

**CHINO BRINELINE PROJECT  
DELINEATION OF JURISDICTIONAL WATERS**



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## Acronyms and abbreviations

Wood	Wood Environment and Infrastructure, Inc.
AMSL	above mean sea level
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CDFW	California Department of Fish and Wildlife
CWA	Clean Water Act
EP	edge of pavement
EPA	Environmental Protection Agency
FAC	facultative
FACU	facultative upland
FACW	facultative wetland
GIS	Geographic Information System
IP	Individual Permit
NEPA	National Environmental Policy Act
NL	not listed
NWI	National Wetlands Inventory
NWP	Nationwide Permit
OBL	obligate
OHWM	ordinary high-water mark
Rapanos	Rapanos v. U.S. and Carabell v. U.S.
RPW	relatively permanent waterway
RWQCB	Regional Water Quality Control Board
SWANCC	Solid Waste Agency of Northern Cook County v. USACE
TNW	traditionally navigable waterway
UPL	upland
USACE	U.S. Army Corps of Engineers
USDA	United States Department of Agriculture, Natural Resources Conservation Service
USFWS	United States Fish and Wildlife Service
USGS	U.S. Geological Survey
WSC	Waters of the State of California
WUS	Waters of the United States

## **1.0 INTRODUCTION**

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At the request of Albert A. Webb Associates (Webb), Wood Environment & Infrastructure Solutions, Inc. (Wood) conducted a jurisdictional assessment for the Chino Brineline Project (project) and its alternative. The biological study area (BSA) for this assessment includes the project site plus a 100-foot buffer around it and is generally located in portions of the cities of Chino and Ontario in San Bernardino County, California (see Figure 1).

This report presents regulatory framework, methods, and results of a delineation of jurisdictional waters, wetlands, and associated riparian habitat potentially impacted by the project. The purpose of the delineation is to determine the extent of state and federal jurisdiction within the project area potentially subject to regulation by the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (CWA), Regional Water Quality Control Board (RWQCB) under Section 401 of the CWA and Porter Cologne Water Quality Control Act, and California Department of Fish and Wildlife (CDFW) under Section 1602 of the California Fish and Game Code.

### **1.1 Project Description**

The proposed project includes an expansion of the treatment capacity of the Eastside Water Treatment Facility (EWTF). Instead of trucking the brine waste, the pipeline will connect directly to the Chino I Desalter Facility (CIDF) on the south side of Kimball Avenue, west of Euclid Avenue in the city of Chino, California. The project terminates at the EWTF on the south side of Schaefer Avenue, west of Bon View Avenue in the city of Ontario. A brine pipeline will be built to connect to the CIDF plant where the brine will connect directly to the Inland Empire Brine Line for treatment in OC and discharge to the ocean. The second part of the project is the four-mile dual six-inch brine pipeline from the EWTF to the CIDF. The pipeline would generally follow existing roads and previously disturbed areas, utilizing a route that would follow Kimball Avenue east from the CIDF, Euclid Avenue north, Merrill Avenue east, Bon View Avenue north, and Schaefer Avenue west to the EWTF. An alternative would have one of the dual pipelines leave Bon View at Edison Avenue, heading west, then north to the EWTF on conceptual Campus Avenue, an undeveloped street.

Project elevations range from approximately 590 feet (180 meters) above mean sea level (amsl) at the CIDF to 755 feet (230 meters) amsl at the EWTF. Despite the elevational change, the slope is gentle with the project area appearing flat. The alignment passes through a wide variety of land uses including agriculture, residential, commercial and industrial. However, the proposed project will primarily be in agricultural areas, such as dairy farms.

### **1.2 Project Location**

The proposed project (Project) is located in portions of the cities of Chino and Ontario in San Bernardino County, California (see Figure 1). The project site is located south of State Route (SR) 60, north of SR-91, and east of SR-71. The project crosses areas mapped on two different United States Geologic Service (USGS) 7.5-minute topographic quadrangle maps (see Figure 2): Prado Dam and Ontario, CA. The geographic coordinates near the middle of the study area are 33.982893° North latitude and -117.650477 ° West longitude.

## **2.0 REGULATORY FRAMEWORK**

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

The USACE regulates the discharge of dredged or fill material in waters of the United States (WUS) pursuant to Section 404 of the CWA.

#### **2.1.1 Waters of the U.S.**

CWA regulations (33 CFR 328.3(a)) define WUS as follows:

1. All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
2. All interstate waters including interstate wetlands;
3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters: (i) Which are or could be used by interstate or foreign travelers for 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 WUS under the definition;
5. Tributaries of WUS;
6. The territorial seas;
7. Wetlands adjacent to WUS (other than waters that are themselves wetlands).

The USACE delineates non-wetland waters in the Arid West Region by identifying the ordinary high-water mark (OHWM) in ephemeral and intermittent channels (USACE 2008a). The OHWM is defined in 33 CFR 328.3(e) as:

“...that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impresses 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.”

Identification of OHWM involves assessments of stream geomorphology and vegetation response to the dominant stream discharge. Determining whether any non-wetland water is a jurisdictional WUS involves further assessment in accordance with the regulations, case law, and clarifying guidance as discussed below.

## **2.1.2 Wetlands and Other Special Aquatic Sites**

Wetlands are defined at 33 CFR 328.3(b) as “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.”

Special aquatic sites are geographic areas, large or small, possessing special ecological characteristics of productivity, habitat, wildlife protection, or other important and easily disrupted ecological values. These areas are generally recognized as significantly influencing or positively contributing to the general overall environmental health or vitality of the entire ecosystem of a region. Special aquatic sites include sanctuaries and refuges, wetlands, mud flats, vegetated shallows, coral reefs, and riffle and pool complexes. They are defined in 40 CFR 230 Subpart E.

## **2.1.3 Supreme Court Decisions**

### **2.1.3.1 Solid Waste Agency of Northern Cook County**

On January 9, 2001, the Supreme Court of the United States issued a decision on Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers, et al. with respect to whether the USACE could assert jurisdiction over isolated waters. The Solid Waste Agency of North Cook County (SWANCC) ruling stated that the USACE does not have jurisdiction over “non-navigable, isolated, intrastate” waters.

### **2.1.3.2 Rapanos/Carabell**

In the Supreme Court cases of Rapanos v. United States and Carabell v. United States (herein referred to as Rapanos), the court attempted to clarify the extent of USACE jurisdiction under the CWA. The nine Supreme Court justices issued five separate opinions (one plurality opinion, two concurring opinions, and two dissenting opinions) with no single opinion commanding a majority of the Court. In light of the Rapanos decision, the USACE will assert jurisdiction over a traditional navigable waterway (TNW), wetlands adjacent to TNWs, non-navigable tributaries of TNWs that are a relatively permanent waterway (RPW) where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months) and wetlands that directly abut such tributaries. The USACE will decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with a TNW: non-navigable tributaries that are not relatively permanent, wetlands adjacent to non-navigable tributaries that are not RPWs, and wetlands adjacent to but that do not directly abut a non-navigable RPW.

Flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary indicate whether they significantly affect the chemical, physical and biological integrity of downstream TNWs. Analysis of potentially jurisdictional streams includes consideration of hydrologic and ecologic factors. The consideration of hydrological factors includes volume, duration, and frequency of flow, proximity to traditional navigable waters, size of watershed, average annual rainfall, and average annual winter snow

pack. The consideration of ecological factors also includes the ability for tributaries to carry pollutants and flood waters to a TNW, the ability of a tributary to provide aquatic habitat that supports a TNW, the ability of wetlands to trap and filter pollutants or store flood waters, and maintenance of water quality.

#### **2.1.4 2015 Clean Water Rule**

The Obama administration issued the Clean Water Rule in 2015 in order to resolve jurisdictional ambiguity resulting from previous Supreme Court decisions (i.e. SWANNC, Rapanos). On June 22, 2015, the USACE and EPA published the *Clean Water Rule: Definition of "Waters of the United States"; Final Rule* (40 CFR Parts 110, 112, 116, 117, 122, 230, 232, 300, 302, and 401). The Clean Water Rule was put on hold by federal injunction in 2015 but was reinstated in California in August 2018. The Clean Water Rule finds waters to be jurisdictional under the CWA as summarized below:

1. Jurisdictional by Rule: TNWs, Interstate Waters, Territorial Seas, and Impoundments of Jurisdictional Waters.
2. Tributaries: Waters characterized by the presence of physical indicators of flow, including bed and bank and OHWM, that contribute flow directly or indirectly to a waters listed in 1) above.
3. Connected Waters: Adjacent or neighboring waters that have a significant nexus to waters listed in 1) above.
4. Other Waters: waters that, individually or as a group, significantly affect the chemical, physical, or biological integrity of waters listed in 1) above.

The Clean Water Rule was again put on hold by federal injunction in September 2019.

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

The RWQCB regulates activities pursuant to Section 401(a)(1) of the CWA. Section 401 of the CWA specifies that certification from the State is required for any applicant requesting a federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities that may result in any discharge into navigable waters. Through the Porter Cologne Water Quality Control Act, the RWQCB asserts jurisdiction over Waters of the State of California (WSC) which is generally the same as WUS, but may also include isolated waterbodies. The Porter Cologne Act defines WSC as "surface water or ground water, including saline waters, within the boundaries of the state".

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

The CDFW regulates water resources under Section 1600-1616 of the California Fish and Game Code. Section 1602 states:

"An entity may not 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, or 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 (CDFW, 2015)."

Evaluation of CDFW jurisdiction followed guidance in the Fish and Game Code and A Review of Stream Processes and Forms in Dryland Watersheds. In general, under 1602 of the Fish and Game Code, CDFW jurisdiction extends to the maximum extent or expression of a stream on the landscape (CDFW, 2010). It has been the practice of CDFW to define a stream as “a body of water that flows perennially or episodically and that is defined by the area in a channel which water currently flows, or has flowed over a given course during the historic hydrologic course regime, and where the width of its course can reasonably be identified by physical or biological indicators” (Brady and Vyverberg, 2013). Thus, a channel is not defined by a specific flow event, nor by the path of surface water as this path might vary seasonally. Rather, it is CDFW’s practice to define the channel based on the topography or elevations of land that confine the water to a definite course when the waters of a creek rise to their highest point.

### 3.0 METHODS

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Prior to conducting delineation fieldwork, the following literature and materials were reviewed:

- ) Aerial photographs of the project site at a scale of 1:1800 to determine the potential locations of jurisdictional waters or wetlands;
- ) USGS topographic map to determine the presence of any “blue line” drainages or other mapped water features;
- ) USDA soil mapping data; and
- ) USFWS NWI map to identify areas mapped as wetland features.

The study area encompasses the development area and adjacent area approximately 100 feet outside of the development area. The survey was conducted by Wood biologist Dale Hameister on March 11, 2019 from 12:30 to 15:35. Surveys consisted of walking the entire survey area and identifying potentially jurisdictional water features. Visual observations of vegetation types and changes in hydrology and culvert locations were used to locate areas for evaluation. Weather conditions during delineation fieldwork were conducive for surveying with temperature of 62 F, cloudy skies, and winds of 2-6 mph.

USACE regulated WUS, including wetlands, and RWQCB WSC were delineated according to the methods outlined in *A Field Guide to the Identification of the Ordinary High-Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE, 2008a). The extent of WUS was determined based on indicators of an OHWM. The OHWM width was measured at points wherever clear changes in width occurred.

Federally regulated wetlands were identified based on the *Wetlands Delineation Manual* (USACE, 1987) and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE, 2008b). Additional data was recorded to determine if an area fulfilled the wetland criteria parameters. Three criteria must be fulfilled in order to classify an area as a wetland under the jurisdiction of the USACE: 1) a predominance of hydrophytic vegetation, 2) the presence of hydric soils, and 3) the presence of wetland hydrology. Details of these criteria are described below:

#### 3.1 Hydrophytic Vegetation.

The hydrophytic vegetation criterion is satisfied at a location if greater than 50% of all the dominant species present within the vegetation unit have a wetland indicator status of obligate (OBL), facultative wetland (FACW), or facultative (FAC) (USACE, 2008b). An OBL indicator status refers to plants that almost always occur in wetlands. A FACW indicator status refers to plants that usually occur in wetlands but may occur in non-wetlands. A FAC indicator status refers to plants that occur in wetlands and non-wetlands. Other wetland indicator statuses include facultative upland (FACU) which refers to plants that usually occur in non-wetlands, but may occur in wetlands, upland (UPL) for species that almost never occur in wetlands, and NL for plants that are not listed on the National Wetland Plant List. The wetland indicator status used for this report follows the 2013 National Wetland Plant List (Arid West Region) (Lichvar, 2014).

### **3.2 Hydric Soils**

The hydric soil criterion is satisfied at a location if soils in the area can be inferred or observed to have a high groundwater table, if there is evidence of prolonged soil saturation, or if there are any indicators suggesting a long-term reducing environment in the upper part of the soil profile. Reducing conditions are most easily assessed using soil color. Soil colors were evaluated using the *Munsell Soil Color Charts* (Gretag/Macbeth, 2000). The USDA General Soil Map (Soil Survey Staff, 2019) was consulted to determine the soil associations and soil types mapped as occurring within the study areas.

### **3.3 Wetland Hydrology**

The wetland hydrology criterion is satisfied at a location based upon conclusions inferred from field observations that indicate an area has a high probability of being inundated or saturated (flooded, ponded, or tidally influenced) long enough during the growing season to develop anaerobic conditions in the surface soil environment, especially the root zone (USACE, 1987 and 2008b).

The United States Fish and Wildlife Service (USFWS) is the principal Federal agency that provides information to the public on the extent and status of the Nation's wetlands. The USFWS has developed a series of maps, known as the National Wetlands Inventory (NWI) to show wetlands and deep-water habitat. This geospatial information is used by Federal, State, and local agencies, academic institutions, and private industry for management, research, policy development, education, and planning activities. The NWI program was neither designed nor intended to produce legal or regulatory products; therefore, wetlands identified by the NWI program are not the same as wetlands defined by the USACE.

Vegetation nomenclature follows The Jepson Manual, Vascular Plants of California, 2<sup>nd</sup> Edition (Baldwin, 2012). When the Jepson Manual does not list a common name, common name nomenclature follows the United States Department of Agriculture, Natural Resources Conservation Service (USDA) Plants Database (USDA, 2019a).

CDFW jurisdiction was delineated by measuring the elevations of land that confine a stream to a definite course when its waters rise to their highest level and to the extent of associated riparian vegetation.

To determine jurisdictional boundaries, the surveyor walked the length of the drainage within the project area and recorded the centerline with a Trimble Juno global positioning system. The width of the drainage was determined by the OHWM and bankfull width measurements at locations where transitions were apparent. Other data recorded included bank height and morphology, substrate type, and all vegetation within the streambed and riparian vegetation adjacent to the streambed. Upon completion of fieldwork, all data collected in the field were incorporated into a Geographic Information System (GIS) along with basemap data. The GIS was then used to quantify the extent of jurisdictional waters.

## 4.0 ENVIRONMENTAL SETTING

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### 4.1 Existing Conditions

The alignment passes through a wide variety of land uses, from undeveloped to agriculture and vacant lots and from residential to commercial and industrial areas but is dominated by dairy farms.

### 4.2 Hydrology

The average rainfall for the area is 16.9 inches per year (Western Regional Climate Center, 2019). Weather data was recorded nearby in the city of Ontario.

Rainfall and urban run-off generally flow in a southerly direction and are contained in stormwater channels or other man-made features to contain the flows and reduce erosion (Figure 3). This region generally has a number of agricultural drainage features and irrigation ponds. There are very few natural drainage features remaining in this area. Nearly all hydrology associated with rainfall and urban run-off flow to Prado Basin, which conveys flows downstream to the Santa Ana River (a relatively permanent water (RPW)), which eventually flows to the Pacific Ocean (a traditional navigable water (TNW)).

### 4.3 Vegetation

Vegetation communities within the drainage feature and in the adjacent areas are dominated by *Bromus (diandrus, hordeaceus) - Brachypodium distachyon* Herbaceous Semi-Natural Alliance (as classified by Sawyer, J. O., T. Keeler-Wolf, and J. M. Evens., 2008. A Manual of California Vegetation, 2nd edition. California Native Plant Society, Sacramento, CA). No hydric vegetation was observed within the drainage features on-site.

### 4.4 Soils

The survey area contains five different soil mapping units (Figure 4):

- ) Chino Silt Loam
- ) Grangeville Fine Sandy Loam
- ) Hilmar Loamy Fine Sand
- ) Merrill Silt Loam
- ) Tujunga Loamy Sand, 0 - 5 % Slopes

None of the on-site soil types occur on the National List of Hydric Soils (USDA, 2018b)

### 4.5 National Wetlands Inventory

The United States Fish and Wildlife Service (USFWS) is the principal Federal agency that provides information to the public on the extent and status of the Nation's wetlands. The USFWS has developed a series of maps, known as the National Wetlands Inventory (NWI) to show wetlands and deep-water habitat. This geospatial information is used by Federal, State, and local agencies, academic institutions, and private industry for management, research, policy development, education, and planning activities. The NWI program was neither

designed nor intended to produce legal or regulatory products; therefore, wetlands identified by the NWI program are not the same as wetlands defined by the USACE.

The NWI Mapper (USFWS, 2019) was accessed online to review mapped wetlands within the project study area (Figure 5). NWI wetlands occur near the study areas and are classified as a riverine, intermittent, streambed, seasonally flooded wetland (R4SBC) and a riverine, intermittent, streambed, intermittently flooded wetland (R4SBJ) as well as Palustrine based on Cowardin Classification (Cowardin et. al. 1979). The Palustrine areas are all temporary ponds associated with adjacent dairy operations. None of the Palustrine features are located within they proposed project area.

## 5.0 RESULTS

The study areas contain one (1) unnamed jurisdictional drainages identified as Drainage 1. The Jurisdictional Delineation Map (Figure 6-1 and 6-2) identifies the on-site jurisdictional drainage. Table 1 includes a list of the waterway identified in the project area, its jurisdictional status and area of jurisdiction, Cowardin classification, and Class of Aquatic Resources.

The USACE, in combination with the Environmental Protection Agency (EPA), when necessary, reserves the ultimate authority in making the final jurisdictional determination of WUS and the RWQCB reserves the ultimate authority in making the final jurisdictional determination of WSC. Additionally, CDFW has ultimate discretion in the determination of their jurisdiction.

### 5.1 Drainage 1

Drainage 1 is an ephemeral engineered roadside ditch and likely flows for less than 3 months per year and would therefore be classified as non-RPWs by the USACE. This drainage flows for approximately 1.9 miles (9,872 linear feet) within the survey area and then approximately 3.5 miles where the drainage flows into the Prado Reservoir. Dominate vegetation includes Wards weed (*Carrichtera annua*) (NI), riggut brome (*Bromus diandrus*) (NI), Harding grass (*Phalaris aquatica*) (FACU), hare barley (*Hordeum murinum* ssp. *leporinum*) (NI), wild radish (*Raphanus sativus*) (NI). The substrate of a Drainage 1 is sandy loam with no organic streaking or other evidence of hydric soils or hard packed earth over concrete or riprap. The OHWM observed varied from 2-4 ft. wide.

The USACE is ultimately responsible for jurisdictional determinations, and this report has been prepared to provide the necessary information to assist the USACE with that determination. An Approved Jurisdictional Determination could be requested of the USACE to provide an analysis to determine if the on-site drainages have a “significant nexus” to the Prado Dam Reservoir and are therefore a jurisdictional WUS. Otherwise the project proponent can request a Preliminary Jurisdictional Determination in which the USACE assumes jurisdiction over the on-site drainages, and process permits accordingly (Appendix D).

**Table 1: Summary of Jurisdictional Areas**

Drainage	Non-Wetland WUS, Army Corps of Engineers Jurisdiction (acre)	Non-Wetland, WSC, and CDFW Jurisdiction (acre)	Average Width (feet)	Total Length (feet)	Latitude/ Longitude	Cowardin Class	Class of Aquatic Resource
1	0.68	0.68	3	9,872	34.978633/ -117.650455	R4SBC	non-section10- non wetland
<b>Total</b>	<b>0.68</b>	<b>0.68</b>	<b>3</b>	<b>9,872</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>

WUS – Waters of the United States

WSC – Waters of the State of California

CDFW – California Department of Fish and Wildlife

R4SBC – Riverine, intermittent, streambed, seasonally flooded wetland based on Classification of Wetlands and Deepwater Habitats of the United States (Cowardin, et. al., 1979).

## **6.0 IMPACTS TO JURISDICTIONAL AREAS**

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The proposed development plan will avoid all impacts to any of the on-site drainages and/or adjacent NWI wetlands. The pipeline will cross Drainage 1 at the intersection of Merrill Avenue and Euclid Avenue. The proposed construction will dig an open trench within the roadway and excavate below the existing culverts which convey Drainage 1 southward under Merrill Avenue. The pipeline will be installed below the existing culverts and the trench will be filled in. Impacts to jurisdictional areas are not anticipated at this time.

### **6.1 Permitting Requirements**

The proposed project using the current design specifications will not incur temporary and permanent impacts to jurisdictional drainages and therefore, no permits are required.

If there are any changes to the project design that will potentially impact Drainage 1, permits and approval from USACE, CDFW, and RWQCB would be required.

## **7.0 RECOMENDATIONS**

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The following recommendations are intended to help the contractor ensure there are no impacts to adjacent jurisdictional drainages.

1. No fill or on-site sediment will be placed in the existing drainage.
2. On-site stockpiles of soil should utilize BMPs to reduce potential for erosion from wind or rainfall. These methods could include use of fiber rolls or straw wattles, visqueen, or soil surface treatment.
3. Orange construction fence, or similar material, should outline the project footprint to minimizing over-grading and minimize the overall construction footprint to the smallest area possible.

## 8.0 REFERENCES

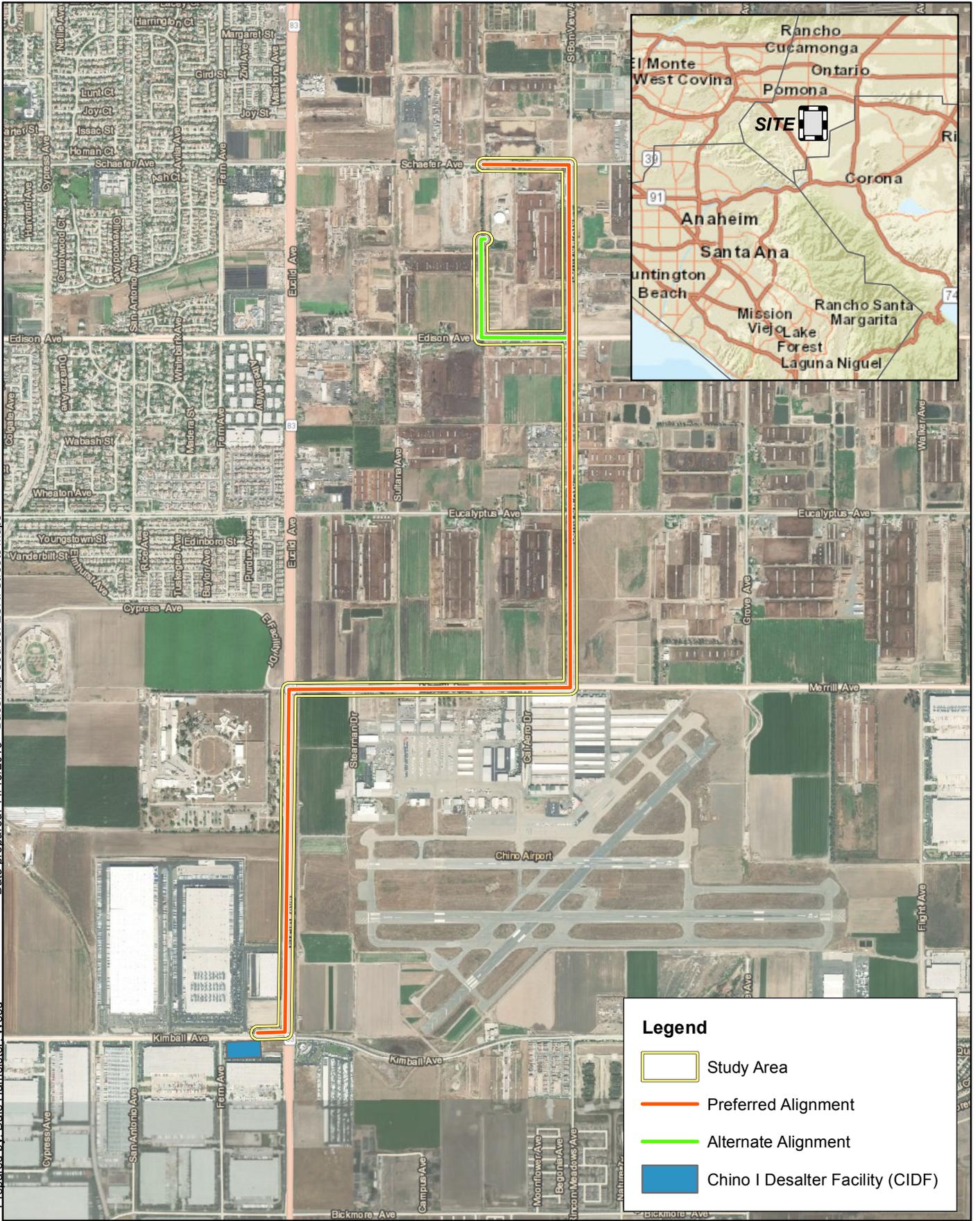
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**APPENDIX A**  
**JURISDICTIONAL DELINEATION MAPS**

Prepared by: Dale Hameister, Wood Date prepared: 11/13/2019 Basemap Source: ESRI Streets Maps

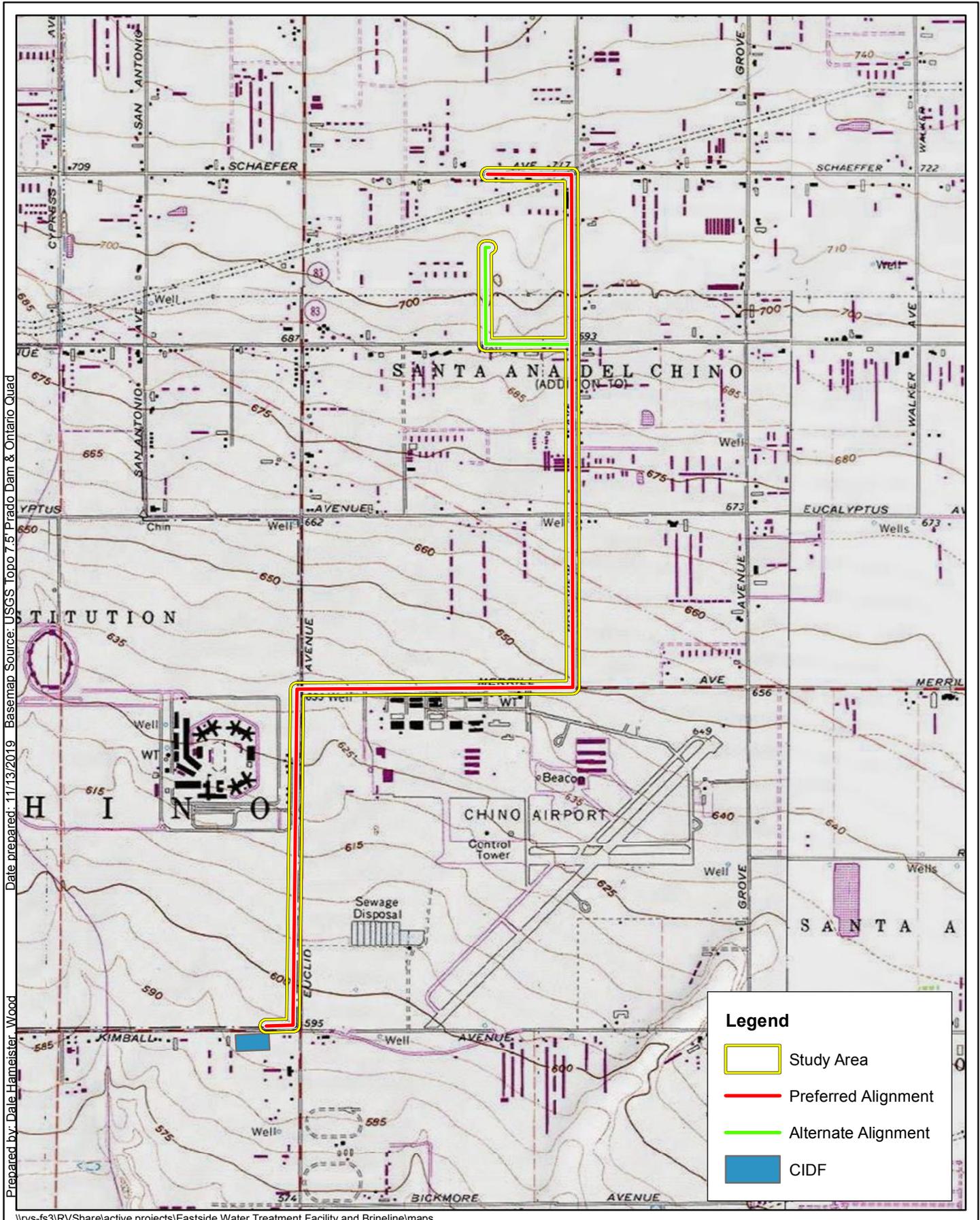


0 1,000 2,000  
 Feet  
 1 inch = 2,000 feet



Regional and Vicinity Map  
 Chino Brinline Project

**FIGURE**  
**1**



Date prepared: 11/13/2019 Basemap Source: USGS Topo 7.5' Prado Dam & Ontario Quad  
 Prepared by: Dale Hameister, Wood

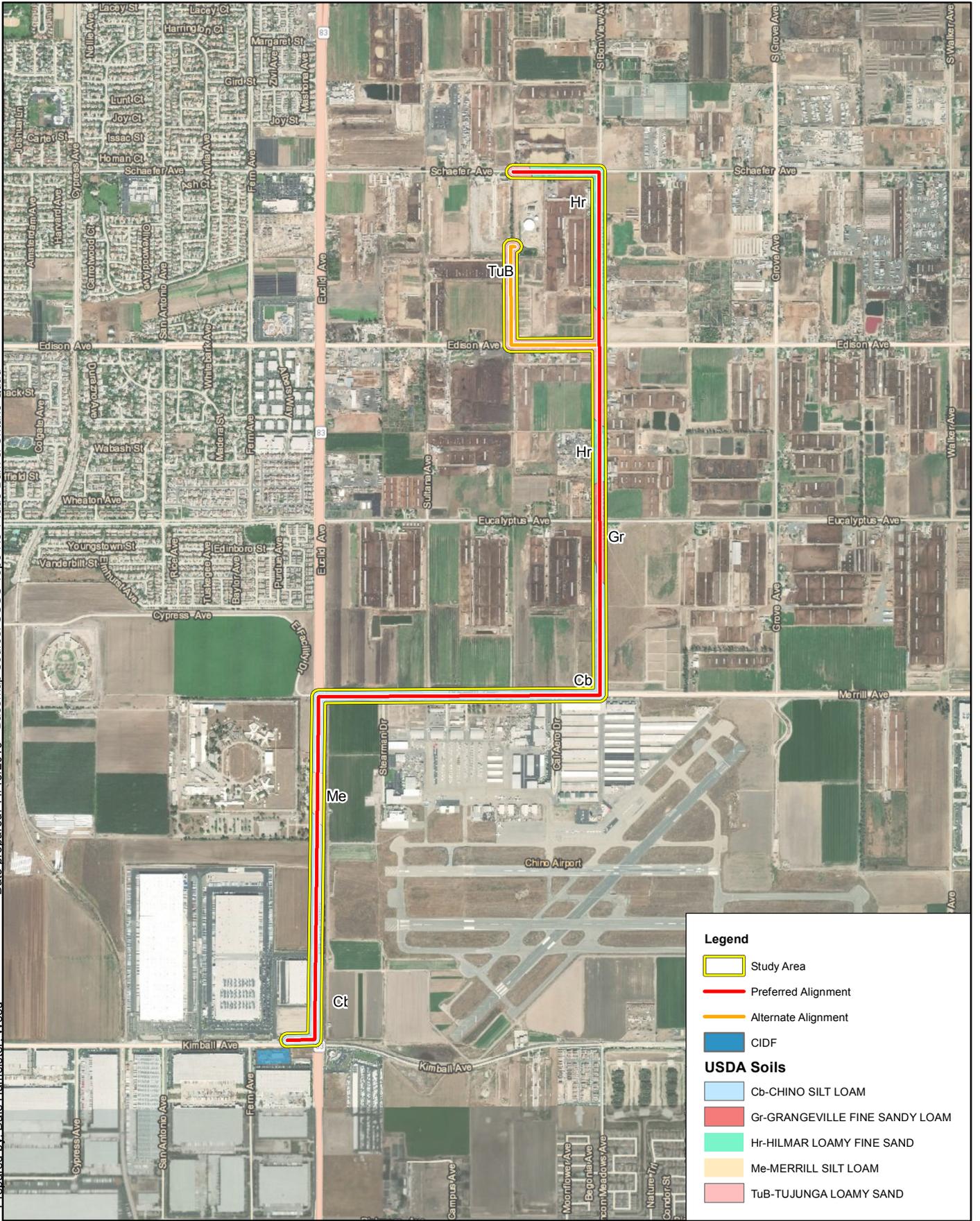
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 Feet  
 1 inch = 2,000 feet



Topographic Map  
 Chino Brineline Project

**FIGURE**  
**2**

Prepared by: Dale Hameister, Wood Date prepared: 11/13/2019 Basemap Source: USGS Topo 7.5' Prado Dam & Ontario Quad



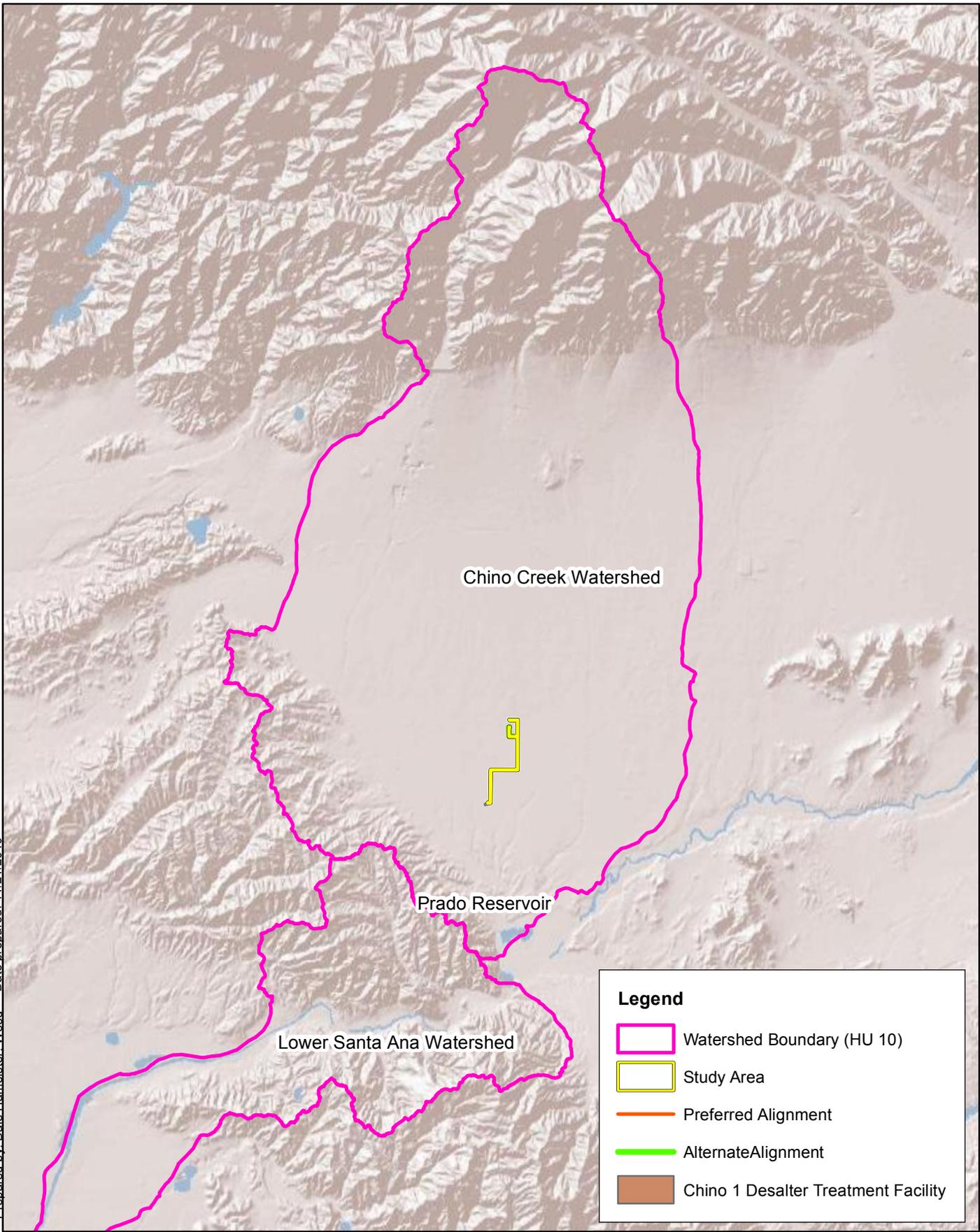
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 1 inch = 2,000 feet



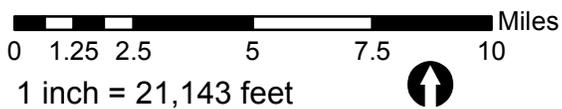
Soil Map  
 Chino Brineline Project

FIGURE  
 3

Prepared by: Dale Hameister, Wood Date prepared: 11/21/2019



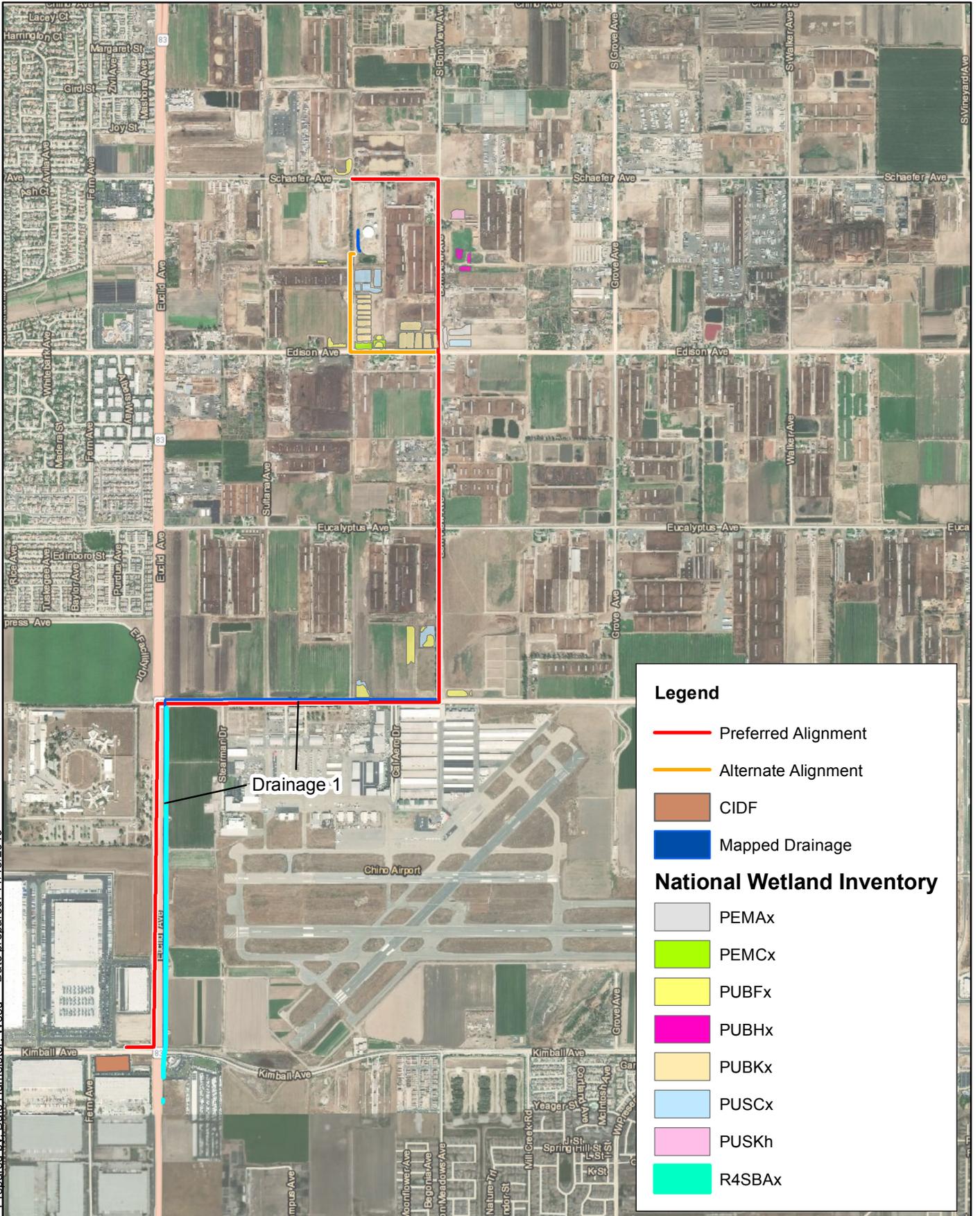
\\rvs-fs3\RVShare\active.projects\Eastside Water Treatment Facility and Brineline\maps



Watershed Map  
Chino Brineline Project

FIGURE  
4

Prepared by: Dale Hameister, Wood Date prepared: 11/13/2019



**Legend**

- Preferred Alignment
- Alternate Alignment
- CIDF
- Mapped Drainage

**National Wetland Inventory**

- PEMAx
- PEMCx
- PUBFx
- PUBHx
- PUBKx
- PUSCx
- PUSKx
- R4SBAx

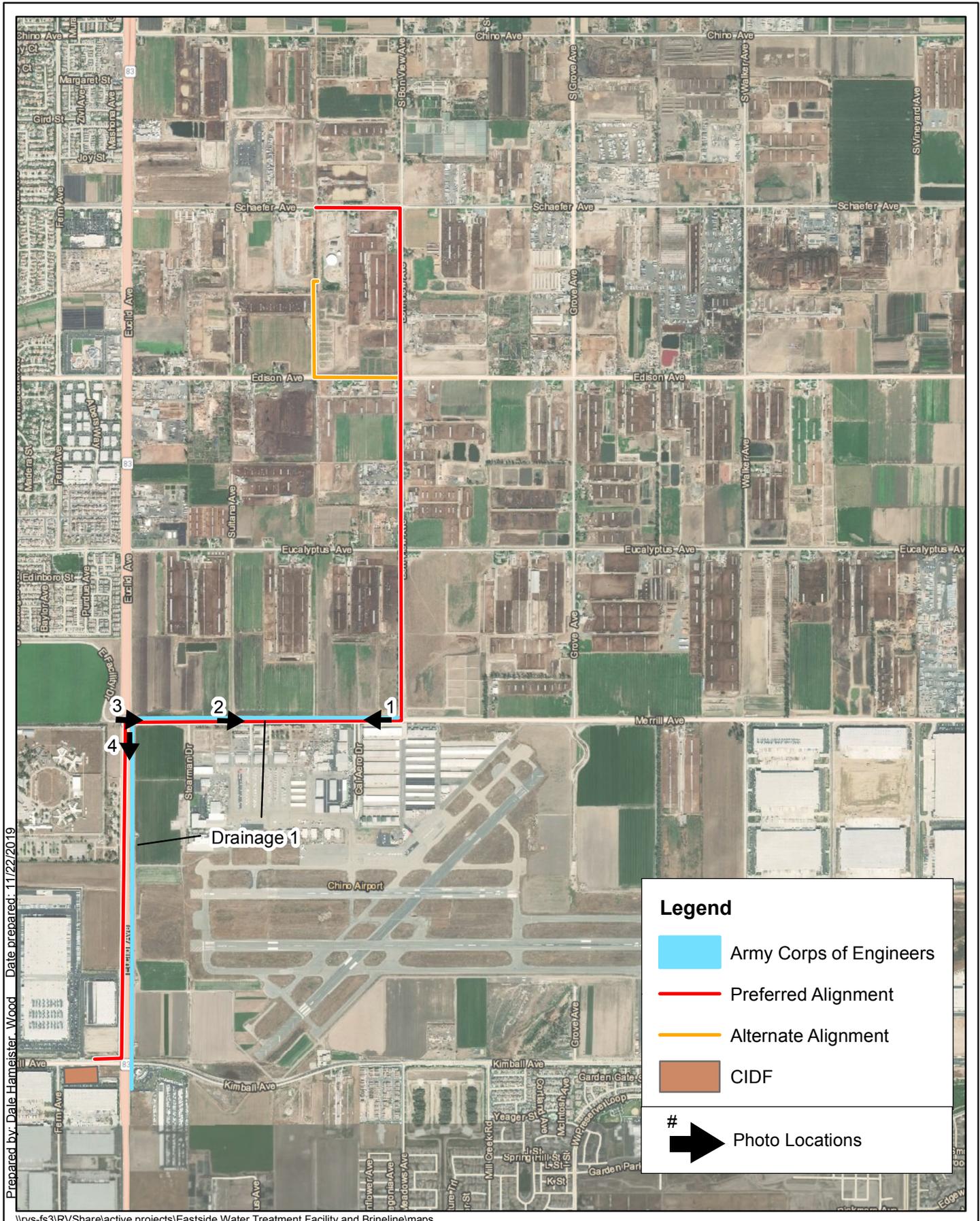
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 Feet  
 1 inch = 2,000 feet



National Wetland Inventory and Jurisdictional Areas Map

Chino Brineline Project

**FIGURE**  
**5**



Prepared by: Dale Hameister, Wood Date prepared: 11/22/2019

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 Feet  
 1 inch = 2,000 feet



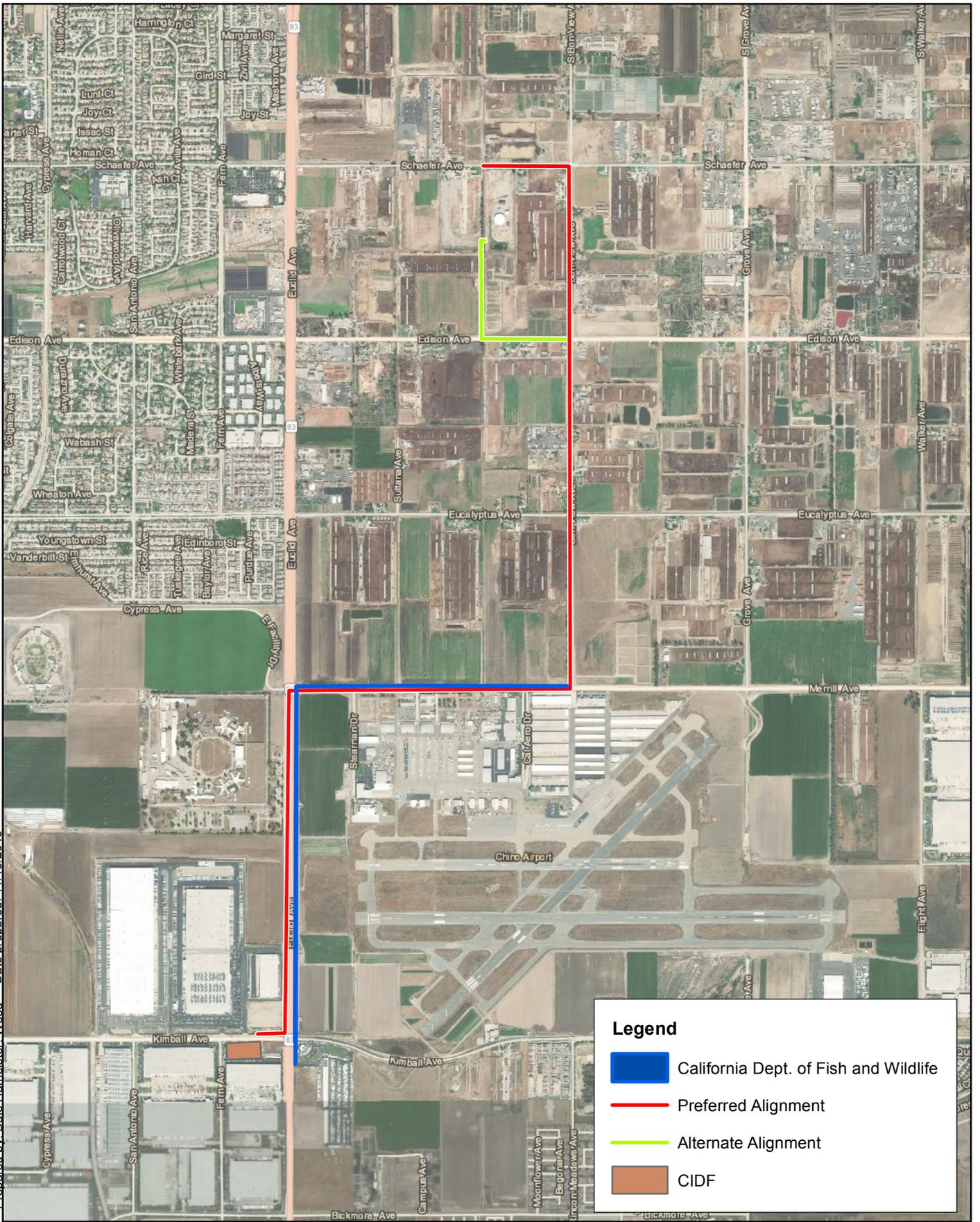
Jurisdictional Delineation Map

Chino Brineline Project

FIGURE

6-1

Prepared by: Dale Hameister, Wood Date prepared: 11/13/2019



**Legend**

- California Dept. of Fish and Wildlife
- Preferred Alignment
- Alternate Alignment
- CIDF

\\rvs-fs3\RV\Share\active\projects\Eastside Water Treatment Facility and Brineline\maps

0 1,000 2,000  
 Feet  
 1 inch = 2,000 feet



Jurisdictional Delineation Map  
 Chino Brineline Project

**FIGURE**  
**6-2**

**APPENDIX B**  
**SITE PHOTOGRAPHS**



Photo 1. Drainage 1 looking west (downstream) on the north side of Merrill Ave.



Photo 2. Drainage 1 looking east (upstream) on the north side of Merrill Ave.



Photo 3. Drainage 1 looking east (upstream) near the corner of Merrill Ave and Euclid Avenue.



Photo 4. Looking south (downstream) on Euclid Ave showing Drainage 1 adjacent to Chino Airport.

**APPENDIX C**  
**VASCULAR PLANTS OBSERVED**

## PLANT SPECIES LIST

This list reports only plant species observed in the BSA during Woodsite visits for this project. Other species may have been overlooked or undetectable due to their seasonal growth patterns. Nomenclature and taxonomy for fauna observed on site follows the Jepson eFlora (2019). If no common name is listed in Jepson, the United States Department of Agriculture PLANTS database (2019) is followed.

### SYMBOLS AND ABBREVIATIONS:

- \* Non-native species
- \*\* **Sensitive species** (State or federally listed as endangered, threatened, or candidate; state species of special concern/watchlist/tracked; Bureau of Land Management and/or USFS sensitive)
- sp. Identified only to genus; species unknown (plural = spp.)

<b>PLANTS OBSERVED</b>	
<b>ADOXACEAE</b>	
<i>Sambucus nigra ssp. caerulea</i>	blue elderberry
<b>ARECAEAE</b>	
<i>Washingtonia</i> sp.*	fan palm
<b>ASTERACEAE</b>	
<i>Achillea millefolium</i>	common yarrow
<i>Cotula australis</i> *	Australian cotula
<i>Erigeron bonariensis</i> *	flax-leaved horseweed
<i>Erigeron canadensis</i>	horseweed
<i>Lactuca serriola</i> *	prickly lettuce
<i>Pseudognaphalium luteoalbum</i> *	Jersey cudweed
<i>Sonchus asper ssp. asper</i> *	prickly sow thistle
<i>Taraxacum officinale</i> *	common dandelion
<i>Verbesina encelioides ssp. exauriculata</i> *	golden crownbeard
<i>Xanthium strumarium</i>	cocklebur
<b>BORAGINACEAE</b>	
<i>Amsinckia cf. menziesii</i>	small flowered fiddleneck
<b>BRASSICACEAE</b>	
<i>Capsella bursa-pastoris</i> *	shepherd's purse
<i>Carrichtera annua</i> *	Wards weed
<i>Hirschfeldia incana</i> *	shortpod mustard
<i>Raphanus sativus</i> *	radish
<i>Sisymbrium irio</i> *	London rocket

<b>CHENOPODIACEAE</b>	
<i>Chenopodium cf. album*</i>	lamb's quarters
<i>Kochia (Bassia) scoparia*</i>	burningbush
<i>Salsola tragus*</i>	Russian thistle
<b>CYPERACEAE</b>	
<i>Schoenoplectus californicus</i>	southern bulrush
<b>EUPHORBIACEAE</b>	
<i>Ricinus communis*</i>	castorbean
<b>FABACEAE</b>	
<i>Medicago lupulina*</i>	black medick
<i>Parkinsonia aculeata*</i>	<i>Mexican palo verde</i>
<i>Trifolium repens*</i>	white clover
<b>GERANIACEAE</b>	
<i>Erodium cicutarium*</i>	redstem filaree
<b>JUNCACEAE</b>	
<i>Juncus bufonius</i>	toad rush
<b>MALVACEAE</b>	
<i>Malva parviflora*</i>	cheeseweed
<b>MYRSINACEAE</b>	
<i>Lysimachia arvensis*</i>	scarlet pimpernel
<b>MYRTACEAE</b>	
<i>Eucalyptus camaldulensis*</i>	Red River gum
<b>PLANTAGINACEAE</b>	
<i>Plantago major*</i>	common plantain
<b>POACEAE</b>	
<i>Bromus catharticus*</i>	rescuegrass
<i>Bromus diandrus*</i>	ripgut grass
<i>Cynodon dactylon*</i>	Bermuda grass
<i>Hordeum murinum ssp. leporinum*</i>	hare barley
<i>Phalaris aquatica*</i>	Harding grass
<i>Poa annua*</i>	annual blue grass
<i>Schismus barbatus*</i>	common Mediterranean grass
<b>POLYGONACEAE</b>	
<i>Persicaria cf. lapathifolia</i>	willow weed
<i>Polygonum aviculare*</i>	knotweed
<i>Rumex crispus*</i>	curly dock
<b>PORTULACACEAE</b>	
<i>Portulaca oleracea*</i>	purslane
<b>SALICACEAE</b>	
<i>Salix laevigata</i>	red willow

<b>SIMAROUBACEAE</b>	
<i>Ailanthus altissima</i> *	tree of heaven
<b>URTICACEAE</b>	
<i>Urtica urens</i> *	dwarf nettle

**APPENDIX D**

**USACE – ARID WEST JURISDICCIONAL DELINEATION FORM**

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project Site: Chino Brineline Project City/County: San Bernardino Sampling Date: 4/16/2019  
 Applicant/Owner: Caltrans State: CA Sampling Point: \_\_\_\_\_  
 Investigator(s): Dale Hameister Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%) \_\_\_\_\_  
 Subregion (LRR): LRR-C = California Lat: 33.983143 Long: -117.645111 Datum: NAD83  
 Soil Map Unit Name: \_\_\_\_\_ NWI Classification: NAD 83

Are Climatic / hydrological conditions on the site typical this time of Year? Yes:  No:  (If no, explain in Remarks.)  
 Are: Vegetation:  Soil:  or Hydrology  significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 (If needed, explain any answers in remarks)  
 Are: Vegetation:  Soil:  or Hydrology  naturally problematic?

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

<p><b>Hydrophytic Vegetation Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p> <p><b>Hydric Soil Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p> <p><b>Wetland Hydrology Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	<p><b>Is the Sampled Area within a Wetland?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>
---	---

**Remarks:**  
 Large roadside ditch, adjacent to active dairy areas and Chino Airport along Merrell Ave and Euclid Ave

**VEGETATION**

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
Total Cover:		_____	_____	
Sapling/Shrub Stratum	1. _____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
Total Cover:		_____	_____	
Herb Stratum	1. <b>Bromus diandrus</b>	20	Yes	UPL
2. <b>Hordeum murinum ssp. leporinum</b>	5	No	UPL	
3. <b>Carrichtera annua</b>	5	No	UPL	
4. <b>Raphanus sativus</b>	5	No	UPL	
5. <b>Phalaris aquatica</b>	5	No	FACU	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
Total Cover:		40	_____	
Woody Vine Stratum	1. _____	_____	_____	
2. _____	_____	_____	_____	
Total Cover:		_____	_____	
% Bare Ground in Herb Stratum: <u>80</u>		% Cover of Biotic Crust: _____		

**Dominance Test worksheet:**

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

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

Percent of Dominant Species That are OBL, FACW, or FAC: 0.0% (A/B)

---

**Prevalence Index worksheet:**

Total % Cover of:		Multiply by		
OBL species	<u>0</u>	x 1 =	<u>0</u>	
FACW species	<u>0</u>	x 2 =	<u>0</u>	
FAC species	<u>0</u>	x 3 =	<u>0</u>	
FACU species	<u>5</u>	x 4 =	<u>20</u>	
UPL species	<u>35</u>	x 5 =	<u>175</u>	
Column Totals:	<u>40</u>	(A)	<u>195</u>	(B)

Prevalence Index = B/A = 4.88

**Hydrophytic Vegetation Indicator:**

Dominance Test is >50%

Prevalence Index is 3.0<sup>1</sup>

Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicator if hydric soil and wetland hydrology must be present.

**Hydrophytic Vegetation Present?** Yes  No

**Remarks:**

**SOIL**

Sampling Point: \_\_\_\_\_

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type	Loc		
18	7yr 3/1	100						fine sand and gravel No hydric indicators

<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix      <sup>2</sup> Location: PL=Pore Lining, RC=Root Channel, M=Matrixc

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Reduced Vertic (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Red Parent Material (TF2)  |
| <input type="checkbox"/> Stratified Layers (A5) (LRR C)    | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Redox Dark Surface (F6)    |   |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Dark Surface (F7) |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Depressions (F8)     |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Vernal Pools (F9)          |   |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          |   |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

**Hydric Soil Present?**      Yes       No

**Remarks**

**HYDROLOGY**

**Wetland Hydrology Indicators:**

**Primary Indicators (any one indicator is sufficient)**

**Secondary Indicators (2 or more is required)**

- |   |   |   |
|---|---|---|
| <input type="checkbox"/> Surface Water (A1)                   | <input type="checkbox"/> Aquatic Invertebrates (B11)                | <input checked="" type="checkbox"/> Water Marks (B1) (Riverine)       |
| <input type="checkbox"/> High Water Table (A2)                | <input type="checkbox"/> Crayfish Burrows (B12)                     | <input checked="" type="checkbox"/> Sediment Deposits (B2) (Riverine) |
| <input type="checkbox"/> Saturation (A3)                      | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drift Deposits (B3) (Riverine)               |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)       | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C2) | <input checked="" type="checkbox"/> Drainage Patterns (B9)            |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Dry Season Water Table (C3)                  |
| <input type="checkbox"/> Drift Deposits (B3) (Nonriverine)    | <input type="checkbox"/> Recent Iron Reduction in Plowed Soil (C6)  | <input type="checkbox"/> Salt Deposits (C5)                           |
| <input type="checkbox"/> Surface Soil Cracks (B6)             | <input type="checkbox"/> Muck Surface (C7)                          | <input type="checkbox"/> Mud Casts (C9)                               |
| <input type="checkbox"/> Inundation on Aerial Imagery (B7)    | <input type="checkbox"/> Saturation on Aerial Imagery (C8)          | <input type="checkbox"/> FAC-Neutral Test (D7)                        |
| <input type="checkbox"/> Water-stained Leaves (B8)            | <input type="checkbox"/> Shallow Aquitard (D4)                      |   |
| <input type="checkbox"/> Biotic Crust (B10)                   | <input type="checkbox"/> Other (Explain in Remarks)                 |   |

**Field Observations:**

Surface Water Present?    Yes     No     Depth (inches): \_\_\_\_\_  
 Water Table Present?    Yes     No     Depth (inches): \_\_\_\_\_  
 Saturation Present?    Yes     No     Depth (inches): \_\_\_\_\_  
 (includes capillary fringe)

**Wetland Hydrology Present?**      Yes       No

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

**Remarks:**

**APPENDIX E**  
**ORDINARY HIGH-WATER MARK FORM**

**Project:** Chino Brineline Project

**Date:** April 16, 2019

**Time:** 13:47

**Project Number:** 1955400763

**Town:** Chino

**State:** CA

**Stream:**

**Photo begin file#:** 0364

**Photo end file#:** 0384

**Investigator(s):** Dale Hameister

Y  N  Do normal circumstances exist on the site?

**Location Details:** Adjacent to Merrill Ave and Euclid Ave

Y  N  Is the site significantly disturbed?

**Projection:** State Plane      **Datum:** NAD 83

Type: N/A

**Coordinates:** 33.983143 N -117.645111 E

**Notes:** Large roadside ditch

**Brief site description:** Adjacent to active dairy areas and Chino Airport

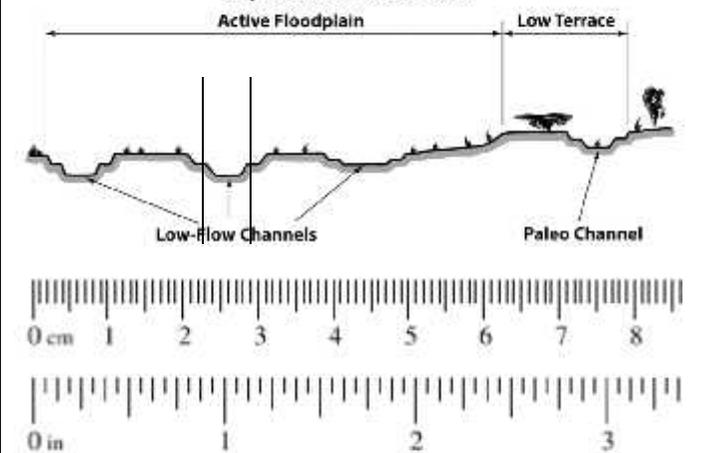
**Checklist of resources (if available):**

- Aerial Photography: (Dates: 2011)
  - Topographic maps: (Scale:            )
  - Geologic Maps
  - Vegetation maps
  - Soil Maps
  - Rainfall/precipitation maps
  - Existing Delineation(s) for site
  - Global positioning system (GPS)
  - Other Studies
- Stream gage data
  - Gage number:
  - Period of record:
  - Clinometer / level
  - 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

The dominant Wentworth size class that imparts a characteristic texture to each of a channel cross-section is recorded in the average sediment texture filed under the characteristics section for the zone of interest.

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	Gravel
2.58	64	Cobble	
0.157	4	Pebble	
0.079	2.00	Granule	
0.079	2.00	Very coarse sand	Sand
0.039	1.00	Coarse sand	
0.020	0.50	Medium 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	Silt
1/16 0.0012	0.031	Medium 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

**Hydrogeomorphic Floodplain Units - Intermittent and Ephemeral Channel Forms (representative cross-section)**



<input type="checkbox"/>	<p><b>Walk the channel and floodplain within the study area to get an impression of the vegetation and geomorphology present at the site. Record any potential anthropogenic influences on the channel system in "Notes" above.</b></p>
<input type="checkbox"/>	<p><b>Locate the low-flow channel (lowest part of the channel). Record observations.</b></p> <p><u>Characteristics of the low-flow channel:</u></p> <p>Average sediment texture: <u>Sandy silt</u></p> <p>Total veg cover: <u>0</u> % Tree: <u>0</u> % Shrub: <u>0</u>% Herb: <u>40</u>%</p> <p><u>Community successional stage:</u></p> <p><input checked="" type="checkbox"/> NA <input type="checkbox"/> Mid (herbaceous, shrubs, saplings)</p> <p><input type="checkbox"/> Early (herbaceous &amp; seedlings) <input type="checkbox"/> Late (herbaceous, shrubs, mature trees)</p> <p>Dominant species present: <i>Bromus diandrus</i></p> <p>Other: <input type="checkbox"/> <i>Hordeum murinum</i> ssp. <i>leporinum</i></p> <p><input type="checkbox"/> <i>Carrichtera annua</i></p> <p><input type="checkbox"/> <i>Raphanus sativus</i></p> <p><input type="checkbox"/> <i>Phalaris aquatica</i></p>
<input type="checkbox"/>	<p><b>Walk away from the low-flow channel along cross-section. Record characteristics of the lowflow/ active floodplain boundary.</b></p> <p><u>Characteristics used to delineate the low-flow/active floodplain boundary:</u></p> <p><input checked="" type="checkbox"/> Change in total veg cover <input type="checkbox"/> Tree <input type="checkbox"/> Shrub <input checked="" type="checkbox"/> Herb</p> <p><input type="checkbox"/> Change in overall vegetation maturity</p> <p><input type="checkbox"/> Change in dominant species present</p> <p><input type="checkbox"/> Other <input type="checkbox"/> Presence of bed and bank</p> <p><input type="checkbox"/> Drift and/or debris</p> <p><input type="checkbox"/> Other: _____</p> <p><input type="checkbox"/> Other: _____</p>
<input type="checkbox"/>	<p><b>Continue walking the channel cross-section. Record observations below.</b></p> <p><u>Characteristics of the active floodplain:</u></p> <p>Average sediment texture: <u>silty loam</u></p> <p>Total veg cover: <u>50</u> % Tree: <u>0</u> % Shrub: <u>20</u>% Herb: <u>30</u>%</p> <p><u>Community successional stage:</u></p> <p><input type="checkbox"/> NA <input type="checkbox"/> Mid (herbaceous, shrubs, saplings)</p> <p><input checked="" type="checkbox"/> Early (herbaceous &amp; seedlings) <input type="checkbox"/> Late (herbaceous, shrubs, mature trees)</p> <p>Dominant species present:</p> <p>Other: <input type="checkbox"/> _____</p> <p><input type="checkbox"/> _____</p> <p><input type="checkbox"/> _____</p> <p><input type="checkbox"/> _____</p>

