SEQUOIA
Ecological Consulting, Inc.

Aquatic Resources Delineation Report Adobe Road and Main Street Intersection Improvement Project

Penngrove, Sonoma County, California

August 2023

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1.0 INTRODUCTION AND BACKGROUND

Sequoia Ecological Consulting, Inc. (Sequoia) conducted a delineation of aquatic resources potentially regulated under Section 404 of the federal Clean Water Act (CWA) and the State Water Resources Control Board (SWRCB) *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (2019) for the proposed Adobe Road and Main Street Intersection Improvements Project (Project) site, located in Penngrove, Sonoma County, California (Assessor's Parcel Number 059-300-003) (Figures 1 and 2). The proposed project involves road widening, restriping, and walking path additions and improvements at the intersection of Adobe Road and Main Street.

The "study area" for the aquatic resource delineation covers approximately 2.7 acres and includes all areas of the proposed project (Figure 2). Sequoia's delineation of "waters of the United States" followed the U.S. Army Corps of Engineers' (USACE) *Wetlands Delineation Manual* and 2008 *Regional Supplement for the Arid West Region* (1987). Sequoia understands that only USACE and/or the Regional Water Quality Control Board/State Water Resource Control Board (SWCRB) can determine the actual limits of their jurisdiction pursuant to Section 404 and Section 401 of the CWA, respectively.

1.1 Location and Setting

The project site is located at the intersection of Adobe Road and Main Street in Penngrove—a census-designated place—in Sonoma County, California (Figure 1). The project site is bordered by Penngrove Elementary School to the northwest, residential development to the northeast and southwest, and commercial development to the southeast (Figure 2). The project site is comprised of ruderal/developed, non-native annual grassland, and riparian woodland communities.

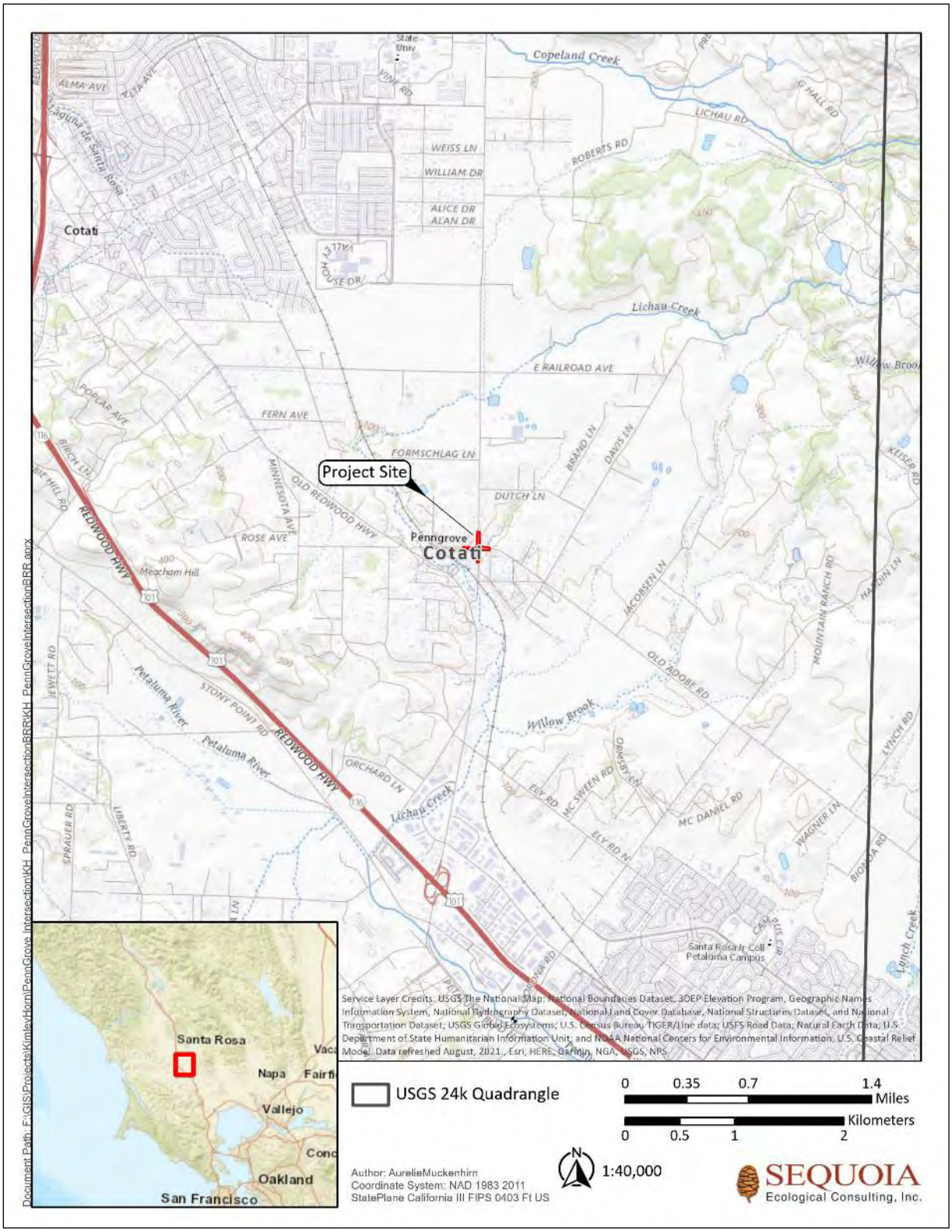

Figure 1. Regional Map of the Adobe Road and Main Street Intersection Improvement Project Site

Figure 2. Location Map of the Adobe Road and Main Street Intersection Improvement Project Site

2.0 METHODS

Prior to the field delineation, available reference materials were reviewed, including the Natural Resource Conservation Service (NRCS) Web Soil Survey (NRCS 2022a; Figure 3), hydric soils lists (NRCS 2022b), the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI; Figure 4; USFWS 2022), the U.S. Geological Survey (USGS) National Hydrography Dataset (NHD; USGS 2022), geologic data (California Geological Survey 2010), topographic maps, and aerial imagery (Google Earth 2022). A routine-level aquatic resource delineation was conducted on the project site on May 26, 2022.

The project site was field-checked for indicators of hydrophytic vegetation, wetland hydrology, and hydric soils. During the aquatic resource delineation, eight sample points were taken on the project site and recorded on USACE data forms provided in the *Regional Supplement to the U.S. Army Corps of Engineers Wetland Delineation Manual: Arid West Region* (Version 2.0) (Arid West Manual; USACE 2008a). A delineation map of the study area is provided in Appendix A and USACE data forms are included in Appendix B.

This aquatic resource delineation was conducted in accordance with the *Arid West Manual* and the *U.S. Army Corps of Engineers Wetlands Delineation Manual* (USACE 2008a; Environmental Laboratory 1987). Based on the presence or absence of field indicators—including vegetation, hydrology, and soils—the limits of potential jurisdictional wetlands and waters of the United States were determined. Potential jurisdictional aquatic features were mapped with a Trimble GPS unit (sub-meter accuracy) and overlain on a digital orthophoto using ArcGIS mapping software (Appendix A).

2.1 Hydrophytic Vegetation

Hydrophytic vegetation is defined as "the sum total of macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present" (Environmental Laboratory 1987). To determine if hydrophytic vegetation is present, each plant species occurring in a sample plot is identified and assigned a wetland indicator status (Table 1) based on the *National Wetland Plant List* (USACE 2020).

Table 1. Wetland Plant Indicator Status

Wetland Indicator Status	Definition
OBL – Obligate	Occur over 99% of the time in wetlands
FACW – Facultative Wetland	Occur 33 to 67% of the time in wetlands
FAC – Facultative	Occur 50% of the time in wetlands
FACU – Facultative Upland	Occur 1 to 33% of the time in wetlands
UPL – Upland	Occur less than 1% of the time in wetlands
NI – Non-Indicator	No classification given due to lack of information

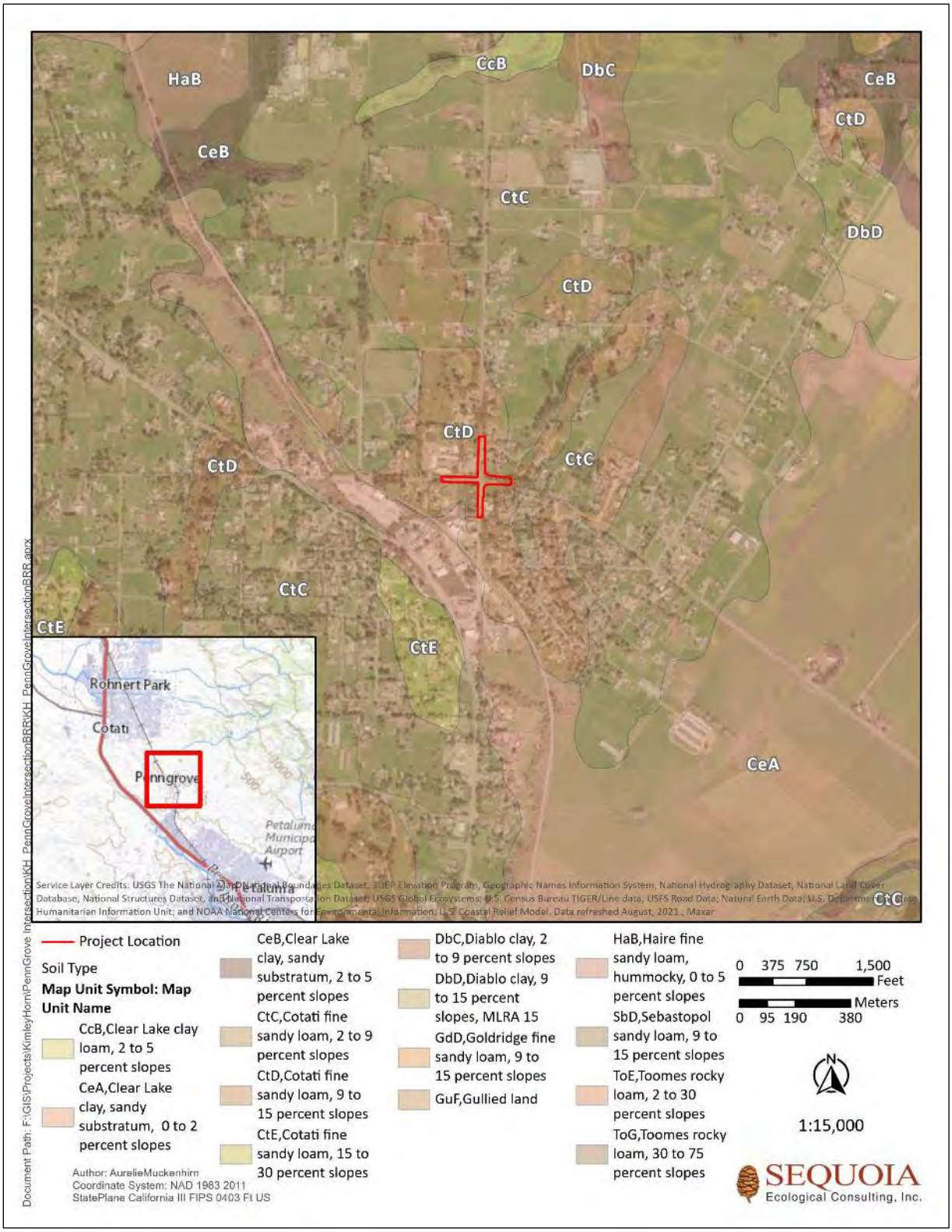

Figure 3. Soil Types on the Adobe Road and Main Street Intersection Improvement Project Site

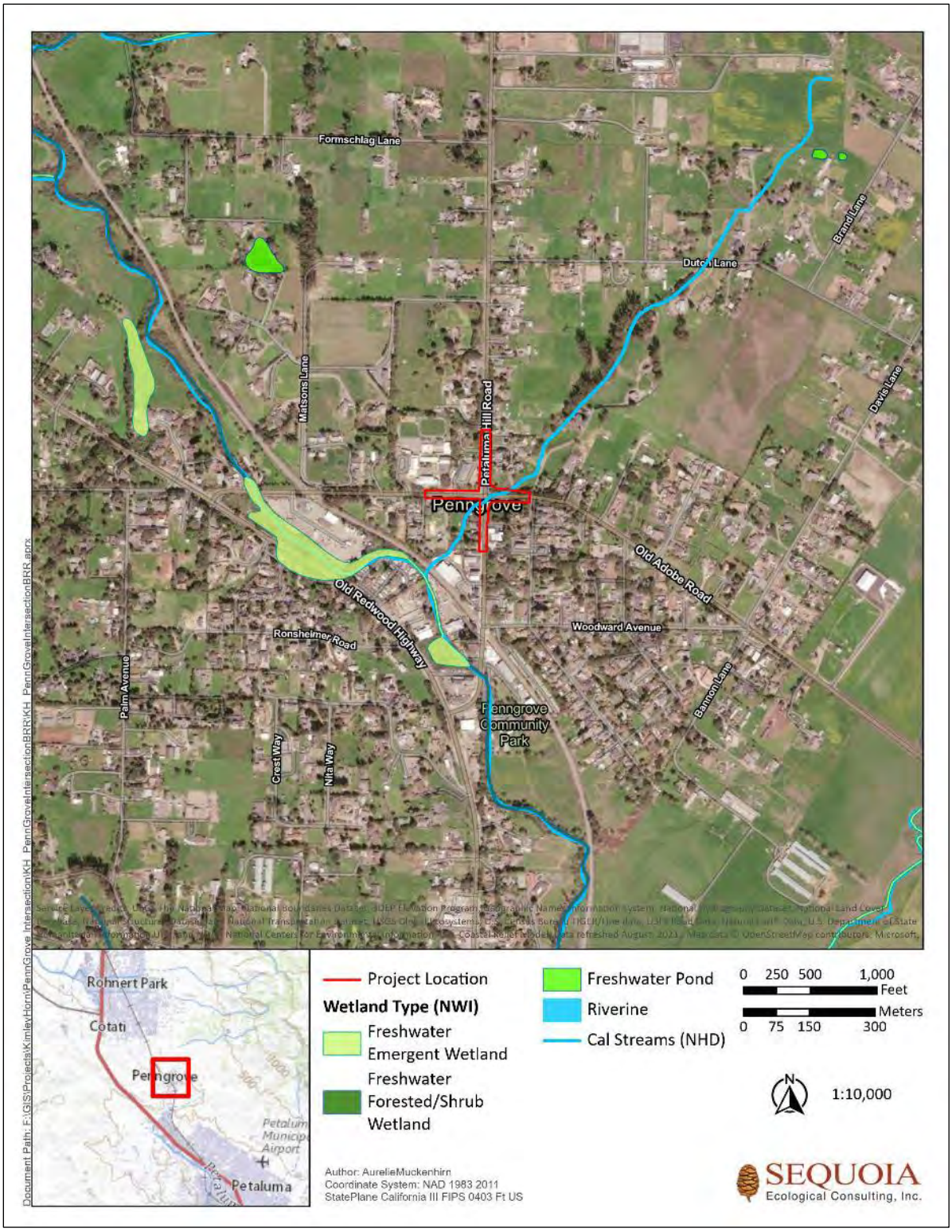

Figure 4. USFWS National Wetlands Inventory Map for the Adobe Road and Main Street Intersection Improvement Project Site

Plants that have an indicator status of OBL, FACW, and FAC are considered to be typically adapted for life in anaerobic soils conditions and qualify as hydrophytic species for Section 404 of the CWA delineations. If more than 50 percent of the dominant plant species present in a sample plot are classified as hydrophytic species (e.g., FAC or wetter), the area has met the hydrophytic vegetation criterion. Dominant species are selected using the "50/20 rule" (USACE 2008a).

2.2 Wetland Hydrology

Wetland hydrology "encompasses all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface at some time during the growing season sufficient to create anaerobic and reducing conditions" (Environmental Laboratory 1987). The jurisdictional wetland hydrology criterion is satisfied if the area supports "*14 or more consecutive days of flooding or ponding, or a water table 12 in. (30 cm) or less below the soil surface, during the growing season at a minimum frequency of 5 years in 10 (50 percent or higher probability)*" (USACE 2008a). If recorded data—such as stream, tidal gauge, or hydrologic monitoring—are lacking, field indicators are used to determine the presence of wetland hydrology. Field indicators include primary indicators, such as observed inundation or saturation, biotic crust, and oxidized rhizospheres on living roots; or secondary indicators, such as drainage patterns and FAC-neutral test. The presence of one primary indicator, or two secondary indicators, is sufficient to conclude that an area has wetland hydrology (USACE 2008a).

2.3 Hydric Soils

Hydric soils are defined by the NRCS 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 of the soil" (Federal Register 1994). Nearly all hydric soils exhibit characteristic morphologies that result from repeated periods of saturation or inundation, or both, for more than a few days. Characteristic hydric soil indicators observable in the field include: histic epipedons; sulfidic material; aquic or preaquic moisture regime; reducing conditions; iron and manganese concretions; and soil colors (gleyed soils, soils with mottles and/or low chroma matrix). Color designations are determined by comparing a soil sample with a standard Munsell soil color chart (Munsell 2012). The presence of any one of the above listed field indicators is considered sufficient to meet the hydric soil criterion.

2.4 Other Waters of the U.S.

In addition to potential jurisdictional wetlands, this study evaluated the potential presence of any "Waters of the U.S." other than wetlands potentially subject to jurisdiction under Section 404 of the CWA. "Other Waters" are seasonal or perennial water bodies, such as lakes, stream channels, drainages, ponds, and other surface water features that exhibit an Ordinary High Water Mark (OHWM) but lack positive indicators of one or more of the three wetland parameters (hydrophytic vegetation, wetland hydrology, hydric soils) (Federal Register 1986). In non-tidal "other waters," USACE jurisdiction extends to the OHWM, defined as "that line on the shore established by the fluctuations of water and indicated

by physical characteristics such as clear, natural line impressions on the bank, shelving, changes in the characteristics of the soil, destruction of terrestrial vegetation, the presence of litter and debris" (Federal Register 1986; USACE 2005; 2008b).

2.5 Waters of the State

All potential aquatic resources observed on the study area were delineated during the field visit. Areas that may be exempt from USACE jurisdiction (discussed in Section 5.1) but may be included as waters of the state under the SWRCB's *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (which took effect May 28, 2020) or the Porter-Cologne Water Quality Control Act, were identified during the delineation. Final regulatory jurisdiction would need to be determined by the applicable agencies.

3.0 ENVIRONMENTAL SETTING

3.1 Topography and Hydrology

The project site is predominately flat and slightly slopes from northeast to southwest. Elevation on the project site ranges from 84 to 120 feet above mean sea level. Two (2) aquatic features occur on or immediately adjacent to the project site. These features consist of a roadside ditch along Adobe Road west of the intersection with Main Street and an unnamed intermittent drainage that flows northeast to southwest beneath Adobe Road and Main Street.

The climate of the project site is Mediterranean (i.e., dry-summer subtropical) with warm, dry summers with average highs in the 70s and 80s Fahrenheit, and cool, wet winters with average highs in the 50s and 60s and average lows in the 30s and 40s Fahrenheit. The average annual precipitation is approximately 31.43 inches, falling primarily between November and March (U.S. Climate Data 2022).

3.2 Soils

One soil type occurs within the project site, as mapped by the NRCS (Figure 4); this mapped soil unit is Cotati fine sandy loam, 9 to 15 percent slopes (NRCS 2022a). The Cotati series consists of moderately well-drained fine sandy loams that have a clay subsoil. They formed in weakly consolidated sand, gravel, and clay of old marine-terrace material and weathered siltstone and shale with occasional strata of weakly consolidated conglomerate. These soils are on undulating to hilly terraces and occur mainly in the south-central part of the county between Petaluma and Cotati. Cotati fine sandy loam, 9 to 15 percent slopes, has rapid runoff, high hazard of erosion, and is used mainly for grazing. This soil is not listed as a hydric soil (NRCS 2022b).

Test pits dug by Sequoia at each sample site confirmed that soils were consistent with the soil description provided by the NRCS. Soils observed in pits on the study area are shown in Appendix A and described on USACE data forms in Appendix B.

3.3 Project Site Vegetation

On May 26, 2022, Sequoia staff conducted a survey of the project site and characterized plant communities and vegetation present. Nomenclature used for plant names follows *The Jepson Manual* Second Edition (Baldwin 2012). Wetland indicator species (i.e., species that can tolerate soil saturation during grow period and/or prolonged inundation) were taken into consideration when classifying vegetation types.

Three plant communities occur on the project site (Sawyer and Keeler-Wolf 1995) and are further described below. Representative photographs of the project site are included in Appendix C and a list of all plant species observed during the surveys are provided in Appendix D.

3.3.1 Ruderal/Developed

The project site is dominated by ruderal herbaceous vegetation along the shoulders of Adobe Road and Main Street. Ruderal communities are groupings of plants that thrive in areas disturbed by human activity. Ruderal vegetation is adapted to high levels of disturbance and endures for long periods of time in areas that have continual disturbance. Dominant grass and forb species observed within the ruderal community on the project site include wild oat (*Avena fatua*), English ivy (*Hedera helix*), hemlock (*Conium maculatum*), and Himalayan blackberry (*Rubus armeniacus*). Additionally, trees including blackwood acacia (*Acacia melanoxylon*), plum (*Prunus* sp.), and elm (*Ulmus* sp.) are present within this habitat.

3.3.2 Non-Native Annual Grassland

Non-native annual grassland occurs immediately southeast of the intersection of Adobe Road and Main Street. Non-native annual grassland communities are comprised primarily of plant species that mature in spring and early summer, before spreading seed and dying in late summer and fall. Dominant grass and forb species observed within the non-native annual grassland community on the project site include wild oat, ripgut brome (*Bromus diandrus*), foxtail brome (*Bromus madritensis*), and annual bluegrass (*Poa annua*). A few oak trees, including black oak (*Quercus kelloggii*) and coast live oak (*Quercus agrifolia*), occur along within the grasslands on the project site.

3.3.3 Riparian Woodland

Riparian woodland is present along the unnamed intermittent drainage which runs northeast to southwest and beneath the intersection of Adobe Road and Main Street. Riparian woodland is dominated by a canopy of red willow (*Salix laevigata*) and an understory of Himalayan blackberry, fat-hen (*Atriplex prostrata*), and curly dock (*Rumex crispus*).

4.0 RESULTS

Aquatic resources delineated on the project site during the May 26, 2022 delineation fall into two categories: (1) Intermittent Drainage and (2) Roadside Ditch. Intermittent Drainages are indicated by intermittent flow during a typical year. Roadside Ditches are features constructed in uplands for roadside drainage that do not occur in a wetland or replace a natural tributary.

Where observable in the field, culverts were mapped to help determine the hydrologic connections between aquatic resources and observed or presumed downstream waters which discharge into a TNW. Aquatic resources identified during the May 26, 2022 delineation are discussed below and are listed in Table 2. A map of aquatic resources is included in Appendix A and delineation data forms are included in Appendix B. Representative photographs of aquatic resources and delineation sample points are included in Appendix C. A list of plant species observed on the project site, and their wetland indicator status, is included in Appendix D.

Table 2. Potential Aquatic Resources Delineated on the Project Site

Feature Name	Area (ft^2)	Length (ft)	Acre(s)	Avg Width (ft)	Sample Point	Bed/Bank /OHWM	Hydrology/ Observed Outlet	Lat/Long	Potential Agency Jurisdiction
Intermittent Drainage									
ID-01					3A/3B	Yes	Intermittent /Channel and Culvert	38.299878, -122.666210	USACE /State
Roadside Ditch									
RD-01					1A/1B	Marginal	Ephemeral/ Drain Inlet	38.299852, -122.667983	State (?)

4.1 Intermittent Drainage

One Intermittent Drainage was delineated on the project site (Table 2; Appendices A and B). The Drainage was considered intermittent because: (1) the channel had pooled and flowing water that appeared to be the result of seasonal rains and not perennial hydrology; (2) the channel had significant OHWM indicators such as natural line impressed on the bank, shelving, changes in soil character, presence of litter and debris, and matted and bent vegetation to indicate seasonal flow; and (3) background sources (the NWI, NHD, USGS topographic maps, and other sources) indicated seasonal flow. A sample point (Sample Point 3A; Appendices A and B) taken within the center of the drainage contained a dominance of hydrophytic vegetation, namely fat-hen (FACW). Additionally, the sample point contained primary (surface soil crack [B6], biotic crusts [B12], and oxidized rhizospheres along living roots [C3]) indicators of wetland hydrology and positive soil indications (depleted matrix [F3]). The paired upland sample point (Sample Point 3B; Appendices A and B) was taken in the adjacent low terrace east of the creek channel and lacked all three wetland criteria.

4.2 Roadside Ditch

One Roadside Ditch was delineated on the western edge of the project site, running along the north side of Adobe Road near Penngrove Elementary School (Table 2; Appendices A and B). This Roadside Ditch is an area of low elevation along the roadside that collects and pools runoff, and during high flows runs through a culvert beneath a driveway immediately to the east and into a drain inlet that likely connects to the unnamed intermittent drainage beneath the intersection of Adobe Road and Main Street. The Roadside Ditch was saturated with a dominance of hydrophytic vegetation, namely broadleaf cattail (*Typha latifolia*; OBL) and met all three wetland indicators (Sample Point 1A). A broken water line upslope of the feature is presumed to be the hydrologic source of this aquatic feature. Due to water being present as a temporal result of an artificial source, it is presumed that this location is an artificially created wetland and is therefore not a jurisdictional feature.

5.0 AGENCY JURISDICTION

5.1 Potential Federal Jurisdiction

On January 23, 2020, the U.S. Environmental Protection Agency (USEPA) and the USACE finalized the Navigable Waters Protection Rule to define "waters of the U.S." The rule took effect on June 22, 2020. On August 30, 2021, the U.S. District Court for the District of Arizona vacated and remanded the Navigable Waters Protection Rule in the case of *Pascua Yaqui Tribe v. U.S. Environmental Protection Agency*.

According to the USEPA (2021): "*In light of this order, the agencies have halted implementation of the Navigable Waters Protection Rule and are interpreting "waters of the United States" consistent with the pre-2015 regulatory regime until further notice. The agencies continue to review the order and consider next steps. This includes working expeditiously to move forward with the rulemakings announced on June 9, 2021, in order to better protect our nation's vital water resources that support public health, environmental protection, agricultural activity, and economic growth. The agencies remain committed to crafting a durable definition of "waters of the United States" that is informed by diverse perspectives and based on an inclusive foundation*.

The agencies are interpreting "waters of the United States" consistent with the pre-2015 regulatory regime until further notice … The term waters of the United States means:

1. *All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;*
2. *All interstate waters including interstate wetlands;*
3. *All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural*

ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:

a. *Which are or could be used by interstate or foreign travelers for recreational or other purposes; or*
b. *From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or*
c. *Which are used or could be used for industrial purposes by industries in interstate commerce;*

4. *All impoundments of waters otherwise defined as waters of the United States under this definition;*
5. *Tributaries of waters identified in paragraphs (s)(1) through (4) of this section;*
6. *The territorial sea;*
7. *Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (s)(1) through (6) of this section; waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the criteria of this definition) are not waters of the United States.*

Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA" (USEPA 2021).

According to guidance present prior to the pre-2015 regulatory regime (USEPA 2008):

"*The agencies will assert jurisdiction over the following waters:*

- *Traditional navigable waters*
- *Wetlands adjacent to traditional navigable waters*
- *Non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months)*
- *Wetlands that directly abut such tributaries*

The agencies will decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with a traditional navigable water:

- *Non-navigable tributaries that are not relatively permanent*
- *Wetlands adjacent to non-navigable tributaries that are not relatively permanent*
- *Wetlands adjacent to but that do not directly abut a relatively permanent non-navigable tributary*

The agencies generally will not assert jurisdiction over the following features:

- *Swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent, or short duration flow)*
- *Ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water*

The agencies will apply the significant nexus standard as follows:

- *A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical and biological integrity of downstream traditional navigable waters*
- *Significant nexus includes consideration of hydrologic and ecologic factors"*

Based on current guidance (USEPA 2008; 2021), the Intermittent Drainage delineated on the project site would presumably qualify as "*non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months)"* and therefore fall under USACE jurisdiction.

The Roadside Ditch (RD-01) does not appear to have direct surface connection to a TNW or tributary (Appendix A). The presence/absence of a significant nexus may influence the jurisdictional determination of the Roadside Ditch but is unlikely to, as these "*Ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water"* are specifically excluded from USACE jurisdiction under current guidance (USEPA 2008; 2021).

The regulatory analysis described above is preliminary. Due to recent changes based on Court decisions, the regulatory definition of jurisdiction is in flux, and therefore the USACE would need to determine its jurisdiction on the study area based on a verification of this report.

5.2 Potential State Jurisdiction

On April 2, 2019, the SWRCB adopted a *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (Procedures), for inclusion in the *Water Quality Control Plan for Inland Surface Waters and Enclosed Bays and Estuaries and Ocean Waters of California*. The Procedures took effect May 28, 2020. The Procedures consist of four major elements: (1) a wetland definition; (2) a framework for determining if a feature that meets the wetland definition is a water of the state; (3) wetland delineation procedures; and (4) procedures for the submittal, review and approval of applications for Water Quality Certifications and Waste Discharge Requirements for dredge or fill activities. Aquatic resources (such as ephemeral tributaries, some drainage ditches, and isolated wetlands), which may be exempt from federal jurisdiction under the Navigable Waters Protection Rule would likely be considered waters of the state under the Porter-Cologne Water Quality Control Act and/or the Procedures that took effect May 28, 2020.

Based on the Procedures, the Intermittent Drainage would qualify as "Waters of the State" subject to jurisdiction by the RWQCB/SWRCB; however, the jurisdictional status of the Roadside Ditch is less clear. Based on previous delineations conducted by Sequoia within Sonoma County (Sequoia Ecological Consulting, Inc. 2020, 2021), Roadside Ditches were excluded from state jurisdiction. The Roadside Ditch delineated in this report is similar to those identified in previous delineations conducted by Sequoia in Sonoma County, and state regulations have not changed since those delineations occurred (Sequoia Ecological Consulting, Inc. 2020, 2021). In addition, this feature appears to be fed by an artificial source (i.e., broken pipe associated with Penngrove Elementary School) making it unlikely that this feature would be considered waters of the state. That said, the jurisdictional status of the Roadside Ditch would need to be determined by the RWQCB/SWRCB based on a verification of this report.

Work occurring within USACE jurisdiction, such as placement of fill material, normally requires a permit under Section 404 of the federal CWA. In addition, the USACE, under Section 401 of the federal CWA, is required to meet state water quality regulations prior to granting a Section 404 permit. This is accomplished by application to the local RWQCB for Section 401 certification that requirements have been met. Streams, rivers, and lakes up to the top-of-bank or dripline of riparian vegetation (whichever is greater) also fall within the jurisdiction of the California Department of Fish and Wildlife (CDFW). Since work is expected to occur within the dripline of riparian vegetation at the intermittent drainage near the Adobe Road and Main Street intersection, a Streambed Alteration Agreement as defined by Section 1600 of California Fish and Game Code will be required.

6.0 LIMITATIONS

The results of this delineation are preliminary. USACE and RWQCB/SWRCB make the final determination about the location and extent of waters of the U.S./state on the project site, and this delineation report should be sent to the USACE and/or RWQCB/SWRCB for verification, as appropriate. This report does not constitute authorization to conduct the project, and all necessary permits and approvals should be obtained from regulatory agencies prior to project implementation.

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Appendix A

Delineation Map of the Study Area


Sample Points
Box Culvert
Drain Inlet
Control Points
CMP Culvert
Study Area (~ 2.7 Acres)
Roadside Ditch 1 (~132 Lin. Ft, 396 Sq. Ft, .009 Acre)
Intermittent Drainage 1 (~192 Lin. Ft, 2,360 Sq. Ft, .053 Acre)
Top-of-Bank / Edge Of Riparian Canopy
Control Point
38.301111, -122.666111
Penngrove
MAIN ST
RONSHEIMER RD
1B
1A
2B
2A
Drain Inlet
CMP Culvert
3A
3B
Box Culvert
Box Culvert
Drain Inlet
4B
4A
Control Point
38.297778, -122.666389
0 50 100 200
Feet
0 15 30 60
Meters
Scale: 1 inch = 100 feet
1:1,200
Author: AurelieMuckenhirn
Coordinate System: NAD 1983 2011
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Ecological Consulting, Inc.
Document Path: F:\GIS\Projects\Kimley-Horn\PennGrove IntersectionKH_PennGroveIntersectionBRR\KH_PennGroveIntersectionBRR.aprx
Service Layer Credits: USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Gap Analysis Program (GAP); USGS Ecosystems; U.S. Census Bureau, TIGER/Line data; USFS Road Data; Natural Earth Data; U.S. Department of State Humanitarian Information Unit; and NOAA National Centers for Environmental Information, U.S. Coastal Relief Model. Data refreshed August, 2021., Maxar, Microsoft

Appendix B

Wetland Delineation Data Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Penngrove Intersection Project City/County: Penngrove, Sonoma County Sampling Date: 5/26/22

Applicant/Owner: State: CA Sampling Point: 1A

Investigator(s): Andrew Ford Section, Township, Range: 6 TO5N, RO7W

Landform (hillslope, terrace, etc.): Roadside Local relief (concave, convex, none): convex Slope (%): 5

Subregion (LRR): C Lat: 38.299852 Long: -122.667983 Datum:

Soil Map Unit Name: NWI classification:

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

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

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

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

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

Remarks:

Roadside ditch alongside Adobe Rd. Standing water and obvious hydrophytic vegetation are present.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 20 ft)			
1. Typha latifolia	70	X	OBL
2. Helminthotheca echioides	5		FAC
3. Lythrum hyssopifolia	10		OBL
4. Festuca perennis	20		FAC
5. Cyperus eragrostis	5		FACW
6. Epilobium brachycarpum	6		FAC
7. Avena fatua	1		UPL
8. Medicago polymorpha	1		FACU
	118 = Total Cover		
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 80	x 1 = 80
FACW species 5	x 2 = 10
FAC species 26	x 3 = 78
FACU species 1	x 4 = 4
UPL species 1	x 5 = 5
Column Totals: 118 (A)	344 (B)

Prevalence Index = B/A = 3.0

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:

SOIL

Sampling Point: 1A

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10 YR 2/2	100	None				silty loam	
3-10	Gley 7.5/N	100	None					

[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: None

Depth (inches): ___

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 2

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: Penngrove Intersection Project City/County: Penngrove, Sonoma County Sampling Date: 5/26/22

Applicant/Owner: State: CA Sampling Point: 1B

Investigator(s): Andrew Ford Section, Township, Range: 6 TO5N, RO7W

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 10

Subregion (LRR): C Lat: 38.299870 Long: -122.667981 Datum:

Soil Map Unit Name: NWI classification:

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

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

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

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

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

Remarks:

Hillslope directly upslope from sample point 1A, under canopy of live oak.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 50 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus agrifolia	50	X	UPL
2.			
3.			
4.			
	50 = Total Cover		
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 50)			
1. Avena barbata	60	X	UPL
2. Hypochaeris radicata	10		FACU
3. Bromus diandrus	2		UPL
4. Bromus hordeaceus	2		FACU
5. Festuca perennis	20	x	FAC
6. Sonchus oleraceus	1		UPL
7. Carduus pycnocephalus	1		UPL
8.			
	96 = Total Cover		
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 4 % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species 20	x 3 =	60
FACU species 12	x 4 =	48
UPL species 130	x 5 =	650
Column Totals: 162 (A)		758 (B)

Prevalence Index = B/A = 4.7

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:

SOIL

Sampling Point: 1B

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10 YR 3/4	100					loamy san	Intrusion of fill rock
5-12	10 YR 3/2	100					loamy san	Intrusion of fill rock

[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 Soil Present? Yes _____ No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in 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: Penngrove Intersection Project City/County: Penngrove, Sonoma County Sampling Date: 5/26/22

Applicant/Owner: State: CA Sampling Point: 2A

Investigator(s): Andrew Ford Section, Township, Range: 6 TO5N, RO7W

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR): C Lat: 38.299865 Long: -122.667001 Datum:

Soil Map Unit Name: NWI classification:

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

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

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

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

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

Remarks:

Ground seepage from likely broken pipe pooling water along Old Adobe Road at the base of Penngrove Elementary.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 20 ft)			
1. Helminthethera echoides	15		FAC
2. Cyperus eragrostis	25	X	FACW
3. Avena fatua	25	X	UPL
4. Lythrum hyssopifolia	5		OBL
5. Geranium dissectum	5		UPL
6. Poa annua	5		FAC
7. Juncus bufonius	5		FACW
8.			
	85 = Total Cover		
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 15 % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	30	x 2 =	60
FAC species	20	x 3 =	60
FACU species	0	x 4 =	0
UPL species	30	x 5 =	150
Column Totals:	85 (A)		275 (B)

Prevalence Index = B/A = 3.2

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:

SOIL

Sampling Point: 2A

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3	10 YR 2/1	100					sandy loar	
3-7	10 YR 3/1	100					sandy loar	

[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 Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Source of hydrology artificial (i.e., fed by broken pipe).

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Penngrove Intersection Project City/County: Penngrove, Sonoma COunty Sampling Date: 5/26/22

Applicant/Owner: State: CA Sampling Point: 2B

Investigator(s): Andrew Ford Section, Township, Range: 6 TO5N, RO7W

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 5

Subregion (LRR): C Lat: 38.299881 Long: -122.667015 Datum:

Soil Map Unit Name: NWI classification:

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

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

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

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

Hydrophytic Vegetation Present?	Yes	No ✓
Hydric Soil Present?	Yes	No ✓
Wetland Hydrology Present?	Yes	No ✓

Is the Sampled Area within a Wetland? Yes No ✓

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 20)			
1. Avena fatua	80	X	UPL
2. Geranium dissectum	2		UPL
3. Hypochaeris radicata	5		FACU
4. Helminthotheca echioides	1		FAC
5.			
6.			
7.			
8.	88		
	= Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 12 % Cover of Biotic Crust

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	1	x 3 =	3
FACU species	5	x 4 =	20
UPL species	72	x 5 =	370
Column Totals:	78 (A)		393 (B)

Prevalence Index = B/A = 5

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:

SOIL

Sampling Point: 2B

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10 YR 3/3	100						
6-12	10 YR 3/2	100						

[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 Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in 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: Penngrove Intersection Project City/County: Penngrove, Sonoma County Sampling Date: 5/26/22

Applicant/Owner: State: CA Sampling Point: 3A

Investigator(s): Andrew Ford Section, Township, Range: 6 TO5N, RO7W

Landform (hillslope, terrace, etc.): Channel Local relief (concave, convex, none): Convex Slope (%): 0

Subregion (LRR): C Lat: 38.299878 Long: -122.666210 Datum:

Soil Map Unit Name: NWI classification:

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

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

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

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

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

Remarks:

Middle of dried channel of unnamed intermittent drainage.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix laevigata	30		FACW
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 20)			
1. Atriplex prostrata	60	X	FACW
2. Rubus armeniacus	30	x	FAC
3. Rumex crispus	30	x	FAC
4. Polypogon monspeliensis	10		FACW
5. Conium maculatum	5		FACW
6. Lythrum hyssopifolia	5		OBL
7.			
8.			
	140 = Total Cover		
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	170 = Total Cover		

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species 5	x 1 =	5
FACW species 105	x 2 =	210
FAC species 60	x 3 =	180
FACU species 0	x 4 =	0
UPL species 0	x 5 =	0
Column Totals: 170 (A)		395 (B)

Prevalence Index = B/A = 2.3

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:

SOIL

Sampling Point: 3A

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5 YR 3/2	100					Clay loam	
6-12	2.5 YR 4/3	90	2.5 YR 3/6	10	RM	M	Sandy loar	

[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 Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✓ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ✓ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in 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): 1

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 1

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: Penngrove Intersection Project City/County: Penngrove, Sonoma County Sampling Date: 5/26/22

Applicant/Owner: State: CA Sampling Point: 3B

Investigator(s): Andrew Ford Section, Township, Range: 6 TO5N, RO7W

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

Subregion (LRR): C Lat: 38.299852 Long: -122.666205 Datum:

Soil Map Unit Name: NWI classification:

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 20 ft)			
1. Lactuca serriola	10		FACU
2. Raphanus sativus	5		UPL
3. Rumex crispus	5		FACU
4. Rubus armeniacus	30	X	FAC
5. Galium aparine	5		FACU
6. Conium maculatum	1		FACW
7. Carduus pycnocephalus	2		UPL
8. Avena fatua	30	X	UPL
	88 = Total Cover		
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 12 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	1	x 2 =	2
FAC species	30	x 3 =	90
FACU species	20	x 4 =	80
UPL species	37	x 5 =	185
Column Totals:	88 (A)		357 (B)

Prevalence Index = B/A = 4.05

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:

SOIL

Sampling Point: 3B

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	5 YR 3/2	100					loamy san	
6-9	10 YR 3/1	100					loamy san	

[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 Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in 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: Penngrove Intersection Project City/County: Penngrove, Sonoma County Sampling Date: 5/26/22

Applicant/Owner: _____ State: CA Sampling Point: 4A

Investigator(s): Andrew Ford Section, Township, Range: 6 TO5N, RO7W

Landform (hillslope, terrace, etc.): roadside Local relief (concave, convex, none): convex Slope (%): 1

Subregion (LRR): C Lat: 38.229298 Long: -122.666345 Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5 ft)			
1. Epilobium brachycarpum	50	X	FAC
2. Epilobium ciliatum	30	X	FACW
3. Lythrum hyssopifolia	10		OBL
4. Rumex crispus	5		FAC
5. Carduus pycnocephalus	2		UPL
6. Lysimachia arvensis	1		FAC
7.			
8.			
	98 = Total Cover		
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	98 = Total Cover		

% Bare Ground in Herb Stratum 2 % Cover of Biotic Crust _____

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 10	x 1 = 10
FACW species 30	x 2 = 60
FAC species 56	x 3 = 168
FACU species 0	x 4 = 0
UPL species 2	x 5 = 10
Column Totals: 98 (A)	248 (B)

Prevalence Index = B/A = 2.5

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:

SOIL

Sampling Point: 4A

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 3/2	100					sandy loar	
4-9	7.5 YR 3/3	90	2.5 YR 3/1	10	C	M	sandy loar	

[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 Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in 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: Penngrove Intersection Project City/County: Penngrove, Sonoma County Sampling Date: 5/26/22

Applicant/Owner: _____ State: CA Sampling Point: 4B

Investigator(s): Andrew Ford Section, Township, Range: 6 TO5N, RO7W

Landform (hillslope, terrace, etc.): roadside Local relief (concave, convex, none): none Slope (%): 2

Subregion (LRR): C Lat: 38.299327 Long: -122.666327 Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft)			
1. Avena fatua	70	X	UPL
2. Raphanus sativus	10		UPL
3. Festuca perennis	10		FAC
4. Hypochaeris radicata	10		FACU
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	10	x 3 =	30
FACU species	10	x 4 =	40
UPL species	80	x 5 =	400
Column Totals:	100 (A)		470 (B)

Prevalence Index = B/A = 4.7

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:

SOIL

Sampling Point: 4B

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10 YR 3/3	100					loamy san	
5-12	10 YR 3/2	100					loamy san	

[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 Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

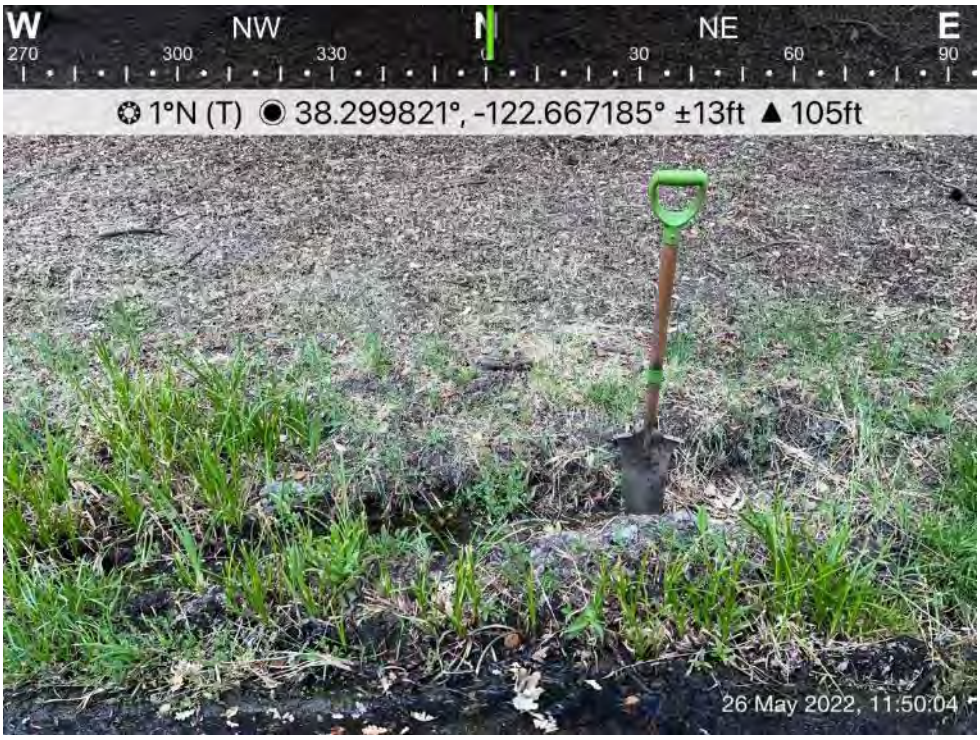
Remarks:

Appendix C

Representative Project Site Photographs

Photograph 1. View of Sample Point 1A in Roadside Ditch (RD-01) on northern shoulder of Adobe Road.

Photograph 2. View of likely broken pipe at entrance to Penngrove Elementary School just east and outside of Study Area on Adobe Road. Broken pipe is presumed to be artificial source of RD-01.



Photograph 3. View of Sample Point 2A on northern shoulder of Adobe Road.

Photograph 4. View of what appears to be a broken pipe at first driveway on Adobe Road west of intersection. Broken pipe is presumed to be artificial source that likely resulted in Sample Point 2A meeting two of three wetland parameters.

Photograph 5. View of Sample Point 3A (ID-01) in Intermittent Drainage.

Photograph 6. View of concrete box culvert beneath northeast corner of intersection on (upstream side) of unnamed intermittent drainage.

Photograph 7. View of CMP that runs beneath Adobe Road in the northeast corner of intersection that outfalls into unnamed intermittent drainage (ID-01).

Photograph 8. View of Sample Point 4A on eastern shoulder of Main Street south of the intersection with Adobe Road.

Appendix D

Plant Species Observed on the Project Site

Scientific Name	Common Name	Family Name	Indicator Status
Acacia melanoxylon	blackwood acacia	Fabaceae	-
Alnus rhombifolia	white alder	Betulaceae	FACW
Atriplex prostrata	fat-hen	Chenopodiaceae	FACW
Avena barbata	slender oat	Poaceae	-
Avena fatua	wild oat	Poaceae	UPL
Bromus diandrus	ripgut brome	Poaceae	-
Bromus hordeaceus	soft brome	Poaceae	FACU
Bromus madritensis	foxtail brome	Poaceae	UPL
Carduus pycnocephalus	Italian thistle	Asteraceae	-
Conium maculatum	hemlock	Apiaceae	FACW
Cyperus eragrostis	tall flatsedge	Cyperaceae	FACW
Epilobium brachycarpum	annual fireweed	Onagraceae	FAC
Epilobium ciliatum	fringed fireweed	Onagraceae	FACW
Festuca perennis	Italian ryegrass	Poaceae	FAC
Galium aparine	cleavers	Rubiaceae	FACU
Geranium dissectum	cutleaf geranium	Geraniaceae	-
Geranium robertianum	Robert's herb	Geraniaceae	FACU
Hedera helix	English ivy	Araliaceae	FACU
Helminthotheca echioides	bristly ox-tongue	Asteraceae	FAC
Hordium murinum	wall barley	Poaceae	FACU
Hypochaeris radicata	flatweed	Asteraceae	FACU
Juncus bufonius	common toad rush	Juncaceae	FACW
Lactuca serriola	prickly lettuce	Asteraceae	FACU
Lathyrus latifolius	everlasting pea	Fabaceae	-
Lysimachia arvensis	scarlet pimpernel	Primulaceae	FAC
Lythrum hyssopifolia	hyssop loosestrife	Lythraceae	OBL
Medicago polymorpha	bur clover	Fabaceae	FACW
Phalaris paradoxa	hood canarygrass	Poaceae	FAC
Poa annua	annual bluegrass	Poaceae	FAC
Polypogon monspeliensis	rabbitsfoot grass	Poaceae	FACW
Prunus sp.	plum	Rosaceae	-
Quercus agrifolia	coast live oak	Fagaceae	-

Scientific Name	Common Name	Family Name	Indicator Status
Quercus kelloggii	black oak	Fagaceae	-
Raphanus sativus	wild radish	Brassicaceae	-
Rubus armeniacus	Himalayan blackberry	Rosaceae	FAC
Rumex crispus	curly dock	Polygonaceae	FAC
Salix laevigata	red willow	Salicaceae	FACW
Sequoia sempervirens	redwood	Cupressaceae	-
Sonchus oleraceus	common sowthistle	Asteraceae	UPL
Typha latifolia	bulrush	Typhaceae	OBL
Ulmus sp.	elm	Ulmaceae	-
Vicia sativa	common vetch	Fabaceae	FACU