Waters and Wetlands Delineation Report

Dove Creek Self-Storage Development Project
Atascadero, San Luis Obispo County, California

Prepared for:

Mr. Scott Newton
Arroyo Grande, California

Prepared by:

Terra Verde Environmental Consulting, LLC
3765 South Higuera Street, Suite 102
San Luis Obispo, California 93401

March 2019

TERRA • VERDE
Environmental Consulting

This page intentionally left blank.

DISCLAIMER

Terra Verde Environmental Consulting, LLC (hereafter, Terra Verde) has prepared this waters and wetlands delineation report for use by Mr. Scott Newton (owner). The results and conclusions of this report are conditional upon final approval by the United States Army Corps of Engineers. Results and conclusions presented in this report are based upon information available in the public domain (e.g., United States Geological Survey 7.5-minute topographic quadrangle maps, the Natural Resources Conservation Service Soil Surveys, aerial photographs from various sources, etc.), as well as Terra Verde's on-site reconnaissance, data collection, and analyses, which were completed using standard methods. Results and conclusions presented herein represent the best professional judgment of Terra Verde technical staff. In this context, surveying/boundary locations developed by Terra Verde are assumed to be true and correct.

Brian Dugas

Principal Biologist
Terra Verde Environmental Consulting, LLC

March 05, 2019
Date

Kristen Nelson

Botanist
Terra Verde Environmental Consulting, LLC

March 05, 2019
Date

EXECUTIVE SUMMARY

Terra Verde Environmental Consulting, LLC (Terra Verde) was retained by Mr. Scott Newton (owner) to complete a formal delineation of waters and wetlands under the jurisdiction of federal resource agencies for the proposed Dove Creek Self-storage Development (project), located at 11505 El Camino Real and 11450 Viejo Camino (APN 045-342-009 and 045-342-010) in the City of Atascadero, San Luis Obispo County (County), California. Field surveys included a delineation of all federal waters and wetlands, as defined by the U.S. Army Corps of Engineers (Corps). The survey area encompassed the entire proposed project area and the immediately surrounding wetland and riparian habitats.

This report has been developed by Terra Verde using current Corps guidance concerning waters and wetlands delineations. Determinations are based on field observations made in 2018. Information offered in this report is arranged to describe the delineation objectives, discuss pertinent regulatory contexts, explain the approach and methodology used by Terra Verde in this delineation, and provide a summary of technical results. This report is intended to provide details regarding aquatic resources on site and may be used to support permit application(s) to the Corps, the California Department of Fish and Wildlife, and the Regional Water Quality and Control Board for the proposed development

Terra Verde determined that no federal wetlands are present on the project site; however, 581 linear feet of non-wetland waters of the U.S. were mapped on the subject property. As necessary, this information may be used to support regulatory permits and/or project approvals from the Corps, the City of Atascadero and other resource agencies. The results of the delineation, as described in this report, are conditional upon a review and final jurisdictional determination by the Corps.

TABLE OF CONTENTS

LIST OF APPENDICES

1.0 INTRODUCTION & BACKGROUND

This waters and wetlands delineation report was prepared by Terra Verde Environmental Consulting, LLC (Terra Verde) on behalf of Mr. Scott Newton (owner) in support of the proposed Dove Creek Self-storage Development Project (project) located at 11505 El Camino Real and 11450 Viejo Camino (APN 045-342-009 and 045-342-010) in the City of Atascadero, San Luis Obispo County (County), California (see Appendix A - Figure 1: Site Vicinity and Topographic Map). This report summarizes the regulatory context, methods, and results of field surveys, which focused on the delineation of federal wetlands and waters of the United States (waters of the U.S.), as defined by section 404 of the Clean Water Act. The survey area included the entire proposed project area, as well as immediately adjacent wetland and riparian habitats (see Appendix A – Figure 2: Project Site and Survey Area Map).

The project site encompasses approximately 4.15 acres of grazed grassland, which is bisected by an unnamed United States Geological Survey (USGS) blue line drainage. This drainage enters the property via a culvert under El Camino Real and meanders generally northeast across the project site before entering a second culvert under Viejo Camino. This drainage eventually discharges into Paloma Creek approximately 0.25 mile northeast of the project site. Paloma Creek flows directly to the Salinas River and eventually the traditionally navigable waters of the Pacific Ocean (see Appendix A – Figure 3: Hydrologic Connectivity Map).

This report has been developed following guidance from the San Francisco District of the U.S. Army Corps of Engineers (Corps) and the U.S. Environmental Protection Agency (EPA) (EPA and Corps, 2008) pertaining to wetland delineations. The results of the delineation are based on field observations made in April and June 2017, and are subject to final review and approval by the Corps. As needed, this report may be used in acquiring regulatory permits and/or project approvals.

1.1 Overview of Site Characteristics

1.1.1 Current and Historical Land Uses

The project site is undeveloped and used as a grazing pasture for a herd of goats. The site is immediately bordered by two public roads – El Camino Real and Viejo Camino, as well as an empty lot on the northwest, and a single-family residence on the southeast. The surrounding landscape consists of residential and commercial developments at variable densities (see Figure 2). The topography, soils, and vegetation of the proposed project site and surrounding areas have been altered considerably through past land conversion, construction of adjacent residential areas, and other anthropogenic alterations (e.g., goat grazing, culverts/stormwater

infrastructure, etc.). A review of historical aerial imagery indicates the condition of the site has remained relatively unchanged since at least 1994 (Google Earth, 1994-2018).

1.1.2 Geomorphology and Landscape Context

The project site is located in the Salinas USGS Hydrologic Unit and the Santa Margarita Creek-Salinas River watershed, which includes Paloma Creek and associated tributaries (see Appendix A – Figure 3). Elevations within the survey area range from 271 to 280 meters (890 to 920 feet). The project site is situated just west of the Rinconada Fault line in a valley between unnamed ridgelines of the San Luis Ranges (Wiegers and Hart, 2015; USGS, 2018). The geology of the project site consists of young alluvial floodplain deposits, comprised of silty sand and sandy gravel with cobbles deposited along the valley floor (Wiegers and Hart, 2015). Hydrologic resources on the property are limited to a single, ephemeral drainage that conveys surface runoff and storm flows from adjacent areas.

1.1.3 Regional Climate

The regional climate is Mediterranean, with mild, rainy winters and hot, dry summers. Historical temperature and precipitation data was acquired from the Western Regional Climate Center (WRCC) for Paso Robles (Station No. 046730). According to available data, average annual precipitation for a 122-year (1894 to 2016) period for the project region is 15.21 inches (WRCC, 2018). The average minimum and maximum temperatures calculated for the same time period are 60°F in January and 93°F in July and August (WRCC, 2012).

2.0 REGULATORY CONTEXTS

2.1 Rationale for the Determination of the Geographic Extent of Waters of the U.S.

Delineation of the geographic extent of waters of the U.S., including wetlands, within the survey area was consistent with definitions provided in 33 CFR 328.3 (a) (1-8), 328.3 (b, c, and e), as well as routine procedures detailed in the *U.S. Army Corps of Engineers Wetlands Delineation Manual* (*1987 Manual*) (Corps, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, Version 2.0* (*2008 Arid West Regional Supplement*) (Corps, 2008). As defined in Section 404 of the CWA, the limits of Corps jurisdiction in non-tidal waters extends to the ordinary high water mark (OHWM) and includes all adjacent wetlands. The following definitions are used by the Corps and EPA for the identification of wetlands and, as such, were used for the identification and delineation of wetlands at the project site:

Waters of the U.S. are defined in Section 404 of the CWA as:

> *"All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; including all interstate waters including interstate wetlands, all other waters such as intrastate lakes, rivers, streams, mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce."*

Further, wetlands are considered waters of the U.S., and are identified 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. Wetlands generally include swamps, marshes, bogs, and similar areas."*

The Corps uses a three-parameter approach for identifying and delineating jurisdictional wetlands, where a wetland is defined as a feature associated with waters of the U.S., which is characterized by a dominance of hydrophytic vegetation, hydric soils, and wetland hydrology.

2.2 Consistency with SWANCC & Rapanos Guidance

Following U.S. Supreme Court rulings in two prominent court cases addressing the extent of federal jurisdiction (i.e., Solid Waste Agency of Northern Cook County [SWANCC] v. Corps et al. [531 U.S. 159, 2001]; and Rapanos et ux., et al. v. United States [547 U.S. 715, 2006]) led to the development of federal guidance that requires careful examination and documentation of the physical location(s) of and hydrologic connections among waters and wetlands. To determine federal jurisdiction, emphasis is given to surface hydrologic connections between a wetland and "navigable waters" or "adjacency" of a wetland to traditionally navigable waters, and, thus, a "significant nexus" to interstate commerce. In addition, waters and wetland features can be determined to be under federal jurisdiction by the Corps or EPA if a significant nexus can be shown between the wetland feature in question and its contribution to the maintenance or restoration of the physical, chemical, or biological integrity of downstream waters that are traditionally navigable. Federal guidance for field delineation procedures that address the Rapanos decision has been offered by the EPA and the Corps in a joint memorandum issued on June 5, 2007 (EPA and Corps, 2008).

3.0 FIELD DELINEATION METHODS

3.1 Overview of Methodology

Prior to conducting field surveys, a desktop review was completed, which included a review of current and historical aerial imagery (Google Earth, 1994 - 2018), an online Soil Survey for the County of San Luis Obispo (U.S. Dept. of Ag., 2018), USGS topographic maps (USGS, 2018), regional weather data (WRCC, 2012), the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) (USFWS, 2018), and preliminary site development plans.

Terra Verde botanists Kristen Nelson and Amy Golub completed a formal wetland delineation on May 17, 2018 along the vegetated channel bottom and lower floodplain terrace associated with the drainage on site. Delineation methods followed routine procedures detailed in the *1987 Manual* (Corps, 1987) and the *2008 Arid West Regional Supplement* (Corps, 2008). In addition, wetlands were classified based on hydrogeomorphic classes (e.g., riverine, slope, etc.) described by Brinson (1993) and Brinson et al. (1995).

Field delineation of wetlands included an assessment of the hydrology, soil characteristics, and vegetation at three sampling points (i.e., SP-01, SP-02, and SP-03). Data was recorded using the Wetland Determination Data Form provided in the *2008 Arid West Regional Supplement* (Corps, 2008). At each sampling point, a soil test pit was excavated to a depth of at least 12 inches, vegetation was characterized within a 5-foot radius of the excavated soil test pit, and indicators of wetland hydrology were documented (see Appendix B – Wetland Determination Data Forms). Sampling was conducted in areas that displayed apparent indicators of wetland hydrology and vegetation.

The assessment of non-wetland waters included identifying the presence of field indicators for OHWM within the subject drainage. This assessment followed guidelines provided in *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (*OHWM Manual*) (Lichvar and McColley, 2008). In addition, all waters and wetlands were assessed for hydrologic connectivity and/or adjacency to traditionally navigable waters and their tributaries. Connectivity was confirmed by determining that the unnamed drainage on site is hydrologically connected to Paloma Creek and the traditionally navigable waters of the Pacific Ocean via the Salinas River (see Appendix A – Figure 3). The limits of waters and wetlands of the U.S. were pin-flagged in the field and then recorded using a Trimble Global Positioning System (GPS) unit.

3.1.1 Delineation of Wetlands

Evidence of Wetland Hydrology

Consistent with the *1987 Manual* (Corps, 1987), the *2008 Arid West Regional Supplement* (Corps, 2008), and current regulatory guidance (Corps, 1992), wetland hydrology can be identified by evaluating a variety of direct and indirect indicators, including stream gauge or well data, flood predictions (i.e., FEMA maps), historic records pertaining to the study area, and visual observation of field indicators for the identification of jurisdictional waters and wetlands. Field indicators may include inundation and/or saturation, sediment deposition, drainage patterns, hydric soil characteristics, watermarks, drift lines, presence of oxidized pores associated with living roots and rhizomes (i.e., rhizospheres), and water-stained leaves (Corps, 1987).

Wetland hydrology is present at a location if field observations indicate the area has a high probability of being periodically inundated or saturated to the soil surface for a sufficient duration during the growing season to develop anaerobic conditions in the surface soil environment (i.e., root zone) (Corps, 1987). According to guidance provided in the *2008 Arid West Regional Supplement,* if at least one primary indicator or at least two secondary indicators of hydrology are present at a sample point, the wetland hydrology criterion is met (Corps, 2008). Observations of wetland hydrology were recorded at each sample point to document evidence of inundation or soil saturation.

Several types of evidence were examined to determine whether wetland hydrology previously existed or currently exists. In addition, the type and frequency of site manipulation and anthropogenic disturbances were considered for their potential to impact or alter current and historical site hydrology.

Identification of Hydric Soils

The presence of hydric soils was assessed based on the criteria outlined in the *1987 Manual* (Corps, 1987) and the *2008 Arid West Regional Supplement* (Corps, 2008). Hydric soils are defined as soils "*that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part*" (U.S. Dept. of Ag., 1994). Determination of whether or not a soil is hydric is based on the fulfillment of at least one of four technical criteria (U.S. Dept. of Ag., 2002), which can be satisfied using a combination of published soils information and field indicators. Field indicators for determining whether a soil satisfies the hydric soil definition and the technical criteria for hydric soils are listed in *Field Indicators of Hydric Soils in the United States* (U.S. Dept. of Ag., 2006).

Following the guidance provided in the above-referenced documents, the presence of hydric soils within the survey area was determined using a combination of direct field observations and a

review of available online resources, including the Soil Survey of San Luis Obispo County, Web Soil Survey (U.S. Dept. of Ag., 2018) and the USFWS NWI (USFWS, 2018). In the field, soil test pits were excavated at each of three sampling points to examine the upper 12 inches of the soil profile for hydric soil indicators. Specifically, a Munsell Soil Color Book (2000) was used to classify the colors of matrix soils and redoximorphic (redox) concentrations within the matrix. The *2017 Pocket Guide to Hydric Soil Indicators* (Wetland Training Institute [WTI], 2017) was used to determine the texture of soils, and to assess the location, type, and extent of matrix soil colors and redox concentrations, to determine whether they qualified as hydric soils.

According to the NRCS online soil survey of San Luis Obispo County, three soil units occur within the survey area (U.S. Dept. of Ag., 2018). These include: Unit 193 (San Andreas-Arujo complex, 9 to 15 percent slopes), Unit 198 (Santa Lucia-Lopez complex, 15 to 50 percent slopes), and Unit 208 (Still clay loam, 0 to 2 percent slopes) (see Figure 4 – Soil Units Map). These soil units are not listed as hydric soils (U.S. Dept. of Ag., 2018). A summary of the dominant characteristics of these soil types is provided below.

Soil Unit 193 – San Andreas-Arujo complex, 9 to 15 percent slopes

The parent material of this soil type is residuum weathered from sandstone. The drainage class of this unit is well drained, and it is composed of sandy loam over weathered bedrock. This soil type tends to occur on back slopes and side slopes and is designated as farmland of statewide importance.

Soil Unit 198 – Santa Lucia-Lopez complex, 15 to 50 percent slopes

The parent material of this soil type is residuum weathered from shale. The drainage class of this unit is well drained, and it is composed of channery clay loam over weathered bedrock. This soil type tends to occur on back slopes and side slopes.

Soil Unit 208 – Still clay loam, 0 to 2 percent slopes

The parent material of this soil is alluvium derived from sedimentary rock. The drainage class of this unit is well drained, and it is composed mostly of clay loam and stratified loam to clay loam. This soil type tends to occur on toe slopes and treads and is considered prime farmland if irrigated.

Dominance of Hydrophytic Vegetation

On June 1, 2012, the *2012 National Wetland Plant List* (NWPL) (Lichvar et al., 2012) replaced the 1988 U.S. Fish and Wildlife Service's National list of plant species that occur in wetlands for use under the CWA, Swamp Buster, and National Wetland Inventory programs. The NWPL and regional supplements have since been revised with updated plant listings. The *Arid West 2016 Regional Wetland Plant List* (*2016 Regional List*) (Lichvar et al., 2016) is the most current version

available for use in the Arid West region, including coastal areas of California. The updated *2016 Regional List* indicates the relative frequency that a species occurs in wetland habitats and is used to determine whether the hydrophytic vegetation parameter is met when conducting wetland delineations under the CWA.

Species included on the *2016 Regional List* are assigned one of the following wetland indicator statuses (Lichvar et al., 2012):

- **Obligate (OBL)**: plants that almost always occur in wetlands.
- **Facultative Wetland (FACW)**: plants that usually occur in wetlands but may occur in non-wetlands.
- **Facultative (FAC)**: plants that are equally likely to occur in wetlands and non-wetlands.
- **Facultative Upland (FACU)**: plants that usually occur in non-wetlands but may occur in wetlands.
- **Upland (UPL)**: plants that almost never occur in wetlands; plants not included on the list are considered UPL.

Dominance of hydrophytic vegetation is determined by identifying all plant species within a 5-foot radius surrounding each soil excavation pit for herbaceous and shrub cover, and a 30-foot radius for tree and woody vine cover; documenting the absolute percent cover of each species within each stratum (i.e., herb, shrub, tree, and woody vine) for the sampling plot; and noting the indicator status for each (i.e., UPL, FACU, FAC, FACW, or OBL). None of the sampling points supported tree, shrub, or woody vine cover. Dominant species were then determined using the 50/20 rule, as recommended in the *2008 Arid West Regional Supplement* (Corps, 2008). Based on this method, dominant species are those species that individually or collectively constitute more than 50 percent of the total vegetative cover (i.e., relative cover) within each stratum, in addition to those species that individually constitute 20 percent or more of the relative cover within each vegetation stratum. Species identifications and taxonomic nomenclature followed the second edition of *The Jepson Manual: Vascular Plants of California* (Baldwin et al., 2012), as well as taxonomic updates provided in the Jepson eFlora (Jepson Flora Project, 2018).

According to both the Corps' *1987 Manual* (Corps, 1987) and *2008 Arid West Regional Supplement* (Corps, 2008), the hydrophytic vegetation parameter for wetlands is met when, under normal circumstances, *more than* 50 percent of the dominant species across all strata have an indicator status of OBL, FACW, or FAC.

Connectivity/Adjacency

As noted above, particular emphasis is given to surface hydrologic connectivity of wetlands to traditionally navigable waters, including adjacency of wetlands to jurisdictional waters.

Connectivity of wetlands was established via field work, a review of aerial imagery, and an assessment of site-specific topography.

3.1.2 Delineation of Non-wetland Waters

Within the project site, the unnamed drainage exhibits a narrow, gently-sloped channel that meanders across an open grassy field. Despite grazing impacts, the banks and channel bottom are vegetated with herbaceous species, with a clear change in the composition and cover from the channel bottom to the bank and adjacent low terrace. As such, these areas were assessed for evidence of an OHWM to determine the presence of waters of the U.S. The *OHWM Manual* (Lichvar and McColley, 2008) provides guidance on identifying field indicators of OHWM, including protocols for characterizing the overall system. Data was recorded using the *Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (OHWM Data Sheet) (Curtis and Lichvar, 2010). Completed data sheets are provided in Appendix C (Arid West Intermittent and Ephemeral Streams OHWM Datasheets).

Cross-sectional Analysis

Cross sectional analyses were conducted at three locations along each drainage feature where there was a clear change in the limits of either the OHWM or the top of bank. The physical and biological characteristics present at each cross section were documented on OHWM Data Sheets, including a sketch of the site topography at each cross section. Specifically, the floodplain units were described for each cross section through the vegetation cover, sediment texture, and hydrology indicators at that location. The limits of OHWM were determined based on the presence of hydrology indicators such as debris wracking, shelving, water marks, and change in sediment texture/substrate.

Connectivity/Adjacency

Connectivity to adjacent traditional navigable waters was assessed via field investigations, a review of aerial photography, and information obtained regarding storm water and other underground water collection systems.

4.0 RESULTS

4.1 Wetlands Determination

Terra Verde completed a wetland delineation in May 2018 and determined that no federal wetlands are present within the project site. The results of the delineation and sampling point data was documented on Wetland Determination Data Forms (Appendix B) and is detailed below.

4.1.1 Hydrology

Field observations of wetland hydrology were limited to secondary indicators, including: riverine drift deposits (B3), drainage patterns (B10), and saturation visible on aerial imagery (C9). In addition, the FAC-Neutral Test (D5) was documented as a secondary indicator at SP-02. Wetland hydrology was determined to be present at all three sampling points (see Figure 5: Waters and Wetlands Delineation Map).

4.1.2 Soils

Soil test pits were excavated at each sampling point to classify the color and texture of the soil horizons down to at least 12 inches. Soil textures consisted of clay loam with a significant component of organic matter at all three sampling points. No hydric soils were identified on site. A soil color of 10YR 2/1 was documented at all three sampling points, with no redox features present (see Appendix D – Representative Site Photographs, Photo 1).

4.1.3 Vegetation

Greater than 50 percent relative cover of hydrophytic vegetation was documented at all three sampling points, which was dominated by common lippia (*Phyla nodiflora*; FACW), Mediterranean barley (*Hordeum marinum* subsp. *gussoneanum*; FAC), and beardless wild rye (*Elymus triticoides*; FAC). Vegetation on the banks of the drainage and adjacent areas transitions to a composition of non-wetland species dominated by wall barley (*Hordeum murinum*), heart-podded hoary cress (*Lepidium draba*), and occasional dense patches of yellow star-thistle *(Centaurea solstitialis*), as well as other grazed grasses.

4.2 Non-Wetland Waters Determination

The unnamed drainage is likely considered non-wetland waters of the U.S. based on the presence of a clearly-defined OHWM, indicated by a distinct transition in vegetative cover and composition between the channel bottom and gently-sloped bank, and connectivity to traditionally navigable waters. Based on a review of aerial imagery, this drainage appears to originate somewhere in the foothills of the San Luis Range Mountains west of Atascadero. It flows through areas of rural residential, agricultural, and commercial developments, and has been substantially modified in the areas upstream of the project site. It enters the project site through a partially impeded culvert under El Camino Real, and exits the site through another partially blocked culvert under Viejo Camino. Due to the historical alterations of natural flow patterns in the surrounding landscape, the project site is occasionally subject to temporary inundation and ponding following significant precipitation events. However, the drainage system is generally ephemeral and a lack

of hydric soils indicates that the site is well drained, likely only ponding for brief periods following significant rain events.

5.0 SUMMARY OF JURISDICTIONAL FINDINGS

The jurisdictional waters identified on the project site fall under the regulatory jurisdiction of the Corps. A summary of the type and extent of jurisdictional waters and wetlands is presented in Table 1 - Extent and Location of Jurisdictional Waters and Wetlands.

Table 1. Extent and Location of Jurisdictional Waters and Wetlands

Feature Type	Location	Acres	Length (feet)
Waters of the U.S.	Ephemeral drainage	0.08	581
Federal Wetlands	None	N/A	N/A

Table 2 (Summary of Sampling Point Data for Wetland Delineation), provides a summary of the data collected at each of the three sampling points during the wetland delineation.

Table 2. Summary of Sampling Point Data for Wetland Delineation

Sample Point	Wetland Vegetation	Hydric Soils	Wetland Hydrology	Connectivity/ Adjacency	Federal Wetland
SP-01	Yes	No	Yes	Yes	No
SP-02	Yes	No	Yes	Yes	No
SP-03	Yes	No	Yes	Yes	No

The geographic extent of waters of the U.S. totals approximately 581 linear feet and 0.08 acre within the project site, but no federal wetlands are present. Section 404 of the CWA requires authorization from the Corps for the discharge of dredged or fill material into all waters of the U.S., including adjacent wetlands. The findings of this federal waters and wetlands delineation is subject to review and final concurrence by the Corps.

6.0 REFERENCES

Baldwin, Bruce G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken. 2012. *The Jepson Manual: Vascular Plants of California*. University of California Press. Berkeley, California.

Brinson, M. 1993. A hydrogeomorphic classification for wetlands. Technical Report WRP-DE-4, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

Brinson, M., F. R. Hauer, L. C. Lee, W. L. Nutter, R. D. Rheinhardt, R. D. Smith, and Whigham, D. 1995. A guidebook for application of hydrogeomorphic assessments to riverine wetlands, Technical Report WRP-DE-11, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS. NTIS No. AD A308 365.

Google Earth Pro V 7.1.8.3036 (1994-2018). San Luis Obispo County, California. 35.453629 / -120.637411. Google 2018. Accessed May through December 2018.

Jepson Flora Project, Regents of the University of California. 2018. Jepson eFlora. Available online at: http://ucjeps.berkeley.edu/eflora/. Accessed May 2018.

Lichvar, R.W. and S.M. McColley. 2008. A field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States. A Delineation Manual. Cold Regions Research and Engineering Laboratory. U.S. Army Corps of Engineers.

Lichvar, R.W., N.C. Melvin, M.L. Butterwick, and W.N Kirchner. 2012. National Wetland Plant List Indicator Rating Definitions. Cold Regions Research and Engineering Laboratory. U.S. Army Corps of Engineers.

Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. *The National Wetland Plant List*: *2016 wetland ratings – Arid West 2016 Regional Wetland Plant List*. Phytoneuron 2016-30: 1-17. Published 28 April 2016. ISSN 2153 733X.

Munsell. 2000. Munsell Soil Color Charts. Munsell Color, Macbeth Division of Kollmorgen Instruments Corp., New Windsor, NY.

Rapanos et ux., at al. v. United States. 547 U.S. 715, 2006. The United States Court of Appeals for the Sixth Circuit. (June 19, 2006). *JUSTIA US Supreme Court.* Available online at: https://supreme.justia.com/cases/federal/us/547/715/opinion.html. Accessed September 28, 2017.

Solid Waste Agency of Northern Cook County (SWANCC) v. United States Army Corps of Engineers (Corps) et al. 531 U.S. 15, 2001. The U.S. Court of Appeals for the Seventh Circuit. (January 9, 2001). *JUSTIA US Supreme Court.* Available online at: https://supreme.justia.com/cases/federal/us/531/159/case.html. Accessed: September 28, 2017.

U.S. Army Corps of Engineers. 1987. U.S. Army Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. Environmental Laboratory. U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, MS.

_____. 1992. "Clarification and Interpretation of the *1987 Manual*." 3-92 Memorandum.

_____. 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). Environmental Laboratory, Wetland Regulatory Assistance Program.

U.S. Department of Agriculture. 1994. Changes in Hydric Soils of the United States. U.S. Department of Agriculture, Natural Resources Conservation Service. Federal Register. Washington, D.C.

_____. 2002. Changes in Hydric Soils of the United States. U.S. Department of Agriculture, Natural Resources Conservation Service. Federal Register. Washington, D.C.

_____. 2006. Field Indicators of Hydric Soils in the United States, Version 6.0. G.W. Hurt, L.M. Vasilas, editors. United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with the National Technical Committee for Hydric Soils, Fort Worth, TX.

_____. 2018. Custom Soil Resources Report for San Luis Obispo County, California. U.S. Department of Agriculture, Natural Resources Conservation Service. United States Department of Agriculture.

U.S. Environmental Protection Agency and U.S. Army Corps of Engineers. 2008. Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States. Joint memorandum issued June 5, 2007. Washington, D.C.

U.S. Fish and Wildlife Service. 2018. National Wetland Inventory Mapper. Available online at: https://www.fws.gov/wetlands/Data/Mapper.html. Accessed May through December 2018.

U.S. Geological Survey. 2018. The National Map. San Luis Obispo County, 35.453629 / -120.637411. Available online at: https://viewer.nationalmap.gov/advanced-viewer/. Accessed December 2018.

Western Regional Climate Center (WRCC). 2018. Paso Robles, California (046730) Period of Record Monthly Climate Summary (01/01/1894 – 06/10/2016). Available online at: https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca6730. Accessed December 2018.

Wetland Training Institute, Inc. 2017. *2017 Pocket Guide to Hydric Soil Field Indicators: Field Indicators of Hydric Soils in the United States*, Version 8.0.

Wiegers, M.O. and E.W. Hart. 2015. Preliminary Geologic Map of the Santa Margarita 7.5' Quadrangle, San Luis Obispo County, California. Available online at: ftp://ftp.consrv.ca.gov/pub/dmg/rgmp/Prelim_geo_pdf/SantaMargarita_24k_v1.0.pdf.

APPENDIX A: Report Figures

Figure 1: Site Vicinity and Topographic Map

Figure 2: Project Site and Survey Area Map

Figure 3: Hydrologic Connectivity Map

Figure 4: Soil Units Map

Figure 5: Waters and Wetlands Delineation Map

This page intentionally left blank.

APPENDIX B: Wetland Determination Data Forms

This page intentionally left blank.

APPENDIX B: Arid West Intermittent and Ephemeral Streams OHWM Datasheets

This page intentionally left blank.

APPENDIX D: Representative Site Photographs

This page intentionally left blank.