

APPENDIX C

Preliminary Delineation of Wetlands and Other Waters Report



Guadalupe River Bridge Replacement Project Preliminary Delineation of Wetlands and Other Waters



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Executive Summary

MIG surveyed the Guadalupe River Bridge Replacement Project study area located in San Jose, Santa Clara County, California for wetlands and other waters potentially subject to regulation under Section 404 of the Clean Water Act (CWA) as administered by the United States Army Corps of Engineers (USACE). The survey also delineated the extent of waters of the state that may be subject to regulation by the Regional Water Quality Control Board (RWQCB) under Section 401 of the Clean Water Act and under the Porter Cologne Water Quality Control Act. Lastly, the survey also delineated jurisdictional habitats subject to regulation under Sections 1600-1607 of the California Fish and Game Code, which is administered by the California Department of Fish and Wildlife (CDFW).

In total, approximately 4.39 acres of potentially USACE and RWQCB jurisdictional features were identified in the study area. These include approximately 1.45 acres of Sections 401 and 404 waters situated below the ordinary high water mark (OHWM) of Guadalupe River. Section 401 and 404 wetlands are also present throughout the study area and total 2.94 acres. Section 401 waters of the state extend farther up to the top of the banks for an additional 1.66 acres.

CDFW jurisdictional features as defined by bed and bank topography, and riparian habitat were identified in the study area and total 6.67 acres, including aquatic, wetlands, riparian habitat, annual grassland habitat, and developed land within top of bank, as well as riparian habitat extending beyond top of bank.

1. Introduction

2.1 Project Study Area Description

Caltrain, a commuter rail line on the San Francisco Peninsula and in the Santa Clara Valley, owns and operates trains on two tracks (MT-1 and MT-2), between San Francisco and Gilroy. Caltrain is governed by the Peninsula Corridor Joint Powers Board (PCJPB) which consists of agencies from the three counties served by Caltrain, including Santa Clara County. In the study area, the tracks span the Guadalupe River on separate and adjacent bridges, also owned by Caltrain. The 17.06-acre study area for the delineation is surrounded by dense residential development and is located just south of downtown San Jose (Figures 1 and 2). The study area is situated in the *San Jose West* U.S. Geological Survey (USGS) 7.5-minute quadrangle (Figure 3). Elevation of the study area is approximately 86 to 110 feet North American Vertical Datum of 1988 NAVD88 (Google Inc. 2019).

The climate at the study area is coastal Mediterranean, with most rain falling in the winter and spring. Cool to mild temperatures are common in the winter and hot to mild temperatures are common in the summer. Climate conditions in the study area include a 30-year average of approximately 14.9 inches of annual precipitation with an average temperature range from 50.6°F to 72.4°F (PRISM Climate Group 2019). Relative to the 30-year climate normal, the study area experienced normal conditions during the 2018 wet season prior to the December 2018 survey. From September 2018 through November 2018, the area received 1.95 inches of precipitation, which is approximately 68% of the 30-year average for this same period (PRISM Climate Group 2019).

Figure 4 shows the one soil unit mapped by the National Resource Conservation Service (NRCS) in the study area: 165 – Urbanland-Campbell complex, 0 to 2 percent slopes, protected (NRCS 2019a). This soil series is listed as hydric in Santa Clara County on the National Hydric Soils List (NRCS 2019b). A detailed description of this soil type is provided in Appendix A.

The U.S. Fish and Wildlife Service's National Wetlands Inventory (NWI) map of the study area is depicted in Figure 5. The NWI identified Guadalupe River within the study area as a temporarily flooded, palustrine forested/shrub wetland (PFOA) (NWI 2019). NWI maps are based on interpretation of aerial photography, limited verification of mapped units, and/or classification of wetland types using the classification system developed by Cowardin et al. (1979). These data are available for general reference purposes and do not necessarily correspond to the presence or absence of jurisdictional waters.

The Federal Emergency Management Agency (FEMA) produces maps depicting flood zones that are generally associated with rivers, oceans, and other water bodies. Like the NWI maps, the FEMA flood zone maps are based predominantly on topography and regional modeling. Based upon a review of the FEMA flood zone maps of the study area vicinity, the study area lies within Special Flood Hazard Areas zones A and AO with an estimated flood depth of 1 foot in a 100-year (1%) flood event (FEMA 2019).

2.2 Proposed Project

The PCJPB proposes to replace the damaged and aged MT-1 rail bridge over the Guadalupe River and extend the length of the MT-2 bridge on the right bank of the Guadalupe River. The downstream (northerly) bridge consists of a wooden trestle bridge constructed in 1935 (MT-1) and the upstream bridge consists of a concrete bridge constructed in 1990 as part of the Caltrans Highway 87 project (MT-2). In addition to Caltrain's passenger service, the railroad bridges are used by Union Pacific Railroad (UPRR) freight service; Amtrak passenger service; and by the Altamont Commuter Express (ACE) and Capitol Corridor to reach the Tamien Yard.

The 1935 MT-1 bridge urgently needs to be replaced with a new structure in order to maintain safe and reliable operations for all users. The MT-1 bridge does not meet current railroad structural design standards (including seismic criteria), and as a result is vulnerable to collapse in the event of a significant earthquake. The timber structure of MT-1 has been further damaged by multiple fires, most recently a large fire in November 2017.

The MT-1 and MT-2 bridges are located along a sharp meander of the Guadalupe River and the river exhibits a high degree of floodplain fill, channel confinement and bank failures. The geomorphic issues directly affect the safety and reliability of the railroad bridges by eroding directly towards the bridge abutments. River bank failures at MT-2 occurred in 2017 and at both MT-1 and MT-2 in several previous years, requiring emergency bank stabilization measures. To address these safety issues and protect the rail bridge asset, Caltrain proposes to widen the channel, replace the MT-1 bridge with a new, longer bridge, and to extend the MT-2 bridge. The existing MT-2 bridge meets seismic criteria and does not require replacement but will be lengthened on the south side to help address geomorphic stability issues at the bridge abutments.

The USACE and Santa Clara Valley Water District (Valley Water) propose to implement a separate and independent flood control project in the future, referred to as the Upper Guadalupe River Flood Protection Project (UGRFPP), that includes construction of a bypass channel widening through the project area. While the UGRFPP will not be constructed in the near term, project design has incorporated several measures that do not preclude potential future channel widening and bridge extension.

The existing 187-foot MT-1 bridge will be replaced by a 265-foot pre-cast concrete structure. The center span over the main channel will be 110 feet in length and the pier placement has been optimized through hydraulic analysis to avoid pier placement in the low-flow channel. The bridge piers will consist of two 48-inch diameter cast-in-drilled-hole (CIDH) piles. The new MT-1 bridge will continue to accommodate a single track. Channel widening will occur under the south side of the MT-1 bridge to reduce scour/increase flow capacity. The southern abutment will be designed so that it can potentially function as a pier without modification in the future if the USACE bypass channel is constructed.

The existing 199-foot MT-2 bridge will be extended by 90 feet at the southern end, resulting in a new total bridge length of 244.5 feet. In order to accommodate this extension, the existing MT-2 abutment 5 would be removed and replaced by a new pier and the channel widened. The existing northern abutment 1 and piers 2, 3, and 4 would remain in place. Similar to the MT-1

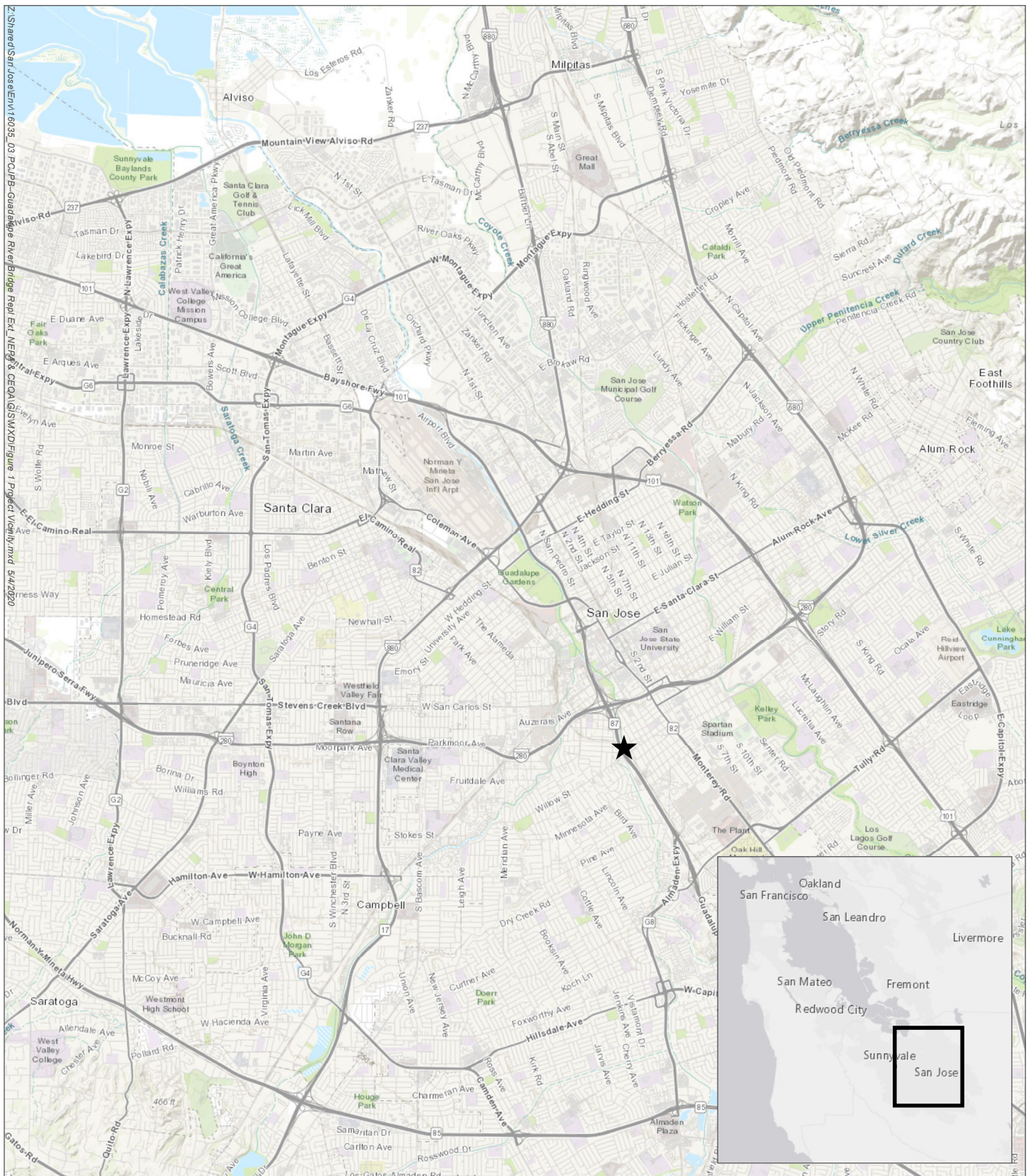
bridge, the southernmost abutment would be designed to also function as pier if the USACE bypass channel is constructed.

The project also includes the relocation of an existing Overhead Catenary System (OCS) Pole constructed as part of the Peninsula Corridor Electrification Program near the southern abutment of MT-2 and existing fiber optic lines on the MT-1 bridge.

2.3 Project Purpose

The purpose of the project is to address the structural deficiencies of the MT-1 bridge and the geomorphic instability of the Guadalupe River channel in the vicinity of the MT-1 and MT-2 bridges to provide for long-term public safety and service reliability.

Without the project, the structural condition of the MT-1 bridge presents an increasing safety hazard to all users. Replacing MT-1 is needed to meet the standards of safety and reliability required for current and future train loads, to ensure that the bridge will continue to safely carry passenger commuter (Caltrain and Amtrak) and freight (UPRR) rail service well into the future (the bridges are also used for deadhead movements of ACE and Capitol Corridor trains). In addition, lengthening of both the MT-1 and MT-2 bridges is needed to address erosion and scour issues which continue to undermine bridge abutments and contribute to risk of bridge structure failure. Extending both bridges will allow for reduced river flow velocities and minimize bank erosion. Without the project, the geomorphic condition of this reach of the Guadalupe River will continue to contribute to bank failure, threatening the integrity of the transportation asset and requiring continual emergency repair interventions.



Source: ESRI, MIG

★ Project Location





Figure 1 Vicinity Map

Guadalupe River Bridge Replacement Project





Source: ESRI, Google Earth, MIG, Louis Berger, SCVWD

-  Study Area (17.06 acres)
-  Guadalupe River

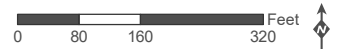
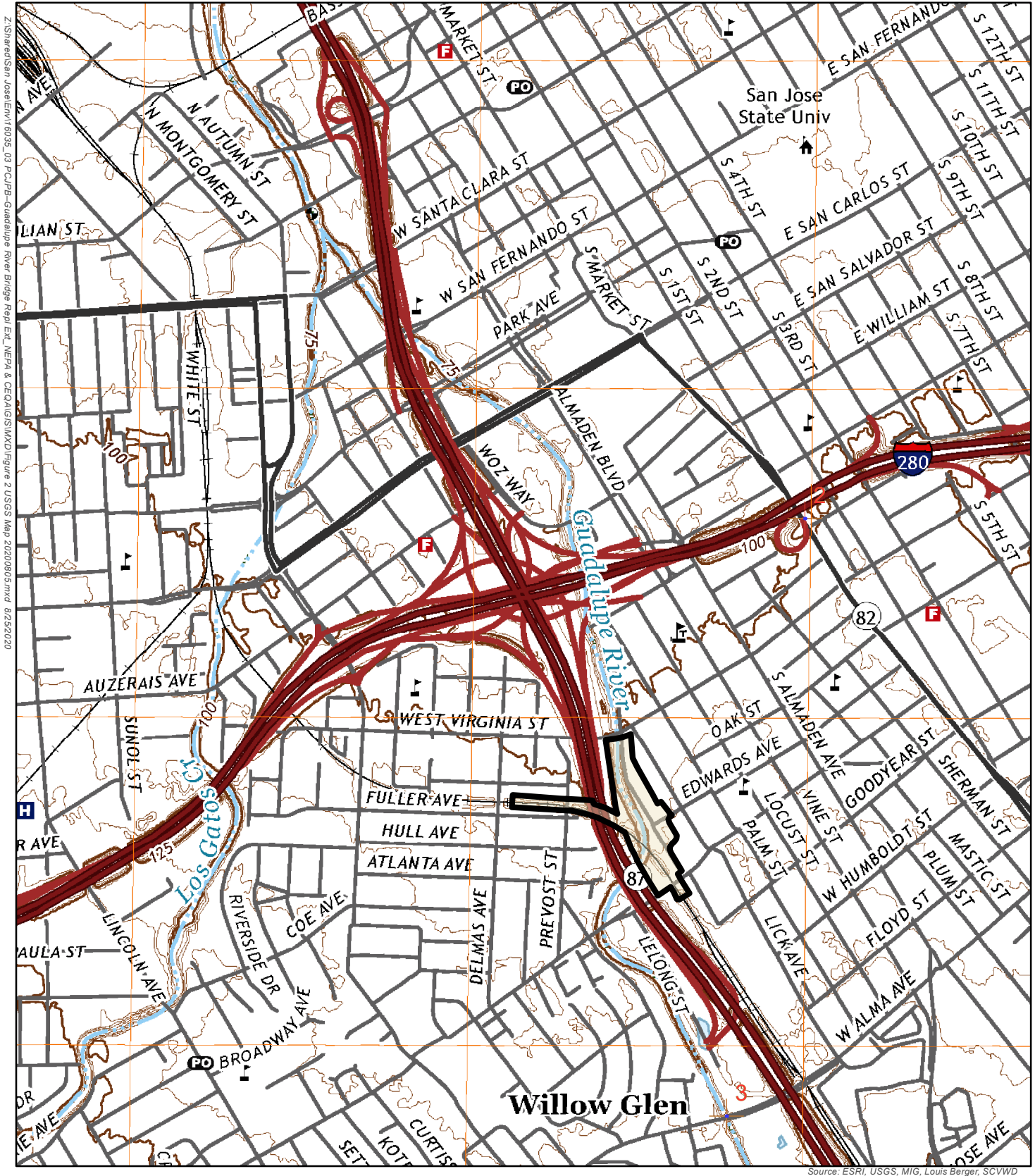


Figure 2 Project Site Map

Guadalupe River Bridge Replacement Project



Z:\Shared\San_Jose\envr\1925_03_PCFB-Guadalupe River Bridge Repl Ext_NEPA & CEQA\GIS\MXD\Figure 2 USGS Map 20200905.mxd 8/23/2020

Source: ESRI, USGS, MIG, Louis Berger, SCVWD


 Study Area (17.06 acres)



Figure 3 USGS Topographic Map
Guadalupe River Bridge Replacement Project





Source: ESRI, Google Earth, MIG, Louis Berger, SCVWD




-  Study Area (17.06 acres)
-  Guadalupe River
-  165 (Urbanland-Campbell complex, 0 to 2 percent slopes, protected)



Figure 4 NRCS Soils Map

Guadalupe River Bridge Replacement Project



Source: ESRI, USFWS, MIG, Louis Berger, SCVWD



-  Study Area (17.06 acres)
-  Freshwater Forested/Shrub Wetland (Palustrine, Forested, Temporary Flooded)



Figure 5 NWI Map

2. Survey Methods

Before the delineation survey was conducted, topographic maps and aerial photos of the study area were obtained and reviewed from several sources, such as the USGS (Figure 3), NRCS (Figure 4), NWI (Figure 5), and Google Earth software (Google Inc. 2019).

On December 12, 2018, MIG senior biologist Laura Moran, B.S. and MIG ecologist Charlotte Moran, B.A. performed a technical delineation of wetlands and other waters in the study area, in accordance with the *Corps of Engineers 1987 Wetlands Delineation Manual* (Corps Manual; Environmental Laboratory 1987). Additionally, the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West (Version 2.0)* (Regional Supplement) (USACE 2008a) and *A Field Guide to the Identification of the Ordinary High-Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008b) were followed to document site conditions relative to hydrophytic vegetation, hydric soils, and wetland hydrology. The extent and distribution of wetlands and other waters of the U.S. were mapped. These include wetlands and waters that may be subject to regulation under Section 404 of the CWA, and waters of the state that may be subject to regulation under Section 401 of the CWA or the Porter Cologne Water Quality Control Act, which is administered by the RWQCB. The scientists also surveyed for aquatic and riparian habitat that may be subject to regulation under Sections 1600-1607 of the California Fish and Game Code, which is administered by the California Department of Fish and Wildlife (CDFW).

On August 14, 2020, MIG Senior Biologist David Gallagher, M.S. and MIG biologist Alex Broskoff, B.S. visited the project site to obtain an update on site conditions. This report reflects site conditions observed in August 2020.

2.1 Identification of Jurisdictional Waters

The vegetation, soils, and hydrology in the study area were mapped according to the Routine Determination Method outlined in the Corps Manual (Environmental Laboratory 1987), using updated data forms, vegetation sampling methods, and hydric soil and hydrology indicators developed for the Regional Supplement (USACE 2010). This three-parameter approach to identifying wetlands is based on the presence of a prevalence or dominance of hydrophytic vegetation, hydric soils, and wetland hydrology.

This report was prepared in accordance with guidance provided in *Updated Map and Drawing Standards for the South Pacific Division Regulatory Program* (USACE 2016a) and *Information Requested for Verification of Corps Jurisdiction* (USACE 2016b). These documents list the information that must be submitted as part of a request for a jurisdictional determination, including:

- Vicinity map (Figure 1)
- Project area map (Figure 2)
- USGS quadrangle sheet (Figure 3)
- Soils map (Figure 4)

- National Wetlands Inventory map (Figure 5)
- Vegetation communities map (Figure 6)
- Delineation map (Figure 7)
- Current soil survey report (Appendix A)
- Plant species observed (Appendix B)
- Arid West Wetland Determination Data Forms (Appendix C)
- Written rationale for sample point choice (Section 3.1, “Observations, Rationales, and Assumptions”)
- Color photos (Appendix D)
- Aquatic resources table (Appendix E)

During the survey, the study area was examined for topographic features, drainages, alterations to hydrology or vegetation, and recent significant disturbance. A determination was then made as to whether normal environmental conditions were present at the time of the field survey. In the field, the techniques used to identify wetlands included observing the vegetation growing near the soil sample points and characterizing the current surface and subsurface hydrologic features present near the sample points through both observation of indicators and direct observation of hydrology. Features meeting wetland vegetation, soil, and hydrology criteria were then mapped in the field. Geospatial data were collected using a Trimble GeoXT geographic positioning system (GPS) unit with sub-meter accuracy during the 2018 site visit. During the 2020 site visit, geospatial data were collected using a tablet with an Arrow 100 submeter GPS receiver and a geo-spatial mobile-device application.

2.2 Identification of Section 404 Wetlands (Special Aquatic Sites)

Vegetation, soils, and hydrology parameters were recorded where wetland field characteristics were present using the Routine Determination Method outlined in the Corps Manual (Environmental Laboratory 1987) and the updated data forms, vegetation sampling methods, and hydric soil and hydrology indicators developed for the Regional Supplement (USACE 2010).

Hydrophytic Vegetation. Plants that can grow in soils that are saturated or inundated for long periods of time and contain little or no oxygen when wetted, are considered adapted to those soils, and are called hydrophytic. There are different levels of adaptation, as summarized in Table 2. Some plants can only grow in soils saturated with water (and depleted of oxygen), some are mostly found in this condition, and some are found equally in wet soils and in dry soils. Plants observed at each of the sample study areas were identified to species, where possible, using The Jepson Manual, Vascular Plants of California, Second Edition (Baldwin et al. 2012). The wetland indicator status of each species was obtained from the Arid West 2016 Regional Wetland Plant List (Lichvar et al. 2016). Wetland indicator species are designated according to their frequency of occurrence in wetlands. For instance, a species with a presumed frequency of occurrence of 67 to 99 percent in wetlands is designated a facultative wetland indicator species. The wetland indicator groups, indicator symbol, and the frequency of occurrence of species, provided as a percentage, within wetlands are shown in Table 1.

Table 1. Classification of Wetland-Associated Plant Species (Lichvar et al. 2016)

Indicator Category	Symbol	Frequency (Percent) of Occurrence in Wetlands ¹
Obligate	OBL	>99 (Almost always is a hydrophyte, rarely in uplands)
Facultative wetland	FACW	67 – 99 (Usually a hydrophyte but occasionally found in uplands)
Facultative	FAC	34 – 66 (Commonly occurs as either a hydrophyte or non-hydrophyte)
Facultative upland	FACU	1 – 33 (Occasionally is a hydrophyte, but usually occurs in uplands)
Upland ²	UPL	<1% (Rarely is a hydrophyte, almost always in uplands)
Not listed ²	NI	Considered to be an upland species unless otherwise noted

Obligate and facultative wetland indicator species are hydrophytes that occur “in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present” (Environmental Laboratory 1987). Facultative indicator species may be considered wetland indicators when found growing in hydric soils that experience periodic saturation. Plant species that are not on the regional list of wetland indicator species are considered upland species. A complete list of the vascular plants observed in the project study area, including their current indicator statuses, is provided in Appendix B.

Hydric Soils. Up to 18 inches of the soil profile were examined for hydric soil indicators. The National Technical Committee for Hydric Soils (NTCHS) defines a hydric soil as one formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper 12 inches of soil (NRCS 2010). Hydric soils include soils developed under sufficiently wet conditions to support the growth and regeneration of hydrophytic vegetation. In general, evidence of a hydric soil includes characteristics such as organic soils (histosols), reducing soil conditions, gleyed soils, soils with bright mottles and/or low matrix chroma, soils listed as hydric by the U.S. Department of Agriculture (USDA) on the National Hydric Soils List (NRCS 2019b), and iron and manganese concretions. Reducing soil conditions can also include circumstances where there is evidence of frequent ponding for long or very long duration. A long duration is defined as a period of inundation for a single event that ranges from 7 days to a month and very long is greater than one month (Environmental Laboratory 1987). Munsell Soil Notations were recorded for the soil matrix of each soil sample (Munsell 2009). The Munsell color system is based on three color properties: hue, value, and chroma.

The NRCS Web Soil Survey (NRCS 2019a) was consulted to determine which soil types have been mapped in the project study area (Figure 4). Detailed descriptions of these soil types are provided in Appendix A.

¹ Based on information contained in the Corps Manual.

² Plant species that are not listed in the *Arid West 2016 Regional Wetland Plant List* (Lichvar et al. 2016) are considered UPL species

Wetland Hydrology. Wetland hydrology is defined as an area that is inundated either permanently or periodically at mean water depths less than 6.6 feet, or where the soil is saturated at the surface at some time during the growing season of the prevalent vegetation. The period of inundation or soil saturation varies according to the hydrologic/soil moisture regime and occurs in both tidal and non-tidal situations.

Wetland hydrology encompasses all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface at some time during the growing season. Wetland hydrology indicators provide evidence that the study area has a continuing wetland hydrologic regime. Primary indicators might include visual observation of surface water (A1), high water table (A2), soil saturation (B1), water-stained leaves (B9), and hydrogen sulfide odor (C1). Secondary indicators might include riverine drift deposits (B3), drainage patterns (B10), and a passing score for the FAC-neutral test (D5). Each of the sample points was examined for positive field indicators (primary and secondary) of wetland hydrology, following the guidance provided in the Regional Supplement.

Potential Section 404 wetlands were identified in the study area.

2.3 Identification of Section 404 Jurisdictional Other Waters

“Other waters” includes lakes, slough channels, seasonal ponds, tributary waters, non-wetland linear drainages, and salt ponds. Such areas are identified by the (seasonal or perennial) presence of standing or running water and generally lack hydrophytic vegetation. In non-tidal or muted tidal waters USACE jurisdiction extends to the ordinary high water mark (OHWM) which is defined in 33 CFR Part 328.3 as “the line on the shore established by the fluctuations of water and indicated by physical characteristics, such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation or the presence of litter and debris.”

Potential Section 404 other waters were identified in the study area.

2.4 Identification of Waters of the State

The Porter-Cologne Water Quality Control Act (PWQCA) broadly defines waters of the state as “any surface water or groundwater, including saline waters, within the boundaries of the state.” Because PWQCA applies to any water, whereas the CWA applies only to certain waters, California’s jurisdictional reach overlaps and may exceed the boundaries of waters of the U.S. For example, Water Quality Order No. 2004-0004-DWQ states that “shallow” waters of the state include headwaters, wetlands, and riparian areas. Where forested habitat occurs, the outer canopy of any riparian trees rooted within top of bank may be considered jurisdictional as these trees can provide nutrients and carbon (allochthonous) input to the channel below.

Potential waters of the state were identified in the study area.

2.5 Identification of CDFW Jurisdiction

Ephemeral and intermittent streams, rivers, creeks, dry washes, sloughs, blue line streams on USGS maps, and watercourses with subsurface flows fall under CDFW jurisdiction. Canals, aqueducts, irrigation ditches, and other means of water conveyance may also be considered streams if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife. A stream is defined in Title 14, California Code of Regulations §1.72, as “a body of water that follows at least periodically or intermittently through a bed or channel having banks and that supports fish and other aquatic life. Jurisdiction does not include tidal areas such as tidal sloughs unless there is freshwater input. This includes watercourses having surface or subsurface flow that supports or has supported riparian vegetation.” Using this definition, CDFW extends its jurisdiction to encompass riparian habitats that function as a part of a watercourse. California Fish and Game Code §2786 defines riparian habitat as “lands which contain habitat which grows close to and which depends upon soil moisture from a nearby freshwater source.”

The lateral extent of a stream and associated riparian habitat that would fall under the jurisdiction of CDFW can be measured in several ways, depending on the situation and the type of fish or wildlife at risk. At a minimum, CDFW would claim jurisdiction over a stream’s bed and bank. For this delineation, the outer edge (dripline) of riparian vegetation was used as the line of demarcation between riparian and upland habitats.

Potential CDFW jurisdictional habitats were identified in the study area.

3. Survey Results and Discussion

The following vegetation/land use communities were mapped in the study area: (1) developed, (2) Wild Oats and Annual Brome Grassland, (3) Fremont Cottonwood Forest, (4) perennial freshwater marsh, (5) seasonal wetland, (6) ornamental woodland (7) aquatic habitat, and (8) Coast Live Oak Woodland (Figure 6).

The parcel is located within the San Francisco Bay Area Subregion of the Central Western Californian Region, both of which are contained within the larger California Floristic Province (Baldwin et al. 2012). Vegetation communities were mapped according to the CDFW Vegetation Classification and Mapping Program's (VegCAMP) currently accepted list of vegetation alliances and associations (CDFW 2020), where applicable.

A total of 24 sample points were examined to identify jurisdictional features (WL 01N/S to WL 12N/S, Appendix C; Figure 7). An additional four sample points were examined during the August 2020 site visit to update jurisdictional features within the study area (SP1 to SP4, Appendix C).

In total, approximately 4.39 acres of potentially USACE and RWQCB jurisdictional features were identified in the study area. These include approximately 1.45 acres of Sections 401 and 404 waters situated below the OHWM of Guadalupe River. Section 401 and 404 wetlands are also present throughout the study area, and total 2.94 acres. Section 401 waters of the state extend farther up to the top of the banks for an additional 1.66 acres. CDFW jurisdictional features as defined by bed and bank topography and riparian habitat were identified in the study area and total 6.67 acres, including aquatic, wetlands, riparian habitat, annual grassland habitat, and developed land within top of bank, as well as riparian habitat extending beyond top of bank. A summary of jurisdictional waters and habitats within the study area is provided in Table 2.

Table 2. Summary of Jurisdictional Waters and Habitats within the Study Area

Potentially Jurisdictional Waters and Habitats	Acres ¹
USACE Jurisdictional Total	4.39
Section 404 Other Waters	
Aquatic habitat	0.73
Fremont Cottonwood Forest (up to OHWM of the Guadalupe River)	0.72
Section 404 Wetlands	
Perennial Freshwater Marsh	1.61
Seasonal Wetland	1.33
RWQCB Jurisdictional Total	6.05
Aquatic Habitat	0.73
Fremont Cottonwood Forest (up to OHWM of the Guadalupe River)	0.72
Fremont Cottonwood Forest (up to the top of bank along the Guadalupe River)	0.79
Perennial Freshwater Marsh	1.61
Seasonal Wetland	1.33
Wild Oats and Annual Brome Grassland (up to top of bank of the Guadalupe River and the flood control basin)	0.67
Developed (up to the top of bank of the Guadalupe River and the flood control basin)	0.20
CDFW Jurisdictional Total	6.67
Aquatic Habitat	0.73
Fremont Cottonwood Forest	2.13
Perennial Freshwater Marsh	1.61
Seasonal Wetland	1.33
Wild Oats and Annual Brome Grassland (up to top of bank of the Guadalupe River and the flood control basin)	0.67
Developed (up to the top of bank of the Guadalupe River and the flood control basin)	0.20

¹Note: Values are approximate due to rounding

Information assembled during this investigation and pertinent to the identification of jurisdictional wetlands and other waters is presented in the five appendices of this report:

- Appendix A—Soil Reports for the Study Area
- Appendix B—Plants Observed in the Study Area
- Appendix C—USACE Western Mountains, Valley and Coast Wetland Data Forms
- Appendix D—Photographic Documentation of the Study Area

- Appendix E—Aquatic Resources Table

3.1 Study Area Conditions and Observations

- The survey took place during the 2019 wet season and 2020 dry season. Seasonal conditions were considered when assessing the biotic habitats present in the study area. Also, during the 2020 site visit, normal circumstances were not present in the flood control basin due to evidence of recent mowing. However, the boundaries of waters remained clear owing to the presence of hydrology indicators and hydrophytic vegetation.
- A portion of the study area is included Reach 7 of the Upper Guadalupe River Construction Project, a flood damage reduction and recreation project located in the City of San Jose, Santa Clara County, California developed by the Santa Clara Valley Water District (Valley Water) and the USACE. This project begins at Interstate Highway 280, at the edge of downtown San Jose, and extends upstream for approximately 5.5 miles. The proposed project utilizes a combination of bypass channels, floodwalls, and channel widening to achieve flood damage reduction while restoring protected salmonid species habitat (<https://www.spn.usace.army.mil/Missions/Projects-and-Programs/Projects-by-Category/Projects-for-Flood-Risk-Management/Upper-Guadalupe-River/>).
- The study area is within the San Francisco Bay Sub Region (18050004) of the California Water Resources Region hydrologic unit (USGS 2019).
- Both a seasonal and perennial wetland were mapped within the flood control basin east of Guadalupe River (Figure 6). Based on historic aerial imagery from as early as 1939, the area that contains the flood control basin was within the active floodplain of the river. Based on aerial imagery, the flood control basin was likely constructed in 2010 or 2011. Portions of the basin are regularly inundated and were completely inundated during the winter and spring months of 2017. Based on our site visit in 2020, portions of the basin had been mowed. Also, based on aerial imagery, a portion of the site was possibly graded and filled in late 2019 (Google Inc 2019, 2020; UCSB 2020).
- Along the upper slopes of the banks of the flood control basin, the vegetation is dominated by upland non-native forbs and grasses. This upland vegetation is characterized by wild oat (*Avena fatua*), field bindweed (*Convolvulus arvensis*), and smilo grass (*Stipa miliacea*). Much of the bank slopes are covered with thatch from the last mowing operation.
- Though not relevant to the delineation of waters of the U.S., the top of the bank is mapped for clarity and shown on Figure 7 as Section 401 waters of the State. The current practice of the San Francisco RWQCB is to claim all areas up to the top of bank, but it may also claim riparian habitat that extends beyond the top of bank.

3.2 Rationale for Sample Points

OHWL transects (WL 01N/S to WL 12N/S) and wetland sample points (SP1 to SP4) were selected to document conditions in representative jurisdictional and non-jurisdictional areas (Figure 7).

WL 01N/S to WL 12N/S were selected to demarcate the OHWM of Guadalupe River within the study area. At the time of the delineation, water was flowing and was up to three feet deep. Within the study area, the gradient of the Guadalupe River is low. There are large sections of the bank dominated by rip rap at the bridge crossings as well as downstream and upstream of the bridges. The lower banks were characterized by patchy areas of hydrophytic vegetation, or rip rap, or areas of moderate to severe bank erosion. Generally, the upper banks support a late successional riparian forest. Also, there were several areas along the banks impacted by homeless encampments. Geomorphic field indicators of the OHWM included exposed root hairs and roots below an intact soil layer, break in bank slope, benches formed by differential erosion by change in bank slope, clear, natural line impressed on the bank, and drift (organic and non-organic debris). Vegetative field indicators of the OHWM included vegetation stripped from active areas of the channel, vegetation below OHWM that starts to thicken above OHWM due to lack of disturbance from moderate events, and areas above the OHWM fully vegetated due to lack of disturbance by moderate events. Detailed findings for the OHWM sample point locations are summarized in Table 3.

Table 3. Summary of OHWM Sample Points within the Study Area

Name	Geomorphic Indicator	Vegetative Indicator	Notes
WL 01N/S	Break in bank slope; drift (organic debris)	Vegetation thickens above OHWM due to lack of disturbance from moderate events	Mature riparian forest on upper banks
WL 02 N/S	Benches formed by differential erosion by change in bank slope; drift (organic debris)	Above OHWM is a thick shrub zone indicating lack of physical removal from higher discharge events	Area impacted by homeless encampment; mature riparian forest on upper banks
WL 03 N/S	Break in bank slope	Area above OHWM fully vegetated due to lack of disturbance by moderate events	Mature riparian forest on upper banks
WL 04 N/S	Break in bank slope; benches formed by differential erosion by change in bank slope	Vegetation below OHWM and starts to thicken above OHWM due to lack of disturbance from moderate events	Mature riparian forest on upper banks
WL 05 N/S	Break in bank slope	Vegetation below OHWM and starts to thicken above OHWM due to lack of disturbance from moderate events	Mature riparian forest on upper banks
WL 06 N/S	Break in bank slope	Area above OHWM fully vegetated due to lack of disturbance by moderate events	Young trees rooted within the OHWM; mature riparian forest on upper banks
WL 07 N/S	Benches formed by differential erosion by change in bank slope	Sparse to intermittent vegetation at the edges of the active channel	Mature trees rooted below the OHWM; mature riparian forest on upper banks
WL 08 N/S	Drift deposits (organic and non-organic debris)	Area above OHWM fully vegetated due to lack of disturbance by moderate events	Area impacted by homeless encampment
WL 09 N/S	Benches formed by differential erosion by change in bank slope; drift (organic debris)	Vegetation stripped from active areas of the channel	Area impacted by homeless encampment
WL 10 N/S	Clear line impressed on bent of bridge; exposed roots below intact soil layer; benches formed by differential erosion by change in bank slope	Sparse to intermittent vegetation at the edges of the active channel	Rip rap present; severe bank erosion
WL 11 N/S	Drift (organic debris); break in bank slope	Above OHWM is a thick shrub zone indicating lack of physical removal from higher discharge events	Rip rap present; severe bank erosion
WL 12 N/S	Drift (organic and non-organic debris)	Vegetation below OHWM and starts to thicken above OHWM due to lack of disturbance from moderate events	Rip rap present; severe bank erosion

SP1 was selected to examine the seasonal wetland in the southern portion of the flood control basin in the study area (Figure 7). Vegetation present was dominated by a single FAC species, bristly ox-tongue (*Helminthotheca echioides*) and the soil exhibited redox depressions. Hydrological indicators, such as saturation visible on aerial imagery and drainage patterns were also observed (Google Inc 2020). The soil was slightly moist. Bristly ox-tongue exhibited increased abundance and plant vigor at SP1, indicating wetland conditions. This is particularly noticeable later in the growing season when adjacent areas are drying out, but moist soils are still present in wetlands, as was the case at SP1

SP2 was chosen to examine the edge of the perennial marsh within the flood control basin near culvert C1 in the study area (Figure 7). Vegetation was dominated by OBL (broadleaf cattail, *Typha latifolia*) and FACW (arroyo willow, *Salix lasiolepis*) species and the soil exhibited a depleted matrix. Hydrological indicators, such as saturation visible on aerial imagery and drainage patterns were also observed (Google Inc 2020). Standing water was observed within 2 feet of SP2 where the perennial marsh continues into a depression. The soil was very moist, but not saturated.

SP3 was selected to investigate the perennial marsh at the northern end of the flood control basin in the study area and was located within a depression (Figure 7.) Vegetation was dominated by a single OBL species, water primrose (*Ludwigia peploides*), and the soil exhibited a depleted matrix. Hydrological indicators, such as saturation visible on aerial imagery and drainage patterns were also observed (Google Inc 2020). The soil was almost saturated, likely indicating the area was recently inundated.

SP4 was chosen to represent uplands along the banks of the flood control basin in the study area (Figure 7). It is located near SP3 in an area sparsely vegetated and dominated by a single upland forb (field bindweed, *Convolvulus arvensis*), and the area was likely mowed recently, based on the presence of a thick layer of thatch. The soil exhibited relic hydric indicators as defined by sharp boundaries between redox concentrations and the soil matrix. Relic indicators are an indication that the soil was likely excavated from the flood plain adjacent to Guadalupe River and used to create the banks of the flood control basin.

3.3 Photo Points

Photo point labels, coordinates, and rationale for the photos are include in Table 4. Photos are included in Appendix D and photo points in Figure 7.

Table 4. Coordinates and Rationale for Photo Points

Label	Latitude	Longitude	Rationale
Photo 1	37.316543°	-121.888070°	Guadalupe River and Bridges
Photo 2	37.319272°	-121.888687°	Flood Control Basin
Photo 3	37.318115°	-121.887861°	Seasonal Wetland
Photo 4	37.317576	-121.887634	Perennial Freshwater Marsh
Photo 5	37.317458	-121.887618	Annual Grassland Habitat along Banks of the Flood Control Basin
Photo 6	37.317972	-121.887705	Developed Land Use
Photo 7	37.317898°	-122.888518°	Riparian and Aquatic Habitat

3.4 Identification of Section 404 Potentially Jurisdictional Waters

Approximately 0.73 acres of Section 404 other waters (open water habitat) were mapped in the study area (Figure 7) and 0.72 acres of Fremont Cottonwood Forest (PS-1) (see Section 3.7 below for a description of this vegetation community). This habitat includes the open water channel (aquatic habitat) and trees rooted below the OHWM of the Guadalupe River (PS1, Figure 7; WL 01N/S to WL 12N/S, Appendix C; Photo 1, Appendix D).

Guadalupe River. The Guadalupe River is an urban, northward flowing 14-mile perennial river that receives flows from creeks that originate in the Santa Cruz Mountains and empties into San Francisco Bay at Alviso Slough. The river begins on the Santa Clara Valley floor at the confluence of Los Alamitos and Guadalupe Creeks. Other major tributaries include Ross Creek, Los Gatos Creek, and Canoas Creek. Guadalupe River is within the Guadalupe watershed, which drains 170 square miles within Santa Clara County. The primary sources of hydrology include a combination of groundwater and seasonal precipitation. The Guadalupe River Basin has been greatly affected by human activity including the urbanization of the surrounding areas, installation of dams and reservoirs, the channelization of streams, and construction of levees for flood protection.

3.5 Identification of Section 404 Potentially Jurisdictional Wetlands

In general, areas that were identified as wetlands included solid stands of hydrophytes and/or areas determined to be ponded and/or saturated for long duration. Approximately 2.94 acres of potential USACE jurisdictional wetlands were identified in the study area (Figure 7). These areas included seasonal wetlands (SW-1 and SW-2) and a perennial freshwater marsh (PM-1). Three parameters identifying Section 404 wetlands were observed at three sample points (Figure 7; SP1 to SP3, Appendix C). The features that were determined to be potentially USACE jurisdictional wetlands are summarized below.

Seasonal Wetland (SW-1 and SW-2). Seasonal wetlands are generally inundated by shallow water, or have high groundwater levels, for variable periods from winter to spring, but they may

be completely dry for most of the summer and fall. Dominant vegetation can include strongly hydrophytic vegetation when the wetland is inundated or saturated and non-hydrophytic, upland species after the wetland dries out. Approximately 1.33 acres of seasonal wetland was mapped within the flood control basin within the study area (SW1 and SW2, Figure 7; SP1, Appendix C; Photo 3, Appendix D). The seasonal wetlands extend from the edge of the perennial marsh up to the toe of the flood control basin banks. The main source of hydrology is likely from a high groundwater table. Dominant species observed included bristly ox-tongue, bird's foot trefoil (*Lotus corniculatus*, FAC), California mugwort (*Artemisia douglasiana*, FAC), and tall flatsedge (*Cyperus eragrostis*, FACW).

Perennial Freshwater Marsh (PM-1). Perennial marshes are generally inundated or have high groundwater levels year-round or for extended periods, but surface water may be lacking during the summer and fall. Approximately 1.61 acres of perennial marsh was mapped within the flood control basin (PM1, Figure 7; SP2, Appendix C; Photo 4, Appendix D). The perennial marsh was mostly confined to a network of depressions within the flood control basin. The source of hydrology is surface flow from culvert C1 and likely from a high groundwater table. Standing water, up to 1 foot deep was observed at C1. Dominant species observed included broadleaf cattail, arroyo willow, water primrose, and rough cocklebur (*Xanthium strumarium*, FACW).

3.6 Identification of Potentially Jurisdictional Waters of the State

The extent of Section 401 waters of the state (RWQCB jurisdiction) in the study area includes a total of 6.05 acres, including areas within Section 404 jurisdiction as described above and riparian habitat, grassland habitat, and developed land up to the top of the banks. In the field, the top of bank was determined by mapping the first significant topographic break in slope. Waters of the state within the study area include all waters of the U.S., and cover approximately, 1.33 acres of seasonal wetland, 0.73 acres of aquatic habitat, 1.61 acres of perennial marsh, 1.51 acres of Fremont Cottonwood Forest up to the top of bank, 0.67 acres of Wild Oats and Annual Brome Grassland, and 0.20 acres of developed land up to the top of bank (Figure 7). Characteristics of waters of the U.S., including wetlands are described above in Sections 3.4 and 3.5. Habitats mapped along the banks are described in Section 3.7 below.

3.7 Identification of CDFW Potentially Jurisdictional Habitats

The study area contains a perennial stream channel with defined bed and bank topography along with associated riparian habitat, as defined by CDFW. Riparian habitat was mapped by the dripline of trees at the outer extent of riparian vegetation. Streambed features were mapped by the top of bank (which can extend beyond the OHWM that is used to measure the extent of waters of the U.S.). The top of bank was delineated in the field as the first distinct topographic break in bank slope. Approximately 0.73 acres of aquatic habitat (up to the OHWM), and 1.51 acres of Fremont Cottonwood Forest up to the top of bank of the streambed plus 0.62 acres of Fremont Cottonwood Forest that extends beyond the top of bank of the streambed, 0.67 acres of Wild Oats and Annual Brome Grassland, 0.20 acres of developed areas along the bank slopes of the Guadalupe River and the flood control basin, 1.33 acres of seasonal wetland, and

1.61 acres of perennial wetland within the banks of the flood control basin are identified as potentially within CDFW jurisdiction.

Fremont Cottonwood Forest (*Populus fremontii* – *Salix laevigata*, *S. lasiolepis* Alliance).

Approximately 2.28 acres of this riparian community extends from the water's edge and up the bank of Guadalupe River. A portion of this community was mapped below the OHWM of the river and was included as waters of the U.S. These areas mainly consisted of deeply rooted trees and generally lacked an herbaceous understory or emergent vegetation, likely due to being within the active part of the channel. The large sections of the banks dominated by rip rap at the bridge crossings as well as downstream and upstream of the bridges were mapped as developed land (see below). The dominant trees included Fremont cottonwood and red willow (*Salix laevigata*) with lesser numbers of boxelder (*Acer negundo*). Within the study area, the canopy is intermediate to continuous. Dominant shrubs observed consisted of arroyo willow. Species observed in the open to dense understory above the OHWM included sweet fennel (*Foeniculum vulgare*), curly dock (*Rumex crispus*), broadleaf cattail, smilo grass, white horehound (*Marrubium vulgare*), Himalayan blackberry (*Rubus armeniacus*), English ivy (*Hedera helix*), tall flatsedge, poison hemlock (*Conium maculatum*), and giant reed (*Arundo donax*).

Wild Oats and Annual Brome Grassland. This annual grassland habitat is dominated by non-native grasses, including wild oats (*Avena* sp.), ripgut brome (*Bromus diandrus*), Mediterranean barley (*Hordeum murinum*), and smilo grass. Other species observed included non-native plant species that are characteristic of disturbed areas, including black mustard (*Brassica nigra*), wild radish (*Raphanus sativus*), Canada horseweed (*Erigeron canadensis*), field bindweed, Italian thistle (*Carduus pycnocephalus*), prickly lettuce (*Lactuca serriola*), and Russian thistle (*Salsola tragus*). Annual grassland was mapped within the top of bank of the Guadalupe River and the flood control basin as well as areas outside of the banks of the river and basin.

Developed Land. Developed land within the top of bank included areas that are covered in rip rap or hardpacked soil that does not support vegetation. These areas were mapped under the bridge, adjacent to the abutments, and along the banks adjacent to the bridges. Outside of the banks, developed land includes areas that are paved, graded, hardpack dirt, and gravel access routes. These areas were generally devoid of substantial vegetation cover but contained small patches of non-native vegetation. Species observed includes were the same as observed in the Wild Oats and Annual Brome Grassland (Photo 6, Appendix D).

3.8 Areas Not Meeting the Regulatory Definition of Section 404/401 Wetlands and Waters

In general, areas that were not considered to be wetlands were not dominated by hydrophytic vegetation and did not exhibit hydrology indicators. Approximately 10.39 acres of the study area met none of the regulatory definitions of jurisdictional waters or jurisdictional habitats including the following habitat/land cover types: annual grassland (3.92 acres), coast live oak woodland (0.38 acres), ornamental woodland (1.25 acres) and developed land (4.84 acres) (Figure 6).

Ornamental Woodland. Ornamental woodland includes lands that have been planted with landscaping and are maintained on an ongoing basis. Such landscaping may include native and non-native plantings. Within the study area, ornamental woodland is found along both sides of the tracks in the eastern reach of the study area and includes the City of San Jose's Fuller Avenue Park. Trees and shrubs observed included black locust (*Robinia pseudoacacia*), Chinese pistache (*Pistacia chinensis*), Australian pine (*Casuarina equisetifolia*), Canary Island pine (*Pinus canariensis*), and cotoneaster (*Cotoneaster franchetii*). Ornamental woodland is found along the top of bank of the flood control basin and McClellan Avenue in a small landscaped neighborhood park. Trees and shrubs observed included blue elderberry (*Sambucus nigra* ssp. *caerulea*), valley oak (*Quercus lobata*), and California coffeeberry (*Frangula californica*).

Coast Live Oak Woodland. Woodland habitat dominated by coast live oak (*Quercus agrifolia*) occurs in two areas within the study area. A small amount of the oak woodland canopy overhangs the top of bank in the northwest corner of the study area, but the trees are rooted outside of the top of bank; therefore, they were mapped as part of the Coast Live Oak Woodland. Plants observed in the understory were the same as those observed in the Wild Oats and Annual Brome Grassland.



Source: ESRI, Google Earth, Louis Berger, MIG, SCVWD

- Study Area (17.06 acres)
- Freshwater Perennial Marsh (1.61 acres)
- Seasonal Wetland (1.33 acres)
- Aquatic Habitat (0.73 acres)
- Fremont Cottonwood Forest (2.13 acres)
- Coast Live Oak Woodland (0.38 acres)
- Wild Oats and Annual Brome Grassland (4.59 acres)
- Ornamental Woodland (1.25 acres)
- Developed Land (5.04 acres)

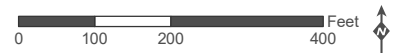


Figure 6 Vegetation Communities Map
Guadalupe River Bridge Replacement Project

Z:\Shared\San_Jose\Env\176035_03_PCB\B-Guadalupe River Bridge Repl Ext_NEPA & CEQA\GIS\X2\Figure 7 Jurisdictional Delineation_20200823.mxd 8/27/2020



Section 404/401 Waters (Up to OHWM)
1.45 acres

Section 404/401 Wetlands
2.94 acres

Section 401 (up to top of bank)
1.66 acres

CDFW Jurisdictional Habitats
6.67 acres

Source: ESRI, Google Earth, Louis Berger, MIG, SCVWD

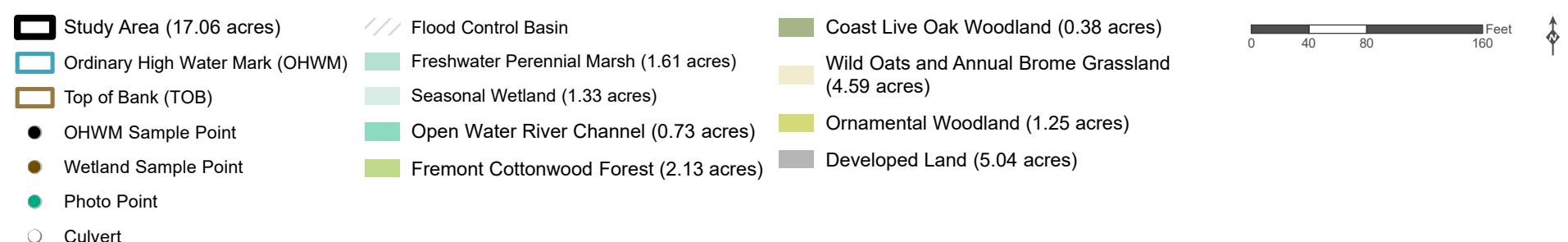


Figure 7 Preliminary Identification of Waters of the U.S./State
Guadalupe River Bridge Replacement Project

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Appendix A: Soil Report for the Study Area



United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

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

Custom Soil Resource Report for Santa Clara Area, California, Western Part

Guadalupe River Bridge Replacement Project



Preface

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

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

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

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

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

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

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How Soil Surveys Are Made

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

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

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

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

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

Custom Soil Resource Report

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

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

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

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

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

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

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

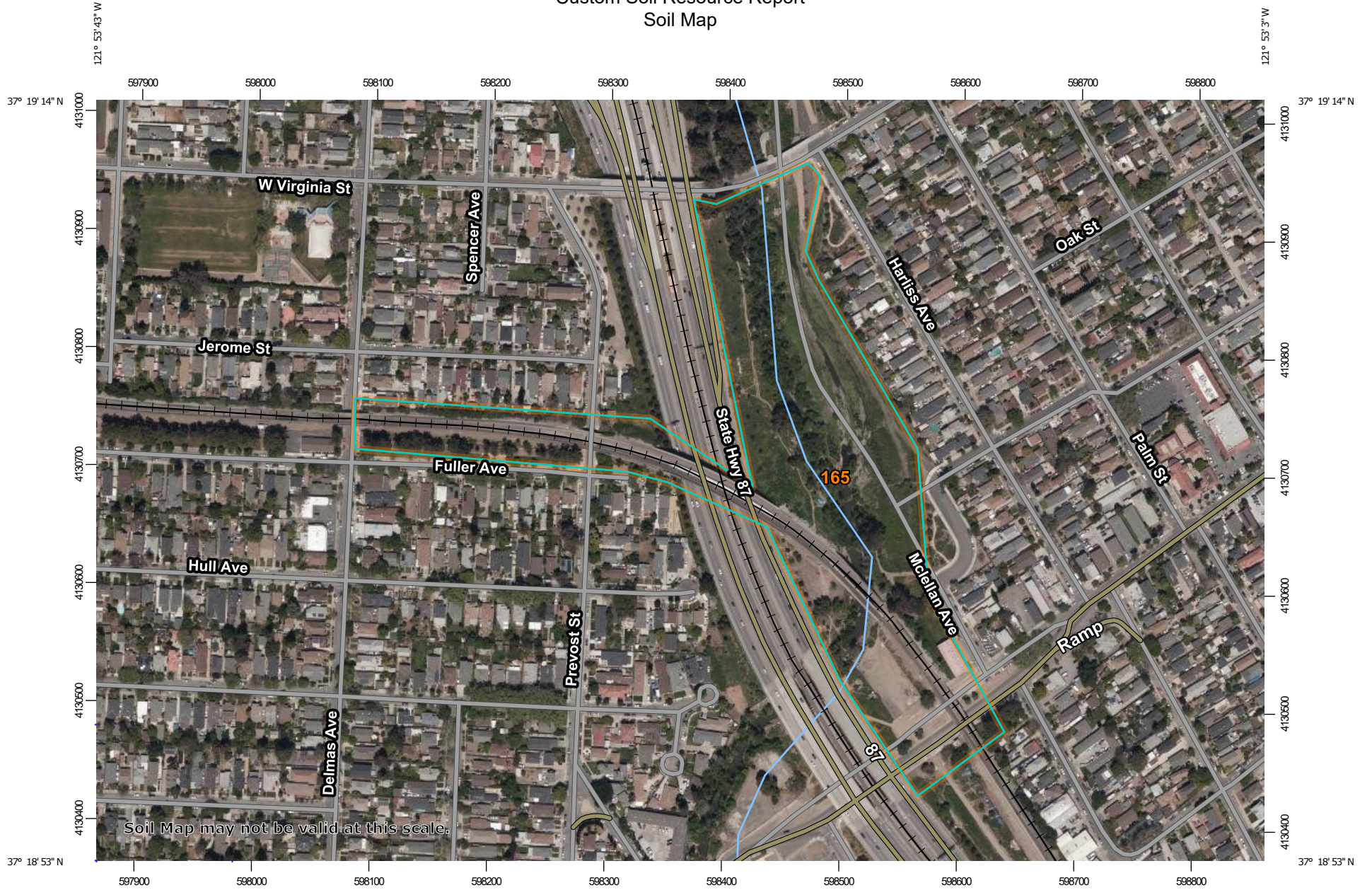
Custom Soil Resource Report

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

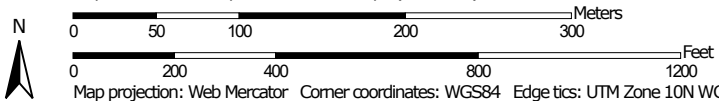
Soil Map

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

Custom Soil Resource Report Soil Map




Map Scale: 1:4,550 if printed on A landscape (11" x 8.5") sheet.




MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)


Soils


 Soil Map Unit Polygons


 Soil Map Unit Lines


 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit


 Clay Spot


 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water


 Perennial Water

 Rock Outcrop


 Saline Spot

 Sandy Spot

 Severely Eroded Spot


 Sinkhole

 Slide or Slip


 Sodic Spot


 Spoil Area

 Stony Spot


 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

Water Features

 Streams and Canals


Transportation

 Rails


 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Santa Clara Area, California, Western Part
 Survey Area Data: Version 9, May 29, 2020

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

Date(s) aerial images were photographed: Apr 13, 2019—Apr 23, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
165	Urbanland-Campbell complex, 0 to 2 percent slopes, protected	17.9	100.0%
Totals for Area of Interest		17.9	100.0%

Map Unit Descriptions

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

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

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

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

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

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

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

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

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

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

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

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

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

Santa Clara Area, California, Western Part

165—Urbanland-Campbell complex, 0 to 2 percent slopes, protected

Map Unit Setting

National map unit symbol: 1qsvl
Elevation: 0 to 240 feet
Mean annual precipitation: 14 to 24 inches
Mean annual air temperature: 57 to 61 degrees F
Frost-free period: 275 to 325 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 70 percent
Campbell, protected, and similar soils: 20 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Landform: Alluvial fans
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Disturbed and human-transported material

Description of Campbell, Protected

Setting

Landform: Alluvial fans
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from metamorphic and sedimentary rock and/or alluvium derived from metavolcanics

Typical profile

Ap - 0 to 10 inches: silt loam
A1 - 10 to 24 inches: silt loam
A2 - 24 to 31 inches: silty clay loam
A3 - 31 to 38 inches: silty clay loam
2A - 38 to 51 inches: silty clay loam
2Bw1 - 51 to 71 inches: silty clay
2Bw2 - 71 to 79 inches: silty clay

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None

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Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to slightly saline (1.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water capacity: High (about 10.4 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Clear lake

Percent of map unit: 5 percent
Landform: Basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Newpark

Percent of map unit: 5 percent
Landform: Alluvial fans
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

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Appendix B: Plants Observed in the Study Area

Guadalupe River Bridge Replacement Project
Preliminary Delineation of Wetlands and Other Waters
August 2020

Common Name	Scientific Name	Wetland Indicator Status ¹
American wild carrot	<i>Daucus pusillus</i>	NI
Arroyo willow	<i>Salix lasiolepis</i>	FACW
Australian pine	<i>Casuarina equisetifolia</i>	FACU
Boxelder	<i>Acer negundo</i>	FACW
Bird's foot trefoil	<i>Lotus corniculatus</i>	FAC
Black locust	<i>Robinia pseudoacacia</i>	FACU
Black mustard	<i>Brassica nigra</i>	NI
Blue elderberry	<i>Sambucus nigra ssp. caerulea</i>	FACU
Bristly ox-tongue	<i>Helminthotheca echioides</i>	FAC
Broadleaf cattail	<i>Typha latifolia</i>	OBL
California coffeeberry	<i>Frangula californica</i>	NI
California mugwort	<i>Artemisia douglasiana</i>	FAC
Canada horseweed	<i>Erigeron canadensis</i>	FACU
Canary Island pine	<i>Pinus canariensis</i>	NI
Chinese pistache	<i>Pistacia chinensis</i>	NI
Coast live oak	<i>Quercus agrifolia</i>	NI
Common mallow	<i>Malva neglecta</i>	NI
Cotoneaster	<i>Cotoneaster franchetii</i>	NI
Curly dock	<i>Rumex crispis</i>	FAC
Dallis grass	<i>Paspalum dilatatum</i>	FAC
Devil's beggartick	<i>Bidens frondosa</i>	FACW
Dotted smartweed	<i>Persicaria punctata</i>	OBL
English ivy	<i>Hedera helix</i>	FACU
English plantain	<i>Plantago lanceolata</i>	FAC
Field bindweed	<i>Convolvulus arvensis</i>	NI
Fremont cottonwood	<i>Populus fremontii</i>	NI (considered riparian)
Fringed willowherb	<i>Epilobium ciliatum</i>	FACW
Giant reed	<i>Arundo donax</i>	FACW
Harding grass	<i>Phalaris aquatica</i>	FACU
Hardstem bulrush	<i>Schoenoplectus acutus</i>	OBL
Heliotrope	<i>Heliotropium curassavicum</i>	FACU
Himalayan blackberry	<i>Rubus armeniacus</i>	FAC
Italian rye grass	<i>Festuca perennis</i>	FAC
Italian thistle	<i>Carduus pycnocephalus</i>	NI
Mediterranean barley	<i>Hordeum murinum</i>	FACU

Guadalupe River Bridge Replacement Project
Preliminary Delineation of Wetlands and Other Waters
August 2020

Mule fat	<i>Baccharis salicifolia</i>	FAC
Poison hemlock	<i>Conium maculatum</i>	FACW
Prickly lettuce	<i>Lactuca serriola</i>	FACU
Rabbitsfoot grass	<i>Polypogon monspeliensis</i>	FACW
Red willow	<i>Salix laevigata</i>	FACW
Rough cocklebur	<i>Xanthium strumarium</i>	FAC
Ripgut brome	<i>Bromus diandrus</i>	NI
Russian thistle	<i>Salsola tragus</i>	FACU
Seaside barley	<i>Hordeum marinum</i>	FAC
Spearmint	<i>Mentha spicata</i>	FACW
Sweet fennel	<i>Foeniculum vulgare</i>	NI
Tall flatsedge	<i>Cyperus eragrostis</i>	FACW
Prostrate knotweed	<i>Polygonum aviculare</i>	FAC
Puncture vine	<i>Tribulus terrestris</i>	NI
Smilo grass	<i>Stipa miliacea</i>	NI
Valley oak	<i>Quercus lobata</i>	FACU
Water primrose	<i>Ludwigia peploides</i>	OBL
Wild oat	<i>Avena fatua</i>	NI
White horehound	<i>Marrubium vulgare</i>	FACU
White sweetclover	<i>Melilotus albus</i>	NI
Wild radish	<i>Raphanus sativus</i>	NI

Notes:

¹Wetland Indicator Status obtained from Lichvar et al. (2016)

Wetland Indicator Status Key:

OBL = Obligate wetland species, occur almost always in wetlands (>99% probability).

FACW = Facultative Wetland species, usually occur in wetlands (67 to 99% probability), but occasionally found in non-wetlands.

FAC = Facultative species, equally likely to occur in wetlands or non-wetlands (34 to 66% probability).

FACU = Facultative Upland, usually occur in non-wetlands (67% to 99%), but occasionally found in wetlands.

UPL = Obligate Upland species, occur almost always in non-wetlands (>99% probability).

NI = Non-Indicator, not present on list. Considered to be an upland species unless otherwise indicated.

Appendix C: USACE Western Mountains, Valley and Coast Wetland Data Forms

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Guadalupe River Bridge Replacement Project **City/County:** San Jose/Santa Clara County **Sampling Date:** 14-Aug-20
Applicant/Owner: Peninsula Corridor Joint Powers Board **State:** CA **Sampling Point:** SP1
Investigator(s): DWG, AB **Section, Township, Range:** S T R
Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** flat **Slope:** 0.0 % / 0.0 °
Subregion (LRR): LRR C **Lat.:** 37.317311 **Long.:** -121.887825 **Datum:** WGS84
Soil Map Unit Name: 165 – Urbanland-Campbell complex, 0 to 2 percent slopes **NWI classification:** PEM1E

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: Area recently mowed.	

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status	Dominance Test worksheet:
Tree Stratum (Plot size: _____)				Number of Dominant Species That are OBL, FACW, or FAC: <u>1</u> (A)
1. _____	0	<input type="checkbox"/> 0.0%		Total Number of Dominant Species Across All Strata: <u>1</u> (B)
2. _____	0	<input type="checkbox"/> 0.0%		Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
3. _____	0	<input type="checkbox"/> 0.0%		
4. _____	0	<input type="checkbox"/> 0.0%		
	0	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)				Prevalence Index worksheet:
1. _____	0	<input type="checkbox"/> 0.0%		Total % Cover of: Multiply by:
2. _____	0	<input type="checkbox"/> 0.0%		OBL species <u>0</u> x 1 = <u>0</u>
3. _____	0	<input type="checkbox"/> 0.0%		FACW species <u>0</u> x 2 = <u>0</u>
4. _____	0	<input type="checkbox"/> 0.0%		FAC species <u>30</u> x 3 = <u>90</u>
5. _____	0	<input type="checkbox"/> 0.0%		FACU species <u>0</u> x 4 = <u>0</u>
	0	= Total Cover		UPL species <u>1</u> x 5 = <u>5</u>
				Column Totals: <u>31</u> (A) <u>95</u> (B)
				Prevalence Index = B/A = <u>3.065</u>
Herb Stratum (Plot size: <u>5 x 5</u>)				Hydrophytic Vegetation Indicators:
1. <u>Helminthotheca echioides</u>	30	<input checked="" type="checkbox"/> 96.8%	FAC	<input checked="" type="checkbox"/> Dominance Test is > 50%
2. <u>Convolvulus arvensis</u>	1	<input type="checkbox"/> 3.2%	UPL	<input type="checkbox"/> Prevalence Index is ≤3.0 ¹
3. _____	0	<input type="checkbox"/> 0.0%		<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. _____	0	<input type="checkbox"/> 0.0%		<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		
7. _____	0	<input type="checkbox"/> 0.0%		
8. _____	0	<input type="checkbox"/> 0.0%		
9. _____	0	<input type="checkbox"/> 0.0%		
10. _____	0	<input type="checkbox"/> 0.0%		
11. _____	0	<input type="checkbox"/> 0.0%		
	31	= Total Cover		¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
1. _____	0	<input type="checkbox"/> 0.0%		
2. _____	0	<input type="checkbox"/> 0.0%		
	0	= Total Cover		
% Bare Ground in Herb Stratum: <u>0</u>		% Cover of Biotic Crust: <u>0</u>		

Remarks:

No bare ground, remaining area covered in a thick layer of thatch (~1 inch). Vigor response by bristly ox-tongue.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: SP1

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 ¹	Loc ²				
0-16	10YR	3/2	95	5YR	4/6	5	C	M	Silty Clay Loam	Soil moist

¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: 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 Muck 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 Soils³

- 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.

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? Yes No

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

Remarks:

Plot ID:

SP1

Photo Path: C:\Users\dgallagher\Desktop\Wetland_Sample_Point_Photos\



Photo File: **SP1.JPG**

Orientation:

-facing

Lat/Long or UTM: Long/Easting: **-121.887825**

Lat/Northing: **37.317311**

Description:

No Photo

Photo File: **None.bmp**

Orientation:

-facing

Lat/Long or UTM: Long/Easting: **0**

Lat/Northing: **0**

Description:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Guadalupe River Bridge Replacement Project **City/County:** San Jose/Santa Clara County **Sampling Date:** 14-Aug-20
Applicant/Owner: Peninsula Corridor Joint Powers Board **State:** CA **Sampling Point:** SP2
Investigator(s): DWG, AB **Section, Township, Range:** S T R
Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** concave **Slope:** 0.0 % / 0.0 °
Subregion (LRR): LRR C **Lat.:** 37.317745 **Long.:** -121.887926 **Datum:** WGS84
Soil Map Unit Name: 165 – Urbanland-Campbell complex, 0 to 2 percent slopes **NWI classification:** PEM1F

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: Evidence of Recent Mowing	

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status	
Tree Stratum (Plot size: _____)				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
1. _____	0	<input type="checkbox"/> 0.0%	_____	
2. _____	0	<input type="checkbox"/> 0.0%	_____	
3. _____	0	<input type="checkbox"/> 0.0%	_____	
4. _____	0	<input type="checkbox"/> 0.0%	_____	
	0	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>10 x 10</u>)				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>20</u> x 1 = <u>20</u> FACW species <u>20</u> x 2 = <u>40</u> FAC species <u>10</u> x 3 = <u>30</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>50</u> (A) <u>90</u> (B) Prevalence Index = B/A = <u>1.800</u>
1. <u>Salix lasiolepis</u>	10	<input checked="" type="checkbox"/> 100.0%	FACW	
2. _____		<input type="checkbox"/> 0.0%	_____	
3. _____	0	<input type="checkbox"/> 0.0%	_____	
4. _____	0	<input type="checkbox"/> 0.0%	_____	
5. _____	0	<input type="checkbox"/> 0.0%	_____	
	10	= Total Cover		
Herb Stratum (Plot size: <u>10 x 10</u>)				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is > 50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Typha latifolia</u>	20	<input checked="" type="checkbox"/> 50.0%	OBL	
2. <u>Mentha spicata</u>	10	<input checked="" type="checkbox"/> 25.0%	FACW	
3. <u>Artemisia douglasiana</u>	10	<input checked="" type="checkbox"/> 25.0%	FAC	
4. _____	0	<input type="checkbox"/> 0.0%	_____	
5. _____	0	<input type="checkbox"/> 0.0%	_____	
6. _____	0	<input type="checkbox"/> 0.0%	_____	
7. _____	0	<input type="checkbox"/> 0.0%	_____	
8. _____	0	<input type="checkbox"/> 0.0%	_____	
9. _____	0	<input type="checkbox"/> 0.0%	_____	
10. _____	0	<input type="checkbox"/> 0.0%	_____	
11. _____	0	<input type="checkbox"/> 0.0%	_____	
	40	= Total Cover		
Woody Vine Stratum (Plot size: _____)				
1. _____	0	<input type="checkbox"/> 0.0%	_____	
2. _____	0	<input type="checkbox"/> 0.0%	_____	
	0	= Total Cover		
% Bare Ground in Herb Stratum: <u>0</u>		% Cover of Biotic Crust: <u>0</u>		

Remarks:
No bare ground, remaining area covered in a layer of thatch (~0.5 inch).

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: SP2

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 ¹	Loc ²				
0-16	10YR	3/2	90	5YR	6/8	10	C	M	Silty Clay Loam	Soil very moist

¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: 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 Muck 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 Soils³

- 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.

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? Yes No

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

Remarks:

Plot ID:

Photo Path: C:\Users\dgallagher\Desktop\Wetland_Sample_Point_Photos\



Photo File:

Orientation: -facing

Lat/Long or UTM: Long/Easting: -121.887926

Lat/Northing: 37.317745

Description:

No Photo

Photo File:

Orientation: -facing

Lat/Long or UTM: Long/Easting: 0

Lat/Northing: 0

Description:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Guadalupe River Bridge Replacement Project **City/County:** San Jose/Santa Clara County **Sampling Date:** 14-Aug-20
Applicant/Owner: Peninsula Corridor Joint Powers Board **State:** CA **Sampling Point:** SP3
Investigator(s): DWG, AB **Section, Township, Range:** S T R
Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** concave **Slope:** 0.0 % / 0.0 °
Subregion (LRR): LRR C **Lat.:** 37.319288 **Long.:** -121.888767 **Datum:** WGS84
Soil Map Unit Name: 165 – Urbanland-Campbell complex, 0 to 2 percent slopes **NWI classification:** PEM1F

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks:	

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status	
Tree Stratum (Plot size: _____)				
1. _____	0	<input type="checkbox"/> 0.0%	_____	Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
2. _____	0	<input type="checkbox"/> 0.0%	_____	
3. _____	0	<input type="checkbox"/> 0.0%	_____	
4. _____	0	<input type="checkbox"/> 0.0%	_____	
0 = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	0	<input type="checkbox"/> 0.0%	_____	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>60</u> x 1 = <u>60</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>10</u> x 3 = <u>30</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>1</u> x 5 = <u>5</u> Column Totals: <u>71</u> (A) <u>95</u> (B) Prevalence Index = B/A = <u>1.338</u>
2. _____	0	<input type="checkbox"/> 0.0%	_____	
3. _____	0	<input type="checkbox"/> 0.0%	_____	
4. _____	0	<input type="checkbox"/> 0.0%	_____	
5. _____	0	<input type="checkbox"/> 0.0%	_____	
0 = Total Cover				
Herb Stratum (Plot size: <u>5 x 5</u>)				
1. <u>Ludwigia peploides</u>	60	<input checked="" type="checkbox"/> 84.5%	OBL	Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is > 50% <input checked="" type="checkbox"/> Prevalence Index is ≤ 3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Xanthium strumarium</u>	5	<input type="checkbox"/> 7.0%	FAC	
3. <u>Lotus corniculatus</u>	5	<input type="checkbox"/> 7.0%	FAC	
4. <u>Melilotus alba</u>	1	<input type="checkbox"/> 1.4%	UPL	
5. _____	0	<input type="checkbox"/> 0.0%	_____	
6. _____	0	<input type="checkbox"/> 0.0%	_____	
7. _____	0	<input type="checkbox"/> 0.0%	_____	
8. _____	0	<input type="checkbox"/> 0.0%	_____	
9. _____	0	<input type="checkbox"/> 0.0%	_____	
10. _____	0	<input type="checkbox"/> 0.0%	_____	
11. _____	0	<input type="checkbox"/> 0.0%	_____	
71 = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	0	<input type="checkbox"/> 0.0%	_____	Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
2. _____	0	<input type="checkbox"/> 0.0%	_____	
0 = Total Cover				
% Bare Ground in Herb Stratum: <u>29</u>		% Cover of Biotic Crust: <u>0</u>		

Remarks:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: SP3

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 ¹	Loc ²			
0-16	10YR	5/1	90	5YR	5/8	10	C	PL	Silty Clay

¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: 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 Muck 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 Soils³

- 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.

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

Soil very moist, likley evidence of recent inundation.

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 Plowed Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? Yes No

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

Remarks:

Plot ID:

Photo Path: C:\Users\dgallagher\Desktop\Wetland_Sample_Point_Photos\



Photo File: Orientation: -facing

Lat/Long or UTM: Long/Easting: Lat/Northing:

Description:

No Photo

Photo File: Orientation: -facing

Lat/Long or UTM: Long/Easting: Lat/Northing:

Description:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Guadalupe River Bridge Replacement Project **City/County:** San Jose/Santa Clara County **Sampling Date:** 14-Aug-20
Applicant/Owner: Peninsula Corridor Joint Powers Board **State:** CA **Sampling Point:** SP4
Investigator(s): DWG, AB **Section, Township, Range:** S T R
Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** convex **Slope:** 30.0 % / 16.7 °
Subregion (LRR): LRR C **Lat.:** 37.31933 **Long.:** -121.888632 **Datum:** WGS84
Soil Map Unit Name: 165 – Urbanland-Campbell complex, 0 to 2 percent slopes **NWI classification:** _____

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: Evidence of Recent Mowing	

VEGETATION - Use scientific names of plants.

Stratum	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status	Dominance Test worksheet:
Tree Stratum (Plot size: _____)				Number of Dominant Species That are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>0.0%</u> (A/B)
1. _____	0	<input type="checkbox"/> 0.0%	_____	
2. _____	0	<input type="checkbox"/> 0.0%	_____	
3. _____	0	<input type="checkbox"/> 0.0%	_____	
4. _____	0	<input type="checkbox"/> 0.0%	_____	
= Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	0	<input type="checkbox"/> 0.0%	_____	
2. _____	0	<input type="checkbox"/> 0.0%	_____	
3. _____	0	<input type="checkbox"/> 0.0%	_____	
4. _____	0	<input type="checkbox"/> 0.0%	_____	
5. _____	0	<input type="checkbox"/> 0.0%	_____	
= Total Cover				
Herb Stratum (Plot size: <u>5 x 5</u>)				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>0</u> x 4 = <u>0</u> UPL species <u>50</u> x 5 = <u>250</u> Column Totals: <u>50</u> (A) <u>250</u> (B) Prevalence Index = B/A = <u>5.000</u>
1. <u>Convolvulus arvensis</u>	50	<input checked="" type="checkbox"/> 100.0%	UPL	
2. _____	0	<input type="checkbox"/> 0.0%	_____	
3. _____	0	<input type="checkbox"/> 0.0%	_____	
4. _____	0	<input type="checkbox"/> 0.0%	_____	
5. _____	0	<input type="checkbox"/> 0.0%	_____	
6. _____	0	<input type="checkbox"/> 0.0%	_____	
7. _____	0	<input type="checkbox"/> 0.0%	_____	
8. _____	0	<input type="checkbox"/> 0.0%	_____	
9. _____	0	<input type="checkbox"/> 0.0%	_____	
10. _____	0	<input type="checkbox"/> 0.0%	_____	
11. _____	0	<input type="checkbox"/> 0.0%	_____	
= Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	0	<input type="checkbox"/> 0.0%	_____	
2. _____	0	<input type="checkbox"/> 0.0%	_____	
= Total Cover				
% Bare Ground in Herb Stratum: <u>0</u>	% Cover of Biotic Crust <u>0</u>			

Hydrophytic Vegetation Indicators:
 Dominance Test is > 50%
 Prevalence Index is ≤ 3.0¹
 Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present? Yes No

Remarks: No bare ground, remaining area covered in a layer of thatch (~ 1 inch).

Soil

Sampling Point: SP4

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 ¹	Loc ²				
0-16	10YR	3/2	90	5YR	4/6	10	D	M	Silty Clay	Relic redox

¹ Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: 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 Muck 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 Soils³

- 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.

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

Relic redox-likely from excavation of existng floodplain and deposited soils to form the banks.

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 Plowed Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? Yes No

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

Remarks:

Plot ID:

Photo Path: C:\Users\dgallagher\Desktop\Wetland_Sample_Point_Photos\



Photo File:

Orientation: -facing

Lat/Long or UTM: Long/Easting: Lat/Northing:

Description:

No Photo

Photo File:

Orientation: -facing

Lat/Long or UTM: Long/Easting: Lat/Northing:

Description:

Appendix D: Photographic Documentation of the Study Area



Photo 1. Looking downstream at Guadalupe MT-2 track bridge. Guadalupe River and associated riparian habitat are clearly visible.



Photo 2. Looking south at the flood control basin. August 2020.



Photo 3. Seasonal wetland within the flood control basin. August 2020.



Photo 4. Perennial Wetland within the flood control basin. A large culvert empties into the basin from under Edwards Avenue at McClellan Avenue. August 2020.



Photo 5. Flood control basin with annual grassland habitat along the banks. The area was recently mowed as indicated by the remaining thatch. The green vegetation in the bottom of the basin is a seasonal wetland. August 2020.



Photo 6. Gravel access road for flood control basin. This area was mapped as developed habitat.



Photo 7. Guadalupe River. Aquatic and riparian habitat are clearly visible.

Appendix E: Aquatic Resources Table

Guadalupe River Bridge Replacement Project
Preliminary Delineation of Wetlands and Other Waters
August 2020

Waters Name	State	Cowardin Code	HGM Code	Measurement Type	Amount	Units	Water Type	Latitude	Longitude	Local Waterway
PS1	CALIFORNIA	R2UB	RIVERINE	Area	1.45	ACRE	TNW	37.316792°	-121.888145°	Guadalupe River
PM1	CALIFORNIA	PEM1F	DEPRESS	Area	1.61	ACRE	TNWW	37.317860°	-121.888278°	Guadalupe River
SW1	CALIFORNIA	PEM1E	DEPRESS	Area	0.35	ACRE	TNWW	37.317248°	-121.887835°	Guadalupe River
SW2	CALIFORNIA	PEM1E	DEPRESS	Area	0.98	ACRE	TNWW	37.318715°	-121.888443°	Guadalupe River