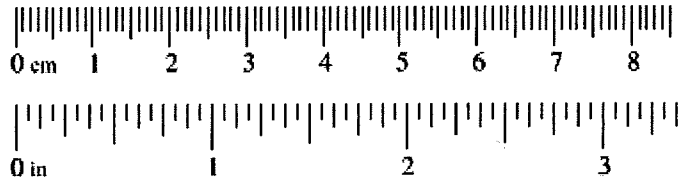


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

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

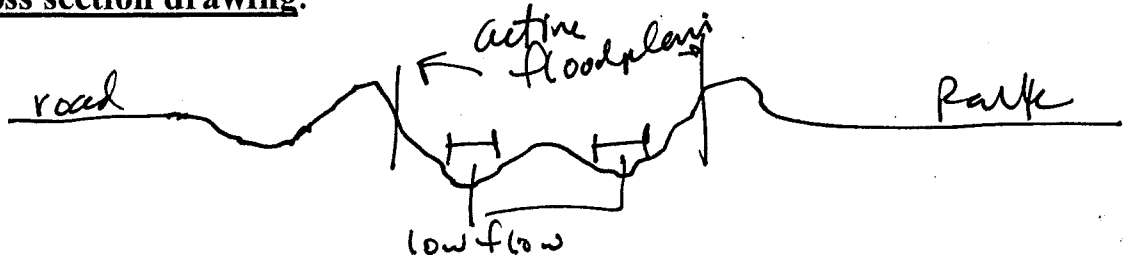
Wentworth Size Classes

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



Project ID: **Cross section ID:** **Date:** **Time:**

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☒ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: 100 % Tree: 100 % Shrub: 30 % Herb: _____ %

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:

low flow channel has surface water at upstream end, well-defined banks
willow overstory, cattails in channel

Project ID: **Cross section ID:** **Date:** **Time:**

Floodplain unit: ☐ Low-Flow Channel ☒ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: 100 % Tree: _____% Shrub: 20 % Herb: _____%

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:

willow overstory with mule fat common

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
- ☐ 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:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project:	**Date:** 8/19/2015 **Time:**
Project Number:	**Town:** **State:**
Stream: Reach 107	**Photo begin file#:** **Photo end file#:**
Investigator(s):	
Y ☒ / N ☐ Do normal circumstances exist on the site?	**Location Details:**
Y ☒ / N ☐ Is the site significantly disturbed?	**Projection:** **Datum:** **Coordinates:**

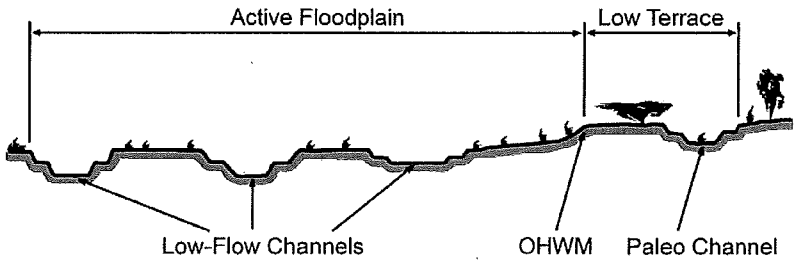
Potential anthropogenic influences on the channel system:
Trash, side walls, immediately adjacent to the Old Road

Brief site description:
Haphazardly created channel with dirt sides in places, also block wall sides. Mix of native/non native veg.

Checklist of resources (if available):

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

Hydrogeomorphic Floodplain Units



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

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
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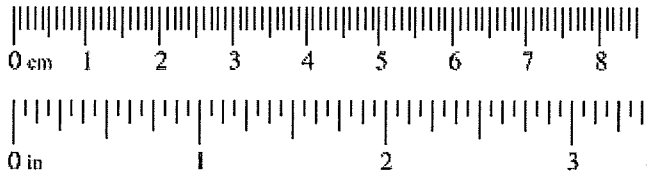
   - ☐ Digitized on computer
   - ☐ GPS
   - ☐ Other:

Wentworth Size Classes

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



Project ID: **Cross section ID:** **Date:** **Time:**

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☒ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: ____ % Tree: / % Shrub: 60 % 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:

highly modified drainage, mix of native and non-native, steep banks

Project ID: **Cross section ID:** **Date:** **Time:**

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
- ☐ 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:

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
- ☐ 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:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Reach 108	**Date:** 9/5/15	**Time:**
Project Number:	**Town:**	**State:**
Stream:	**Photo begin file#:**	**Photo end file#:**
Investigator(s): David Hughes, Kathi Gallagher		
Y ☒ / N ☐ Do normal circumstances exist on the site?	**Location Details:**	
Y ☐ / N ☒ Is the site significantly disturbed?	**Projection:** **Datum:** **Coordinates:**	

Potential anthropogenic influences on the channel system:

Source of water is from nearby housing development

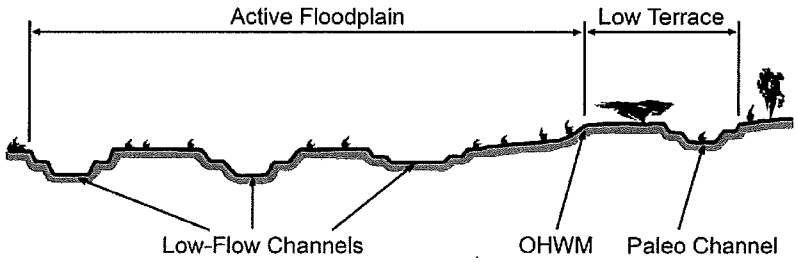
Brief site description:

Narrow channel with steep concrete lined slopes

Checklist of resources (if available):

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

Hydrogeomorphic Floodplain Units

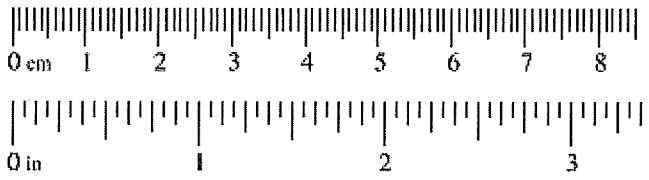


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

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

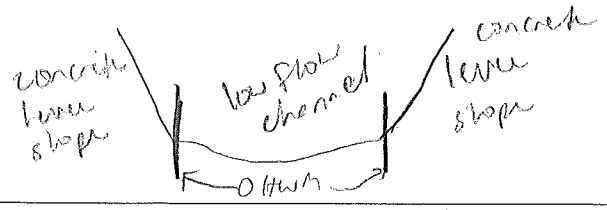
Wentworth Size Classes

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



Project ID: **Cross section ID:** **Date:** **Time:**

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☒ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

OHWM is from toe of levee slope to the toe of the opposite levee slope

Floodplain unit: ☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: silty

Total veg cover: 90 % Tree: 90 % Shrub: 10 % 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:

Cattails are prevalent throughout channel

Water saturates almost all soils throughout channel

Project ID: **Cross section ID:** **Date:** **Time:**

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
- ☐ 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:

Channel is very narrow so no floodplain exists

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
- ☐ 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:

presence of levee slopes eliminates low terrace.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Reach 109 **Date:** 6/5/15 **Time:**
Project Number: **Town:** **State:**
Stream: **Photo begin file#:** **Photo end file#:**
Investigator(s): Dave Hughes, Katie Gallagher

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

Y ☐ / N ☒ Is the site significantly disturbed?

Location Details:

Projection: **Datum:**
Coordinates:

Potential anthropogenic influences on the channel system:

water originates from storm drain outlet which drains shopping and housing developments nearby.

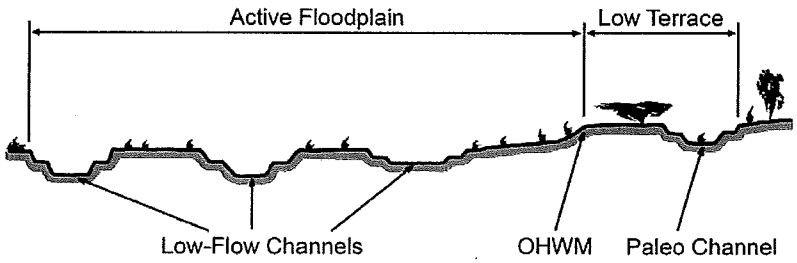
Brief site description:

Study site is small portion of wide alluvial wash

Checklist of resources (if available):

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

Hydrogeomorphic Floodplain Units

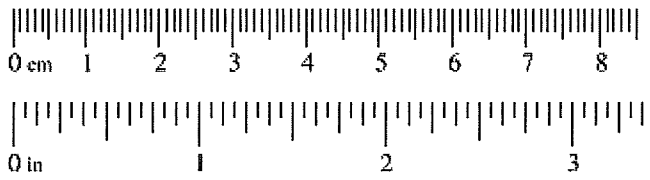


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

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

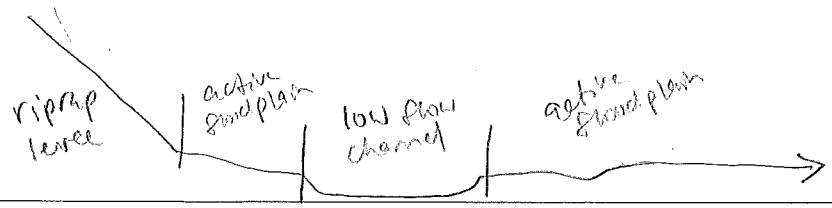
Wentworth Size Classes

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



Project ID: **Cross section ID:** **Date:** **Time:**

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☒ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:



Floodplain unit: ☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: sandy

Total veg cover: 90 % Tree: 90 % Shrub: 10 % 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: **Cross section ID:** **Date:** **Time:**

Floodplain unit: ☐ Low-Flow Channel ☒ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sandy

Total veg cover: 50 % Tree: 50 % Shrub: 10 % 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:

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
- ☐ 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:

none / presence of a 3rd level eliminates any low terrace.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project:	**Date:** 8/19/15	**Time:**
Project Number:	**Town:**	**State:**
Stream: Reach 110	**Photo begin file#:**	**Photo end file#:**
Investigator(s):		

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

Y ☐ / N ☒ Is the site significantly disturbed?

Location Details:

Projection: **Datum:**

Coordinates:

Potential anthropogenic influences on the channel system:

Concrete side levees

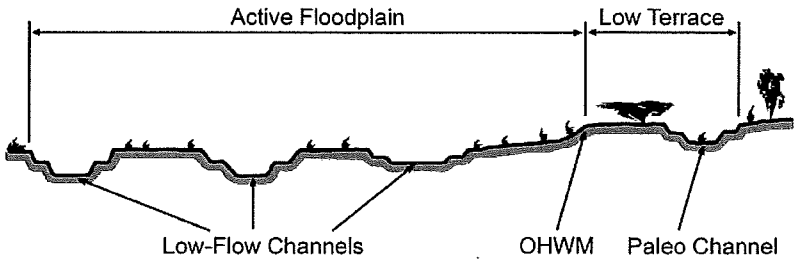
Brief site description:

Storm drain in commercial area — sandy bottom with concrete side levees, densely vegetated w/ Salix, Tamarisk, Mule fat

Checklist of resources (if available):

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

Hydrogeomorphic Floodplain Units

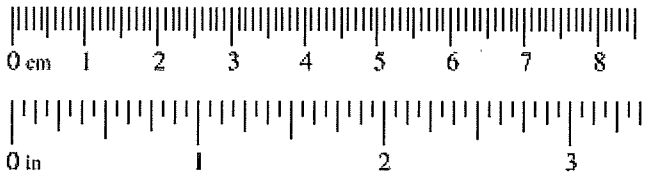


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

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

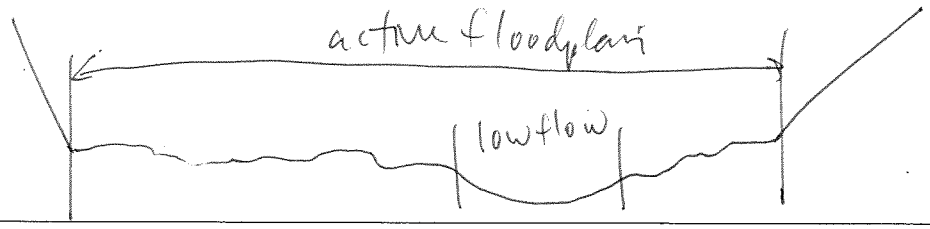
Wentworth Size Classes

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



Project ID: **Cross section ID:** **Date:** **Time:**

Cross section drawing:



OHWM

GPS point: _____

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☒ Break in bank slope
- ☒ Other: _____
- ☐ Other: _____

Comments:

OHWM is the base of the concrete side slope

Floodplain unit: ☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: ____ % Tree: / % Shrub: 80 % Herb: / %

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:

dense mulefat, Salix sipcing low flow channel, hardly any veg in middle of low flow

Project ID: **Cross section ID:** **Date:** **Time:**

Floodplain unit: ☐ Low-Flow Channel ☒ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand

Total veg cover: 100 % Tree: 90 % Shrub: 50 % Herb: 10 %

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:

braided conditions exist to the toe & both slopes.

Floodplain unit: ~~☐ Low-Flow Channel~~ ☐ Active Floodplain ~~☐ Low Terrace~~ N/A

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

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

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: