JURISDICTIONAL DELINEATION

Santa Ana River Trail Phase IV, Reaches B and C Project

San Bernardino County

City of Redlands

EA 10020
Federal Project No. ATPL 5954(146)

September 2018

STATE OF CALIFORNIA
Department of Transportation

DRAFT

Pending Review and Approval by Caltrans

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SECTION 1: SUMMARY

1.1 - Introduction

The County of San Bernardino Regional Parks Department (Regional Parks) with the assistance of the County of San Bernardino Department of Public Works (Department of Public Works) proposes to construct an approximately 3.3 mile long section of the Santa Ana River Trail (SART) on the southern bank of the Santa Ana River and local streets within the City of Redlands. The SART is a regional recreational trail; segments of the trail within San Bernardino County have been constructed in various sections (phases) with projects named sequentially. The proposed section of the SART is SART Phase IV, Reaches B & C; the trail would begin on the west side of Orange Street in the City of Redlands and terminate at Opal Avenue near the Redlands city limits (Exhibits 1, 2 and 3).

East of Orange Street the conceptual trail alignment overlaps a local trail known as the "Bluffs trail." At River Bend Drive the alignment takes off from the river bluff and transitions on to the local city streets; the trail travels south on River Bend Drive, east on Pioneer Avenue, south on Dearborn Street, and east on San Bernardino Avenue until it reaches Opal Avenue.

This Jurisdictional Delineation Report provides a summary of the United States Army Corps of Engineers (USACE), State Water Resources Control Board (SWRCB), and California Department of Fish and Wildlife (CDFW) jurisdictional waters that may occur within the proposed project site. All jurisdictional areas shown on exhibits in this report are for the purposes of USACE jurisdictional determination only and are labeled as "USACE Jurisdictional" or "USACE Non-Jurisdictional."

All features, including both USACE Jurisdictional and USACE Non-Jurisdictional features, are also categorized according to CDFW and SWRCB jurisdictional pursuant to Section 1600 et al. of the fish and game code and the Porter-Cologne Water Quality Control Act, respectively. A full glossary of terms used in this delineation can be found in Appendix A.

The only drainage features identified during the delineation are man-made storm drains that are not considered to be jurisdictional to either the USACE or CDFW. Discussion and conclusions supporting the findings for the features within the SART Project boundaries are provided in Section 4 of this delineation.

Location: N:\2018\2018-114 Santa Ana River Trail Phase IV\MAPS\Location_Vicinity\SART_Vicinity_V1.mxd (LMK)-lking 6/26/2018

Map Date: 6/26/2018

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community

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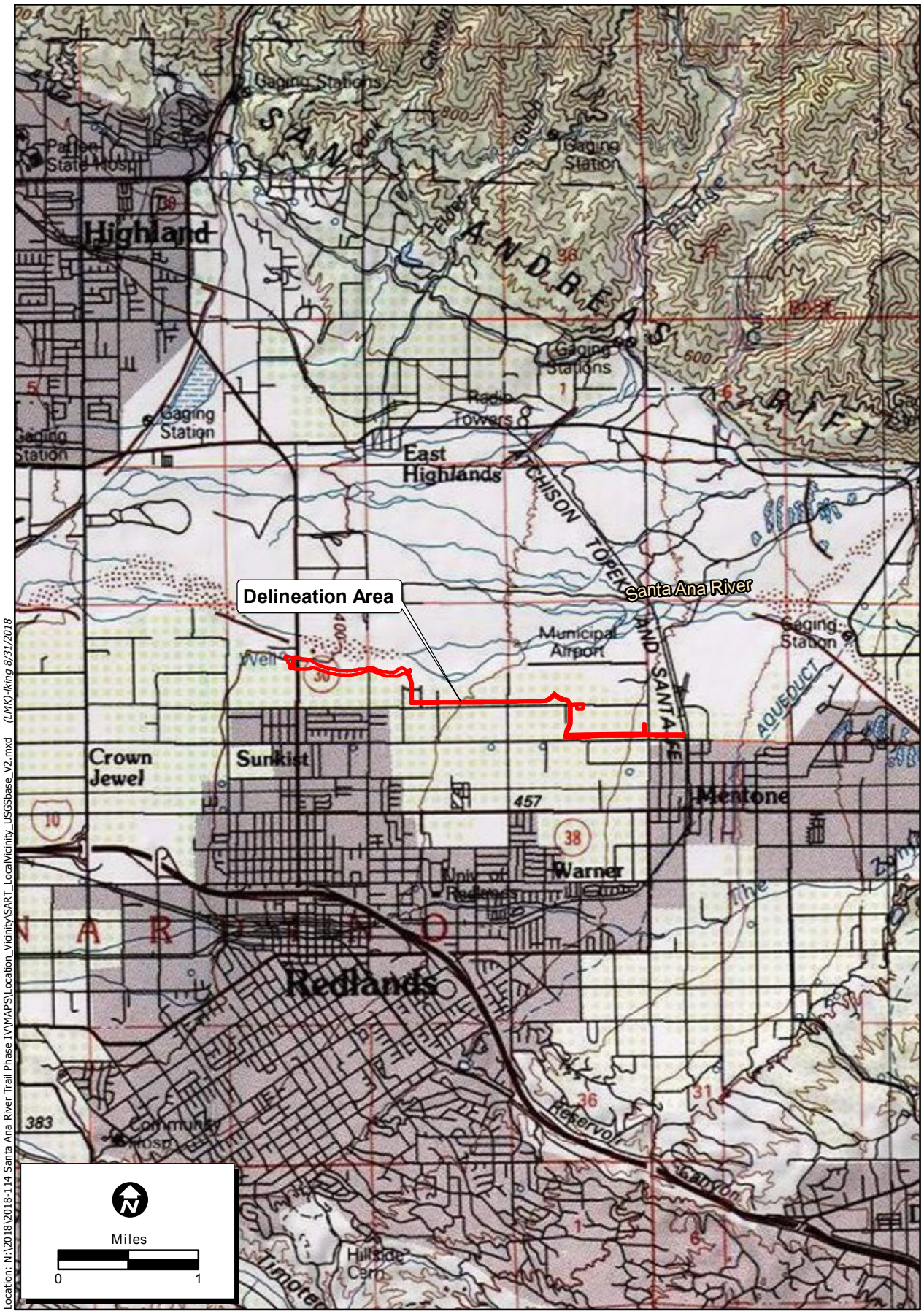
Figure 1. Vicinity

2018-114 Santa Ana River Trail Phase IV



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Map Date: 8/31/2018

Service Layer Credits: Copyright:© 2013 National Geographic Society, i-cubed

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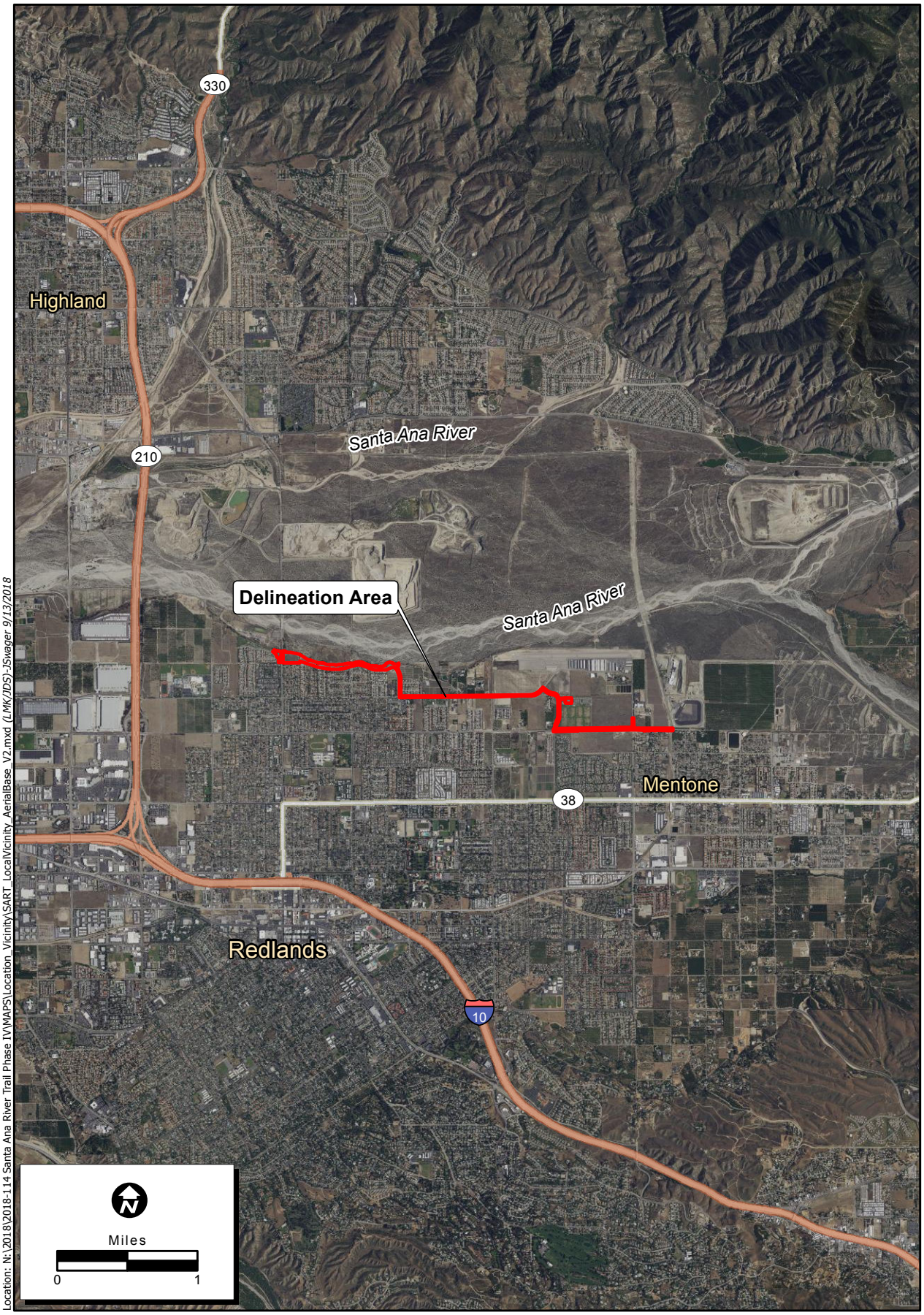
Exhibit 2. Local Vicinity

2018-114 Santa Ana River Trail Phase IV



Location: N:\2018\2018-114 Santa Ana River Trail Phase IV\MAPS\Location_Vicinity\SART_LocalVicinity_AerialBase_V2.mxd (LMK/JDS)-JSwager 9/13/2018

Map Date: 9/13/2018

Service Layer Credits: Esri, USDA Farm Service Agency

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Exhibit 3. Local Vicinity Map

2018-114 Santa Ana River Trail Phase IV

1.1.1 - Project Description

Detailed mapping of the SART Project Features can be found on Exhibit 4 below. The trail segments on the river bluffs would consist of a 10-foot wide asphalt/concrete trail and 4-foot decomposed granite/or 2-foot graded shoulder on each side of the asphalt/concrete trail; on the public right-of-way the existing road surface would be widened were possible to accommodate a Class-2 dedicated bicycle lane and/or standard bicycle lane stripping would be used to mark the alignment on the existing road surfaces (Class 3). Under existing conditions portions of Pioneer Avenue and San Bernardino Avenue do not have curb and gutter, where possible ultimate curb and gutter or asphalt dike would be constructed as part of this project.

In general, construction activities associated with development of the trail would include: earthwork including excavation and grading; construction of embankments and/or retaining walls; construction of drainage structures, and slope protection; construction of asphalt concrete dike, curb and gutter; installation of fencing, railing, access gates, trail delineators, and signage; painting of pavement striping and pavement markings; and, construction of appurtenant features. The subject segment of the SART includes one bridge over Orange Street in the City of Redlands.

Equipment staging and borrow/disposal during project construction may potentially occur at: (1) various locations within the disturbed vacant lands on the north side of Riverview Drive; (2) on disturbed road shoulders and/or street right-of-way on the south side of Pioneer Avenue; (3) at the Redlands Sports Park paved parking long; (4) on disturbed road shoulders and/or street right-of-way on the south side of San Bernardino Avenue; and, (5) on paved road shoulders and/or street right-of-way on the east side of Wabash Avenue.

Other Responsible Agencies

As conceptualized, the alignment would require approvals from the City of Redlands to develop the trail on the City's public right-of-way and may also require acquisition of right-of-way from private property owners.

Additionally, portions of the proposed trail alignment overlap or are located in close proximity to USFWS designated critical habitat. SART Phase IV is included in the Upper Santa Ana Wash Land Management and Habitat Conservation Plan (Wash Plan). However, the Implementation Plan for the Wash Plan is currently being developed and final approvals from the regulatory agencies have not yet been secured; the status for implementation of the Wash Plan is not definitively known. Therefore, consultation with and USFWS is required to fulfill ESA requirements under Caltrans NEPA.

Location: N:\2018\2018-114 Santa Ana River Trail Phase IV\MAPS\Location_Vicinity\SART_Project_Features_V2.mxd (MAG/JDS)-JSwager 9/12/2018

Map Date: 9/12/2018
Photo Source: 2014, USGS

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Exhibit 4. Project Features Map

2018-114 Santa Ana River Trail Phase IV

1.1.2 - Purpose of Project

The purpose of SART is to provide a recreational trail along the Santa Ana River in San Bernardino County, through the City of Redlands. The project is a part of the Santa Ana River Trail, designed to ultimately reach from the San Bernardino Mountains area along the entire Santa Ana River to the Pacific Ocean. The segment being constructed will improve recreation opportunities in the region and construct a portion of this important regional trail. Construction is planned for 2020.

The objectives of the project are to:

- Provide increased recreational opportunities within the County of San Bernardino;
- Construct a portion of the Santa Ana River Trail corridor;
- Provide a facility that is compatible with other local land uses;
- Provide consistency with the Trails Master Plan under the Wash Plan;
- Provide consistency with the City of Redlands Bicycle Master Plan;
- Provide a cost effective project solution; and
- Avoid and minimize environmental impacts to the extent practicable.

1.1.3 - Need for Project

SART is needed to provide a vital segment of a planned multi-use trail complex running along the Santa Ana River in southern California. Currently, approximately 70 of the proposed 100 miles of trail have been constructed. Specifically SART is needed to:

- Regional trail connectivity along the Santa Ana River west of Waterman Road;
- Projected regional population growth including the need for increased recreational opportunities.

1.1.4 - Project Alternatives

Alternative 1 (No-Build Alternative)

Alternative 1 (No Build) would maintain the existing mixture of developed and undeveloped lands within the project limits with no trails or associated improvements to be provided.

Alternative 2 (Santa Ana River Trail Phase IV, Reaches B & C)

Alternative 2 (SART Phase IV, Reaches B & C) would construct the SART starting just west of Orange Street to the east through the City of Redlands, for a distance of approximately 3.3 miles.

1.1.5 - Jurisdictional Delineation Summary

ECORP Consulting, Inc. (ECORP) conducted a Delineation of Jurisdictional Waters and Wetlands along an approximate 3.3-mile Delineation Area (DA) in San Bernardino County, California. This Jurisdictional Delineation Report discusses the hydrologic and biologic context of the DA based on the data collected

by ECORP on June 15, 2018, July 3, 2018 and September 6, 2018. For consistency among the technical studies prepared for the SART Project, the DA corresponds approximately with the Area of Potential Effect (APE) identified for the purpose of the cultural resources study. However during the field survey, if the delineators observed features located just outside of the DA, these were mapped as well to help show more context. The delineated areas within and near the DA are intended to 1) show hydrologic context for the SART Project and 2) provide adequate survey coverage to account for minor project design modifications over time. Photographs of various features recorded in this delineation are provided in Appendix B.

There were several artificial man-made drainage features mapped within or near the DA, all consisting of cement-lined, manufactured channels, buried underground stormwater conduits and channels to convey stormwater from adjacent, developed land uses and irrigation runoff. The features are considered non-jurisdictional to the USACE because they are man-made features in upland that do not correspond to historical stream courses in any manner. In our mapping, we have also shown the location of the Santa Ana River floodplain, for context. Portions of the floodplain would be considered jurisdictional to the USACE, but it is located entirely to the north of the SART Project limits and does not cross the DA. Exhibits 7 to 11 show the results of the delineation. Caltrans may seek a jurisdictional determination for those features which are thought to not fall under the jurisdiction of the USACE within the SART Project area.

Additionally, as part of this delineation, SWRCB and CDFW Jurisdiction were documented for purposes of inclusion in the SART Project Natural Environment Study and Environmental Document. Based on the delineation results, all features on Exhibits 7 to 11 are considered to be non-jurisdictional to the SWRCB and CDFW. USACE, RWQCB, and CDFW jurisdiction and supporting rationale is fully discussed in detail in Section 4.

1.2 - Subject Features

The DA, or immediately surrounding area, encompasses six (6) total features, of which two have a name associated with them – the Santa Ana River floodplain and the Judson Street Channel. Unnamed features have each been assigned a unique ID for the purposes of this discussion. An overview depicting the features records is shown on Exhibit 7. The following list depicts which features are found on each of the exhibits:

- Drainage 1, Drainage 2 (Exhibit 8)
- Drainage 3 (Exhibit 9)
- Drainage 4, Santa Ana River floodplain (Exhibit 10)
- Judson Street Channel (Exhibit 11)

The Santa Ana River flows east to west and is to the north of the DA, but the floodplain limits are shown for context. The floodplain limits are mapped for the purposes of this delineation as the limit of the Federal Emergency Management Agency (FEMA) 100-year floodplain. Although this floodplain limit is not considered to be the limit of USACE jurisdiction, it is considered to be the approximate limit of CDFW jurisdiction.

Direction of flow for all of the mapped features is north towards the location of the Santa Ana River. Flows within Drainages 1, 2, 3, 4 and the Judson Street Channel are engineered channels that were constructed to drain urban areas associated with Redlands.

Within or near the DA, there were two potential wetland areas sampled. One area sampled supported a large cottonwood tree within a stormwater runoff channel near Riverview Drive (Exhibit 10). An additional area was sampled along the Judson Street Channel, where soils were perched in a slightly concave area within the pavement (Exhibit 11). For more details see the discussion of these sample points in the Results section of this document and see Field Data Sheets in Appendix D. A full description of the type of water bodies within the DA is included in Subsection 3.5.1 of this report and more comprehensive descriptions of each feature are provided in Section 4.

SECTION 2: JURISDICTIONAL METHODOLOGY

2.1 - Methodology Statement

This Delineation of Jurisdictional Waters and Wetlands within the DA was conducted in accordance with regulations set forth in 33 Code of Federal Regulations (CFR) Part 328 and the USACE guidance documents referenced below:

- USACE Wetlands Research Program Technical Report Y-87-1 (online edition), "Wetlands Delineation Manual," Environmental Laboratory, 1987 (Wetland Manual).
- USACE "Guidelines for Jurisdictional Determinations for Waters of the United States in the Arid Southwest," 2001 (Arid Southwest Guidelines).
- USACE "Minimum Standards for Acceptance of Preliminary Wetlands Delineations," November 30, 2001 (Minimum Standards).
- USACE "Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)," September 2008 (Arid West Supplement).
- USACE "Jurisdictional Determination Form Instructional Guidebook," May 30, 2007 (JD Form Guidebook).
- USACE and Environmental Protection Agency (EPA) guidance (2007) and draft guidance on jurisdictional delineations (2011).

SWRCB jurisdictional limits were identified in accordance with Section 401 of the federal Clean Water Act, which identifies jurisdictional limits as any "surface water or groundwater, including saline waters, within the boundaries of the state." For the purposes of this delineation, the limits of SWRCB jurisdiction generally follow those of the USACE jurisdiction.

The delineation of CDFW jurisdiction follows the guidance and definitions contained within Section 1600 of the California Fish and Game Code, which connotes jurisdiction as a "river, stream, or lake designated by the department in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit." Delineators also used *A Review of Stream Processes and Forms in Dryland Watersheds* (Vyverberg 2010), which is a science based technical reference on dryland stream forms and processes, and MESA – Mapping Episodic Stream Activity (Vyverberg and Brady 2013) to aid in determining the CDFW jurisdictional limits for the delineation.

2.2 - Pre-Survey Investigation

Prior to the field visit, a 200-scale (1 inch = 200 feet) aerial photograph and applicable United States Geological Survey (USGS) 7.5-minute topographic quadrangle maps (San Bernardino South and

Redlands, California) were reviewed and compared to identify potential drainage features within the DA. The National Wetland Inventory (NWI) was also reviewed to identify any documented wetlands or other features within the DA. In addition, the United States Department of Agriculture (USDA) Soil Survey Map was reviewed to determine soil series that may be considered hydric that occur within and adjacent to the DA. Locations and identities of soils within the vicinity of the project are shown in Exhibit 6 and a discussion of the soils is provided in Table 3 in Section 3.7.

2.3 - Field Investigation

Field investigators used the unified federal method, as defined by the USACE using methodology outlined in the *Corps of Engineers Wetlands Delineation Manual* [Environmental Laboratory 1987] and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Arid West Region Supplement Version 2.0)* [USACE 2008], to delineate the jurisdictional areas. The boundaries of potential Waters of the U.S. were delineated through a field determination, made in conjunction with aerial photograph interpretation. Tools used during the jurisdictional delineation fieldwork included a Trimble™ GeoXT Handheld global positioning system (GPS) unit, shovel, Munsell color chart, and digital camera.

The field surveys were conducted by walking the Project area limits to determine the location and extent of potential Waters of the U.S. and limits of CDFW jurisdiction. For areas suspected of being a wetland, sample points were taken to determine the indicator status of vegetation, soils and hydrology. Limits of Waters of the U.S. were mapped according to the location of their Ordinary High Water Mark (OHWM). The location, linear feet and total area of the potential waters within the Project area was recorded in the field using a post-processing capable GPS unit with sub-meter accuracy (Trimble™ GeoXT) or the equivalent.

Measurements were entered into Geographical Information System (GIS) ArcView™ software to identify the location and dimensions of potentially jurisdictional areas. The GIS ArcView™ application was then used to compute federal and state jurisdictional acreages located within the DA. Acreage computations were verified using a 200-scale aerial photograph and field data.

Where potential wetlands were identified, paired sample points were collected. One sample point was collected within the potential wetland area while the other was located within the nearby upland area. Results of the sampling are included on Wetland Determination Data Forms in Appendix D.

Jurisdictional delineators based their field interpretation of the boundaries of jurisdictional areas on guidelines contained within the references cited above. Waters of the U.S. that may be regulated by the USACE under Section 404 of the Clean Water Act include traditionally navigable waters, other waters of the U.S., and wetlands. Wetlands are a subset of Waters of the U.S. that meet specific vegetative, soil, and hydrologic criteria.

SECTION 3: ENVIRONMENTAL SETTING

3.1 - Description of the DA

The DA includes the proposed trail alignment and additional areas (temporary construction easement and construction staging areas) required for construction of the SART Project from Orange Street (western limit) to Opal Avenue in the City of Redlands (eastern limit). The DA extends for approximately 3.3 miles along southern bluffs of the Santa Ana River and the developed urban area of north Redlands (Exhibits 1, 2, 3, and 4).

The DA is contained within the township, range, and sections of the USGS 7.5-minute topographic quadrangle maps listed in Table 1. USGS mapping of the DA is depicted on Exhibit 2.

Table 1: USGS Topographic Maps Covering DA

USGS 7.5 Minute Quadrangle Name	Township	Range	Sections
Redlands	1 South	2 West	18
		3 West	13, 14, 15

The coordinates for the DA's western limit are latitude 34.085383º north and longitude -117.183392º west, and its eastern limits are latitude 34.077293º north and longitude -117.133933º.

The SART Project areas are accessible along Riverview Drive, East Pioneer Avenue, Sessums Drive, Dearborn Street, East San Bernardino Avenue, and Opal Avenue.

3.1.1 - Description of Project Components within the DA

The types of work in the DA would include:

- Earthwork including excavation and grading ;
- Construction of embankments and/or retaining walls;
- Construction of drainage structures and slope protection;
- Construction of asphalt concrete dike, curb, and gutter;
- Installation of fencing, railing, access gates, trail delineators, and signage;
- Painting of pavement striping and pavement markings; and
- Construction of appurtenant features.

Construction of the build alternative will require staging areas and temporary construction easements to accommodate construction of the new facility. All known temporary construction easements are included within the DA.

3.2 - Location of Drainages in DA

The locations of the five (5) features identified within the DA are all in the western half of the DA as shown below in Exhibits 7 through 11 in Section 4. Coordinates and other information regarding the features can be found within the Jurisdictional Determination Table provided in Appendix C.

3.3 - Land Uses

As recently as 50 years ago, most of the DA was a mixture of undeveloped areas and orchards. The current land uses within the DA are predominantly composed of residential areas and city streets, along with some partially developed bluffs adjacent to the Santa Ana River floodplain. The Redlands Municipal Airport is located north of the DA in the eastern portion. Some vacant lots are also located in the vicinity of the DA near the airport. The Redlands Sports Complex occurs along Dearborn Street in the eastern portion of the DA – three parking lots within the complex are being proposed to be used as temporary laydown areas for construction. The Santa Ana River floodplain and bluffs are located to the north of the DA, consisting of largely undeveloped and natural habitat areas.

3.4 - Topography

The DA is located south of the Santa Ana River floodplain within largely developed portions of the City of Redlands. The Santa Ana River consists of a floodplain that ranges from one to two mile in width, and is defined by a series of bluffs along the southern boundary. The bluffs are 30 to 40 feet high. The DA occurs south of the highest point along the bluffs and the proposed location of the SART is no closer than 20 feet from the edge of the bluffs. From the bluffs southwards through Redlands, the topography rises slightly the farther south one gets from the Santa Ana River. The elevations also rise from west to east within the DA. The City of Redlands where the DA is located is mostly residential development along with commercial and industrial areas. Because the DA is largely developed, it has been graded to be mostly flat or relatively so.

Starting at the western end of the DA, the SART runs along the bluffs for approximately 0.80 mile from Orange Street to where River Bluff Drive and supports a mostly disturbed portion of the top of the bluffs with gently sloped topography. Topography throughout the rest of the DA to the east is representative of graded and developed portions of Redlands with many of the areas having been graded flat or nearly so previously for agriculture or development. The elevations within the DA range from approximately 1,322 feet above mean sea level (msl) in the west to 1,646 feet above msl in the east.

3.5 - Hydrology

3.5.1 - Pertinent Hydrogeomorphic Features

The jurisdictional assessment of the DA documented six (6) hydrogeomorphic features, including two (2) named features: Santa Ana River and Judson Street Channel. Four of the features are grouted riprap channels, all of which are unnamed and serve the primary purpose of directing urban runoff (irrigation, and so on) and stormwater runoff. Influences from urban runoff are present in all delineated features, consisting of either storm drains or irrigation runoff. Drainage 4 (Exhibit 10) was also observed with flowing water originating from irrigation runoff from the residential neighborhoods to the south. Judson Street Channel also had water within it during one of the field visits.

The engineered drainage channel features mapped within or near the DA contain little to no sediment or vegetation within their channel bottom. There are culverts present in each of the channels and ultimately each of these engineered channels empties into the Santa Ana River floodplain, with riprap at the interface between the manufactured and natural portions to provide energy dissipation. A large Fremont's cottonwood (*Populus fremontii*) occurs within Drainage 4. None of the mapped features were found to contain the necessary criteria to qualify as potential USACE wetlands.

For the purpose of complying with terminology under the Rapanos versus Carabell court decision and its associated Supreme Court direction, drainage channel features within the DA are described as Relatively Permanent Waters (RPWs) and non-Relatively Permanent Waters (non-RPWs). RPWs are typically considered as intermittent and perennial streams, while non-RPWs are considered to encompass all ephemeral streams. Table 2 summarizes the characteristics of all the drainages within or near the DA.

Table 2: Types of Water Bodies within or near DA

Drainage Feature	Conveyance Type at SART Project	Type of Water Body	
		RPW/Intermittent/ Perennial	Non-RPW/ Ephemeral
Santa Ana River	Not applicable/outside of DA	●	
Judson Street Channel	Not applicable/outside of DA		●
Drainage 1	Engineered open grouted riprap flood control channel		●
Drainage 2	Engineered open grouted riprap flood control channel		●
Drainage 3	Engineered open grouted riprap flood control channel		●
Drainage 4	Not applicable/outside of DA		●

3.5.2 - Watershed Description

The DA is within the Santa Ana River Watershed (Hydrologic Unit Code [HUC] 18070203) and is within sub-watershed HUC 180702030507. The Santa Ana River Watershed encompasses approximately 3,000 square miles (1,696,000 acres) spanning parts of San Bernardino, Riverside, Los Angeles, and Orange Counties, following the path of the Santa Ana River, whose headwaters are located in the San Bernardino

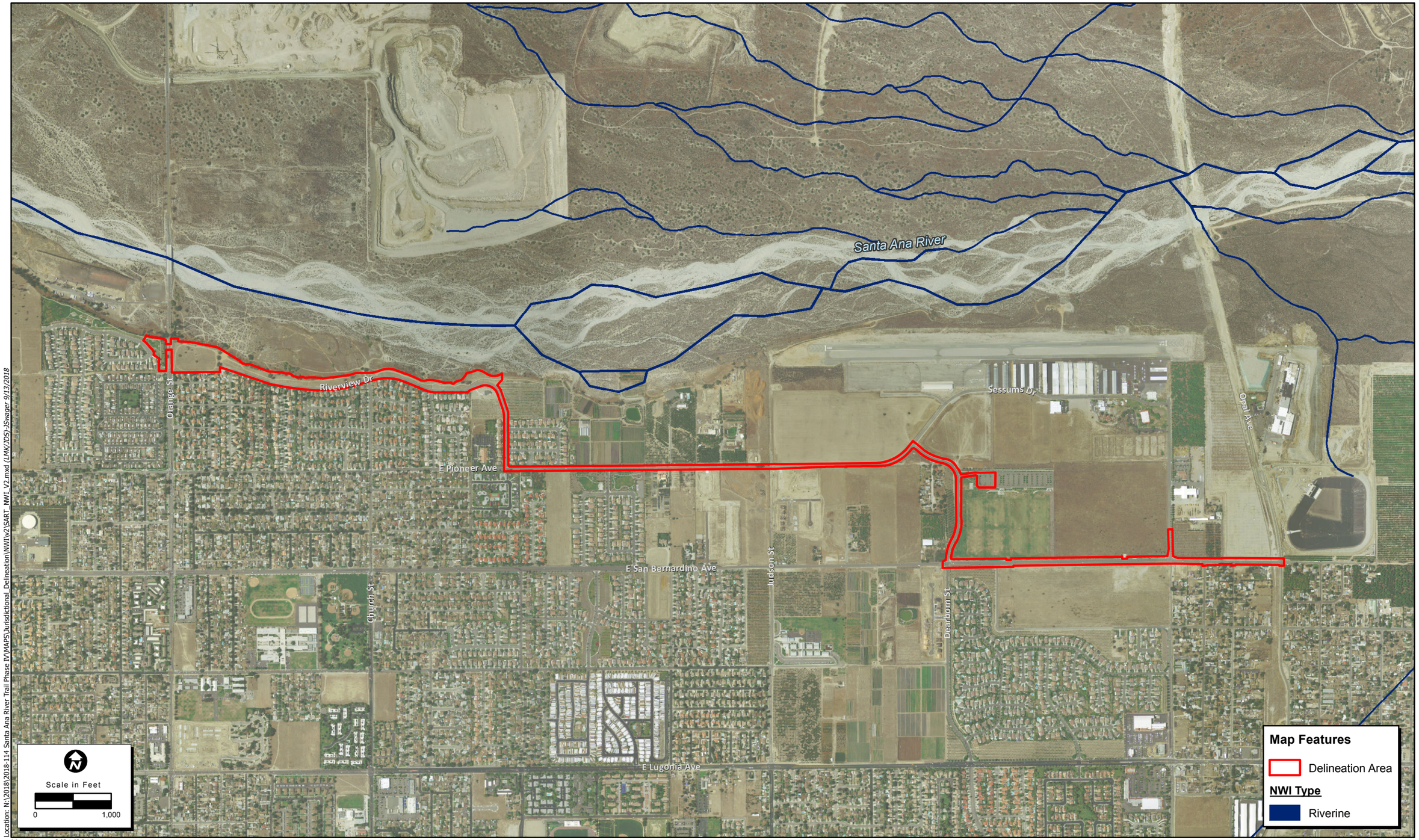
Mountains near San Gorgonio Summit within National Forest lands to the east of the City of San Bernardino. The San Bernardino Mountains comprise part of the Transverse Ranges of California, and trend northwest to southeast. The Santa Ana River flows approximately 100 miles, through a combination of natural areas and urban environments, to enter the Pacific Ocean near Huntington Beach. According to the Water Quality Control Plan for the Santa Ana River Basin (SWRCB 1995), the sub-watershed encompasses most of the Upper Santa Ana River floodplain, including Reach 5 of the Santa Ana River as well as Lower City Creek, Plunge Creek, Elder Creek, and Reach 1 of Mill Creek. The confluence with Mill Creek is located just upstream of the SART Project area and the confluence with Plunge Creek is located on the north side of the river approximately two miles northwest of Orange Street.

The Santa Ana River Watershed is within an arid region, and although it is one of the largest regional watersheds, there is little natural perennial surface water in most of the watershed's various drainage courses. This upper zone of the watershed, within the mountains, has the highest gradient and soils/geology that do not allow large quantities of percolation of surface water into the ground. Flows consist mainly of snowmelt and storm runoff from the lightly developed San Bernardino National Forest. The Santa Ana River flows into Seven Oaks Dam which contains and regulates flows at the base of the mountains before they enter the Santa Ana River valley floor. In the vicinity of SART, flows within the Santa Ana River are augmented by storm flows, urban runoff, and groundwater that is rising due to local geological conditions.

Based on aerial photograph interpretation, the historic flow patterns for the DA consist of a few small ephemeral features entering the Santa Ana River via small channels, most of which have been present since the earliest recorded imagery (1938). As most of the area feeding these channels has gradually been developed, those channels have been eliminated. Current features within the DA consist entirely of developed stormwater runoff features augmented by runoff from agricultural areas (orchards) and various forms of urban development and hardscape. The Santa Ana River and its flood plain immediately north of the DA has not changed much, other than a few gravel mining interests downstream and some limited other disturbances. Urban development in Redlands during that time has increased broadly, and the DA has little similarity to its historic past.

3.5.3 - National Wetlands Inventory

The DA was reviewed to identify any existing National Wetland Inventory (NWI) mapping located on site (Exhibit 5). There were several features identified associated with the Santa Ana River, all generally north of the DA boundaries. These features are generally braids of the alluvial system associated with the Santa Ana River and are either active channels, low flow channels, or paleo channels. Because the features were north of the DA, they were not closely examined to determine their current status.



Location: N:\2018\2018-114 Santa Ana River Trail Phase IV\MAPS\Jurisdictional_Delineation\NWI\v2\SART_NWI_V2.mxd (LMK/JDS) JSwager 9/13/2018

Map Date: 8/31/2018
Photo Source: 2014, USGS

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Exhibit 6. National Wetlands Inventory

2018-114 Santa Ana River Trail Phase IV

3.6 - Field Conditions

3.6.1 - Seasonal Climate Variation

The DA and surrounding area are subject to both seasonal and annual variations in temperature, but man monthly temperatures are the lowest in December and January (39.7 and 39.5 degrees Fahrenheit, respectively) and highest in July and August (94.6 and 94.4 degrees Fahrenheit, respectively). The average annual rainfall for Redlands is 12 inches with precipitation amounts typically greatest in the winter months of January, February, and March (2.51, 2.69, and 2.20 inches, respectively) and lowest in the summer months of June and July (0.10 and 0.07 inches, respectively).

3.6.2 - Field Conditions at time of Field Investigation

Fieldwork was conducted during the summer season for the region. Within the year prior to the survey (June 2017 to June 2018), rainfall totals were below normal (6.01 inches). However during the previous 12-month period before that (June 2016 to June 2017), the rainfall totals were well above normal (16.12 inches). Because of the 2016-2017 rainfall in the area, the features observed during the field visit are considered to represent at least an average condition.

Surveys were all conducted during the morning hours. Field conditions at the time of the surveys were mild to warm with light winds blowing at approximately 2 to 8 miles per hour and temperatures ranging from 68 to 82° F. No rain occurred during the survey period.

3.7 - Soils

Four different soil series occur on or in the immediate vicinity of the DA [United States Department of Agriculture Soil Survey, San Bernardino County, 2005] (see Exhibit 6): Hanford, Pssaments and Fluvents, Soboba and Tujunga. A soil series is a group of soils with similar profiles. These profiles include major horizons with similar thickness, arrangement, and other important characteristics. All of the soil series recorded are natural soil types, but there is the potential for presence of fill material derived from other sources within the many developed portions of the DA, as well as potential mixing of soil types along the surface horizons to some degree due to associated ground disturbance. There are two subtypes present for both the Soboba and Tujunga Series soils that are present. These subtypes represent slightly different soil textures, but generally do not affect other attributes.

The drainage classes of the soil series recorded within the DA are well drained to excessively drained, meaning that they are not generally very wet. Water is removed from the soil readily to rapidly and internal free water occurrence is rare. All of the recorded soils are alluvium derived from granite or are considered to be a sandy alluvium. Cobbles and coarse stones are common within the soils recorded within the DA. All of the soil types present contain moderate to rapid permeability with variable runoff potential. Soils from the Soboba Series have very slow runoff potential but rapid permeability, meaning that it is rare to see surface waters in these areas.

These soil series were checked against the United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) National Hydric Soils List. The presence of hydric soils was field verified using standard USACE delineation methods. Two of the soil series present within the DA are identified by the NRCS as hydric soils – Pssaments and Fluvents and Tujunga. Both of these soil series have the potential to be associated with floodplains.

Field surveys confirmed the presence of these soil types, as site conditions where soils were sampled conformed to expectations. Sample point data collected in the field can be found in Appendix D. See Table 3 for summarized details regarding the soils present in the DA.

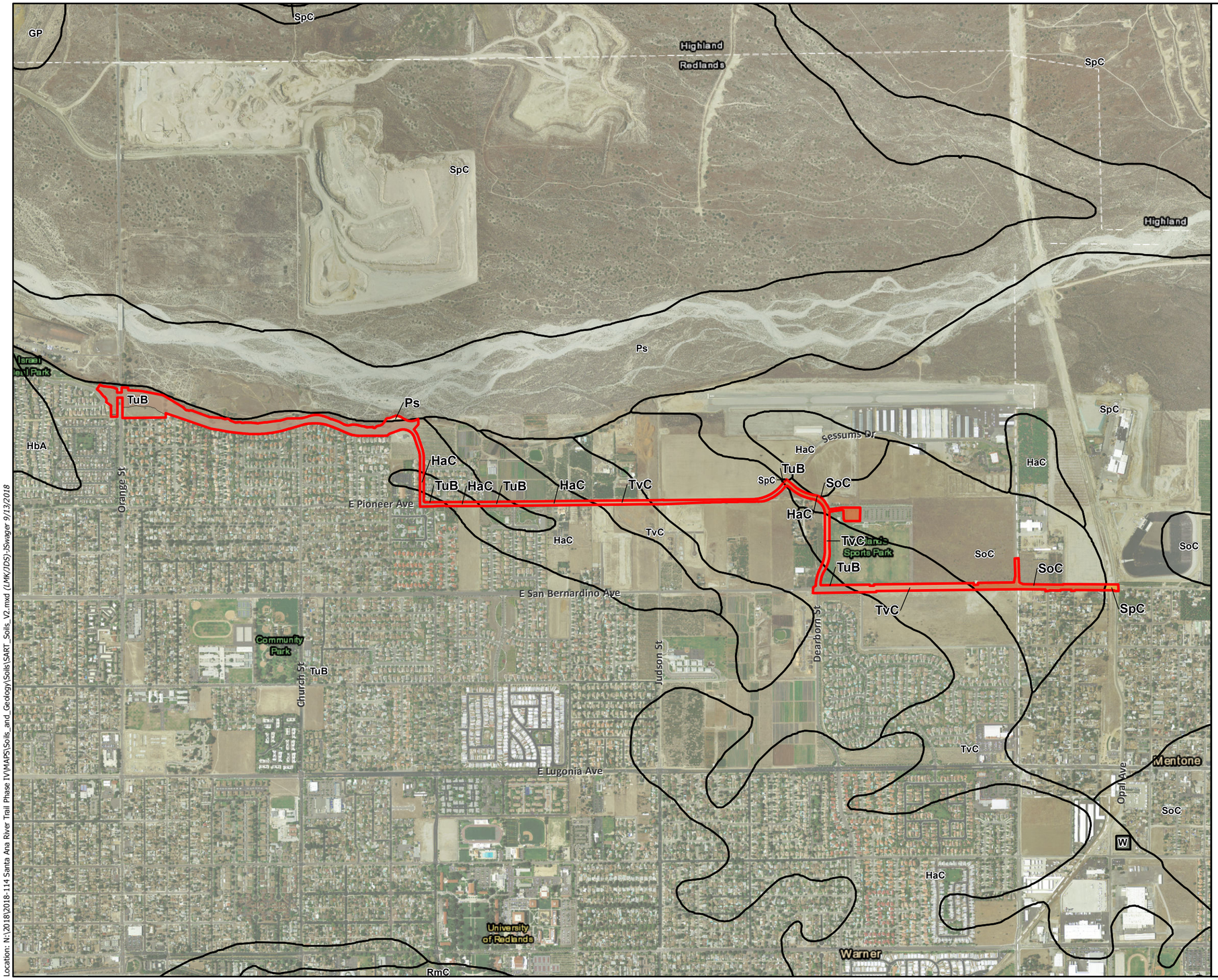
Table 3: Summary of USDA / NRCS Soil Descriptions

Code	Soil Series	Mapping Unit	NRCS Hydric/ Landform	Water Drainage	Material	Permeability
HaC	Hanford	Coarse sandy loam, 2 to 9% slopes	No	Well drained	Alluvium derived from granite	Moderately rapid. Runoff is slow to medium; erosion hazard is slight to moderate. Water holding capacity is 5-7.5 inches
Ps	Psamments and Fluvents	Frequently flooded, 0 to 5% slopes	Yes	Excessively drained	Sandy alluvium	Rapid. Water holding capacity is 2-5 inches
SoC	Soboba	Gravelly loamy sand, 0 to 9% slopes	No	Excessively drained	Alluvium derived from granite	Very slow runoff and rapid permeability
SpC	Soboba	Stony loamy sand, 2 to 9% slopes	No	Excessively drained	Alluvium derived from granite	Very slow runoff and rapid permeability
TuB	Tujunga	Loamy sand, 0 to 5% slopes	Yes	Somewhat excessively drained	Alluvium derived from granite	Rapid. Available water holding capacity is 2-5 inches
TvC	Tujunga	Gravelly loamy sand, 0 to 9% slopes	Yes	Somewhat excessively drained	Alluvium derived from granite	Rapid. Available water holding capacity is 2-5 inches

3.8 - Vegetation

The drainages within the DA lack vegetation within their streambeds due to being grouted riprap, concrete, artificial channels (Drainages 1 through 4; Judson Street Channel). The only vegetation present is within cracks in the concrete where herbaceous species are present. The vegetation outside of the channels generally consists of disturbed habitat types and landscaped areas associated with developments. Drainage 4 has a large Fremont's cottonwood growing beside it.

Exhibit 6.
USDA Soils Map



Map Features

- Biological Study
- Construction Limits

NRCS Soil Types

Series Number - Series Name

- HaC - Hanford coarse sandy loam, 2 to 9 percent slopes
- Ps - Psamments, Fluvents and Frequently flooded soils
- SoC - Soboba gravelly loamy sand, 0 to 9 percent slopes
- SpC - Soboba stony loamy sand, 2 to 9 percent slopes
- TuB - Tujunga loamy sand, 0 to 5 percent slopes
- TvC - Tujunga gravelly loamy sand, 0 to 9 percent slopes

Natural Resources Conservation Service (NRCS)
Gridded Soil Survey Geographic (gSSURGO) Database for San Bernardino County, CA

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Location: N:\2018\2018-114 Santa Ana River Trail Phase IV\MAPS\Soils_and_Geology\Soils\SART_Soils_V2.mxd (LMK/JDS) JSwager 9/13/2018

2018-114 Santa Ana River Trail Phase IV

Scale in Feet
0 1,500

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Photo Source: 2014, USGS

Map Date: 9/13/2018

The Santa Ana River floodplain just to the north of the DA supports mostly Riversidean Alluvial Fan Sage Scrub with some Riversidean sage scrub, mule fat scrub, southern willow scrub, grasslands or disturbed areas. The channel is generally scoured with little vegetation and abundant large rocks and boulders.

3.9 - Coastal Zone Evaluation

The project site is not within the coastal zone as defined by the California Coastal Act. As such, a Coastal Zone Management Act consistency determination is not required.

3.10 - Critical Habitat

Designated Critical Habitat (CH) for the San Bernardino kangaroo rat (*Dipodomys merriami parvus*) occurs north of the DA near the intersection of Sessums Avenue and Dearborn Street. CH for the Santa Ana sucker (*Catostomus santaanae*) occurs farther north from the DA in the Santa Ana River floodplain. No direct, adverse modification of critical habitat associated with the construction or operation of SART is anticipated. Potential effects on critical habitat and endangered species will be documented more thoroughly in a Natural Environment Study. A Biological Assessment will be prepared for formal consultation with the USFWS in accordance with Section 7 of the Endangered Species Act to document potential effects due to SART on threatened and endangered species and critical habitat.

3.11 - Historical Properties

An assessment of historic properties is required by the USACE in administering the Section 404 permitting program. Pursuant to the National Historic Preservation Act (NHPA), the presence of significant cultural resources must be determined prior to submittal of the Section 404 permit application.

A Historic Properties Survey Report (HPSR) is being completed to document the presence of historic properties and any potential effects on the properties due to implementation of the proposed project. Based on the results of the HPSR, any cultural resources eligible for listing on the National Register of Historic Places present in the Project area will be disclosed in the Section 404 permit application. Project compliance with the NHPA, as applicable, will be completed prior to applying for a Section 404 permit from the USACE.

3.12 - Environmental Documentation

California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) documents are being prepared for the project. Specifically, a CEQA Initial Study/Mitigated Negative Declaration Report and NEPA Categorical Exclusion are being prepared for the Project.

SECTION 4: JURISDICTIONAL DELINEATION RESULTS

The following section provides a discussion of jurisdictional and non-jurisdictional areas within the DA, including findings related to vegetative communities, topography, soils, hydrology, and wetlands for each of the geomorphic features.

4.1 - Summary of Jurisdictional Findings

There are six (6) separate features recorded within the DA, including the Santa Ana River floodplain. None of the features are considered to be USACE Jurisdictional and none correspond with historic rivers or streams except for the Santa Ana River floodplain. Descriptions of the features are provided in Section 4.1.2. Locations and areas of these features are shown on Exhibits 7 through 11. Representative photographs of all drainage features mapped are provided in Appendix B. Within the DA, there were no potential wetland areas identified. Sample point data collected in the field can be found in Appendix D.

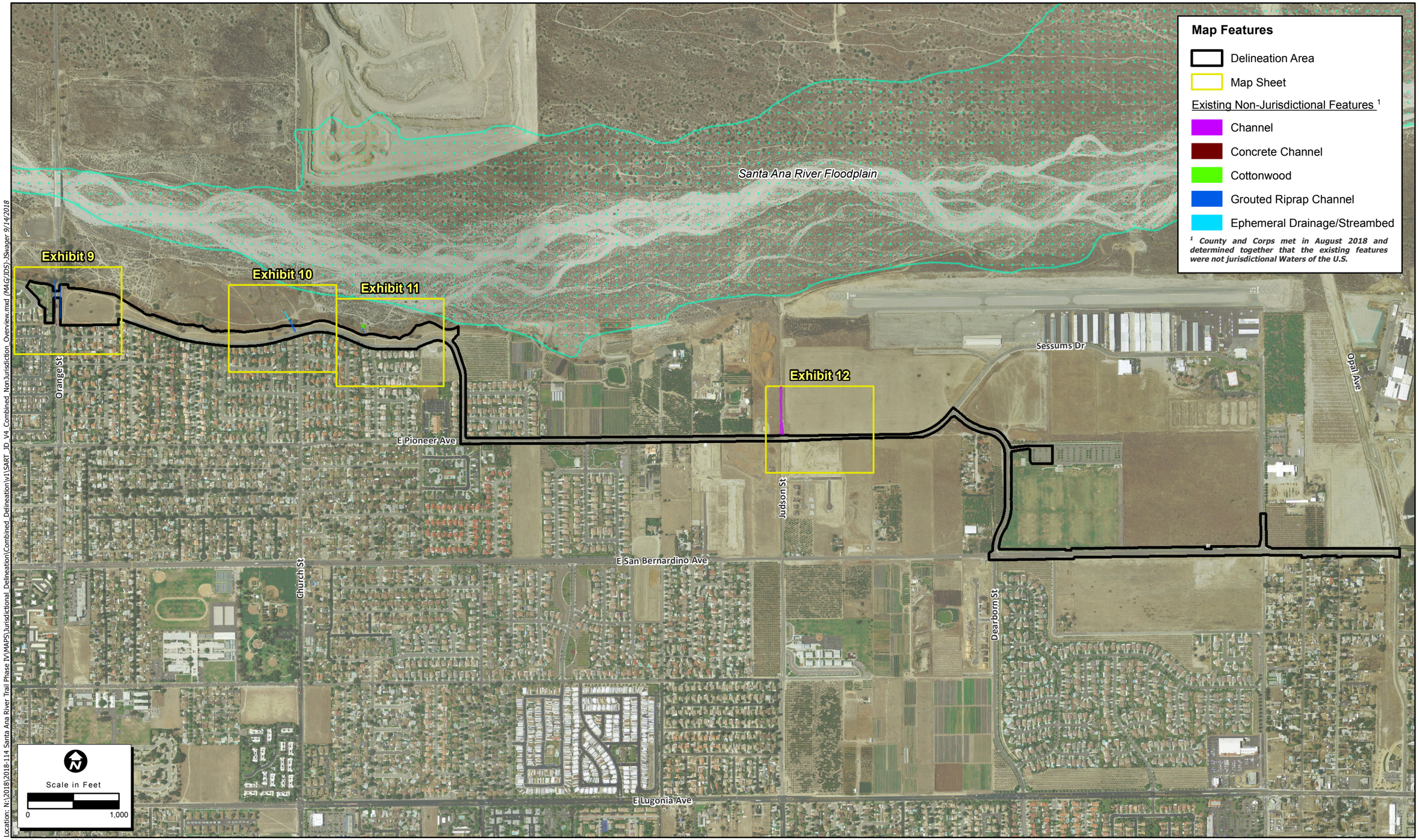
The basis for the features mapped within the DA being USACE Non-Jurisdictional features is that they fall within definitions of not being Waters of the U.S described in 33 CFR Part 328.3.b (Definitions). The features are “stormwater control features constructed to convey, treat, or store stormwater that are created in dry land.” Further, the features are not “located within a relocated tributary or excavated in a tributary.” A summary of the jurisdictional status and other data for each feature can be found in Appendix C.

All of the features recorded within the DA are also considered non-jurisdictional to the SWRCB and CDFW because they are artificial drainage channels. The acreage calculations for these features are the same as those for the USACE where the feature in question is very small in size or where the channel and sides are manufactured.

4.1.1 - USACE Preliminary Jurisdictional Finding

Within the DA, there were no features considered to be jurisdictional to the USACE. The features recorded are not jurisdictional due to being artificial stormwater conveyances excavated within upland, dry areas and not corresponding to natural stream channels. According to 33 CFR Part 328.3, these features are not considered to be jurisdictional even if they meet criteria of being tributaries otherwise defined in the regulations. A Significant Nexus determination is also not applicable to these types of features. There were no USACE-jurisdictional wetlands, isolated or otherwise, identified within the DA and no Special Aquatic Sites.

Caltrans may request a jurisdictional finding for the features from the USACE. A discussion of each of these features is provided below and a “Preliminary Jurisdictional Determination Table” has been prepared and is included in Appendix C. Note that some features show no acreage because they are located outside of the DA. These areas were included because they were close enough to the DA to potentially warrant protection via project Best Management Practices during construction, even though they would not be directly impacted by the SART Project.



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Map Date: 9/14/2018
Photo Source: 2014, USGS

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Exhibit 7. Key to Mapped Features

2018-114 Santa Ana River Trail Phase IV

Jurisdictional Delineation [1]
Exhibit 8

Map Features

- Delineation Area
- Underground Drainage

Impact Type

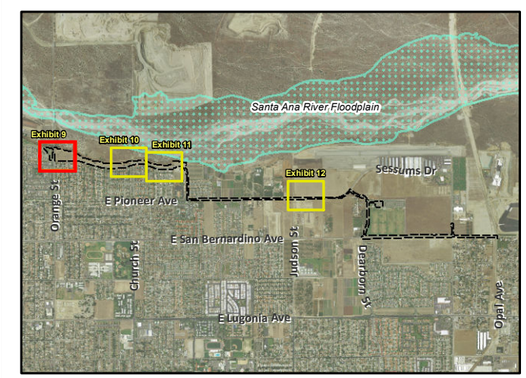
- Permanent
- Temporary

Existing Non-Jurisdictional Features [1]

- Concrete Channel
- Grouted Riprap Channel

[1] *County and Corps met in August 2018 and determined together that the existing features were not jurisdictional Waters of the U.S.*

Key Map



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2018-114 Santa Ana River Trail Phase IV

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Scale in Feet
0 100

Photo Source: 2014, USGS
Boundary Source: San Bernardino County
Delineator: Scott Taylor
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet

Map Date: 9/14/2018

Jurisdictional Delineation [1]
Exhibit 9

Map Features

Delineation Area

Impact Type

Permanent

Temporary

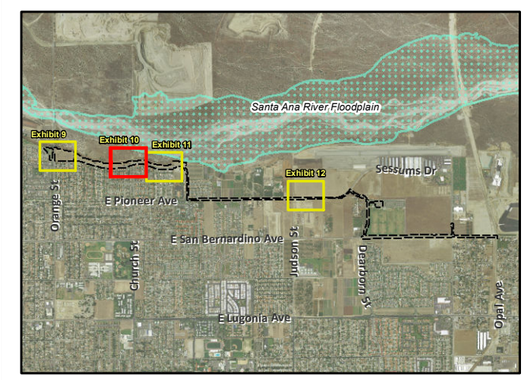
Existing Non-Jurisdictional Features [1]

Grouted Riprap Channel

Ephemeral Drainage/Streambed

[1] County and Corps met in August 2018 and determined together that the existing features were not jurisdictional Waters of the U.S.

Key Map



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2018-114 Santa Ana River Trail Phase IV

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Scale in Feet
0 100

Photo Source: 2014, USGS
Boundary Source: San Bernardino County
Delineator: Scott Taylor
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet

Map Date: 9/14/2018

Jurisdictional Delineation [1]
Exhibit 10

Map Features

Delineation Area

Impact Type

Permanent

Temporary

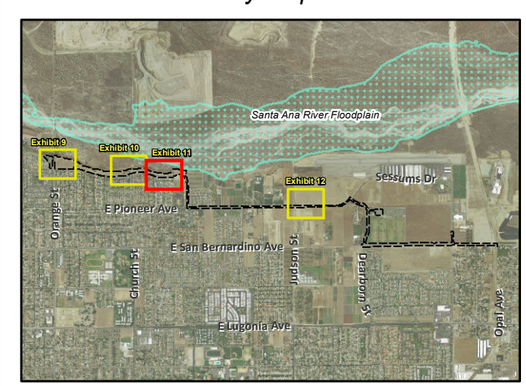
Existing Non-Jurisdictional Features [1]

Cottonwood

Grouted Riprap Channel

[1] County and Corps met in August 2018 and determined together that the existing features were not jurisdictional Waters of the U.S.

Key Map



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2018-114 Santa Ana River Trail Phase IV

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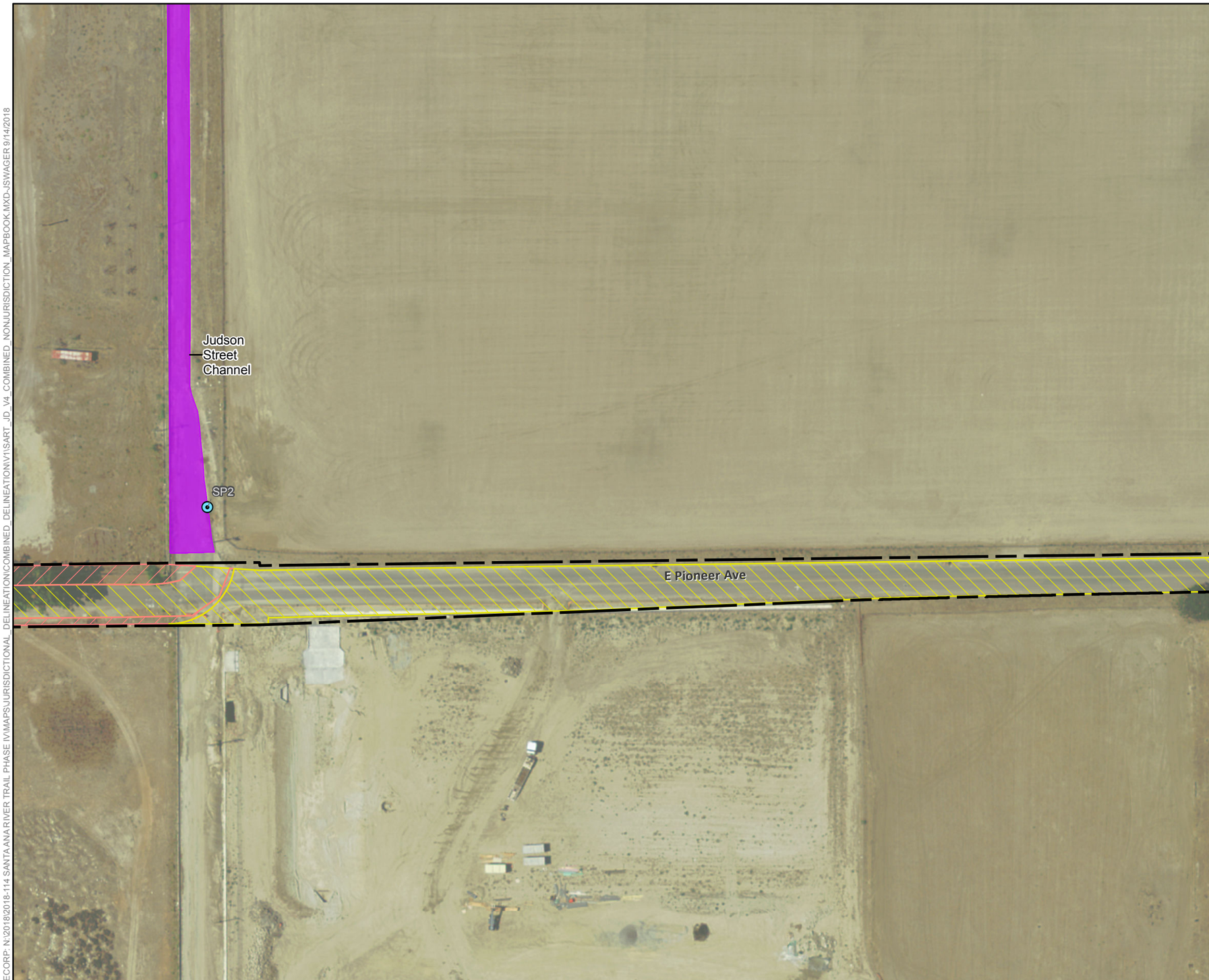
Scale in Feet
0 100

Photo Source: 2014, USGS
Boundary Source: San Bernardino County
Delineator: Scott Taylor
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet

Map Date: 9/14/2018



Jurisdictional Delineation [1]
Exhibit 11

Map Features

Delineation Area

Impact Type

Permanent

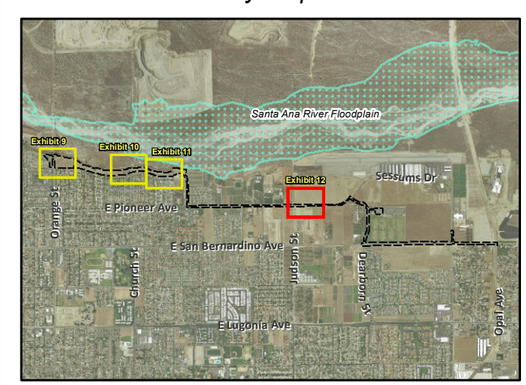
Temporary

Existing Non-Jurisdictional Features [1]

Channel

[1] County and Corps met in August 2018 and determined together that the existing features were not jurisdictional Waters of the U.S.

Key Map



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2018-114 Santa Ana River Trail Phase IV

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Scale in Feet
0 100

Photo Source: 2014, USGS
Boundary Source: San Bernardino County
Delineator: Scott Taylor
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet

Map Date: 9/14/2018

ECORP N:\2018\2018-114 SANTA ANA RIVER TRAIL PHASE IV\MAPS\JURISDICTIONAL_DELINEATION\COMBINED_DELINEATION\V1\SART_JD_V4_COMBINED_NONJURISDICTION_MAPBOOK.MXD-JSWAGER 9/14/2018

A summary of all of the features recorded is below in Table 4.

Table 4: Mapped USACE Non-Jurisdictional Areas

Feature	Acres	Linear Feet	Category
Drainage 1	0.02	116	Non-RPW/Ephemeral
Drainage 2	0.02	203	Non-RPW/Ephemeral
Drainage 3	0.03	103	Non-RPW/Ephemeral
Drainage 4	0	0	Non-RPW/Ephemeral
Judson Street Channel	0.09	1,427	Non-RPW/Ephemeral
Total	**0.22**	**2,343**	**—**

Drainage 1 (Exhibit 8)

This feature is a concrete channel that flows northward along the west side of Orange Street, draining runoff from the road. The channel is trapezoidal in cross-section with a total width ranging from 4 to 12 feet with a flat bottom that is 4 feet wide. No vegetation is present within the channel. A portion of the channel is directed into a three-foot diameter corrugated steel pipe which continues northwards to enter an outfall leading to the Santa Ana River floodplain. Another channel overlaps the piped portion of the channel, also directing runoff towards the north. The overlapping channel joins the other channel at the outfall. Due to their overlapping position, the feature was mapped as one single channel.

Drainage 2 (Exhibit 8)

This feature parallels Orange Street on the east side, and is also a concrete channel manufactured to direct runoff from Orange Street into the Santa Ana River. The channel is trapezoidal in cross-section, flows north and ranges in width from 6 feet to 12 feet wide. No vegetation is present within the channel.

Drainage 3 (Exhibit 9)

Drainage 3 is a shallow concrete swale or channel that connects to Riverview Drive, collecting flows from the road and directing it northwards towards the Santa Ana River. The channel runs for about 100 feet north of Riverview Drive before entering into a pile of riprap and then exiting via a natural bottom channel. The concrete channel is about 10 feet in width and the natural bottom channel after the riprap is about 4 feet in width. No vegetation is present within the concrete portion of the channel, but downstream among the riprap is a large Peruvian pepper tree (*Schinus molle*) and downstream of that the channel is bordered by various non-native grasses.

Drainage 4 (Exhibit 10)

This feature was located outside of the DA, but was mapped because of its proximity and the potential for indirect effects. It is a grouted riprap channel that collects flows from the storm drain system in the residential development south of Riverview Drive. The feature begins with an exit steel pipe culvert that begins approximately 100 feet north of Riverview Drive. Storm flows exit the culvert, enter the grouted channel, and drop into a small area of riprap before flowing northward via a natural bottom channel. A large Fremont cottonwood sits at the bottom of the channel. No vegetation is present within the concrete portions of the channel.

Sample Point 3 was taken in this feature, underneath the cottonwood. The results indicated that both hydrophytic vegetation and indicators of hydrology were present, but that hydric soil was not present. Vegetation was dominated by the cottonwood (FAC), along with smaller amounts of mule fat (*Baccharis salicifolia*; FAC) and black willow (*Salix goodingii*; FACW). Although the soils did exhibit a very low Chroma (1), they did not support any indicators. Hydrology indicators included Saturation (A3), Water-Stained Leaves (B9), Biotic Crusts (B12), and Drift Deposits (Riverine; B3).

Judson Street Channel (Exhibit 11)

Judson Street Channel is a historic road/flood control channel that drains a large area to the south of Pioneer Avenue and flows north to the Santa Ana River. The entire width of the channel in its southern section is concrete, with a low flow channel along its west side bordered by stone and cement walls. No vegetation is present within the channel. Storm flows are known to fill the entire channel during larger storm events but the low flow channel carrying more average flows. At the north end of the feature, it enters into a concrete apron and flows continue northward across a riprap area and into a large and deep earthen channel. The low-flow portion enters into a steel pipe that also flows into the larger earthen channel. The earthen portions of the channel are characterized by heavy erosion and "sluffing off" of the sides along with signs of heaving degradation of sediment within the channel bottom. Vegetation within the earthen part of the channel consisted of Mexican fan palm (*Washingtonia* sp.), California buckwheat (*Eriogonum fasciculatum*), brittlebush (*Encelia farinosa*), fountain grass (*Pennisetum setaceum*), tree tobacco (*Nicotiana glauca*), tamarisk (*Tamarix parviflora*), and giant reed (*Arundo donax*).

A small potential wetland area was sampled (Sample Point 2) at the south end of the channel, where the asphalt was slightly concave and allowed for water to pool. A small about of dirt and sediment was in this area, allowing for vegetation to grow. The results indicated that both hydrophytic vegetation and indicators of hydrology were present, but that hydric soil was not present. Vegetation was dominated by Kentucky bluegrass (*Poa pratensis*; FAC) and common purslane (*Portulaca oleracea*; FAC), with smaller amounts of tall flatsedge (*Cyperus eragrostis*; FACW) and crabgrass (*Digitaria sanguinalis*; FACU). No hydric soil indicators were observed. Hydrology indicators observed included Surface Soil Cracks (B6 and Biotic Crust (B12).

Santa Ana River Floodplain (Exhibits 9 and 10)

The Santa Ana River is the principal drainage of the Santa Ana watershed. It begins east and north of the DA within the San Bernardino Mountains and flows through a broad floodplain which is characterized as a sandy, braided riverine system. The south side of the river floodplain is bordered by moderate to high bluffs that separate the floodplain from the more upland areas. The main channel of the river, visible on aerial mapping by its whiter soils and sinuous nature, meanders through the overall floodplain in a complex, multi-braided path. The river contains several low-flow channels, channel bars, high and low terraces, vegetated islands, sediment splays, and several classes of substrate materials. The Santa Ana River channel is absent from the DA but occurs just to the north in some portions near the western portion

of the DA where River Bluff Drive curves southwards. Within most areas of the DA, the channel over 2,000 feet away from the proposed SART location.

4.1.2 - Potential CDFW and SWRCB Jurisdiction

CDFW 1602 jurisdiction, and SWRCB jurisdiction Pursuant to Section 401 of the CWA, was not identified within the DA. Just outside of the DA, the Santa Ana River Floodplain was identified and it is considered jurisdictional to both agencies.

Santa Ana River Floodplain (Exhibits 7 through 11)

The Santa Ana River floodplain mapping roughly corresponds to the limits of the Federal Emergency Management Agency (FEMA) mapping of the 10-year floodplain, as modified based on conditions observed in the field. Generally the floodplain is bordered by moderate to high bluffs that separate the floodplain from the more upland areas. The floodplain limit is either far north of the DA or is lined up roughly with the DA limits (the DA is still entirely to the south).

4.2 - Rationale for USACE Non-Jurisdictional Determinations

4.2.1 - USACE Non Jurisdictional Features (Santa Ana River Floodplain)

Because the Santa Ana River floodplain is directly adjacent to the DA in certain areas, this section is provided as rationalization as to why this is considered a non-USACE jurisdictional portion of the Santa Ana River. In addition to the pre-survey and field investigations discussed in Section 2, biologists also reviewed historical aerial photographs and historic topographic maps of the DA. Historic aerial photographs of the DA (Years: 1938, 1959, 1966, 1968, 1980, and yearly from 1984 through 2016) and historic topographic (Years: 1901, 1904, 1909, 1913, 1924, 1929, 1939, 1946, 1951, 1955, 1958, 1960, 1963, 1964, 1969, 1977, 1979, 1980, 1986, 1988, 1999, 2012 and 2015) were examined to investigate historic flow patterns, stream locations and land uses within the DA compared to existing conditions and features mapped within or near the DA shown on Exhibits 7 through 11. These data were used to examine the patterns of flow present within the Santa Ana River, how they have changed over time, and to support the current mapping of the active channel areas versus the floodplain limits.

Earliest topographic mapping of the Santa Ana River channel (1901 through 1951) depicts various channels across the entire floodplain in a network of sandy washes. In 1960, 1963 and 1964, the topography of the river channel is portrayed as a single large wash aligned in its current location. In 1969, the topographic mapping depicts a more singular braided channel that occurs roughly in the same location as is seen today. Topographic mapping from 1979 to the present time similarly depicts a braided wash rather than one large wash. Since 1960, the channel's overall width near the DA has remained the same, braided or not.

The earliest aerial photography found (1938) depicts a single large channel roughly in the same location as it is presently. This historic channel had a broad sandy bed with several apparent braided low-flow

channels. These conditions no doubt reflect the massive flood that occurred during that same year, which prompted construction of several flood control features within San Bernardino County. Since 1938, the aerial photography shows varying channel locations and extents through around 1980. Various flood years were apparent, for instance, by enlarged channels in 1968 and in 1980. A levee was built from Opal Avenue eastward during the 1970s to prevent southward movement of the main channel. However the most significant feature built along the Santa Ana River is the Seven Oaks Dam, built upstream from the DA at the foot of the San Bernardino Mountains, which has resulted in controlled releases of floodwaters and attenuation of larger flood events. The dam, finished in 2000, curtails the most massive flooding events that would change the channel morphology. Consequently, in the past 18 years of aerial photography the Santa Ana River's geomorphology has remained relatively stable and many of the larger historic braids would likely be considered as paleo channels.

Based on an analysis of both topographic maps and aerial mapping, the Santa Ana River wash has, over time, become stabilized into its current location due to a likely combination of installation of flood control measures and managed water impoundments.

4.2.2 - USACE Wetlands

Two sample points were taken at points within features within the DA (Drainage 4 and the Judson Street Channel). Sample Point 2 was taken within the Judson Street Channel while Sample Point 3 was taken within Drainage 4. Neither of the sample points are within the DA, but were taken to identify context within and near the DA.

Neither sample point indicated presence of hydric soils. Each of them was complicated by the presence of an underground restrictive layer – rocks/riprap for Drainage 4 and asphalt for the Judson Street Channel. Both sample points were determined to support hydric vegetation, with a Dominance Test of 50% or greater and Prevalence Index less than or equal to 3. Sample Point 2 supported positive wetland hydrology, evidenced by Surface Soil Cracks (B6) and Biotic Crust (B12). Sample Point 3 hydrology was also positive, evidenced by Saturation (A3), Water-Stained Leaves (B9) and Biotic Crust (B12).

Because none of the Sample Points showed all three criteria for wetlands (hydrophytic vegetation, hydric soils, and hydrology), there were no USACE-jurisdictional wetlands identified as part of this jurisdictional delineation study (See Appendix D for wetland delineation forms).

4.3 - Impacts and Recommendations

Based on the data and analysis provided in this report, it has been determined that there are six (6) features within or directly adjacent to the DA that fall outside of the jurisdiction of the USACE and SWRCB pursuant to Section 404 and 401 of the Clean Water Act, respectively. These features consist of portions with the Santa Ana River, along with its floodplain, plus five unnamed features that connect with the river and are manmade, artificial stormwater conveyances. No USACE wetlands were found within the DA. Two sample points were taken at potential wetland areas within Drainages 4 and the Judson

Street Channel, respectively. After analysis of the sample point data, none of these areas were considered jurisdictional/isolated wetlands to the USACE.

Even though the CDFW has broader criteria for what constitutes a jurisdictional feature, the features mentioned above are considered to be outside of CDFW jurisdiction because of their limited habitat values and artificial nature.

According to the impact map provided by the County, there would be no impacts to jurisdictional features associated with the SART Project.

There will be no need for regulatory permitting for the SART Project as all impacts to jurisdictional features are avoided. Coordination with the USACE and other agencies is recommended to confirm these findings.

SECTION 5: REFERENCES

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Appendix A: Glossary of Terms

Glossary of Terms

Term	Source	Page	Definition
Abutting	6	69	With respect to jurisdictional determinations, a wetland that is not separated from the tributary by an upland feature, such as a berm or dike, is "abutting."
Adjacent	7	N/A	The term "adjacent" means bordering, contiguous, or neighboring. Wetlands separated from other Waters of the U.S. by man-made dikes or barriers, natural river berms, beach dunes and the like are "adjacent wetlands."
CDFW	NA	NA	California Department of Fish and Wildlife
CEQA	NA	NA	California Environmental Quality Act
CFR	NA	NA	Code of Federal Regulations
CH	NA	NA	Critical Habitat
Clean Water Act (CWA) of 1972	NA	NA	Also known as the Federal Water Pollution Control Act (FWPCA) 33USCA Sections 1251 to 1387 (alternatively cited as Sections 101 - 607). The primary goal as defined in Section 1251(a) is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Jurisdiction to regulate "Waters of the U.S.," vested under this Act include: Section 303 (Water Quality Standards and implementation Plans), Section 311 (Spill Program and Oil Pollution Act), Section 401 (State Water Quality Certification), Section 402 (National Pollutant Discharge Elimination System [NPDES]), Section 404 (permits for dredge or fill material).
Clean Water Act (CWA) Section 401	NA	NA	**Section 401 State Water-Quality Certification**: Provides that no Federal permit or license for activities that might result in a discharge to navigable waters may be issued unless a CWA Section 401 Water Quality Certification is obtained from or waived by States or authorized Tribes.
Clean Water Act (CWA) Section 404	NA	NA	**Section 404 Dredged and Fill Material Permit Program**: This program established a permitting system to regulate discharges of dredged or fill material into Waters of the U.S.
DA	NA	NA	Delineation Area
Department of Public Works	NA	NA	County of San Bernardino Department of Public Works
Discharge	4	11196	The term "discharge'' means any discharge of dredged or fill material and any activity that causes or results in such a discharge.
ECORP	NA	NA	ECORP Consulting, Inc.
EPA	NA	NA	Environmental Protection Agency
Ephemeral Stream	4	11196	An ephemeral stream has flowing water only during and, for a short duration, after precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

Glossary of Terms

Term	Source	Page	Definition
ESA	NA	NA	Endangered Species Act
Facultative Plants (FAC)	1	14	Plants with a similar likelihood (estimated probability of 33 percent to 67 percent) of occurring in both wetlands and non-wetlands.
Facultative Wetland Plants (FACW)	1	14	Plants that occur usually (estimated probability >67 percent to 99 percent) in wetlands, but also occur (estimated probability 1 percent to 33 percent) in non-wetlands.
Facultative Upland Plants (FACU)	1	14	Plants that occur sometimes (estimated probability 1 percent to <33 percent) in wetlands, but occur more often (estimated probability >67 percent to 99 percent) in non-wetlands.
FEMA	NA	NA	Federal Emergency Management Agency
GIS	NA	NA	Geographical Information System
GPS	NA	NA	Global Positioning System
Historic Property	4	11196	Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization which meet the National Register criteria (36 CFR Part 60).
HPSR	NA	NA	Historic Properties Survey Report
HUC	NA	NA	Hydrologic Unit Code
Hydrological Units	8	1-3	As prescribed by the USGS, refers to the four levels of subdivisions, used for the collection and organization of hydrological data. The hierarchy of hydrological units include: (1) Regions (2) Subregions (3) Accounting Units, and (4) Cataloging Units. The identifying codes associated with these units are "hydrological unit codes."
Hydrological Units - Regions	8	3	The first level of USGS hydrological classification, which divides the Nation into 21 Major geographic areas. These geographic areas (hydrologic areas based on surface topography) contain either the drainage area of a major river, or the combined drainage areas of a series of rivers. Most of California is located within region "18." Notable exceptions include the Tahoe basin (Great Basin Region 16) and the Colorado River (Lower Colorado Region 15). All smaller hydrological units with the region begin with the region number (18).
Hydrological Units - Subregions	8	3	The second level of USGS hydrological classification, divides the 21 regions into 222 subregions (nationally). A subregion includes the area drained by a river system a reach of a river and its tributaries in that reach, a closed basin(s), or a group of streams forming a coastal drainage area. Within Region 18, the state of California includes 10 sub-regions.

Glossary of Terms

Term	Source	Page	Definition
Intermittent Stream	4	11196	An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.
LF	NA	NA	Linear Feet
NEPA	NA	NA	National Environmental Policy Act
NHPA	NA	NA	National Historic Preservation Act
Non-RPWs	NA	NA	Non-Relatively Permanent Waters
Non-tidal Wetland	4	11196	A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. The definition of a wetland can be found at 33 CFR 328.3(b). Non-tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).
NRCS	NA	NA	Natural Resources Conservation Service
NWI	NA	NA	National Wetland Inventory
Obligate Wetland Plants (OBL)	1	14	Plants that occur almost always (estimated probability >99 percent) in wetlands under natural conditions, but which may also occur rarely (estimated probability <1 percent) in non-wetlands.
Obligate Upland Plants (UPL)	1	14	Plants that occur rarely (estimated probability <1 percent) in wetlands, but occur almost always (estimated probability >99 percent) in non-wetlands under natural conditions.
Ordinary High Water Mark	7	N/A	The term “ordinary high water mark” means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.
Perennial Stream	4	11197	A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.
Regional Parks	NA	NA	County of San Bernardino Regional Parks Department
Relatively Permanent Water (RPW)	5	5,69	In the context of CWA jurisdiction post-*Rapanos*, a water body is “relatively permanent” if it flows year-round or its flow is continuous at least “seasonally,” (e.g., typically three months). Wetlands adjacent to a “relatively permanent” tributary are also jurisdictional if those wetlands directly abut such a tributary.
Relevant Reach	6	40	With respect to “significant nexus determinations,” the “relevant reach” will include all tributary waters of the same order. Typically this will include the tributary and all adjacent wetlands reaching downstream from the project site to the confluence with

Glossary of Terms

Term	Source	Page	Definition
			the next tributary or upstream to a similar confluence.
Riparian Area	4	11197	Riparian areas are lands adjacent to streams, lakes, and estuarine-marine shorelines. Riparian areas are transitional between terrestrial and aquatic ecosystems through which surface and subsurface hydrology connects water bodies with their adjacent uplands. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality. (See General Condition No. 20, in the NWP.)
River Miles	6	53	The flowing distance between the water bodies in question. Typically not a straight line; rather, the measurement is based on how far the water will travel from water body A to water body B. For example, the water in a meandering tributary will flow further than water flowing in a channelized tributary provided the two water bodies are the same distance apart in the landscape.
RPWs	NA	NA	Relatively Permanent Waters
RWQCB	NA	NA	Santa Ana Regional Water Quality Control Board
SART	NA	NA	Santa Ana River Trail
SART Project	NA	NA	SART Phase IV, Reaches B & C Project
Significant Nexus	5	40	In the context of CWA jurisdiction post-*Rapanos*, a water body is considered to have a "significant nexus" with a traditional navigable water if its flow characteristics and functions in combination with the ecological and hydrological functions performed by all wetlands adjacent to such a tributary, affect the chemical, physical, and biological integrity of a downstream traditional navigable water.
SWRCB	NA	NA	State Water Resources Control Board
Streambed	4	11197	The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the streambed, but outside of the ordinary high water marks, are not considered part of the streambed.
Stream Channelization	4	11197	The manipulation of a stream's course, condition, capacity, or location that causes more than minimal interruption of normal stream processes. A channelized stream remains a water of the US.
Tidal Drainage	7	N/A	The term "tidal waters" means those waters that rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by hydrologic, wind, or other effects.
Traditional Navigable Water (TNW)	6	68	A "traditional navigable water" includes all the "navigable Waters of the U.S.," defines in 33 CFR Section 329, and by numerous decisions of the Federal courts, plus all other waters that are navigable-in-fact. Per 33 CFR Section 329: Navigable Waters of

Glossary of Terms

Term	Source	Page	Definition
			the U.S. are those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. A determination of navigability, once made, applies laterally over the entire surface of the water body, and is not extinguished by later actions or events which impede or destroy navigable capacity. The USACE is currently drafting new regulations defining TNWs.
Tributary	6	69	A "tributary," as defined in the *Rapanos* guidance document, means a natural, man-altered, or man-made water body that carries directly or indirectly into traditional navigable water. For the purposes of determining significant nexus with a traditional navigable water, a "tributary" is the entire reach of the stream that is of the same order (i.e., from the point of confluence, where two lower order streams meet to form the tributary, downstream to the point such tributary enters a higher order stream).
Upland Plants (UPL)	1	14	Plants that occur rarely (estimated probability <1 percent) in wetlands, but occur almost always (estimated probability >99 percent) in non-wetlands under natural conditions.
USACE	NA	NA	United States Army Corps of Engineers
USDA	NA	NA	United States Department of Agriculture
USGS	NA	NA	United States Geological Survey
Wash Plan	NA	NA	Upper Santa Ana Wash Land Management and Habitat Conservation Plan
Water body	4	11197	For purposes of the NWPs, a water body is a jurisdictional water of the US that, during a year with normal patterns of precipitation, has water flowing or standing above ground to the extent that an ordinary high water mark (OHWM) or other indicators of jurisdiction can be determined, as well as any wetland area (see 33 CFR 328.3(b)). If a jurisdictional wetland is adjacent—meaning bordering, contiguous, or neighboring—to a jurisdictional water body displaying an OHWM or other indicators of jurisdiction, that water body and its adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)). Examples of "water bodies" include streams, rivers, lakes, ponds, and wetlands.

Glossary of Terms

Term	Source	Page	Definition
Waters of the United States	7	N/A	The term "Waters of the U.S." means: (1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; (2) All interstate waters including interstate wetlands; (3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters: (i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or (ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or (iii) Which are used or could be used for industrial purpose by industries in interstate commerce; (4) All impoundments of waters otherwise defined as Waters of the U.S. under the definition; (5) Tributaries of waters identified in paragraphs (a)(1)-(4) of this section; (6) The territorial seas; (7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a)(1)-(6) of this section, (waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA [other than cooling ponds as defined in 40 CFR 123.11(m) which also meet the criteria of this definition] are not Waters of the U.S..) and (8) Waters of the U.S. do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the CWA, the final authority regarding CWA jurisdiction remains with the EPA.
Wetlands	1,2,7	N/A	The term "wetlands" means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. The criteria for determining wetlands is set forth in the USACE Wetlands Delineation Manual (1987) and relevant Regional Supplements (Arid West, December 2006)

Sources:
1. USACE Wetlands Delineation Manual, January 1987.
2. USACE Guidelines for Jurisdictional Determinations for Waters of the United States in the Arid Southwest, June 2001.
3. USACE Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, December 2006.
4. FEDERAL REGISTER: Department of Defense; Department of the Army, Corps of Engineers, Re-issuance of

Glossary of Terms

Term	Source	Page	Definition
Nationwide Permits; Notice, March 12, 2007. 5. EPA/USACE Joint Memorandum: Clean Water Act Jurisdiction Following the US Supreme Court's Decision in Rapanos v. United States and Carabell v. United States, (June 5, 2007). 6. USACE Jurisdictional Delineation Form Instructional Guidebook; May 30, 2007. 7. Code of Federal Regulations (CFR): 33 CFR 328.3 Definitions of Waters of the United States and/or 33 CPR 329 Definitions of Navigable Waters of the United States. 8. USGS Hydrologic Unit Maps, US Geological Survey Water-Supply Paper 2294 (1994), by Paul R. Seaber, F. Paul Kapinos, and George L Knapp.			

Appendix B: Site Photographs

Below you will find a photo compendium containing photos of each jurisdictional and non-jurisdictional feature within the Delineation Area, as well as the three sample point locations. Photos in this compendium are referenced by Exhibits 7 through 11.

Drainages 1 and 2 (Exhibit 8) – Photopages 1 and 2

Drainages 3 and 4 (Exhibits 9 and 10) – Photopages 3, 4, and 5

Judson Street Channel (Exhibit 1) – Photopages 5 and 6

Santa Ana River Floodplain (Exhibits 9 and 10) – Photopages 6 and 7

Photo 1: Drainage 1 – west side of Orange Street
(See Exhibit 8)

Photo 2: Drainage 1 – west side of Orange Street
(See Exhibit 8)

Photo 3: Drainage 2 – east side of Orange Street
(See Exhibit 8)

Photo 4: Drainage 2 – east side of Orange Street
(See Exhibit 8)

Photo 5: Drainage 3 – along Riverview Drive
(See Exhibit 9)

Photo 6: Drainage 3 – along Riverview Drive
(See Exhibit 9)

Photo 7: Drainage 4 – along Riverview Drive
(See Exhibit 10)

Photo 8: Drainage 4 – along Riverview Drive
(See Exhibit 10)

Photo 9 – Drainage 4, Sample Point 3 (See Exhibit 10)

Photo 10: Judson Street Channel (See Exhibit 11)

Photo 11: Judson Street Channel, Sample Point 2
(See Exhibit 11)

Photo 12: Santa Ana River Floodplain
(See Exhibits 9 and 10)

Photo 13: Santa Ana River Floodplain
(See Exhibits 9 and 10)

Photo 14: Santa Ana River Floodplain
(See Exhibits 9 and 10)

Appendix C: Jurisdictional Determination Table

Preliminary Jurisdictional Determination for the SART Project									
Site Number	Start Coordinates (Latitude)	Start Coordinates (Longitude)	End Coordinates (Latitude)	End Coordinates (Longitude)	Stream Flow	Cowardin Class	Class of Aquatic Resource	Approximate Linear Feet	Potential Waters (acres)
Drainage 1	34.084743	-117.182483	34.085779	-117.182499	Ephemeral	Riverine	Non-Jurisdictional	0	0
Drainage 2	34.084625	-117.182322	34.085763	-117.182306	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0	0
Drainage 3	34.084275	-117.173807	34.084622	-117.174033	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0	0
Drainage 4	34.084161	-117.171327	34.084446	-117.171385	Intermittent	Riverine	Non-Section 10 non-wetland waters	0	0
Judson Street Channel	34.081165	-117.152212	34.085174	-117.156489	Ephemeral	Riverine	Non-Section 10 non-wetland waters	0	0

Appendix D: Sample Point Data

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: SART | City/County: Redlands | Sampling Date: 7/18/18 ~~SP2~~

Applicant/Owner: County of San Bernardino | State: CA | Sampling Point: SP2

Investigator(s): S. Taylor, T. Rotellini | Section, Township, Range: S13, T1S, R3W

Landform (hillslope, terrace, etc.): Artificial channel | Local relief (concave, convex, none): Concave | Slope (%): 2%

Subregion (LRR): LRR-E | Lat: 34.081161 | Long: -117.156174 | Datum: NAD83

Soil Map Unit Name: Tujunga Loamy sand | NWI classification: N/A

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

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

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (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: This is a perched soil area on asphalt, fed by irrigation runoff

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1 N/A			
2			
3			
4			
	____ = Total Cover		

Sapling/Shrub Stratum (Plot size: ____)			
1 N/A			
2			
3			
4			
5			
	____ = Total Cover		

Herb Stratum (Plot size: 75 ft²)			
1 Poa pratensis	20%	Yes	FAC
2 Cyperus eragrostis	2%	No	FACW
3 Portulaca oleracea	10%	Yes	FAC
4 Digitaria sanguinalis	5%	No	FACU
5			
6			
7			
8			
	37% = Total Cover		

Woody Vine Stratum (Plot size: ____)			
1 N/A			
2			
	____ = Total Cover		

% Bare Ground in Herb Stratum: 20% | % Cover of Biotic Crust: 60%

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of		Multiply by	
OBL species	0	x 1 =	0
FACW species	2	x 2 =	4
FAC species	30	x 3 =	90
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals	37 (A)		114 (B)

Prevalence Index = B/A = 3.1

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: Passed dominance test but failed prevalence index

7/18/18

Sampling Point SP2

SOIL

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 %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR3/2	100%					loamy 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: Asphalt

Depth (inches): 2 in

Hydric Soil Present? Yes ___ No ✓

Remarks:

No indicators present

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): 2 in

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: SART | City/County: Redlands | Sampling Date: 7/18/18
Applicant/Owner: County of San Bernardino | State: CA | Sampling Point: SP3
Investigator(s): T. Rotellini, S. Taylor | Section, Township, Range: S14, T1S, R3W
Landform (hillslope, terrace, etc.): gully | Local relief (concave, convex, none): Concave | Slope (%): 5
Subregion (LRR): LRR-C | Lat: 34.084412 | Long: -117.171387 | Datum: NAD83
Soil Map Unit Name: Tujunga loamy sand | NWI classification: N/A
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? Y | 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: Runoff channel from a residential development

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 320 ft²)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus fremontii	90	Yes	FAC
2. Salix goodingii	20	No	FACW
3. Baccharis salicifolia	3	No	FAC
4.			
	113	= Total Cover	

Sapling/Shrub Stratum (Plot size: 320 ft²)			
1. Baccharis salicifolia	25	Yes	FAC
2. Salix goodingii	5	No	FACW
3. Eriogonum fasciculatum	5	No	UPL
4.			
5.			
	35	= Total Cover	

Herb Stratum (Plot size: 320 ft²)			
1. ~~Unk. herb 2~~	~~3~~	~~Yes~~	
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	3	= Total Cover	

Woody Vine Stratum (Plot size: 320 ft²)			
1. N/A			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum: 20 | % Cover of Biotic Crust: 5

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of		Multiply by	
OBL species	0	x 1 =	0
FACW species	25	x 2 =	50
FAC species	118	x 3 =	354
FACU species	0	x 4 =	0
UPL species	5	x 5 =	25
Column Totals	148 (A)		429 (B)

Prevalence Index = B/A = 2.9

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

7/18/18

SOIL

Sampling Point SP3

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 %	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 2/1	100					loamy 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: Rocks

Depth (inches): 7

Hydric Soil Present? Yes ___ No ✓

Remarks:

No indicators present

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): 7

Wetland Hydrology Present? Yes ✓ No ___

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

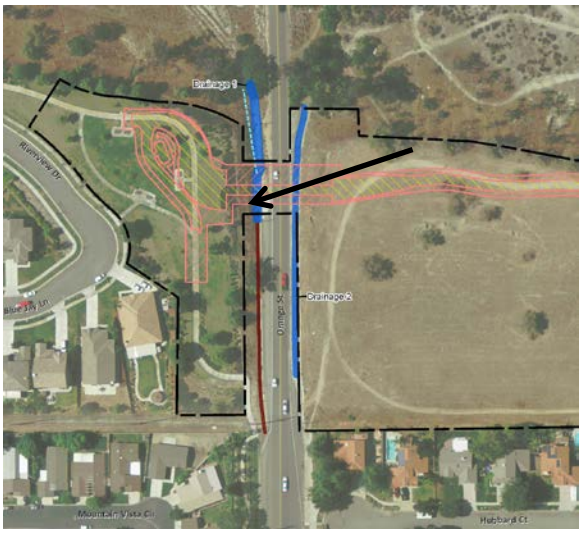
Remarks

Appendix E: Photographs of Impacted Features

Below you will find a photo compendium containing photos of each impacted non-jurisdictional feature within the Delineation Area

Drainages 1 and 2 (Exhibit 8) – Photopages 1 and 2

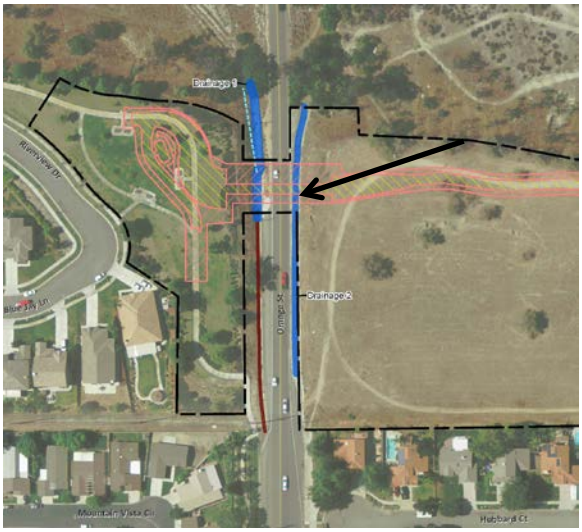
Drainage 3 (Exhibits 9) – Photopage 3



Attributes:
Latitude: 34.085320
Longitude: -117.182477
Direction: North
Date/Time: 2018:06:15 0849

Description:
View of channel running along west side of Orange Street, depicting grouted riprap in the channel and the culvert

Photo 1
Drainage 1
SART Phase IV, Reaches B and C, USACE Impact Photos



Attributes:
Latitude: 34.085580
Longitude: -117.182333
Direction: North
Date/Time: 2018:06:15 0945

Description:
View of channel running along east side of Orange Street, depicting curb and gutter and start of channel v-ditch

Appendix B

Attributes:
Latitude: 34.084349
Longitude: -117.173859
Direction: North
Date/Time: 2018:06:15 1010

Description:
View of channel running south of Riverbluff Drive, depicting shallow concrete, manmade channel