Redlands Boulevard and Hemlock Avenue Gas Station Project

Jurisdictional Waters and Wetlands Delineation

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Executive Summary

Rincon Consultants, Inc. conducted a jurisdictional waters and wetlands delineation for the Redlands Boulevard and Hemlock Avenue Gas Station project, located in the city of Moreno Valley, Riverside County, California. The site is specifically located west of Redlands Boulevard and Spruce Avenue and south of Hemlock Avenue. The project would include the development of a gas station with 11 fueling stations (16 total dispensers) and a 5,123 square foot food mart/retail store. The project site is comprised of a single vacant parcel, Assessor's Parcel Number 488-310-012, and additional public road right-of-way located in a valley, that appeared to be a fallow/abandoned agricultural field. The project site consists of vacant land that has been graded and periodically disturbed by mechanical disking. Non-native and some native plant species have revegetated the project site, indicating that the area has been left fallow for many years. Despite the revegetation that has occurred, the project site is substantially disturbed due to prior agricultural activities. Surrounding land uses include residences and commercial uses to the south and vacant land to the west and north. In addition, the Redlands and Hemlock Booster Station is adjacent to the project site's northeastern boundary. State Route 60 is approximately 560 feet south of the project site.

The entire project site is comprised of annual brome grassland. No riparian vegetation is present on the project site. Two soil types of the San Emigdio series occur on site: San Emigdio fine sandy loam, 2 to 8 percent slopes, eroded and San Emigdio loam, 2 to 8 percent slopes. Neither of these soil types are considered hydric soils.

Two drainage features were identified during the jurisdictional delineation: a roadside drainage channel along the west side of Redlands Boulevard in the east portion of the project site and an erosional drainage ditch in the southeast portion of the project site. A single box culvert near the Redlands Boulevard and Spruce Avenue intersection collects and conveys flows under Spruce Avenue into a concrete channel between Redlands Boulevard and Spruce Avenue. A single storm drain intake collects and conveys flows in the erosional drainage ditch under Spruce Avenue and outlets flows into the concrete channel.

Approximately 620 linear feet and 0.12 acre of potential Santa Ana Regional Water Quality Control Board-jurisdictional non-wetland waters of the State and 620 linear feet and 0.41 acre of potential California Department of Fish and Wildlife-jurisdictional streambed was determined to be present on and adjacent to the project site. The two drainage features are not expected to be regulated as "Waters of the United States" by the United States Army Corps of Engineers due to the promulgation of the 2008 Rapanos Guidance. The two drainages features are, however, considered "riparian/riverine" habitat under Section 6.1.2 of the Western Riverside Multiple Species Habitat Conservation Plan. No vernal pools are present on or adjacent to the project site.

Project implementation would permanently impact a total of 536 linear feet and 0.1 acre of potential non-wetland waters of the State and 536 linear feet and 0.3 acre of potential streambed.

Introduction

Rincon Consultants, Inc. (Rincon) conducted a jurisdictional waters and wetlands delineation for the Redlands Boulevard and Hemlock Avenue Gas Station project, located in the city of Moreno Valley (City), Riverside County, California. The delineation was conducted to determine the location and extent of waters and wetlands within the 7.53-acre project site that are potentially subject to the jurisdiction of the United States (U.S.) Army Corps of Engineers (USACE), Santa Ana Regional Water Quality Control Board (RWQCB), California Department of Fish and Wildlife (CDFW), and the limits of potential riparian/riverine and vernal pool habitat as defined by Section 6.1.2 of the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP).

Any proposed development in areas identified as jurisdictional waters and/or wetlands may be subject to the permit requirements of the USACE, under Section 404 of the Clean Water Act (CWA), RWQCB, under Section 401 of the CWA and State Porter-Cologne Water Quality Act (Porter-Cologne Act), a Streambed Alteration Agreement (SAA) from the CDFW pursuant to Section 1600 et. seq. of the California Fish and Game Code (CFGC), or areas identified as riparian/riverine or vernal pools are subject to the regulations in Section 6.1.2 of the MSHCP. Actual jurisdictional areas are determined by the state and federal authorities at the time that permits are requested. In the case of this project, actual riparian/riverine areas or vernal pools are determined by the City as a Permittee under the MSHCP and the CDFW and U.S. Fish and Wildlife Service (USFWS; together referred to as the Wildlife Agencies).

Project Location

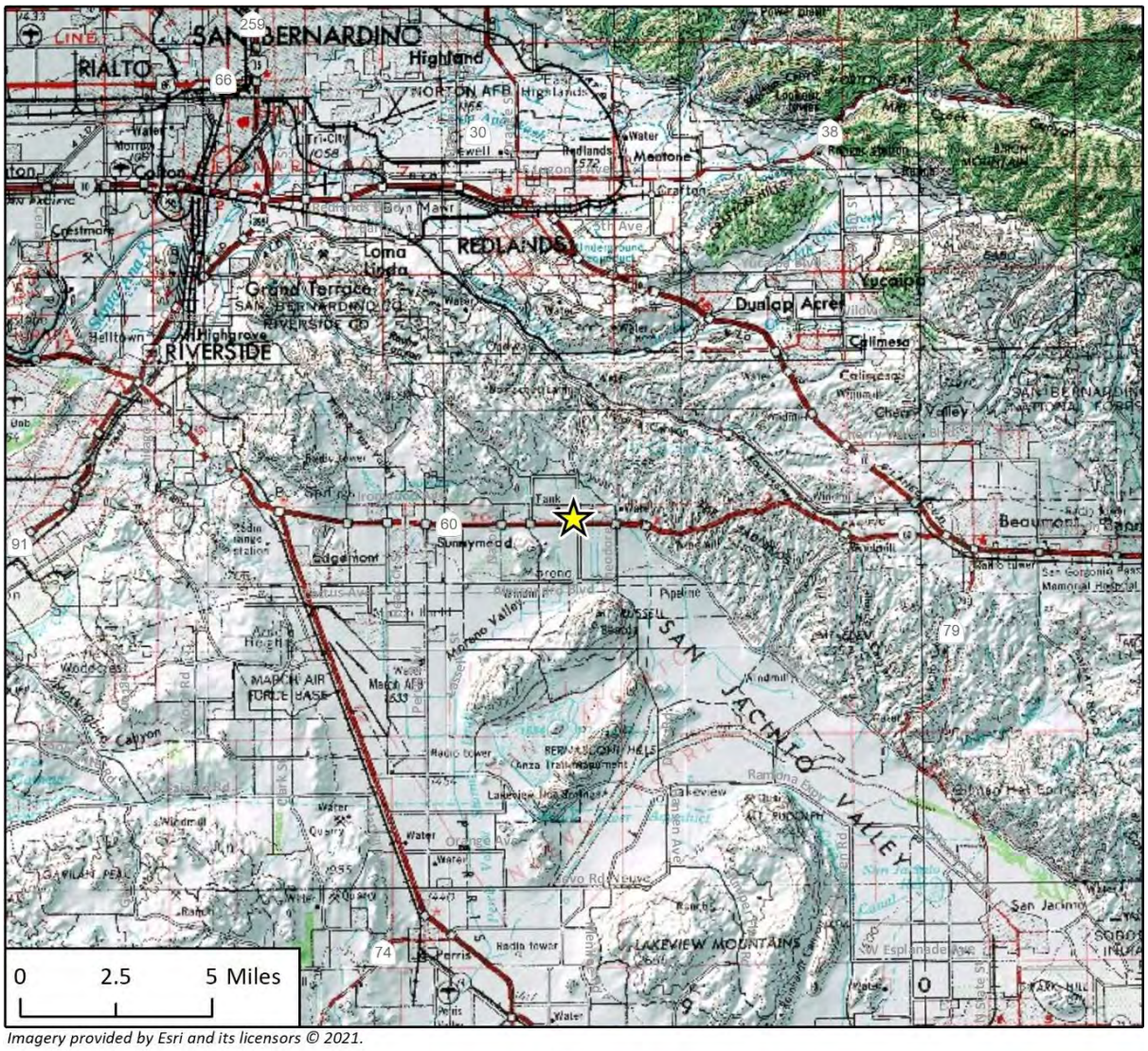
The project site is generally located in Moreno Valley, south of the Badlands (Figure 1). The site is specifically located west of Redlands Boulevard and Spruce Avenue and south of Hemlock Avenue (Figure 2). It is depicted on the Sunnymead, California, U.S. Geological Survey (USGS) 7.5-minute topographic map, within Section 2, Township 3 South, Range 3 West, San Bernardino baseline and meridian (Figure 1). The center point latitude and longitude coordinates for the project site are 33.941664°N and -117.157976°W.

Project Description

The project would include the development of a gas station with 11 fueling stations (16 total dispensers) and a 5,123 square foot food mart/retail store. Of the 16 dispensers, 14 of the fueling stations would be gasoline dispensers and would be underneath a 5,581 square foot canopy. The remaining two fueling stations would be diesel dispensers underneath a 3,120 square foot canopy. An 18 x 12.5 x six foot trash enclosure would also be constructed. The project would provide a total of 18 parking spaces in a surface lot with two stalls for electric vehicle parking. Additional improvements include curb and sidewalk improvements, landscaping, and storm drain improvements. Access to the project site would be provided from two driveways off Redlands Boulevard and Hemlock Avenue. Of the 7.53-acre site, only approximately 2.84 acres would be developed; the remaining 4.27 acres would remain undeveloped.

The project would also modify an existing roadside drainage channel along the west side of Redlands Boulevard. These modifications include removal of two existing 24-inch reinforced concrete pipes (RCPs) with headwalls that outlet into the roadside drainage channel near the

Figure 1 Regional Location Map with USGS Map



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Project Location

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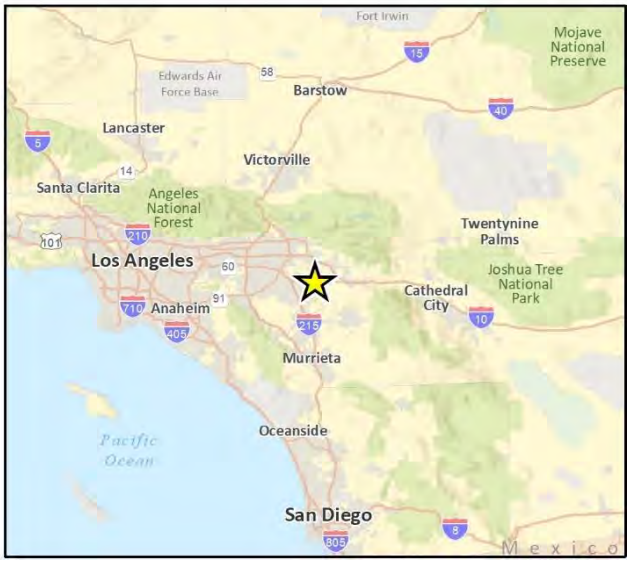
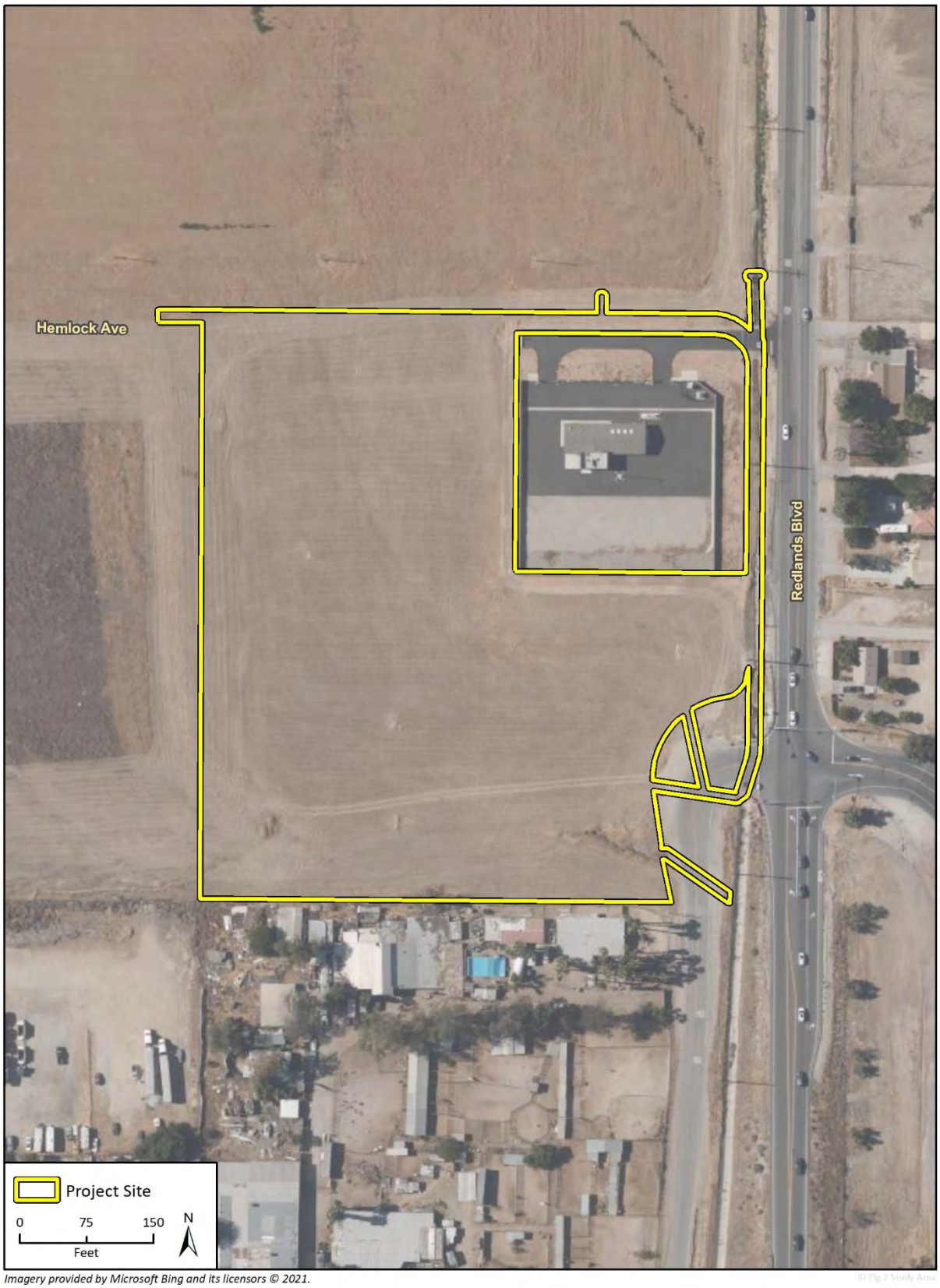


Figure 2 Project Location



intersection of Redlands Boulevard and Hemlock Avenue, replacing the roadside drainage channel with an underground 54-inch RCP, and removal of an existing concrete box culvert that currently conveys flows under Spruce Avenue. The proposed 54-inch RCP would then outlet into an existing concrete channel south of Spruce Avenue and west of Redlands Boulevard.

Construction of the project would start in January 2022 and is estimated to be completed in December 2022 for a total construction period of 12 months, although the project construction schedule would be adjusted as necessary depending on agency permitting efforts. Construction activities would include site preparation, grading, building construction, paving, and architectural coating (e.g., painting). During grading, approximately 300 cubic yards of soil would be exported. All construction would occur within the current conceptual limits of the project.

Environmental Setting

The project site includes a single vacant parcel, Assessor's Parcel Number (APN) 488-310-012, and proposed improvement areas along the west side of Redlands Boulevard and along Hemlock Avenue. The project site is located in a valley that appeared to be a fallow/abandoned agricultural field. The site is relatively level with elevations on site ranging from 1,792 feet above mean sea level (msl) at the northern end and 1,780 feet above msl at the southern end. The project site consists of vacant land that has been graded and periodically disturbed by mechanical disking, and a roadside drainage channel with associated stormwater conveyance infrastructure. Non-native and some native plant species have revegetated the project site, indicating that the area has been left fallow for many years. Despite the revegetation that has occurred, the project site is substantially disturbed due to prior agricultural activities. Surrounding land uses include residences and commercial uses to the south and vacant land to the west and north. In addition, the Redlands and Hemlock Booster Station is adjacent to the project site's northeastern boundary. State Route (SR) 60 is approximately 560 feet south of the project site.

The project site is located in arid western Riverside County, which is characterized by long, hot, dry summers and short, relatively wet winters. Average temperatures range from 64 to 94°F during the summer and 40 to 70°F during the winter. The average annual precipitation in the region is 13 inches (Weather Currents 2021).

The project site is within the approximate 2,840-square mile Santa Ana River Watershed. The Santa Ana River Watershed is the largest watershed drainage south of the Sierra Nevada Mountains and is located in a highly urbanized setting. The Santa Ana River spans San Bernardino, Riverside, and Orange counties and is about 100 miles long with more than 50 tributaries.

The jurisdictional delineation identified the presence of two potentially jurisdictional features on the project site; a roadside drainage channel and an agricultural drainage ditch. The roadside drainage channel conveys flows in the east portion of the project site and along the west side of Redlands Boulevard in an open, soft-bottomed channel. The channel bed is comprised of a mix of cobbles, gravel, and weirs and contains debris. This channel also contains steep banks that are densely vegetated with mostly non-native grass species. Flows are collected by a single concrete box culvert under Spruce Avenue and are conveyed through a concrete channel south of Spruce Avenue under SR 60, where flows are again conveyed through an earthen channel. The channel continues to convey flows in a southward direction along the west side of Redlands Boulevard until it eventually conveys flows into an underground storm drain system at Dracaea Avenue. According to City Planning staff via email communication, this storm drain system eventually conveys flows into downstream waters.

The agricultural drainage ditch is a small feature in the southeast portion of the project site that becomes incised where sheet flows from the west converge in a single area. Evidence of water flow west and upstream of the incised feature is obscured from disking activities and is weak in the incised feature itself due to dense non-native grass and ruderal vegetation. Discussion of the vegetation, hydrology, and soils characteristics associated with these two drainage features is provided below.

Methodology

Within the limits of the project site, waters and wetlands potentially subject to USACE jurisdiction were delineated in accordance with the following:

- *Wetlands Delineation Manual* (Environmental Laboratory 1987);
- *Regulatory Guidance Letter No. 05-05: Ordinary High Water Mark Identification* (USACE 2005);
- *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (USACE 2008a);
- *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)
- *Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell vs. United States* (U.S. Environmental Protection Agency [USEPA] and USACE 2008); and
- *Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2010)

RWQCB jurisdiction was determined in accordance with the previously listed methodologies to identify waters of the U.S. and thus, mirrors the jurisdictional limits of federal jurisdiction pursuant to Section 401 of the CWA. Procedures for defining RWQCB jurisdiction pursuant to the State Water Resources Control Board's *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* was approved on April 2, 2019 and formally implemented on May 28, 2020. CDFW jurisdiction was delineated in accordance with Section 1602(a) of the California Fish and Game Code. Appendix A presents a discussion of pertinent regulations and definitions pertaining to this jurisdictional delineation.

MSHCP Section 6.1.2, Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools, describes the process through which protection of riparian/riverine areas, vernal pools, and fairy shrimp species will occur within the MSHCP Area. Protection of these resources is important for a number of MSHCP conservation objectives. An assessment of a project's potentially significant effects on riparian/riverine areas, vernal pools, and fairy shrimp habitat is required. Guidelines for determining whether or not these resources exist on site are described as follows:

- **Riparian/Riverine Areas** are described by the MSHCP as "lands which contain habitat dominated by trees, shrubs, persistent emergent, or emergent mosses and lichens which occur close to or which depend upon soil moisture from a nearby fresh water source or areas with fresh water flow during all or a portion of the year." Riparian/riverine areas under the MSHCP also include drainage areas that are vegetated or have upland (non-riparian/riverine) vegetation that drain directly into an area that is described for conservation under the MSHCP (or areas already conserved).
- **Vernal Pools** are described by the MSHCP as "seasonal wetlands that occur in depression areas that have wetland indicators of all three parameters (soils, vegetation, and hydrology) during the wetter portion of the growing season but normally lack wetland indictors of hydrology and /or vegetation during the drier portion of the growing season."
- **Listed Fairy Shrimp Habitat** is described in the MSHCP as habitat for Riverside fairy shrimp (*Streptocephalus woottoni*), vernal pool fairy shrimp (*Branchinecta lynchi*), or Santa Rosa

> Plateau fairy shrimp (*Linderiella santarosae*), and includes ephemeral pools, artificially created habitat, and/or other features determined appropriate by a qualified biologist.

In addition, Section 6.1.2 of the MSHCP states:

> With the exception of wetlands created for the purpose of providing wetlands habitat or resulting from human actions to create open waters or from the alteration of natural stream courses, areas demonstrating characteristics as described above which are artificially created are not included in these definitions.

If found, riparian/riverine habitat and vernal pools within the study area were identified, mapped, and recorded during the field reconnaissance survey.

Literature Review

Prior to the field survey, Rincon reviewed aerial photographs of the site, regional and site specific topographic maps, the U.S. Department of Agriculture Natural Resources Conservation Service (USDA NRCS) Web Soil Survey: *Custom Soil Resource Report for Western Riverside Area, California* (2021a), and other available background information to better characterize the nature and extent of potentially jurisdictional waters and wetlands. The USFWS National Wetlands Inventory was also reviewed to determine if any wetlands had been previously documented and mapped on or in the vicinity of the project site.

Field Survey

Rincon Senior Biologist Jared Reed and Biologist Christian Nordal conducted a jurisdictional delineation field survey within the project site on April 19, 2021. Biologist Christian Nordal conducted a subsequent jurisdictional delineation field survey of an additional portion of the roadside drainage channel on May 27, 2021. All potentially jurisdictional features within and adjacent to the site were inspected to record existing conditions and determine jurisdictional limits.

Drainage features, riparian/riverine habitat, width measurements, and wetland sample points were mapped using a Geode GNS2 GPS unit with sub-meter accuracy and plotted on aerial photographs. Width measurements for USACE jurisdiction were determined based on the lateral extent of the OHWM. CDFW jurisdictional limits were measured laterally from bank to bank at the top of the channel, or to the outer drip-line of associated riparian vegetation, if present. The data were subsequently transferred to Rincon's Geographic Information System (GIS) database and used in combination with recent, high resolution aerial photographs and topographic datasets to map the extent of streams in and adjacent to the project site. Wetland sample points were taken at representative locations to determine the presence/absence of wetland indicators, such as hydrophytic vegetation, hydric soils, and wetland hydrology. Soil test pits confirmed the soil conditions from the sample point. Soils data was collected using a shovel and Munsell color chart.

Vegetation Mapping

Vegetation communities observed on site were mapped on a site-specific aerial photograph. All accessible portions of the jurisdictional delineation survey area were covered on foot. Vegetation was generally classified using the systems provided in the *Preliminary Descriptions of the Terrestrial*

Communities of California (Holland 1986), and modified using *A Manual of California Vegetation, Second Edition* (MCV) (Sawyer et al. 2009) as necessary to reflect the existing site conditions.

Delineation Results

A description of the major vegetation units observed, soil types encountered, and a discussion of local hydrology in the survey area are presented below. Three sampling points were assessed within drainage features in the project survey area. The results of collected data are summarized in Table 1. Data from these sample points were entered on standardized Wetland Determination Data Forms, which are presented in Appendix B. Field conditions of the drainage features are shown in Appendix C.

Vegetation

One vegetation community occurs within the project site: *Avena* spp. - *Bromus* spp. Herbaceous Semi-Natural Alliance wild oats and annual brome grasslands, and one land cover type occurs within the project site: Developed (Figure 3).

Annual brome (*Bromus* spp.) grasslands are annual non-native grasslands with more than 60% of the herbaceous layer consisting of *Bromus* species. The entire project site consists of land that is regularly disturbed by tilling, resulting in annual brome grassland as the only habitat on site. Species diversity is limited, with only annual grassland species observed including, but not limited to, red brome (*Bromus rubens*), ripgut brome (*Bromus diandrus*), foxtail barley (*Hordeum murinum*), Rancher's fiddleneck (*Amsinckia menziesii*), and short-pod mustard (*Hirschfeldia incana*). Annual brome grassland comprises 7.36 acres in the project site and was observed in both drainage features. Hydrophytic vegetation was not present in either drainage feature.

Developed areas within the project site are comprised of paved roads. Developed areas comprise 0.17 acre in the project site.

Hydrology

Roadside Drainage Channel

The roadside drainage channel in the east portion of the project site and along the west side of Redlands Boulevard originates from road runoff near the intersection of Redlands Boulevard and Highland Boulevard and conveys flows through a combination of an earthen channel and storm drain culverts. It conveys flows for approximately two miles and into an underground storm drain system near the intersection of Redlands Boulevard and Dracaea Avenue. According to City Planning staff, this storm drain system eventually outlets to downstream waters.

Hydrology within the roadside drainage channel is supplied primarily by storm flows and urban runoff from upstream of the site as well as sheet flow from the adjacent uplands. The drainage contained evidence of flow, including channel incision, scouring, water marks, and sediment and drift deposits. This channel appeared to be an ephemeral water body due to its overall dry condition, and storm flows appeared to last for only a short time following precipitation.

Erosional Drainage Ditch

The second feature is an erosional drainage ditch that is part of a larger discontinued wash that originates from the Box Springs Mountains and flows southeastward over much of the Moreno

Table 1 Summary of Hydrophytic Vegetation, Hydric Soils, and Wetlands Hydrology Wetlands Indicator Status by Soil Test Pit Location

Sampling Point	Plant Species Scientific Name	Plant Species Common Name	Absolute Percent Cover	Wetland Indicator Status[1]	Passed Dominance Test	Passed Prevalence Index[2]	Meets Hydrophytic Vegetation Criterion	Meets Hydric Soils Criterion	Meets Wetlands Hydrology Criterion
1	*Bromus diandrus*	ripgut brome	20	NL (UPL)	No	N/A	No	No	Yes
	Hordeum murinum	wall barley	15	FACU					
	Avena barbata	slender wild oat	5	NL (UPL)					
	Helianthus annuus	common sunflower	2	FACU					
	Hirschfeldia incana	short-pod mustard	1	NL (UPL)					
2	*Bromus diandrus*	ripgut brome	40	NL (UPL)	No	N/A	No	No	Yes
	Hirschfeldia incana	short-pod mustard	10	NL (UPL)					
	Avena barbata	slender wild oat	8	NL (UPL)					
	Erodium cicutarium	red-stem filaree	5	NL (UPL)					
	Melilotus indicus	sourclover	2	FACU					
3	*Bromus diandrus*	ripgut brome	80	NL (UPL)	No	N/A	No	No	No
	Hordeum murinum	wall barley	10	FACU					
	Avena barbata	slender wild oat	2	NL (UPL)					

[1] OBL=obligate wetland species; FACW=facultative wetland species; FAC=facultative species; FACU=facultative upland species; UPL=obligate upland species (See Appendix B for a detailed description of each indicator status).

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

Figure 3 Vegetation Communities

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Valley. The erosional drainage ditch is a small feature in the southeast portion of the project site that becomes incised where sheet flows converge in a single area. This feature does not receive enough water long enough for it to have different soils or vegetation from the rest of the project site but does connect directly to a storm drain under Spruce Avenue where it empties into the roadside drainage channel that borders Redlands Boulevard. Evidence of water flow west and upstream of the incised feature is obscured from disking activities and is weak in the incised feature itself due to the presence of dense non-native grass and ruderal vegetation. This channel appeared to be an ephemeral water body due to its overall dry condition, and storm flows appeared to last for only a short time following precipitation.

Soils

Soil Survey

The USDA NRCS Web Soil Survey identifies two soil map units in the project site (Figure 4) (USDA NRCS 2021a). These soil units are from the USDA NRCS Soil Survey of the Western Riverside Area, California, which was conducted on a broader scale than this study and did not necessarily include on site observations. The physical characteristics of the soil units, as described below, are general and not necessarily indicative of characteristics currently present within the project site. The soils on the site have been disturbed and likely no longer resemble the mapped soil types. None of these soils are considered hydric. The descriptions of the soil map units (USDA NRCS 2021b) are presented below.

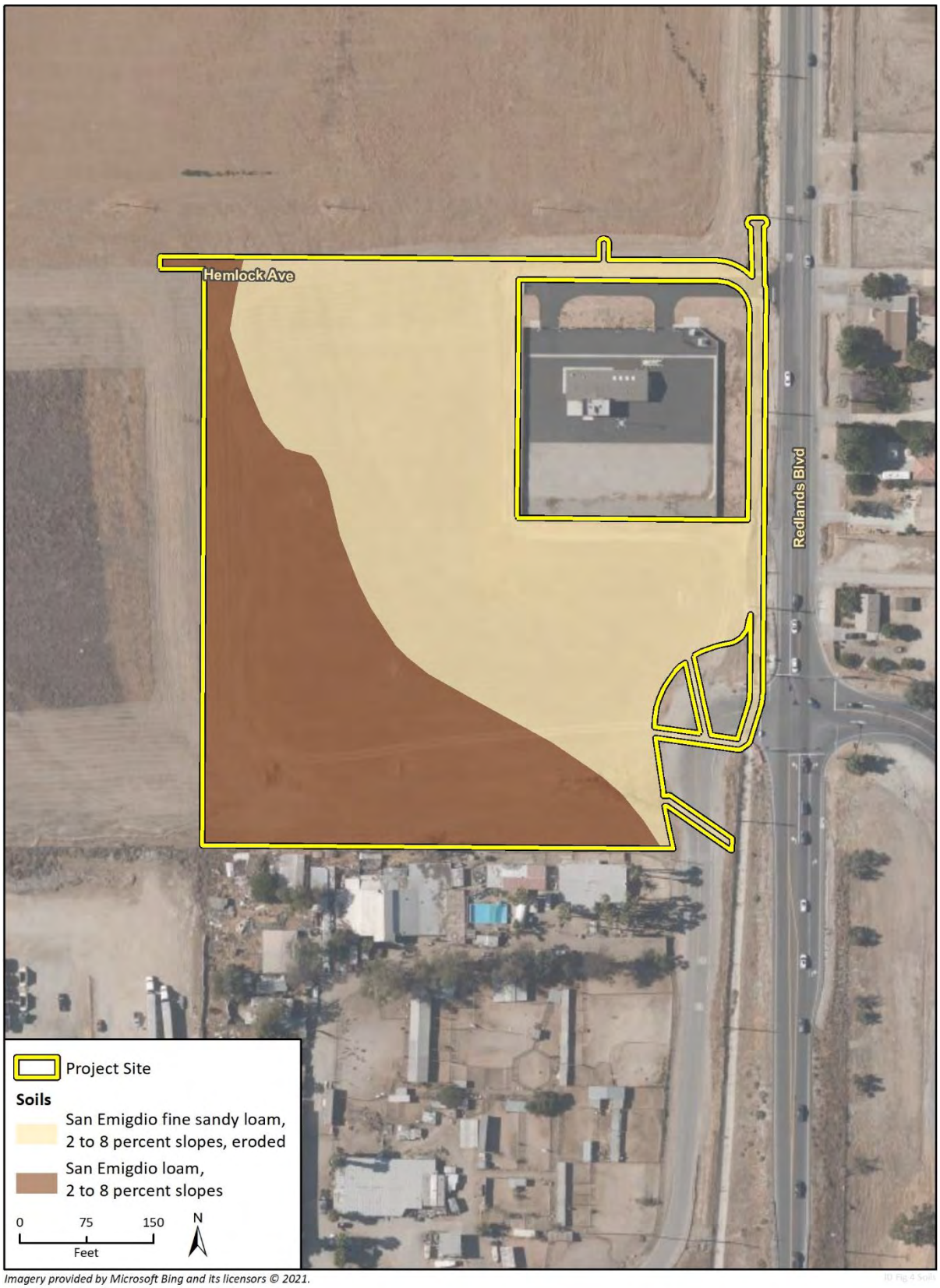
San Emigdio Soils

Two soil types of the San Emigdio series occur on site: San Emigdio fine sandy loam, 2 to 8 percent slopes, eroded (SeC2) and San Emigdio loam, 2 to 8 percent slopes (SgC). The San Emigdio series consists of very deep, well drained soils that form in dominantly sedimentary alluvium. They are found on fans and floodplains and typically have low slopes. They are used for growing citrus fruit, alfalfa, and dryland grain and uncultivated areas are typically annual grasses and forbs (USDA NRCS 2021b). Soils on site have been tilled in the past for agricultural purposes.

Sample Points

Based on soil pit data (Appendix B) from the field survey, no hydric soils indicators are present within either the roadside drainage channel or the erosional drainage ditch. The roadside drainage channel bed is comprised of a mix of cobbles, gravel, and weirs and contains debris. This channel may drain water too rapidly for hydric soils indicators to develop within the soil profile. The channel bed of the erosional drainage ditch is comprised of sandy loam and is densely vegetated with ripgut brome, wall barley, slender wild oat, and Russian thistle (*Salsola tragus*). The problematic hydric soils analysis of the Arid West Supplement is not applicable since sustained hydrology has not been observed.

Figure 4 USDA Soils Map



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Assessment of Jurisdictional Waters and Wetlands

Based upon the findings of Rincon's jurisdictional delineation, the roadside drainage channel and the erosional drainage ditch contain an OHWM and bed, bank and channel features, although riparian habitat is not present. The erosional drainage ditch conveys flows into the roadside drainage channel through a storm drain under Spruce Avenue and the roadside channel eventually conveys flows into an underground storm drain system near Dracaea Avenue. This storm drain system eventually outlets into downstream waters. No wetlands are present in either feature due to the lack of hydrophytic vegetation and hydric soils in both features. Wetland hydrology was observed in the roadside drainage channel but was not observed in the erosional drainage ditch.

Table 2, below, summarizes the total acreage of potential jurisdictional non-wetland waters onsite per regulatory agency. Figure 5 depicts the location and extent of potential RWQCB and CDFW jurisdiction within the project site, respectively.

Table 2 RWQCB and CDFW Jurisdictional Area

Drainage	RWQCB Non-wetland Waters of the State (linear ft.)	CDFW Jurisdictional Streambed (linear ft.)
Roadside Drainage Channel	0.07 (520)	0.21 (520)
Erosional Drainage Ditch	0.02 (100)	0.04 (100)
Total	**0.09 (620)**	**0.25 (620)**

Approximately 620 linear feet and 0.09 acre of potential RWQCB-jurisdictional non-wetland waters of the State and 620 linear feet and 0.25 acre of potential CDFW-jurisdictional streambeds was determined to be present on and adjacent to the project site. It is noted that the regulatory agencies make the final jurisdictional determination.

USACE and RWQCB Jurisdiction

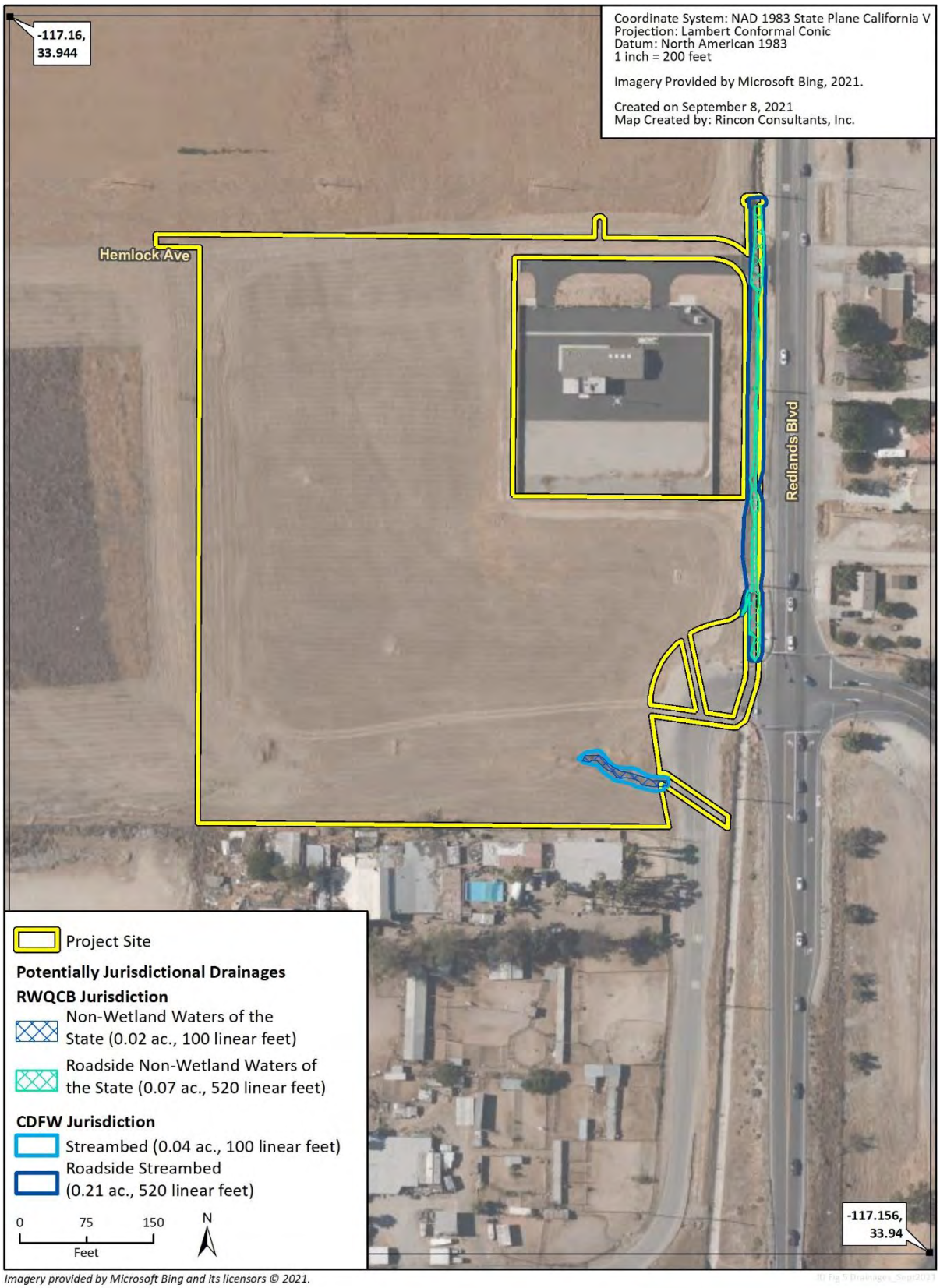
The two drainage features on the project site are ephemeral, roadside drainage channels and erosional ditches, do not contribute a "significant nexus" to downstream navigable "Waters of the U.S.", and do not otherwise exhibit an interstate commerce connection. The two drainage features therefore would not be regulated by USACE per the 2008 Rapanos guidance (USEPA and USACE 2008).

Waters not subject to CWA regulation, however, are often still regulated by the RWQCB as "Waters of the State" under the Porter-Cologne Act and as CDFW-jurisdictional streambeds under CFGC 1602 (see Appendix B).

The roadside drainage channel contains 0.07 acre and 520 linear feet of potential non-wetland waters subject to the jurisdiction of the RWQCB. The channel's measured OHWM ranges from two feet to 14 feet, averaging approximately eight feet.

The erosional drainage ditch contains 0.02 acre and 100 linear feet of potential non-wetland waters subject to the jurisdiction of the RWQCB. The ditch's measured OHWM ranges from five feet to nine

Figure 5 Jurisdictional Delineation Results



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feet, averaging approximately seven feet.

A total of 0.09 acre of potential non-wetland waters subject to the jurisdiction of the RWQCB are therefore present in and immediately adjacent to the project site.

No hydric soils indicators were observed within either drainage feature. Both features are considered non-wetland waters because they lack hydrophytic vegetation.

CDFW Jurisdiction

The roadside drainage channel contains 0.21 acre and 520 linear feet of potential streambed subject to the jurisdiction of CDFW. This represents the furthest extent of potential jurisdictional area within the channel. The channel's measured width of bank to bank ranges from 12 feet to 24 feet, averaging approximately 18 feet. No riparian vegetation is associated with this feature.

The erosional drainage ditch contains 0.04 acre and 100 linear feet of potential streambed subject to the jurisdiction of CDFW. This represents the furthest extent of potential jurisdictional area within the ditch. The ditch's measured width of bank to bank ranges from 12 feet to 16 feet, averaging approximately 14 feet. No riparian vegetation is associated with this feature.

Local Jurisdiction

The two drainage features on and immediately adjacent to the project site are riverine. These features do not contain habitat dominated by trees, shrubs, persistent emergents, or emergent mosses and lichens, which occur close to or depend on a nearby freshwater source. The two features contain upland, non-riparian/riverine vegetative species and do not contain habitat for MSHCP Section 6.1.2 wildlife species. The features do contain a freshwater flow during a portion of the year, and they eventually drain into an area that is described for conservation under the MSHCP or areas already conserved via an underground storm drain system. The riparian/riverine area associated with the two drainage features is coterminous with potential CDFW jurisdiction.

No pooling or signs of pooling water were observed on site and plant species composition does not differ throughout the site, indicating it does not receive sufficient flow or retention to act as vernal pool habitat. Therefore, no vernal pools are on site.

Project Impacts

The project will result in permanent impacts to potentially jurisdictional waters, though no temporary impacts are expected. Project implementation would fill the roadside drainage channel on the project site, install a 54-inch RCP in place of the roadside drainage channel, remove the existing 24-inch RCPs with associated headwalls near the intersection of Redlands Boulevard and Hemlock Avenue, and remove the existing concrete box culvert under Spruce Avenue. Please refer to Appendix D for the Preliminary Grading Plan. Refer to Figure 6 and Table 3 for a summary of jurisdictional impacts.

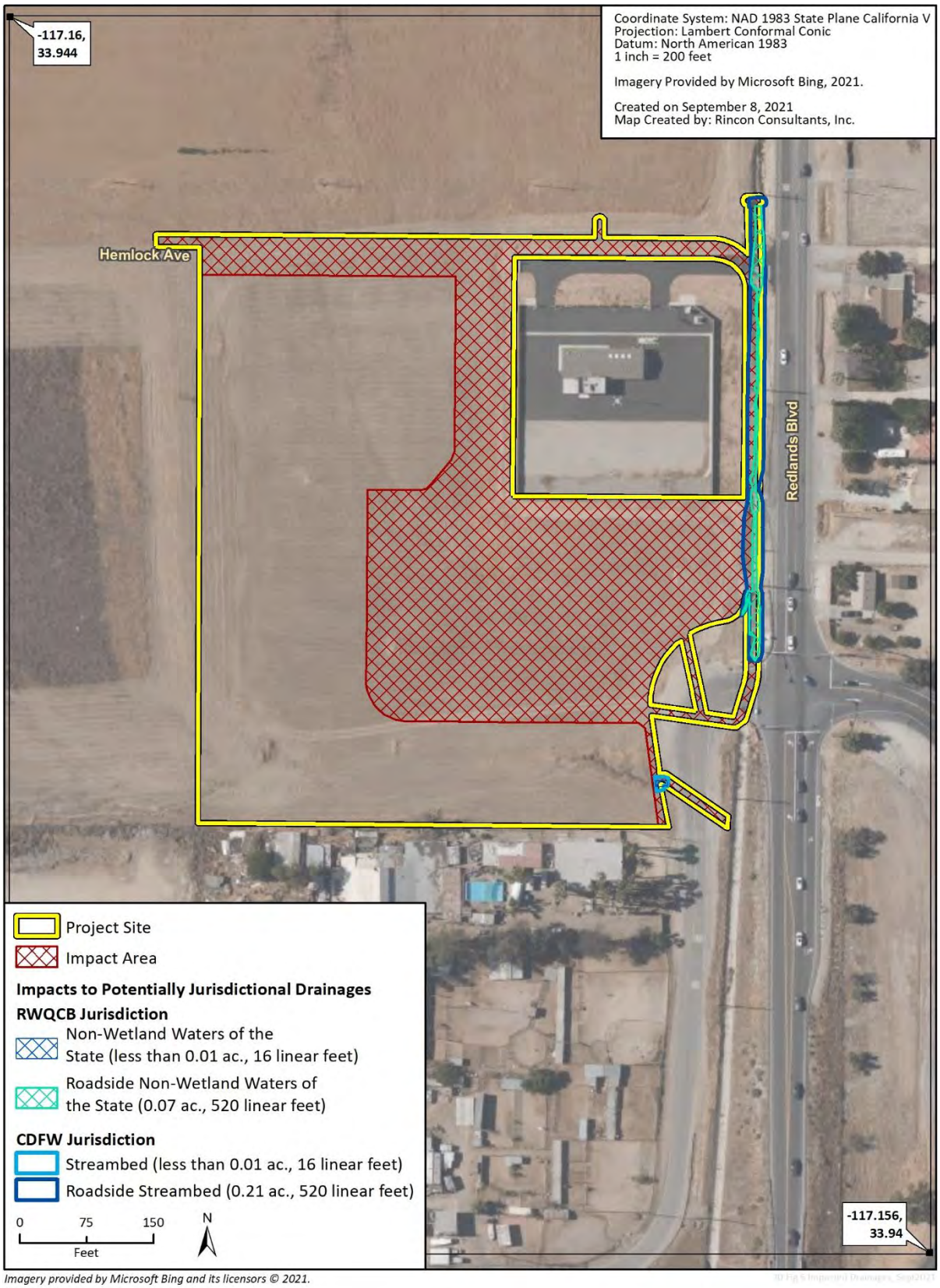
Table 3 Anticipated Permanent Impacts to Potentially Jurisdictional Areas

Drainage	RWQCB Non-wetland Waters of the State (linear ft.)	CDFW Jurisdictional Streambed (linear ft.)
Roadside Drainage Channel	0.07 acre (520)	0.21 acre (520)
Erosional Drainage Ditch	Less than 0.01 acre (16)	Less than 0.01 acre (16)
Total	0.07 acre (536)	0.21 acre (536)

The project would permanently impact approximately 0.07 acre and 536 linear feet of potential non-wetland waters of the State. No wetland waters of the State were observed; thus, no impacts to wetland waters would occur. Approximately 0.21 acre and 536 linear feet of permanent impacts to potential CDFW-jurisdictional streambed are anticipated. The project is not anticipated to result in temporary impacts.

Project implementation may be subject to the permit requirements of the RWQCB under the Porter-Cologne Act and an SAA from the CDFW pursuant to Section 1600 et. seq. of the CFGC. Rincon recommends coordinating with the USACE, RWQCB, and CDFW to confirm presence or absence of jurisdiction and if permitting is necessary.

Figure 6 Impacts to Potentially Jurisdictional Waters



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Appendix A

Regulatory Framework

Regulatory Framework

The following is a brief summary of the regulatory context under which biological resources are managed at the federal, State, and local levels. A number of federal and State statutes provide a regulatory structure which guide the protection of jurisdictional features. Agencies with the responsibility for protection of jurisdictional features within the project site include:

- United States Army Corps of Engineers (non-wetland waters and wetlands of the United States)
- Regional Water Quality Control Board (waters of the State)
- California Department Fish and Wildlife (riparian areas, streambeds, and lakes)

United States Army Corps of Engineers Jurisdiction

The United States Army Corps of Engineers (USACE), under provisions of Section 404 of the Clean Water Act (CWA) and USACE implementing regulations, has jurisdiction over the placement of dredged or fill material into "waters of the United States." Congress enacted the CWA "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." In practice, the boundaries of certain waters subject to USACE jurisdiction under Section 404 have not been fully defined. Previous regulations codified in 1986 defined "waters of the United States" as traditional navigable waters, interstate waters, all other waters that could affect interstate or foreign commerce, impoundments of waters of the United States, tributaries, the territorial seas, and adjacent wetlands.

The United States Supreme Court has issued three decisions that provide context in determining the scope of "waters of the United States" covered by the CWA. In *United States v. Riverside Bayview Homes*, the Court, in a unanimous opinion, deferred to the Corps' ecological judgment that adjacent wetlands are "inseparably bound up" with the waters to which they are adjacent, and upheld the inclusion of adjacent wetlands in the regulatory definition of "waters of the United States. In *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* (SWANCC), the Supreme Court held that the use of "isolated" non-navigable intrastate ponds by migratory birds was not by itself a sufficient basis for the exercise of federal regulatory authority under the CWA. The majority opinion in SWANCC introduced the concept that it was a "significant nexus" that informed the Court's reading of CWA jurisdiction over waters that are not navigable in fact. In *Rapanos v. United States*, (Rapanos), the Court agreed that the term "waters of the United States" encompasses some waters that are not navigable in the traditional sense. Justice Kennedy's concurring opinion indicated that the critical factor in determining the CWA's coverage is whether a water has a "significant nexus" to downstream traditional navigable waters such that the water is important to protecting the chemical, physical, or biological integrity of the navigable water. Whether a significant nexus exists in any given situation had to be decided on a case-by-case basis, depending on site-specific circumstances.

USACE jurisdictional limits are typically identified by the ordinary high water mark (OHWM) or the landward edge of adjacent wetlands (where present). The OHWM is 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 soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding area" (33 CFR 328.3).

Wetland Waters of the U.S.

The USACE defines wetlands as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3). The USACE's delineation procedures identify wetlands in the field based on indicators of three wetland parameters: hydrophytic vegetation, hydric soils, and wetland hydrology. The following is a discussion of each of these parameters.

Hydrophytic Vegetation

Hydrophytic vegetation dominates areas where frequency and duration of inundation or soil saturation exerts a controlling influence on the plant species present. Plant species are assigned wetland indicator status according to the probability of their occurring in wetlands. More than fifty percent of the dominant plant species must have a wetland indicator status to meet the hydrophytic vegetation criterion. The USACE published the National Wetland Plant List (USACE 2018), which separates vascular plants into the following four basic categories based on plant species frequency of occurrence in wetlands:

- **Obligate Wetland (OBL).** Almost always occur in wetlands
- **Facultative Wetland (FACW).** Usually occur in wetlands, but occasionally found in non-wetlands
- **Facultative (FAC).** Occur in wetlands or non-wetlands
- **Facultative Upland (FACU).** Usually occur in non-wetlands, but may occur in wetlands
- **Obligate Upland (UPL).** Almost never occur in wetlands

The USACE considers OBL, FACW and FAC species to be indicators of wetlands. An area is considered to have hydrophytic vegetation when greater than 50 percent of the dominant species in each vegetative stratum (tree, shrub, and herb) fall within these categories. Any species not appearing on the United States Fish and Wildlife Service's list is assumed to be an upland species, almost never occurring in wetlands. In addition, an area needs to contain at least 5% vegetative cover to be considered as a vegetated wetland.

Hydric Soils

Hydric soils are saturated or inundated for a sufficient duration during the growing season to develop anaerobic or reducing conditions that favor the growth and regeneration of hydrophytic vegetation. Field indicators of wetland soils include observations of ponding, inundation, saturation, dark (low chroma) soil colors, bright mottles (concentrations of oxidized minerals such as iron), gleying (indicates reducing conditions by a blue-grey color), or accumulation of organic material. Additional supporting information includes documentation of soil as hydric or reference to wet conditions in the local soils survey, both of which must be verified in the field.

Wetland Hydrology

Wetland hydrology is inundation or soil saturation with a frequency and duration long enough to cause the development of hydric soils and plant communities dominated by hydrophytic vegetation. If direct observation of wetland hydrology is not possible (as in seasonal wetlands), or records of wetland hydrology are not available (such as stream gauges), assessment of wetland hydrology is frequently supported by field indicators, such as water marks, drift lines, sediment deposits, or drainage patterns in wetlands.

Regional Water Quality Control Board Jurisdiction

The State Water Resources Control Board (SWRCB) and local Regional Water Quality Control Board (RWQCB) have jurisdiction over "waters of the State," which are defined as any surface water or groundwater, including saline waters, within the boundaries of the state.

The SWRCB or local RWQCB have not established regulations for field determinations of waters of the state except for wetlands currently. The RWQCB are affected by or shares USACE jurisdiction unless isolated conditions or ephemeral waters are present. Each local RWQCB may delineate their jurisdictions of waters of the state differently based on current interpretations of jurisdiction.

Procedures for defining RWQCB jurisdiction pursuant to the SWRCB's *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* went into effect May 28, 2020. The SWRCB define an area as wetland if, under normal circumstances:

(i) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both;

(ii) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and

(iii) the area's vegetation is dominated by hydrophytes or the area lacks vegetation.

The SWRCB's *Implementation Guidance for the Wetland Definition and Procedures for Discharges of Dredge and Fill Material to Waters of the State* (2020), states that waters of the U.S. and waters of the State should be delineated using the standard USACE delineation procedures, taking into consideration that the methods shall be modified only to allow for the fact that a lack of vegetation does not preclude an area from meeting the definition of a wetland.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Act is the principal law governing water quality regulation in California. It establishes a comprehensive program to protect water quality and the beneficial uses of water. The Porter-Cologne Act applies to surface waters, wetlands, and ground water and to both point and nonpoint sources of pollution. Pursuant to the Porter-Cologne Act (California Water Code section 13000 et seq.), the policy of the State is as follows:

- The quality of all the waters of the State shall be protected
- All activities and factors affecting the quality of water shall be regulated to attain the highest water quality within reason
- The State must be prepared to exercise its full power and jurisdiction to protect the quality of water in the State from degradation

The Porter-Cologne Act established nine RWQCB (based on hydrogeologic barriers) and the SWRCB, which are charged with implementing its provisions and which have primary responsibility for protecting water quality in California. The SWRCB provides program guidance and oversight, allocates funds, and reviews RWQCB decisions. In addition, the SWRCB allocates rights to the use of surface water. The RWQCBs have primary responsibility for individual permitting, inspection, and enforcement actions within each of nine hydrologic regions. The SWRCB and RWQCB have numerous nonpoint source related responsibilities, including monitoring and assessment, planning, financial assistance, and management.

California Department of Fish and Wildlife Jurisdiction

The California Department of Fish and Wildlife (CDFW) has not defined the term "stream" for the purposes of implementing its regulatory program under Section 1602, and the agency has not promulgated regulations directing how jurisdictional streambeds may be identified, or how their limits should be delineated. Considering this, four sources of information were reviewed and considered in determining the appropriate limits of CDFW jurisdiction within the site, as discussed below. The principles presented in these materials were used to guide the delineation of on-site streams, with consideration given to the relevance (i.e., jurisdiction, applicability) of each source to the project and resources at hand.

- **The plain language of Section 1602 of CFGC** establishes the following general concepts:
  - References "river," "stream," and "lake"
  - References "natural flow"
  - References "bed," "bank," and "channel"
- **Applicable court decisions**, in particular *Rutherford v. State of California* (188 Cal App. 3d 1276 (1987), which interpreted Section 1602's use of "stream" to be as defined in common law. The Court indicated that a "stream" is commonly understood to:
  - Have a source and a terminus
  - Have banks and a channel
  - Convey flow at least periodically, but need not flow continuously and may at times appear outwardly dry
  - Represent the depression between the banks worn by the regular and usual flow of the water
  - Include the area between the opposing banks measured from the foot of the banks from the top of the water at its ordinary stage, including intervening sand bars
  - Include the land that is covered by the water in its ordinary low stage
  - Include lands below the OHWM
- **CDFW regulations** defining "stream" for other purposes, including sport fishing (14 CCR 1.72) and streambed alterations associated with cannabis production (14 CCR 722(c)(21)), which indicate that a stream:
  - Flows at least periodically or intermittently
  - Flows through a bed or channel having banks
  - Supports fish or aquatic life
  - Can be dry for a period of time
  - Includes watercourses where surface or subsurface flow supports or has supported riparian vegetation
- **Guidance documents**, including A Field Guide to Lake and Streambed Alteration Agreements (CDFG 1994) and Methods to Describe and Delineate Episodic Stream Processes on Arid Landscapes for Permitting Utility-Scale Solar Power Plants (Brady and Vyverberg 2013), which suggest the following:
  - A stream may flow perennially or episodically

- A stream is defined by the course in which water currently flows, or has flowed during the historic hydrologic course regime (approximately the last 200 years)
- Width of a stream course can reasonably be identified by physical or biological indicators
- A stream may have one or more channels (single thread vs. compound form)
- Features such as braided channels, low-flow channels, active channels, banks associated with secondary channels, floodplains, islands, and stream-associated vegetation, are interconnected parts of the watercourse
- Canals, aqueducts, irrigation ditches, and other means of water conveyance can be considered streams if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife
- Biologic components of a stream may include aquatic and riparian vegetation, all aquatic animals including fish, amphibians, reptiles, invertebrates, and terrestrial species which derive benefits from the stream system
- The lateral extent of a stream can be measured in different ways depending on the particular situation and the type of fish or wildlife resource at risk

The tenets listed above, among others, are applied in desert environments. Coastal drainages are delineated predominately based on the following factors:

- Areas that exhibited evidence of hydrologic activity, such as scour, formation of banks, and/or deposition of sediment or material
- Areas where the vegetation community was adapted to the presence of elevated soil moisture levels (i.e., contained mostly hydrophytic species)

Appendix B

Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Redlands Blvd and Hemlock Ave Gas Station | City/County: Moreno Valley/Riverside | Sampling Date: 4/19/2021

Applicant/Owner: A&S Engineering, Inc. | State: CA | Sampling Point: 1

Investigator(s): Jared Reed and Christian Nordal | Section, Township, Range: S2 T3S R4W

Landform (hillslope, terrace, etc.): roadside drainage channel | Local relief (concave, convex, none): concave | Slope (%): 10

Subregion (LRR): C | Lat: 33.942000° N | Long: -117.156887° W | Datum: WGS 84

Soil Map Unit Name: San Emigdio fine sandy loam, 2 to 8 percent slopes, eroded | NWI classification: N/A

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

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

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

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

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

Remarks: Sample point located in upstream portion of assessed area in roadside drainage channel along west side of Redlands Blvd.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*		n/a*	
2.		n/a*	
3.		n/a*	
4.		n/a*	
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1. *N/A*		n/a*	
2.		n/a*	
3.		n/a*	
4.		n/a*	
5.		n/a*	
50% = , 20% =		= Total Cover	
Herb Stratum (Plot size: 10'x10')			
1. *Bromus diandrus*	20	yes	NL (UPL)
2. *Hordeum murinum*	15	yes	FACU
3. *Avena barbata*	5	no	NL (UPL)
4. *Helianthus annuus*	2	no	FACU
5. *Hirschfeldia incana*	1	no	NL (UPL)
6.		n/a*	
7.		n/a*	
8.		n/a*	
50% = 21.5, 20% = 8.6	43	= Total Cover	
Woody Vine Stratum (Plot size: N/A)			
1. *N/A*		n/a*	-
2.			-
50% = , 20% =		= Total Cover	
% Bare Ground in Herb Stratum 57		% Cover of Biotic Crust 0	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index worksheet:

	Total % Cover of :	Multiply by:
OBL species	0	x1 = 0
FACW species		x2 =
FAC species		x3 =
FACU species		x4 =
UPL species		x5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks: Vegetation coverage comprised of upland non-native grass and ruderal species on banks. Channel bed is largely unvegetated.

Project Site: Redlands Blvd and Hemlock Ave Gas Station

SOIL Sampling Point: 1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
4	10 YR 6/4	100						Cobbly & gravelly substrates
6	10 YR 5/4	100						Cobbly & gravelly substrates
8	10 YR 5/4	100					Sandy loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: No hydric soil indicators observed. Soils have sandy loam texture with cobbly and gravelly substrates.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches):

Water Table Present? Yes ☐ No ☒ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches):

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Redlands Blvd and Hemlock Ave Gas Station | City/County: Moreno Valley/Riverside | Sampling Date: 4/19/2021

Applicant/Owner: A&S Engineering, Inc. | State: CA | Sampling Point: 2

Investigator(s): Jared Reed and Christian Nordal | Section, Township, Range: S2 T3S R4W

Landform (hillslope, terrace, etc.): roadside drainage channel | Local relief (concave, convex, none): concave | Slope (%): 10

Subregion (LRR): C | Lat: 33.941598° N | Long: -117.156870° W | Datum: WGS 84

Soil Map Unit Name: San Emigdio fine sandy loam, 2 to 8 percent slopes, eroded | NWI classification: N/A

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

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

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

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

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

Remarks: Sample point located in upstream portion of assessed area in roadside drainage channel along west side of Redlands Blvd.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*		n/a*	
2.		n/a*	
3.		n/a*	
4.		n/a*	
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1. *N/A*		n/a*	
2.		n/a*	
3.		n/a*	
4.		n/a*	
5.		n/a*	
50% = , 20% =		= Total Cover	
Herb Stratum (Plot size: 10'x10')			
1. *Bromus diandrus*	40	yes	NL (UPL)
2. *Hirschfeldia incana*	10	no	NL (UPL)
3. *Avena barbata*	8	no	NL (UPL)
4. *Erodium cicutarium*	5	no	NL (UPL)
5. *Melilotus indicus*	2	no	FACU
6.		n/a*	
7.		n/a*	
8.		n/a*	
50% = 32.5, 20% = 13	65	= Total Cover	
Woody Vine Stratum (Plot size: N/A)			
1. *N/A*		n/a*	-
2.			-
50% = , 20% =		= Total Cover	
% Bare Ground in Herb Stratum 35		% Cover of Biotic Crust 0	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks: Vegetation coverage comprised of upland non-native grass and ruderal species on banks. Channel bed is largely unvegetated.

Project Site: Redlands Blvd and Hemlock Ave Gas Station

SOIL Sampling Point: 2

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

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

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: No hydric soil indicators observed. Soils have sandy loam texture. Unable to dig deeper than 3" due to compacted substrates.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Redlands Blvd and Hemlock Ave Gas Station | City/County: Moreno Valley/Riverside | Sampling Date: 4/19/2021

Applicant/Owner: A&S Engineering, Inc. | State: CA | Sampling Point: 3

Investigator(s): Jared Reed and Christian Nordal | Section, Township, Range: S2 T3S R4W

Landform (hillslope, terrace, etc.): incised erosional ditch | Local relief (concave, convex, none): concave | Slope (%): 5

Subregion (LRR): C | Lat: 33.941192° | Long: -117.157533° | Datum: WGS 84

Soil Map Unit Name: San Emigdio loam, 2 to 8 percent slopes | NWI classification: N/A

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

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

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

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

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

Remarks: Concentrated sheet flows have created an incised erosional feature. Flows are collected by a single storm drain under Spruce Ave and outlet into roadside drainage channel adjacent to Redlands Blvd.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1. *N/A*		n/a*	
2.		n/a*	
3.		n/a*	
4.		n/a*	
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1. *N/A*		n/a*	
2.		n/a*	
3.		n/a*	
4.		n/a*	
5.		n/a*	
50% = , 20% =		= Total Cover	
Herb Stratum (Plot size: 10'x10')			
1. *Bromus diandrus*	80	yes	NL (UPL)
2. *Hordeum murinum*	10	no	FACU
3. *Avena barbata*	2	no	NL (UPL)
4.		n/a*	
5.		n/a*	
6.		n/a*	
7.		n/a*	
8.		n/a*	
50% = 46, 20% = 18.4	92	= Total Cover	
Woody Vine Stratum (Plot size:)			
1. *N/A*		n/a*	-
2.			-
50% = , 20% =		= Total Cover	
% Bare Ground in Herb Stratum 8	% Cover of Biotic Crust 0		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index worksheet:

	Total % Cover of :	Multiply by:	
OBL species	0	x1 =	0
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks: Vegetation coverage comprised of upland non-native grassland.

Project Site: Redlands Blvd and Hemlock Ave Gas Station

SOIL Sampling Point: 3

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
4	10 YR 6/3	100					Sandy loam	
6	10 YR 5/6	100					Sandy loam	
8	10 YR 6/4	100					Sandy loam	
10	10YR/6/4	100					Sandy loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: No hydric soil indicators observed. Soils have sandy loam texture.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches):

Water Table Present? Yes ☐ No ☒ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches):

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks: Heavy invasion of annual non-native grass species. Weak evidence of hydrology.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project/Site: Redlands Blvd / Hemlock Ave City/County: Moreno Valley / Riverside Date: 4/19/21 Time: 10:00am
Applicant/Owner: JFE Engineering, Inc. State: CA Data Point: 1
Investigator(s): J. Reed & C. Nordal NWI Classification: N/A
Photo File Numbers 1 & 2 Projection Coordinates: 33.942000°N, 117.156881°W Datum: WGS84
Stream Un-named ephemeral roadside ditch
Are climatic/hydrologic conditions on the site typical for this time of year? Yes *(If no, explain in remarks.)*
Do normal conditions exist on the site? Yes Is the site significantly disturbed? No

Potential anthropogenic influences on the channel system

Road surface runoff, side culvert outlets, debris

Brief Site Description

Drainage is an ephemeral roadside ditch along west side of Redlands Blvd. Conveys flow to culvert under Spruce St.

USACE Jurisdiction

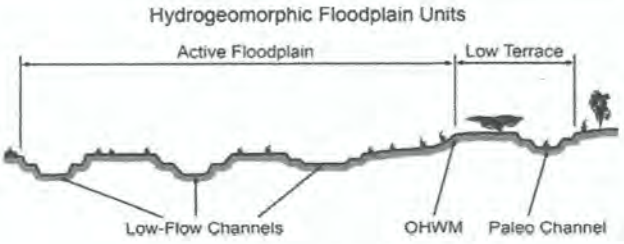
Tributary to waters (Y/N) N Stream Order

Checklist of Resources (if available)

- [X] Aerial photography
  - Dates: 2021
- [X] Topographic maps
  - Scale: 1:24,000
- [ ] Geologic maps
- [X] Vegetation maps
- [X] Soils maps
- [ ] Rainfall/precipitation maps
- [ ] Existing delineations(s) for the site
- [X] Global positioning system (GPS)
- [ ] Other studies
- [ ] Stream gage data
  - Gage number:
  - Period of record:
- [ ] Clinometer/level
- [ ] History of recent effective discharges
- [ ] Results of flood frequency analysis
- [ ] Most recent shift-adjusted rating
- [ ] Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

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

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



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

Cross section drawing

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

OHWM

GPS Point: 33.941726°N, 117.156889°W.

Indicators:

- √ Change in average sediment texture
- √ Change in vegetation species
- √ Change in vegetation Cover
- ___ Break in bank slope
- ___ Other: _____
- ___ Other: _____

Comments:

Confined channel with relatively steep banks. OHWM ~6' wide.

Floodplain Unit √ Low-Flow Channel ___ Active Floodplain ___ Low Terrace

GPS point: 33.941726°N, 117.156889°W

Characteristics of the floodplain unit:

Average sediment texture: Cobbly Sand

Total veg cover: 5 % Tree: 0 % Shrub: 0 % Herb: 100 %

Community successional stage:

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

Indicators:

- ___ Mudcracks
- ___ Ripples
- X Drift and/or debris
- X Presence of bed and bank
- ___ Benches
- ___ Soil Development
- ___ Surface relief
- ___ Other: _____
- ___ Other: _____
- ___ Other: _____

Comments:

Floodplain Unit ___ Low-Flow Channel X Active Floodplain ___ Low Terrace

GPS point: 33.941985°N, 117.156881°W

Characteristics of the floodplain unit:

Average sediment texture: Gravel

Total veg cover: 80 % Tree: 0 % Shrub: 0 % Herb: 80 %

Community successional stage:

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

Indicators:

- ___ Mudcracks
- ___ Ripples
- ___ Drift and/or debris
- ___ Presence of bed and bank
- ___ Benches
- ___ Soil Development
- X Surface relief
- ___ Other: _____
- ___ Other: _____
- ___ Other: _____

Comments:

Active floodplain limits are limited to top of bank due to confined channel and steep banks.

Floodplain Unit ___ Low-Flow Channel ___ Active Floodplain ___ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: ____ % Tree: ____ % Shrub: ____ % Herb: ____ %

Community successional stage:

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

Indicators:

- ___ Mudcracks
- ___ Ripples
- ___ Drift and/or debris
- ___ Presence of bed and bank
- ___ Benches
- ___ Soil Development
- ___ Surface relief
- ___ Other: _____
- ___ Other: _____
- ___ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project/Site: Redlands Blvd + Hemlock Ave Gas Station City/County: Moreno Valley / Riverside Date: 4/19/21 Time: 11:15
Applicant/Owner: State: CA Data Point: 2
Investigator(s): J. Reed & C. Lerda
NWI Classification: N/A
Photo File Numbers: 216 Projection Coordinates: 33.9411379N, 117.152080W Datum:
Stream: Un-named ephemeral agricultural drainage ditch
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in remarks.)
Do normal conditions exist on the site? Yes Is the site significantly disturbed? No

Potential anthropogenic influences on the channel system

Agricultural uses (disking). Flows collected by single culvert under Spruce St. Connects w/ roadside drainage under east of Spruce St.

Brief Site Description

Incised ephemeral agricultural ditch. Non-native grassland invasion.

USACE Jurisdiction

Tributary to waters (Y/N) N Stream Order 1

Checklist of Resources (if available)

✓ Aerial photography
Dates: 2021
✓ Topographic maps
Scale: 1:24,000
? Geologic maps
✓ Vegetation maps
✓ Soils maps
___ Rainfall/precipitation maps
___ Existing delineations(s) for the site
✓ Global positioning system (GPS)
___ Other studies

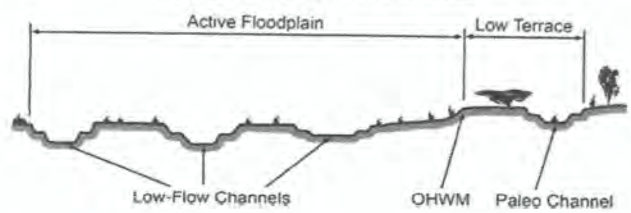
___ Stream gage data
Gage number:
Period of record:
___ Clinometer/level
___ History of recent effective discharges
___ Results of flood frequency analysis
___ Most recent shift-adjusted rating
___ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

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

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

___ Mapping on aerial photograph
___ Digitized on computer
X GPS
___ Other:

Hydrogeomorphic Floodplain Units



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

Cross section drawing

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

OHWM

GPS Point: 33.9411°N, -117.1576°W

Indicators:

___Change in average sediment texture
___Change in vegetation species
___Change in vegetation Cover

___Break in bank slope
✓Other: Erosion has created incised ditch
___Other:

Comments:

Floodplain Unit X Low-Flow Channel ___Active Floodplain ___Low Terrace

GPS point: 33.9411°N, -117.1576°W

Characteristics of the floodplain unit:

Average sediment texture: Sandy loam

Total veg cover: 92 % Tree: 0 % Shrub: 0 % Herb: 92 %

Community successional stage:

___NA ___Mid (herbaceous, shrubs, saplings)
X Early (herbaceous & seedlings) ___Late (herbaceous, shrubs, mature trees)

Indicators:

___Mudcracks ___Benches ___Other:
___Ripples ___Soil Development ___Other:
___Drift and/or debris ___Surface relief ___Other:
X Presence of bed and bank

Comments:

Lack of adequate hydrology has allowed invasion of non-native grass species similar to adjacent upland area. Confined riverine feature has narrow active floodplain.

Floodplain Unit ___Low-Flow Channel X Active Floodplain ___Low Terrace

GPS point: 33.9421°N, -117.1575°W

Characteristics of the floodplain unit:

Average sediment texture: Sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 90 %

Community successional stage:

___NA ___Mid (herbaceous, shrubs, saplings)
X Early (herbaceous & seedlings) ___Late (herbaceous, shrubs, mature trees)

Indicators:

___Mudcracks ___Benches ___Other:
___Ripples ___Soil Development ___Other:
___Drift and/or debris ___Surface relief ___Other:
X Presence of bed and bank

Comments:

Floodplain Unit ___Low-Flow Channel ___Active Floodplain ___Low Terrace

GPS point:

Characteristics of the floodplain unit:

Average sediment texture:

Total veg cover: ___% Tree: ___% Shrub: ___% Herb: ___%

Community successional stage:

___NA ___Mid (herbaceous, shrubs, saplings)
___Early (herbaceous & seedlings) ___Late (herbaceous, shrubs, mature trees)

Indicators:

___Mudcracks ___Benches ___Other:
___Ripples ___Soil Development ___Other:
___Drift and/or debris ___Surface relief ___Other:
___Presence of bed and bank

Comments:

Appendix C

Site Photographs

Photograph 1. View north and upstream of the roadside drainage channel showing dry channel bed and annual grassland vegetation with arroyo lupine (*Lupinus succulentus*).

Photograph 2. View south and downstream of the roadside drainage channel toward Redlands Boulevard and Spruce Avenue intersection.

Photograph 3. View north and upstream of the roadside drainage channel showing the low-flow channel to the left of a terrace, steep banks, and a drop weir structure in the channel bed in the background.

Photograph 4. View south and downstream of the roadside drainage channel showing the single box culvert under Spruce Avenue near the Redlands Boulevard and Spruce Avenue intersection.

Photograph 5. Southwest-facing view showing lack of water flow evidence west of erosional drainage ditch and dense annual brome grassland.

Photograph 6. East-facing view toward Spruce Avenue and Redlands Boulevard intersection showing weak water flow evidence and dense annual grasses in the erosional drainage ditch.

Photograph 7. Southwest-facing and upstream view of erosional drainage ditch in dense annual brome grassland.

Photograph 8. Showing single storm drain intake under Spruce Avenue and Russian thistle in the channel bed at the downstream east end of the erosional drainage ditch.

Appendix D

Preliminary Grading Plan

IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA

CONCEPTUAL GRADING PLAN FOR A.P.N. 488-310-012

LEGAL DESCRIPTION

LOT 1 IN BLOCK 30 OF MAP NO. 1 OF BEAR VALLEY AND ALESSANDRO DEVELOPMENT CO., IN THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 11 PAGE 10 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAN BERNARDINO COUNTY, CALIFORNIA, TOGETHER WITH THOSE PORTIONS OF HEMLOCK AVENUE AND REDLANDS BOULEVARD WITHIN SAID BLOCK LYING EASTERLY OF THE NORTHERLY PROLONGATION OF THE WEST LINE OF SAID LOT AND NORTHERLY OF THE EASTERLY PROLONGATION OF THE SOUTH LINE OF SAID LOT.

EXCEPT THOSE PORTIONS OF LOT 1 AND OF REDLANDS BOULEVARD IN SAID BLOCK DESCRIBED AS FOLLOWS:

BEGINNING AT THE INTERSECTION OF THE SOUTH LINE OF SAID LOT 1, WITH THE WEST LINE OF REDLANDS BOULEVARD, 120 FEET WIDE AS SHOWN ON SAID MAP; THENCE ALONG SAID SOUTH LINE SOUTH 89°51'40" WEST, 83.78 FEET; THENCE NORTH 9°26'38" WEST, 122.31 FEET; THENCE NORTHERLY 182.01 FEET ALONG A TANGENT CURVE, CONCAVE SOUTHEASTERLY WITH A RADIUS OF 105 FEET, THROUGH AND ANGLE OF 99°18'57" TO A POINT ON SAID WEST LINE OF REDLANDS BOULEVARD, DISTANT ALONG SAID WEST LINE NORTH 0°07'41" WEST 243.28 FEET FROM THE POINT OF BEGINNING; THENCE NORTH 89°52'19" EAST 60.00 FEET TO THE CENTER LINE OF SAID REDLANDS BOULEVARD; THENCE SOUTH 0° 07'41" EAST 243.28 FEET ON SAID CENTERLINE; THENCE SOUTH 89°52'19" WEST 60.00 FEET TO THE POINT OF BEGINNING.

ALSO EXCEPT THEREFROM, THAT PORTION OF SAID LAND, DESCRIBED AS FOLLOWS:

COMMENCING AT THE CENTERLINE INTERSECTION OF HEMLOCK AVENUE AND REDLANDS BOULEVARD AS SHOWN ON PARCEL MAP NO. 9355, FILED IN BOOK 47, PAGE 39 OF PARCEL MAPS, RECORDS OF SAID RIVERSIDE COUNTY;

THENCE SOUTH 89°52'19" WEST, ALONG SAID CENTERLINE OF HEMLOCK AVENUE, A DISTANCE OF 60.00 FEET TO THE INTERSECTION WITH WITH THE NORTHERLY PROLONGATION OF THE WESTERLY RIGHT OF WAY OF SAID REDLANDS BOULEVARD AND THE TRUE POINT OF BEGINNING;

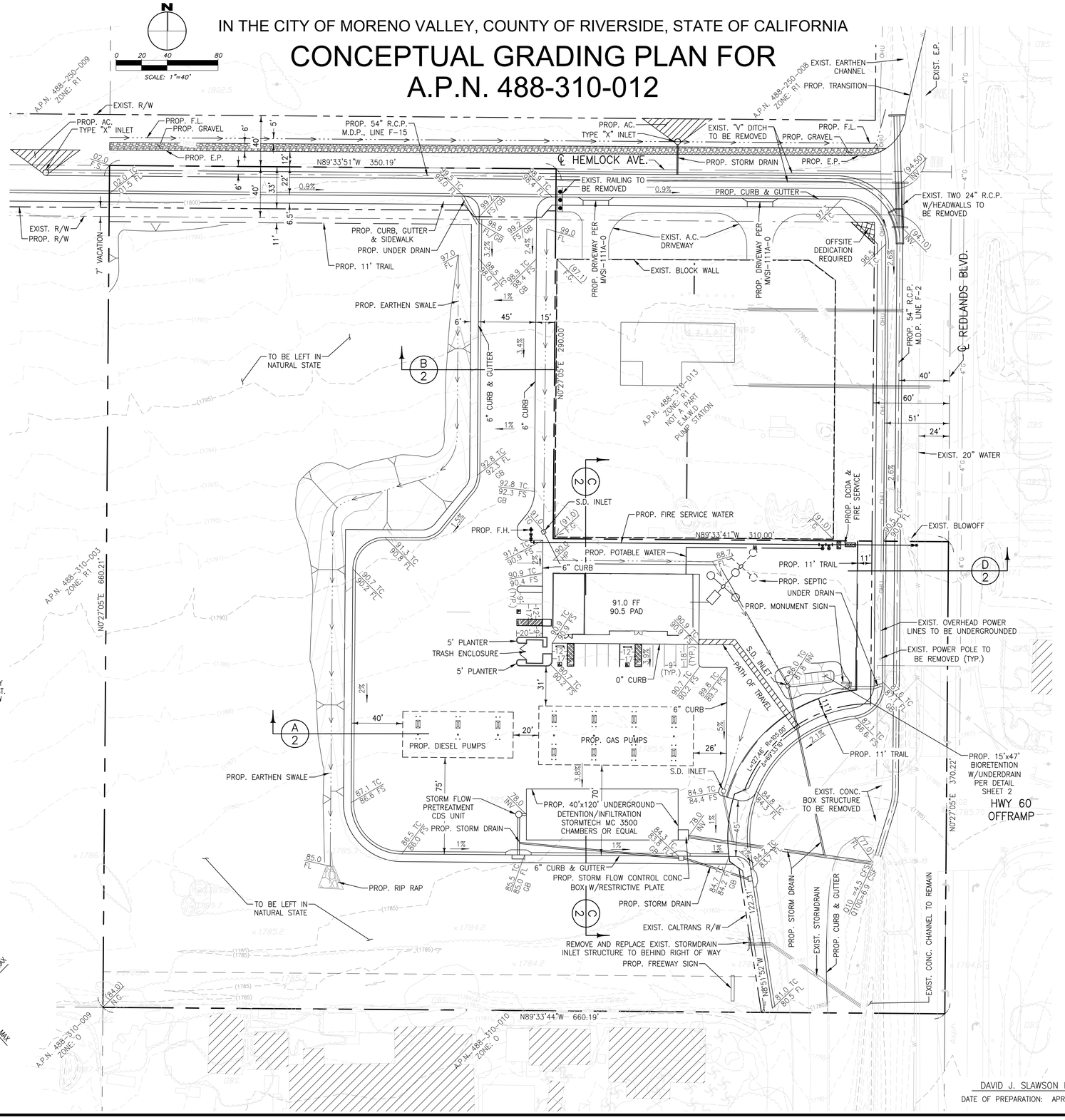
THENCE SOUTH 0°07'41" EAST, ALONG SAID PROLONGATION AND WESTERLY RIGHT OF WAY, A DISTANCE OF 290.00 FEET;

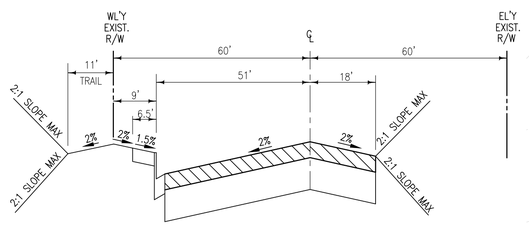
THENCE LEAVING SAID RIGHT OF WAY, AND PARALLEL WITH SAID CENTERLINE OF HEMLOCK AVENUE SOUTH 89°52'19" WEST, A DISTANCE OF 250.00 FEET;

THENCE PARALLEL WITH SAID WESTERLY RIGHT OF WAY, NORTH 0°07'41" WEST, A DISTANCE OF 290.00 FEET TO SAID CENTERLINE OF HEMLOCK AVENUE;

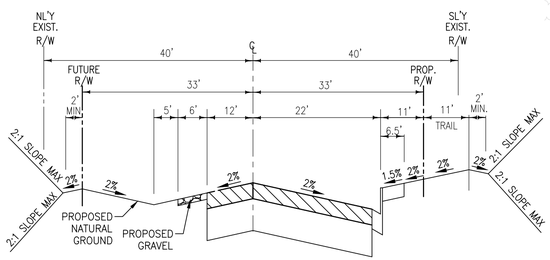
THENCE NORTH 89°52'19" EAST, ALONG SAID CENTERLINE OF HEMLOCK AVENUE, A DISTANCE OF 250.00 FEET TO THE TRUE POINT OF BEGINNING.

A.P.N. 488-310-012

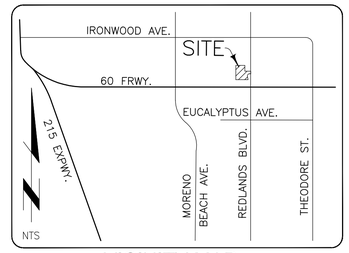




REDLANDS BLVD.
TYPICAL SECTION
N.T.S.



HEMLOCK AVE.
TYPICAL SECTION
N.T.S.



VICINITY MAP
N.T.S.

GENERAL NOTES

OWNER/APPLICANT

ANTHEM ENERGY, LLC
2640 CAMINO DEL SOL
FULLERTON, CA 92833
PHONE: (909) 562-6388
CONTACT: CHANDRESH RAVALIYA

ENGINEER

WINCHESTER ASSOCIATES, INC.
DAVID J. SLAWSON
23640 TOWER STREET, SUITE 3
PO BOX 280
MORENO VALLEY, CA. 92556-0280
PHONE: (951) 924-5425

ASSESSOR'S PARCEL No.

488-310-012

LAND USE AND ZONING

CURRENT GENERAL PLAN	R1
CURRENT ZONING	R1
PROPOSED ZONING	CC
EXISTING USE	OS
PROPOSED LAND USE	GAS / COMMERCIAL

AREA AND DENSITY

GROSS ACREAGE	7.11 ACRES
NET ACREAGE	6.67 ACRES

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THE SUBJECT TRACT IS WITHIN THE 500 YEAR FLOOD PLAIN, ZONE X. FEMA FLOOD INSURANCE PANEL NO. 065074 0030 B.

THOMAS BROTHERS GUIDE

PAGE 718 F-2, E-2

TOPOGRAPHY

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SCHOOL

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PUBLIC UTILITIES

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EASTERN MUNICIPAL WATER DISTRICT (951) 928-3777
2270 TRUMBLE RD., PERRIS, CA 92572

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MORENO VALLEY ELECTRIC UTILITY (951) 413-3500
14331 FREDERICK ST., SUITE 2
MORENO VALLEY, CA 92553

GAS
SOUTHERN CALIFORNIA GAS COMPANY (800) 427-2200
4495 HOWARD AVE., RIVERSIDE, CA 91756

TELEPHONE
VERIZON (951) 748-6656

SEWER
PRIVATE SEPTIC SYSTEM

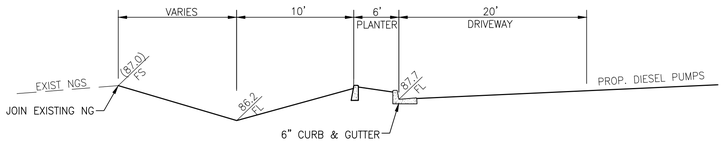
EARTHWORK ESTIMATE (RAW)

EXCAVATION	20,000 C.Y.
EMBANKMENT	16,000 C.Y.

PREPARED BY:

Winchester Associates, Inc.
ENGINEERING • LAND SURVEYING
23640 TOWER ST., SUITE 3
PO BOX 280
MORENO VALLEY, CA 92556-0280 PH:(951)924-5425
DAVID J. SLAWSON PLS 4724

DATE OF PREPARATION: APRIL 16, 2021



SECTION A

NTS

A
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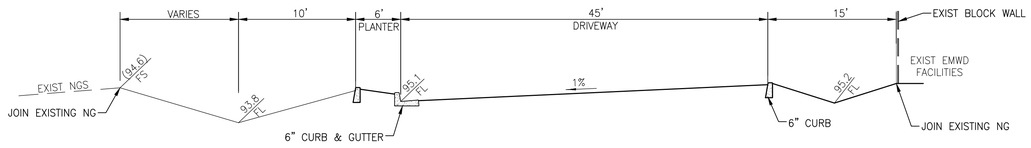

SECTION B

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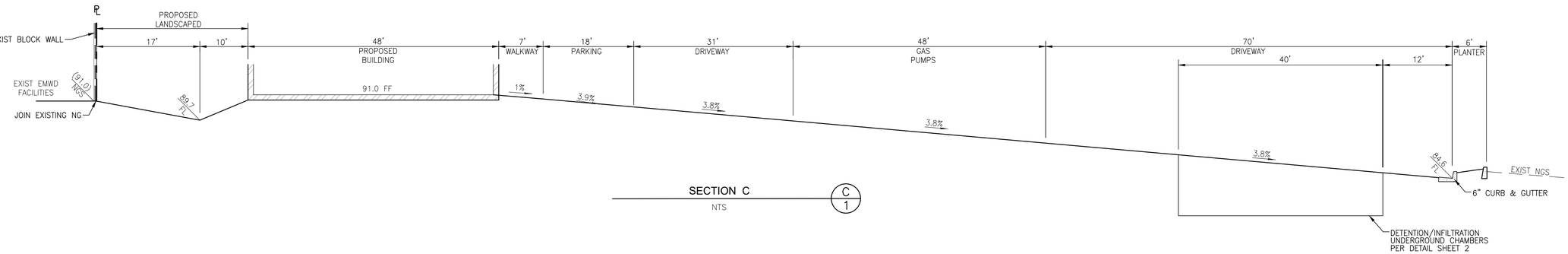

SECTION C

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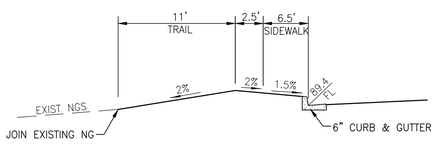

SECTION D

NTS

D
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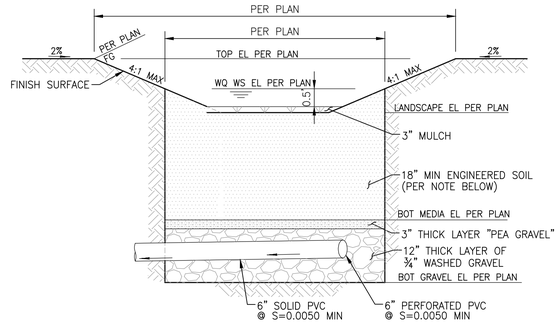


BIORETENTION FACILITY DETAIL (TYP)

NTS

BIORETENTION CLEAN-OUTS:

INSTALL 6" CLEAN-OUTS EVERY 50 FT OF UNDERDRAIN LATERAL, AT THE COLLECTOR DRAIN LINE CONNECTION, AND AT ANY BENDS.

EACH CLEAN-OUT SHALL BE EXTENDED 6" ABOVE THE MEDIA AND SHALL HAVE A LOCKABLE SCREW CAP.

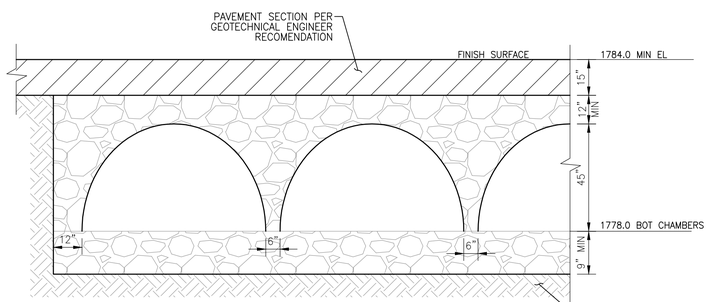
INSPECT MONTHLY, OR AS NEEDED AFTER STORM EVENTS. MAINTAIN IF NEEDED.

ENGINEERED SOIL MEDIA NOTE:

ENGINEERED SOIL MEDIA SHALL COMPRISED OF: 15% ORGANIC COMPONENT (NITROGEN STABILIZED COMPOST) AND 85% MINERAL COMPONENT (SEE TABLE BELOW), BY VOLUME, DRUM MIXED PRIOR TO PLACEMENT.

MINERAL COMPONENT RANGE REQUIREMENTS:

PERCENTAGE RANGE	COMPONENT
70-80	SAND
15-20	SILT
5-10	CLAY



DETENTION/INFILTRATION UNDERGROUND CHAMBERS
STORMTECH MC-3500 CHAMBER OR EQUAL
DETAIL

NTS

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DAVID J. SLAWSON PLS 4724

DATE OF PREPARATION: APRIL 16, 2021

IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA

CONCEPTUAL GRADING PLAN FOR A.P.N. 488-310-012

(FUTURE ALTERNATIVE ACCESS EXHIBIT)

LEGAL DESCRIPTION

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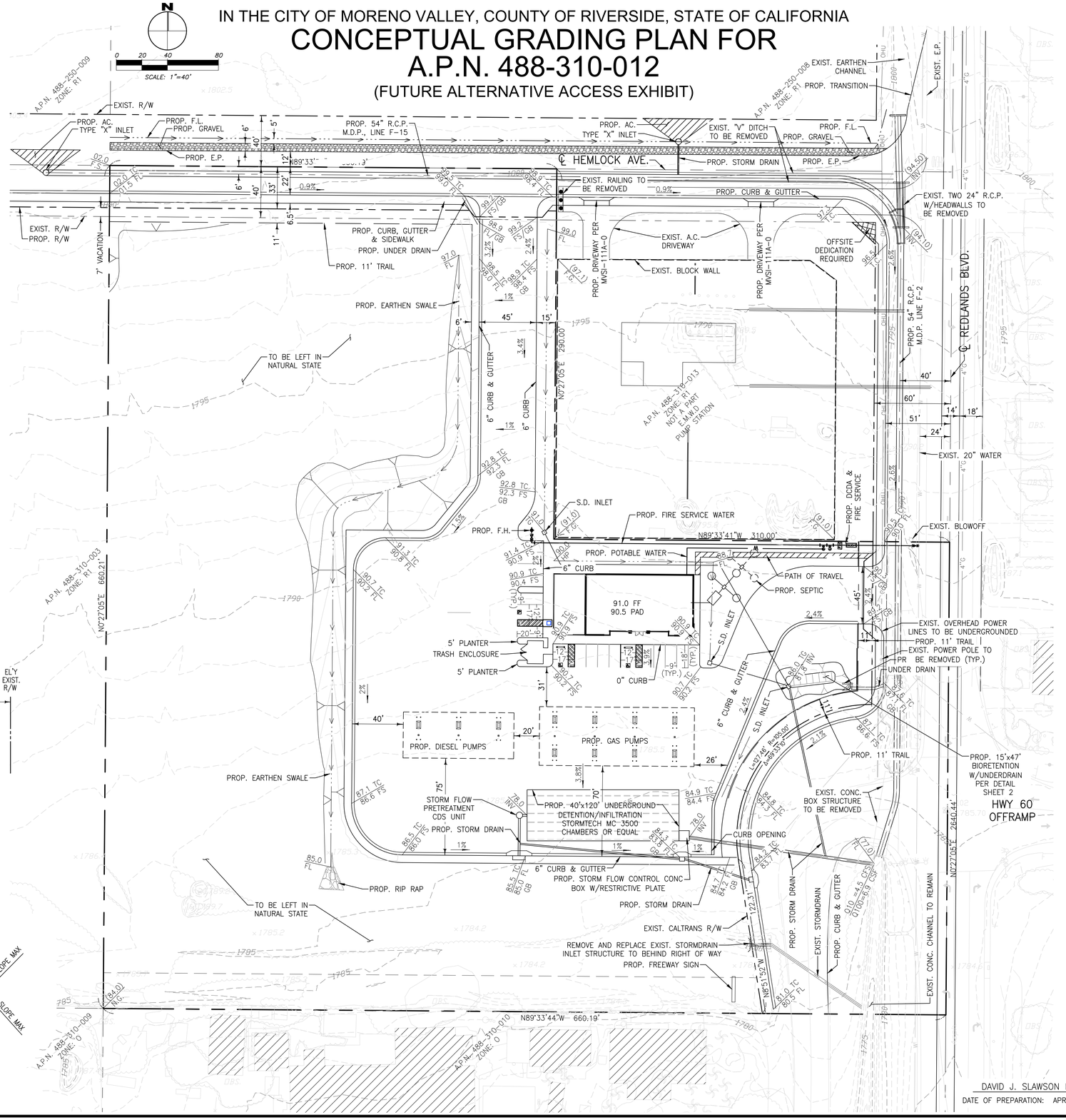
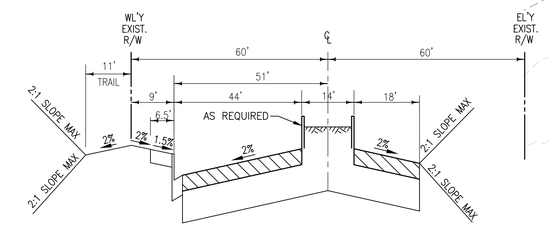
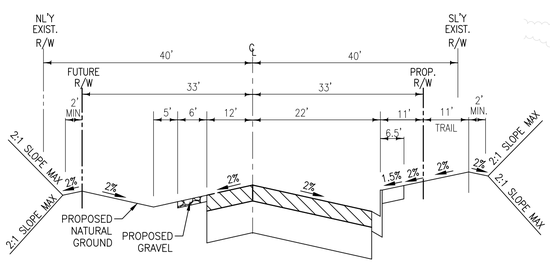
A.P.N. 488-310-012





REDLANDS BLVD.
TYPICAL SECTION
N.T.S.



HEMLOCK AVE.
TYPICAL SECTION
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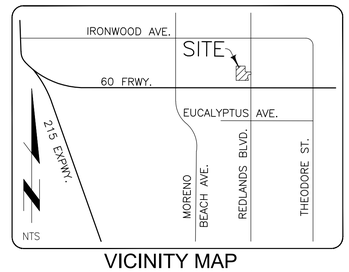

VICINITY MAP
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GENERAL NOTES

OWNER/APPLICANT

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ASSESSOR'S PARCEL No.

488-310-012

LAND USE AND ZONING

CURRENT GENERAL PLAN	R1
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PROPOSED ZONING	CC
EXISTING USE	OS
PROPOSED LAND USE	GAS / COMMERCIAL

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