RANPORT ROAD, WATSONVILLE, CA

APN 054-511-06, 08

PACIFIC COAST HARDWOODS PROJECT

Santa Cruz County, California

Delineation of Jurisdictional Waters

October 6, 2016

Biotic Resources Group

Biotic Assessments • Resource Management • Permitting

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Prepared for:

Dave Joseph
Pacific Coast Hardwoods

Prepared By

Biotic Resources Group

The undersigned certifies that this report is a complete and accurate account of the findings and conclusion of a jurisdictional "waters of the U.S. and waters of the State" (including wetlands) delineation for the above-referenced project.

Kathleen Lyons, M.A.
Plant Ecologist

October 6, 2016

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Executive Summary

At the request of Pacific Coast Hardwoods, Biotic Resources Group (BRG) has prepared this Delineation of Jurisdictional Waters for a portion of the property located on Ranport Road near Watsonville, in an unincorporated area of Santa Cruz County, California. This delineation was based on site surveys conducted in October 2016 to document the regulatory authority of the U.S. Army Corps of Engineers (USACE) pursuant to the Federal Clean Water Act (CWA). The project area was surveyed pursuant to the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region, Version 2.0* (USACE, 2010) to identify evidence of wetland hydrology, hydrophytic vegetation, and hydric soils.

This wetland delineation was conducted to document current site conditions to fulfill requirements of an environmental review for a proposed facility on the property. The County of Santa Cruz has requested the landowner determine the potential presence of wetlands within a depression and a drainage swale in the central portion of the property (wetland study area). The property is located within the Coastal Zone. The delineation utilized the USACE criteria in determining wetlands that may be subject to the County's Riparian Corridor and Wetlands Protection Ordinance and Sensitive Habitat Protection Ordinance (County Code Chapter 16.30 and 16.32).

This delineation found that the wetland study area supports a small patch of federally-defined wetlands, located with an intermittent/perennial riparian corridor. The wetland occurs as an approximately 2.5' x 20' patch within the drainage swale. A data point (sample site #2) found in this area met all three parameters needed for federally-defined wetlands, pursuant to the current USACE manual.

The property was found to support sandy loam soils, yet despite the presence of dark soil additional required hydric soil indicators were absent at all samples except one (sample site #2). Direct observations of hydrologic features were not observed, except at sample site #2. Primary hydrologic indicators, such as soil saturation, surface water, and subsurface water, were observed at sample site #2 within one portion of the drainage swale. Secondary hydrology indicators were observed (water-stained leaves) elsewhere in the drainage swale; however, these features appear to be the result of very short duration surface water directly tied to high rainfall events.

From a review of the aerial photo record, the former depression, located northwest of the drainage swale appears to have been constructed within an otherwise upland area. An open water feature recorded in 1975 aerial photos appears to have been located within the drainage swale and is not related to the former 2013/2016 depression feature.

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Chapter 1. Introduction

1.1. Purpose of Delineation

This delineation was prepared for Pacific Coast Hardwoods in order to delineate the U.S. Army Corps of Engineers (USACE) jurisdictional authority for portions of APN 052-511-06 and 052-511-08 located near Watsonville, in an unincorporated area of Santa Cruz County, California. The two parcels encompass approximately 8.4 acres.

Pacific Coast Hardwoods proposes to obtain a permit from the County to construct a lumber mill, office, and two storage buildings on a portion of APN 052-511-08. The lumber mill, storage buildings, and office are proposed for an area currently used by Williams Tree Service for downed tree storage and mulching operation. Additional lumber storage will occur on APN 052-511-06; this parcel currently supports a shop/warehouse and storage buildings that will continue to be utilized by Williams Tree Service. A depression and drainage swale in the central portion of the property is the focus of the wetland delineation ("wetland study area").

In 2016, a wetland delineation was conducted for the wetland study area. The delineation was conducted pursuant to methodology as presented in 1987 USACE Manual (Environmental Laboratory, 1987), Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region, Version 2.0 (USACE, 2010). The delineation was conducted in October 2016, after a normal rainfall year that followed a four-year drought.

The findings presented in this delineation present BRG's best effort at determining the extent of wetlands based on the most current federal and State regulations and regulatory agency guidance; however, the interpretation of such regulations is the responsibility of the applicable governing body. For this project, the County of Santa Cruz is responsible for making the final determination of their jurisdiction.

1.2. Property Information

The property is located on Ranport Road, southwest of the intersection of State Highway 1 and Ranport Road, as depicted on Figure 1. The property is located within Township 11S, Range 2E (no section), Mount Diablo Meridian, within the Watsonville West USGS quadrangle. The site is reached from Ranport Road, a public street accessed from Highway 1 and Airport Boulevard.

The elevation of the study area is approximately 60 feet. The property supports one "blue-line" stream as per the USGS topographic map. Harkins Slough is a "blue-line" stream (perennial waterway) located along the eastern edge of the subject property outside the wetland study area. The County GIS also depicts a portion of this perennial creek along the eastern property line.

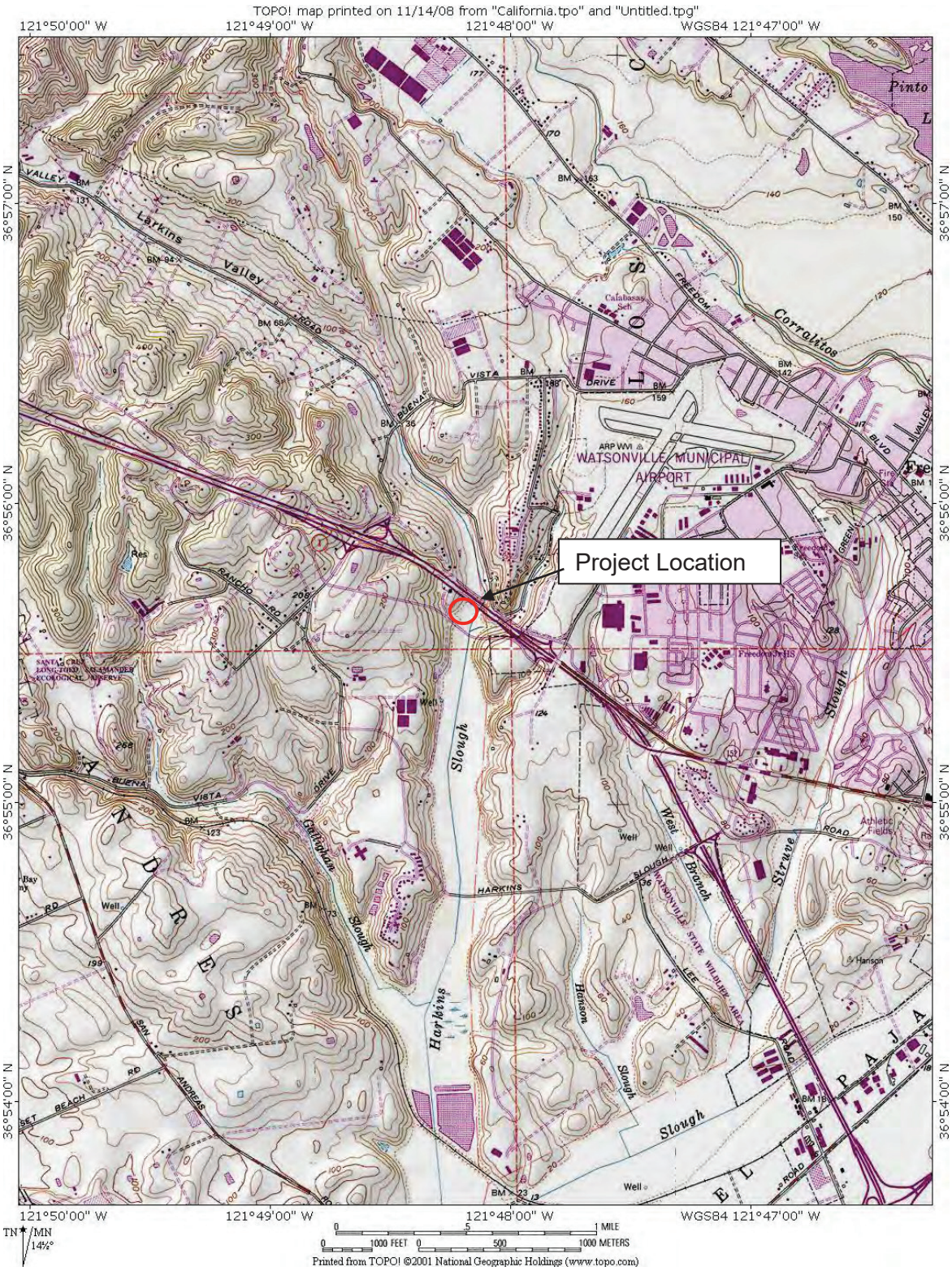

Figure 1. Project location

(USGS Watsonville West Topographic Map)

1.3. Project Description

The property currently supports office buildings, equipment storage, and storage containers associated with Williams Tree Service. The applicant (Pacific Coast Hardwoods) proposes using the southern portion of the property for timber milling, storage and office uses.

Figure 2 depicts the location of the wetland study area relative to surrounding property features. The wetland study area is located amid existing storage facilities, parking and equipment/materials storage areas. A drainage swale is located southeast of storage containers. During a survey of the property in March 2016 for a Biotic Report, a depression with open water was observed adjacent to a concrete pad and building at the base of the hillside (Pacific Coast Hardwoods Biotic Report, Biotic Resources Group, April 19, 2016). This feature was absent at the October 2016 site survey.

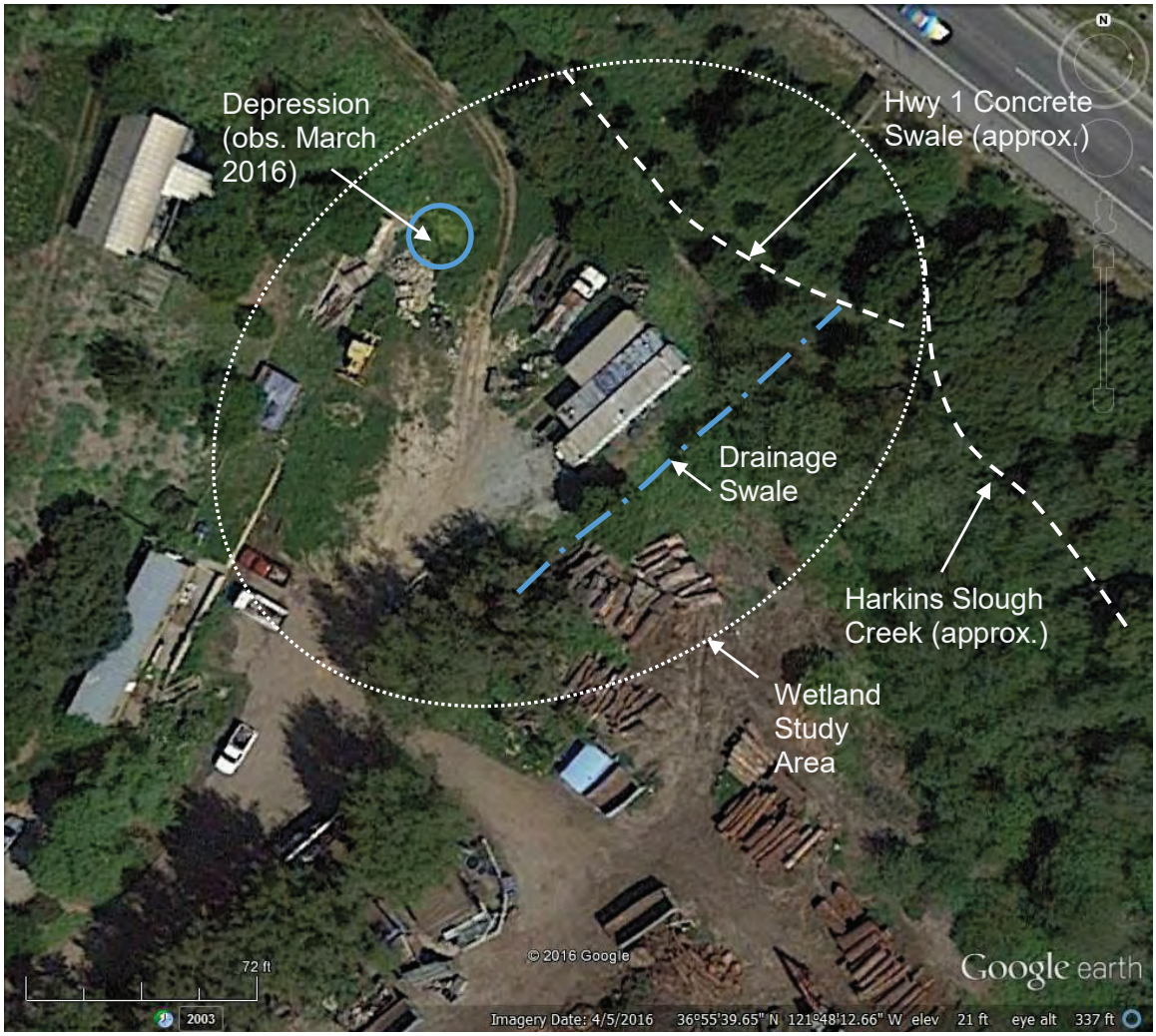

Figure 2. Wetland study area and existing site features

(Google Image, dated 2016)

Chapter 2. Summary of Regulations

2.1. United States Army Corps of Engineers (USACE)

The USACE regulates activities within waters of the United States pursuant to congressional acts: Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act (1977, as amended).

Section 10 of the Rivers and Harbors Act requires a permit for any work in, over, or under navigable waters of the United States. Examples of work include piers, docks, breakwaters, and dredging. Navigable waters are defined as those waters subject to the ebb and flow of the tide to the Mean High Water mark (tidal areas) or below the Ordinary High Water mark (freshwater areas). Navigable waters may be used currently, in the past, or in the future, to transport interstate or foreign commerce.

Section 404 of the Clean Water Act (CWA, 1977, as amended) requires a permit for discharge of dredged or fill material into Waters of the United States. Under Section 404, Waters of the United States is defined as all waters which are used currently, or were used in the past, or may be used in the future for interstate or foreign commerce, including waters subject to the ebb and flow of the tide up to the high tide line. Additionally, areas such as wetlands, rivers and streams (including intermittent streams and tributaries) are considered Waters of the U.S. Man-made ponds created by excavating dry land to collect and retain water for purposes of stock watering, irrigation or settling basins are typically not considered to be Waters of the U.S. (USACE Definitions, 2004).

The extent of wetlands is typically determined by examining the presence of hydrophytic vegetation, hydric soils and wetland hydrology. Under normal circumstances, all three of these parameters must be satisfied for an area to be considered a jurisdictional wetland under Section 404 of the Clean Water Act.

2.1.1. Isolated Waters (SWANCC Decision)

In 2001 the U.S. Supreme Court issued a decision on the scope of the USACE's Section 404 CWA permitting as it related to isolated waters. Known as the SWANCC decision, the Court found that the USACE does not have the authority over isolated, non-navigable, intrastate waters that are not tributary or adjacent to navigable waters or tributaries.

2.1.2. Intermittent and Ephemeral Streams and Wetlands (Rapanos Decision)

In 2006, the U.S. Supreme Court issued a decision that limits the definition of "wetlands" and waters of the U.S." under the CWA. In a 4-1-4 decision, four justices advocated for a narrower interpretation of the Clean Water Act, stating that waters of the U.S. should exclude intermittent or ephemeral streams and wetlands that have no continuous surface connection to navigable waters. In 2007, the USACE and the EPA issued guidance on this decision, stating that agencies will continue to assert jurisdiction over navigable waters and all wetlands adjacent to navigable waters. Jurisdiction over waters, including wetlands will be made if either of the following standards are met: 1) relatively permanent (perennial or at least seasonally) non-navigable tributaries and wetlands with a continuous surface connection with such tributaries; or 2) certain adjacent and non-navigable tributaries where there is a significant nexus to navigable waters, such as chemical, physical, or biological connection.

2.1.3. Section 7 of the Endangered Species Act

The U.S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration (NOAA) Marine Fisheries administer the federal Endangered Species Act (ESA). In general, NOAA is responsible for protection of ESA-listed marine species and anadromous fishes, while other fish and terrestrial species are under USFWS jurisdiction. A Proposed Project may permit the take of federally-listed species through a Section 7 Biological Opinion from USFWS or NOAA issued to another federal agency that funds or permits an action (e.g., USACOE). Under ESA, adverse impacts to protected species are avoided, minimized or mitigated for impacts to federally-listed species. This requires consultation with the USFWS and/or NOAA, which ultimately issues a Biological Opinion to USACE determining whether the federally listed species will be adversely impacted by a proposed project.

2.2 Santa Cruz County

Locally, Santa Cruz County regulates activities in and adjacent to lakes, wetlands, estuaries, lagoons, streams and rivers. According to County Code (Section 16.32), all of these features are considered sensitive habitat. The County General Plan identifies the riparian corridor along intermittent channels as extending 30 feet outward from the bank-full flow line or to the edge of riparian vegetation, whichever is greater. For perennial creeks the corridor extends 50 feet outward from the bank-full flow line or to the edge of riparian vegetation, whichever is greater. A riparian corridor also includes lands extending 100 feet from the high watermark of a lake, wetland, estuary, lagoon or natural body of standing water.

The County General Plan Glossary identifies wetlands as transitional areas between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is covered by shallow water periodically or permanently. Examples of wetlands area saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats and fens. A pond is defined as small natural body of standing water which supports an aquatic community and riparian vegetation. A reservoir is an artificial body of standing water which supports an aquatic community and riparian vegetation.

Chapter 3. Methodology

The field and reporting methodology followed the protocol specified in the *1987 USACE Manual* (Environmental Laboratory, 1987) and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region, Version 2.0* (USACE, 2010) to delineate the extent of federal/state waters and wetlands which may be subject to Santa Cruz County regulations. Existing reference materials relevant to the proposed project were gathered and reviewed. These materials included the following:

- Topographic Map: Watsonville West quadrangle (USGS)
- NRCS, Web Soil Survey, Santa Cruz County, California, 2016.
- Hydric Soils List; Official List of Hydric Soil Map Units for Santa Cruz County, California (SCS, 1989)
- Western Mountains, Valley, and Coast, Regional Wetland Plant List (Lichvar, Banks, Kirchner, and Melvin, 2016)
- Project Construction Plans, Topographic Map, Pacific Coast Hardwoods, 2016
- National Wetlands Inventory, USFWS, 2016
- Field Indicators of Hydric Soils in the United States, Guide for Identifying and Delineating Hydric Soils, Version 7.0, 2010. (USDA/NRCS, 2010)
- Aerial Photos, dated 1974, 1975, 1993, 2007, 2009, 2013, 2014, 2015, 2016.
- Pacific Coast Hardwoods Biotic Report, Biotic Resources Group, April 19, 2016.

Field surveys for the delineation were conducted in October 2016 in and around the former depression and drainage swale. Evidence of potential jurisdictional areas were searched by viewing the area, searching for field indicators of wetlands, such as topographic features, wetland vegetation, hydrologic features, and wetland soil conditions. Evidence of an Ordinary High Water Mark (OHWM) was searched for within the drainage swale and surrounding areas. Features of the wetland study area were photographed.

Normal circumstances were determined to occur along the drainage swale as no significant alteration or modifications to the feature has occurred recently. Under normal circumstances all three wetland parameters must be satisfied for an area to be considered a jurisdictional wetland as per the USACE guidelines. The area that formerly supported a depression (as observed in March 2016) had been recently disturbed. A depression was no longer evident. As atypical conditions were observed in this area; historical photos, maps on record, and observations of the depression from March 2016 were used for the delineation of this feature.

The March and October 2016 field surveys were conducted after a normal rainfall year, but after a 4-year period of below normal rainfall. In October 2016 four sample points were established along the drainage swale to document plant cover. One sample site was established on the edge of the former depression. Sampling pits were dug at each sample point to document the soil conditions and to examine potential wetland hydrology. The location of the sample sites was documented by GPS and their location depicted on the topographic map.

The USFWS National Wetland inventory maps were reviewed for evidence of previously mapped wetlands. The USGS map was reviewed for any water or wetland resources (e.g., blue-line streams) within the study area, as well as adjacent navigable waters.

Aerial photos between 1974 and 2016 were reviewed for evidence of water and wetland features. Swale and/or pond features were looked for based on vegetation patterns and other aerial imaging.

3.1. Waters of the U.S.

The limits of USACE's jurisdiction in non-tidal waters extend to the OHWM which is typically defined as the line on the shore established by fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, or the presence of litter and debris. Vegetation that is bent, matted down, or absent may indicate water flow and scour. The OHWM can be recorded as a line on the project base map, as an elevation and/or as a measurement above the lowest point of the channel (thalweg).

The drainage swale was viewed for evidence of riparian and/or wetland plant species, field observations of a flow line, OHWM, or bank full flow line. The October 2016 field visit was conducted at the end of a normal rainfall year, yet after a 4-year drought. During the March 2016 site visit, the depression was evaluated for open water, water sources and connectivity to adjacent waters.

3.2. Wetlands

The extent of wetlands is typically determined by examining the presence of hydrophytic vegetation, hydric soils and wetland hydrology. Under USACE guidelines, all three of these parameters must be satisfied for an area to be considered a jurisdictional wetland under Section 404 of the Clean Water Act as outlined in the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (USACOE, May 2010).

3.1.1. Vegetation

Hydrophytic vegetation is plant life that occurs in areas where the frequency and duration of inundation or soil saturation exerts a controlling influence on the plant species present. Plant species are characterized by their tendency to occur in wetlands; the five categories are listed and described below:

- OBL: almost always is a hydrophtye, rarely in uplands
- FACW: usually is a hydrophyte but occasionally found in uplands
- FAC: commonly occurs as either a hydrophyte or non-hydrophyte
- FACU: occasionally is a hydrophyte but usually occurs in uplands
- UPL: rarely is a hydrophyte, almost always in uplands.
- NI: No Indicator, considered to be upland species.

Typically, an area is considered to meet the wetland vegetation criteria when the plant community passes the dominance test. In this test more than 50 percent of the dominant plant species across all strata are rated OBL, FACW or FAC. Species not listed on the wetland plant list are treated as upland species. A stratum (tree, sapling/shrub, herb and woody vine) is defined as having 5% or more total plant cover. For the dominance test, cover of vegetation is estimated and ranked according to dominance. Species that contribute to a cumulative total of 50% of the total dominant coverage, plus any species that comprise at least 20% of the total dominant coverage are recorded. The "50/20 rule" also states that plant species from the ranked cover list be included, in decreasing order of coverage, until cumulative cover of selected species exceeds 50%. Therefore, in these instances, plant

species providing less than 20% are included in the 50/20 rule analysis. The prevalence index is used to determine whether hydrophytic vegetation is present where indicators of hydric soil and wetland hydrology are present but the vegetation initially fails the dominance test. This test evaluates all plant species in the community and assigns weighted- numeric values to species within each indicator status categories. Hydrophytic vegetation is present if the prevalence index is 3.0 or less. This information is recorded on the Wetland Determination Data Form.

The October 2016 site visit was focused in and around the drainage swale where there were visual observations of species that are wetland indicators (OBL, FACW, or FAC-designated species). In October 2016, four sample points were established along the drainage swale. Near the former depression one patch of pre-existing vegetation was observed next to the concrete pad; a sample point was established here to document this vegetation. At each sample point, plant species and their absolute cover value was recorded onto a data sheet. The standard dominance test (indicator 2) and the prevalence index (indicator 3) were used to determine the presence of hydrophytic vegetation at each sample point.

3.1.2. Hydrology

The assessment of the hydrologic criterion is based on two groups or indicators. Primary indicators include direct observation of surface water or groundwater, evidence of recent inundation (i.e., water marks, drift deposits, sediment deposits), and evidence of recent soil saturation (i.e., presence of oxidized rhizospheres along living roots within upper 12 inches). Secondary indicators can also be used, such as shallow aquitards, drainage patterns, and the FAC-neutral test. The property is located within Land Resources Region (LRR) A and Major Land Resource Area (MLRA) 4B. In MLRA 4B, water-stained leaves are not a valid primary field indicator of wetland hydrology, but can be used as a secondary indicator. Field indicators are recorded on the Wetland Determination Data Form.

For the depression evidence of wetland hydrology was searched for and photographed in March 2016. For the drainage swale, evidence of wetland hydrology was searched for and photographed in October 2016.

3.1.3. Soils

Hydric soils are surveyed in accordance with the USACE manuals. Soil pits are excavated to a depth of 20 inches, and are typically dug laterally away from the channel/wetland features until hydric features are no longer present. At each soil pit, the soil texture and color are recorded and compared to a Munsell Soil Chart (1994) to designate hue, value and chroma. Indicators of hydric soil include organic accumulations, iron reduction, translocation and accumulation and sulfate reduction and are recorded on the Wetland Determination Data Form. Soil survey information is also used to obtain soil information in regards to soil characteristics, drainage and color. The County Hydric Soil List is also referenced for soils considered to be hydric. For this delineation soil was documented in soil pits excavated to a depth of approximately 16 inches. A restrictive layer was detected at one sample point along the drainage swale, therefore this sample was only dug to 10 inches. Soil samples were obtained in October 2016.

This delineation acknowledges that discerning redox concentrations within dark soils can be difficult and the concentrations can often be small and difficult to see. Chapters 3 and 5 of the Regional Supplement were reviewed for additional guidance. Chapter 3 contains user notes for soil indicators in dark-colored surface layers and Chapter 5 addresses difficult wetland situations.

As per the guidelines, a hand lens was used to detect small redox concentrations. Saturated soil samples were obtained at one location along the drainage swale during October 2016 and the samples were allowed to air dry to a moist condition for redox features to become more visible.

The project site is located within LLR A and MLRA 4B. Soil indicators designed for these regional categories were used to evaluate potential hydric soils as per USACE guidelines.

3.3. SWANCC Waters

The term "isolated waters" is generally applied to waters/wetlands that are not connected by surface water to a river, lake, ocean or other body of water. The depression and drainage swale were evaluated as to whether they are isolated water features. Evidence of hydrological connections to adjacent waters, such as Harkins Slough, were evaluated based on topography.

3.4. Rapanos Waters

Rapanos drainage features apply to non-navigable, ephemeral tributaries and their adjacent wetlands where there is a significant nexus to traditional navigable water (TNW). Factors considered in the significant nexus evaluation typically include volume, duration and frequency of flow, proximity to the TNW, size of the watershed, and average annual rainfall. Ecological factors can include the ability for tributaries to carry pollutants and flood waters to a TNW, ability to provide aquatic habitat that supports a TNW, the ability of the wetland to trap and filter pollutants, and the maintenance of water quality. Swales or erosion features (e.g., gullies, small washes) and ditches (including roadside ditches) excavated wholly in and draining only uplands and do not carry a relatively permanent flow of water are generally not considered federally jurisdictional waters. The depression and drainage swale were evaluated as to its flow regime and proximity to a TNW as per the Rapanos ruling.

Chapter 4. Existing Site Conditions

4.1 Vegetation Types in Wetland Study Area

The wetland study area supports five vegetation types: ruderal grassland/scrub, herbaceous and woody riparian, open water/aquatic vegetation, oak tree groves, and landscape tree groves.

4.1.1 Ruderal

Ruderal (weedy) areas occurs the study area. The areas are dominated by non-native grasses and forbs typical of previously disturbed areas. The most commonly observed plant species is poison hemlock (*Conium maculatum)* (FAC) and Italian thistle (*Carduus pycnocephalus)* (NI). Other species include wild oat (*Avena fatua)* (UPL), ripgut brome (*Bromus diandrus)* (NI), rattail fescue (*Vulpia myuros)* (FACU), Bermuda grass (*Cynodon dactylon)* (FACU), wild radish (*Raphanus sativa)* (NI), narrow-leaved clover (*Trifolium angustifolium)* (NI), bur clover (*Medicago polymorpha)* (FACU), mallow (*Malva sp.)* (NI), wild mustard (*Brassica rapa)* (FACU), and ice plant (*Carpobrotus edulis)* (NI). Native plant species are limited; deerweed (*Acmispon glaber)* (NI), bracken fern (*Pteridium aquilinum)* (FACU), coyote brush (*Baccharis pilularis)* (NI), and young coast live oak (*Quercus agrifolia)* (NI) were observed. Figure 3 shows typical ruderal vegetation on the slope above the former depression. The ruderal areas are considered upland due to a lack of hydrophytic vegetation.

Figure 3. Ruderal vegetation upslope of former depression, October 2016

4.1.2 Herbaceous and Woody Riparian

The drainage swale travels along the southeastern edge of the wetland study area and empties into a concrete-lined drainage ditch within the CalTrans Highway 1 right-of-way. This swale primarily supports herbaceous riparian vegetation. The area was considered riparian due to the linear nature of the swale feature and the presence of young willow (*Salix lasiolepis)* (FACW) in the upper section and denser willows at the downstream end of the swale. The vegetation is mostly non-native, as evidenced by Bermuda grass (FACU), rabbittsfoot grass (*Polypogon monspeliensis)* (FACW), pennyroyal (*Mentha pulegium)* (OBL), Italian thistle (NI), poison hemlock (FAC), and loosestrife (*Lythrum hyssopifolium)* (OBL). Native species include tall cyperus (*Cyperus eragrostis)* (FACW), arroyo willow (FACW), and willow herb (*Epilobium ciliatum*) (FACW). Figure 4 shows the typical condition of the herbaceous

riparian vegetation in the upper portion of the drainage swale, looking northeasterly. Figure 5 shows the dense willow at the downstream portion of the swale. The vegetation within the swale was examined as potential wetland due to a presence of hydrophytic vegetation.

Figure 4. Herbaceous riparian vegetation along upper (southwesterly) portion of swale, October 2016

Figure 5. Woody (willow) riparian along lower (northeasterly) portion of swale, October 2016

4.1.3 Open Water/Aquatic Vegetation

The depression was observed in March 2016. It was located northeast of the existing Williams Tree Service office, immediately adjacent to a concrete slab at the base of the hillside. At the March site visit, the depression measured approximately 20 feet by 20 feet and supported open water, edged with non-native wet-tolerant plant species. Rabbittsfoot grass (FACW), brass buttons (*Cotula coronopifolia)* (OBL), tall cyperus (FACW) and willow lettuce (*Lactuca serriola)* (FACU) were documented. The vegetation in and around the depression exhibited hydrophytic vegetation. Upland ruderal vegetation surrounded the depression. Figures 6 and 7 show the open water and vegetation in the depression in March 2016.

Figure 6. Vegetation around man-made pond on APN 052-511-06, March 2016

Figure 7. Vegetation around man-made pond on APN 052-511-06, March 2016

4.1.4 Coast Live Oak Tree Groves

Coast live oak (NI) trees and tree groves occur on the slope above the former depression, along the northern property line (abutting CalTrans ROW), and as individual trees near the drainage swale. Non-native annual grasses and forbs dominate the understory. The tree groves were considered upland areas.

4.1.5 Landscape Trees/Tree Groves

Planted landscape trees occur in and around the existing buildings and near the drainage swale Planted trees in the wetland study include Monterey pine (*Pinus radiata)* (NI) and casuarina (*Casuarina sp.)* (NI). The landscape areas were considered upland areas.

4.2 Wetland Delineation

4.2.1 Review of Aerial Photos and Other Mapped Data

A series of aerial photos (1994 through 2015) were reviewed to detect the presence of potential wetland and/or open water features. These photos show a long history of land use on the site. The oldest image reviewed was from 1974. A dirt road traverses the wetland study area, crossing the current drainage swale. Trees on the hillside are visible. A dark photo image is present at/near the former depression; however, the characteristics of this feature are not discernable. This image is presented in Figure 8; the circle is the general location of the wetland study area.

Figure 8. Aerial photo dated 1974 (UCSC Digital Library, dated 10/14/1974)

Figure 9 depicts an aerial image from 1975. A dirt road traverses the wetland study area, similar to the 1974 image. An open water feature is evident at the site; however, this features appears to be within/adjacent to the existing drainage swale. It does not appear that the open water feature is located at the site of the 2015/16 former depression. The circle is the general location of the wetland study area.

Figure 9. Aerial photo dated 1975 (UCSC Digital Library, dated 10/14/1975)

A photo from 1993 depicts vegetation in the vicinity of the drainage swale yet no evidence of an open water feature is present. The open water feature depicted in the 1975 photo is no longer evident, and a narrower drainage swale is present, as depicted in Figure 10. The circle is the general location of the wetland study area.

Figure 10. Aerial photo dated 1993 (Google Image, dated 6/11/1993)

Figure 11 depicts the 2009 aerial. The 2009 aerial shows the presence of the upper end of the drainage swale, yet the middle section supports a road, similar to that observed in 1974. There is no definitive image of an open water feature with the drainage feature or elsewhere.

More recent photos from 2014 and 2015 show a more defined vegetated drainage swale. An open water feature is evident in the 2014 aerial, yet it is north of the feature observed in 1975 (Figures 12 and 13). The circle is the general location of the wetland study area.

Figure 11. Aerial photo dated 1993 (Google Image, dated 9/30/2009)

Figure 12. Aerial photo dated 2014 (Google Image, dated 2/23/2014)

Figure 13. Aerial photo dated 2015 (Google Image, dated 3/28/2015)

A biological report prepared in 2008 did not document an open water feature on the site. At the time of that survey the depression area was recently disturbed and the drainage swale was mapped as ruderal grassland (Biotic Resources Group, 2008), as presented in Figure 14. The circle is the general location of the wetland study area.

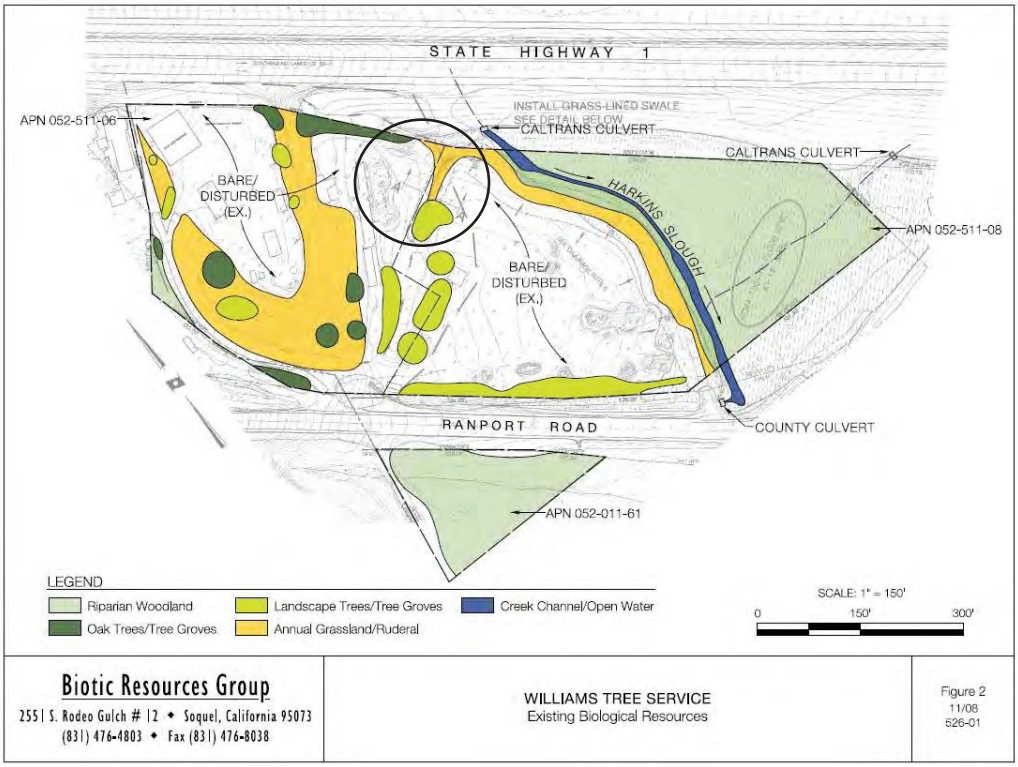

Figure 14. Habitat types mapped in 2008 (Biotic Resources Group, 2008)

The USFWS National Wetlands Inventory was also accessed. The inventory identifies wetlands associated with Harkins Slough south of Ranport Road and a wetland north of Highway 1, yet no wetlands are identified for the Ranport Road property, as depicted in Figure 15. A drainage swale is evident, yet it is not mapped. The circle is the general location of the wetland study area.

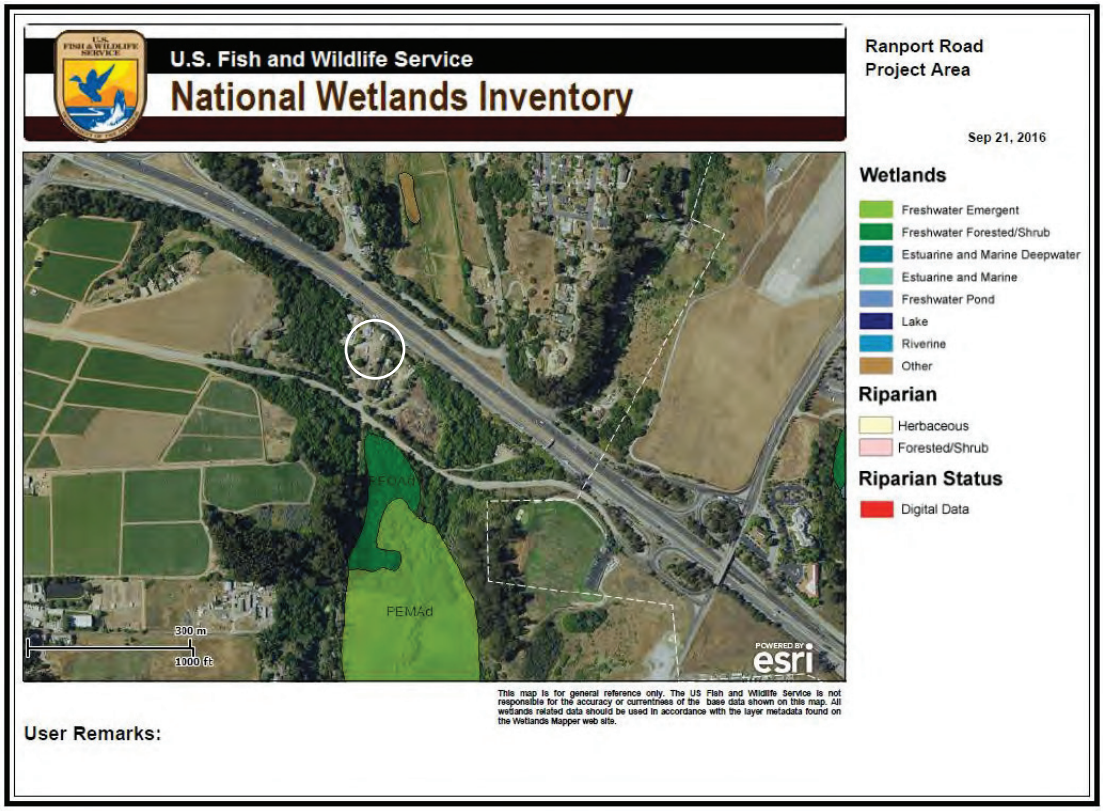

Figure 15. Habitat types identified in National Wetlands Inventory (USFWS, 2016)

The aerial photo review revealed that the site has been subject to various land activities over the last 40 years. There is photographic evidence that a drainage swale has been present in all years. In 1975, the swale appears to have extended southwesterly toward Ranport Road. Also in 1975 an open water feature is present within the downstream (northeasterly) portion of the swale. This feature is suspected of being man-made within the bottom of the swale, as it is not evident one year earlier, in the 1974 aerial photo. This open water feature is absent is all future years as the vegetation along the swale narrows and the length of the swale is reduced. A new man-made open water feature appears in the photo record in 2013. This feature is located northwest of the drainage swale and is not in the same location as the open water feature/location noted in 1975. This new feature is suspected of being man-made as it is not evident in earlier years. It appears this new feature was constructed within an otherwise upland area, with no connection to the drainage swale.

4.2.1 Vegetation

Of the four sample points established along the drainage swale, all points had dominance by hydrophytic vegetation, primarily by the dominance of rabbitsfoot grass (FACW), pennyroyal (OBL), nutsedge (FACW) and arroyo willow (FACW). The location of the sample points is depicted on Figure 16. Sample point #5 is a patch of nutsedge at the edge of the former depression; positive wetland vegetation was observed here.

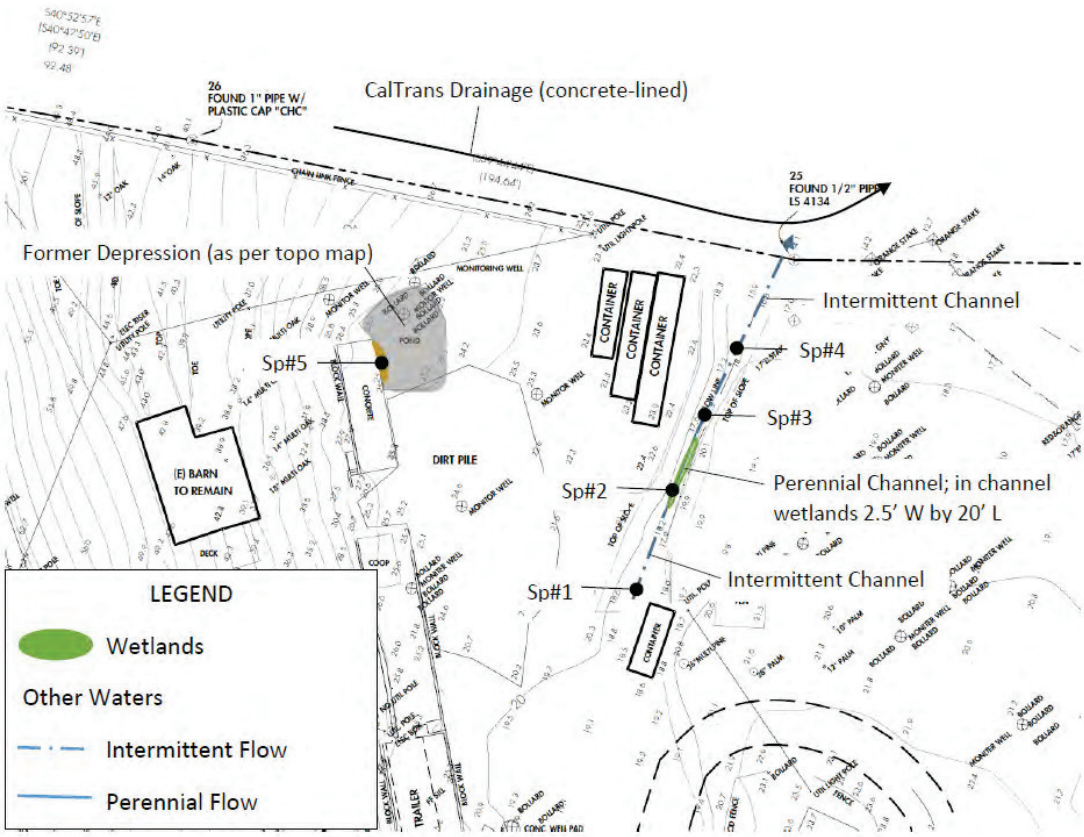

Figure 16. Results of delineation, showing location of sample points, wetlands, and other waters on topographic map, October 2016

4.2.2 Soils

According to County soil survey maps (NRCS Web Soil Survey, 2016) the soil within the wetland study area is mapped as Tierra-Watsonville complex, 15-30 % slopes (174) and Clear Lake clay, drained, 0-1%slopes (119). The web soil survey map for the project area is presented in Appendix B.

The Tierra-Watsonville complex consists of soils on alluvial and marine terraces. The complex is approximately 55% Tierra sandy loam and 30% Watsonville loam, with inclusions of other sandy loams (USDA, 1980). The soils are typically very deep, yet can range from somewhat poorly drained to well-drained. In Watsonville soil, water can be perched above clay. The typical pedon for the Tierra series is dark brown sandy clay (10YR 4/3); mottles of 10YR 6/4 may be present at 19-25 inches. The typical pedon for the Watsonville series is a dark grayish brown sandy loam or clay (10YR 4/2) with prominent yellowish brown and brownish gray mottles (10YR 5/6 and 10YR 6/2), at 12 to 26 inches. These features indicate hydric soils.

Clear Lake clay is a very deep soil found in alluvial basins. Included in this mapping area areas of Conejo loam. Permeability is slow. The typical pedon is dark gray to black clay (10YR4/1) with light yellowish brown mottles (10YR4/3). These features indicate a hydric soil.

Soil sampling within the drainage swale found the soil to be a sandy loam, yet there were inclusions of base rock and other foreign material. Soil color varied from 10YR 3/3 (moist) to 10YR 4/3 (moist), with no mottles (redox concentration) at sample sites #1, #3, and #4. These

samples did not show any positive hydric characteristics. A dark soil matrix (10YR2/1) was observed at sample site #2. The dark matrix and low chroma meet the criteria of a hydric soil. In addition, this soil had a hydrogen sulfide smell, a primary hydric soil indicator. This soil sample coincided with a dense growth of pennyroyal and surface water. In addition, a restrictive layer was noted at 10 inches. Hard bedrock gravels or other deposit was encountered in the pit, thus appearing to result in a perched water table. Data from the sample points is presented in Appendix A.

One soil sample was taken on the edge of the former depression where a patch of nutsedge was observed. The soil was a sandy loam, yet there were inclusions of base rock. Soil color was 10YR 3/3 (moist), similar to observed in the drainage swale. No hydric soil characteristics were noted.

Biotic Resources Group acknowledges that the lack of positive hydric soil features may indicate the occurrence of atypical situations. “Atypical situations” may lack indicators due to recent human activities or natural events.

4.2.3 Hydrology

Evidence of wetland hydrology was documented within the upper portion of the drainage swale. In October 2016, evidence of earlier season surface ponding was observed at SP#1 (water marks). At SP#2, surface water and soil saturation were noted. No positive hydrology indicators were noted at samples #3 or #4 except for the overall presence of a drainage pattern (a secondary indicator). These field observations were made at the end of a normal rainfall year (yet following a 4-year drought). At no samples were oxidized rhizospheres along roots detected. Water-stained leaves, a secondary wetland hydrology indicator for this region was observed at sample site #1. This indicator infers seasonal ponding. With the exception of a section of channel with a restrictive soil layer and apparent perched water table, the swale is very well-drained. There was no evidence of consistent flow/channel from the swale into the concrete-lined CalTrans channel. Figure 16 displays the portion of the swale that has intermittent flow and perennial flow.

The former depression (2013-2016) was observed to hold surface water in March 2016. The water depth was approximately 6 inches. No inlet or outlet to the depression was observed. Hillside seepage was investigated; however, no evidence of wet-tolerant plants was observed on the hillside above the depression to indicate spring inflow into the depression. There is no water connection to the CalTrans drainage channel or the nearby drainage swale. The depression appeared to be an isolated feature. Barring any other evidence for the feature, the depression appears to be a man-made feature constructed within an otherwise upland area. Typically, such features are not considered to be Waters of the U.S.

4.2.4. Wetland Data Summary

Table 2 presents a summary of the data collected at the sample points from October 2016. The location of each sample point and area meeting the criteria of wetlands and other waters of the U.S. is presented on Figure 16. Photos from the sample points are presented in Figures 17 to 21. Wetland data sheets are presented in Appendix A.

The data from the 2016 site survey indicate that a small patch of wetlands occurs in the central portion of the drainage swale. Only at SP#2 were all three wetland parameters met. The wetland occurs as an herbaceous component within a riparian corridor. Most of the corridor exhibits intermittent flow; however, the central section (in/around sample site #2) has perennial flow. The extent of the intermittent and perennial flow, as well as the wetland area is depicted on Figure 16.

The former depression supported open water and herbaceous wetland plant species when observed in March 2016. As of October 2016, only a small patch of wetland vegetation remained near the concrete slab. Although the vegetation met the wetland requirement; the other features were not discernable due to recent site activities. The review of the aerial photos suggests the depression/open water feature was constructed in/around 2013 within an otherwise upland area. It is an isolated feature with no hydrological connection to adjacent waters. The 2013-2016 depression is not the same feature depicted on the 1975 aerial photo. The open water feature evident in the 1975 aerial photo was located within the drainage swale.

Table 2. Data Collection at Sample Points within Wetland Study Area, October 2016

Sample Site	Dominant Plant Species Wetland Indicator Status Positive Hydrophytic Vegetation?	Soil Features Positive Hydric Soil?	Hydrology Features Positive Wetland Hydrology?	Meets Definition of USACE Jurisdictional Wetland?
1	*Salix lasiolepis* (FACW) *Polypogon monspeliensis* (FACW) *Carduus pycnocephalus* (NI) *Epilobium ciliatum* (FACW Yes, ≥50% of dominant species are wetland indicator species	10YR3/3, no redox concentrations within native soil No, no positive field indicators	One 1° indicators (water marks); One 2° indicator (drainage pattern) Yes, sufficient number of field indicators	No; only two of the required 3 parameters were met
2	*Polypogon monspeliensis* (FACW) *Mentha pulegium* (OBL) Yes, ≥50% of dominant species are wetland indicator species	10YR2/1 and hydrogen sulfide smell Yes, positive field indicator; restrictive layer at 10"	Three 1° indicator (surface water, high water table, saturation in 12" Yes, sufficient number of field indicators	Yes, all required 3 parameters were met
3	*Conium maculatum* (FAC) *Cyperus eragrostis* (FACW) Yes, >50% of dominant species are wetland indicator species	10YR4/3, no redox concentrations No, no positive field indicators	No 1° indicators; one 2° indicator (drainage pattern) No, insufficient number of field indicators	No; only one of the required 3 parameters were met
4	*Salix lasiolepis* (FACW) *Mentha pulegium* (OBL) *Conium maculatum* (FAC) Yes, >50% of dominant species are wetland indicator species	10YR4/3, no redox concentrations No, no positive field indicators	No 1° or 2° indicators No, insufficient number of field indicators	No; only one of the required 3 parameters were met

Table 2. Data Collection at Sample Points within Wetland Study Area, October 2016

Sample Site	Dominant Plant Species Wetland Indicator Status Positive Hydrophytic Vegetation?	Soil Features Positive Hydric Soil?	Hydrology Features Positive Wetland Hydrology?	Meets Definition of USACE Jurisdictional Wetland?
5	*Cyperus eragrostis* (FACW) Yes, >50% of dominant species are wetland indicator species	10YR4/3, no redox concentrations No, no positive field indicators; recent fill material	No 1° or 2° indicators No, insufficient number of field indicators; recently graded	No; only one of the required 3 parameters were met

Figure 17. Sample point #1 in drainage swale

Figure 18. Sample point #2 in drainage swale

Figure 19. Sample point #3 in drainage swale

Figure 20. Sample point #4 in drainage swale

Figure 21. Sample point #5, edge of former depression

Figure 22. Character of area with perennial flow and wetland vegetation in drainage swale

Figure 23. Character of former depression

4.3 Ordinary High Water Mark

The drainage swale did not show a discernable OHWM although evidence of surface water was present. This suggests that the typical volume, duration, and frequency of flow in the swale is quite low, with surface water probably limited to very large rainfall events when water is mostly related to precipitation and precipitation-related surface/subsurface runoff from the adjacent areas. The size of the area contributing to the swale is also limited; only a small portion of the parcel contributes surface/subsurface runoff to the swale. The swale's primary function is for water quality benefits, as sediments from the adjacent land uses are captured in the swale during high rainfall events before being discharged into the CalTrans drainage swale.

Chapter 5. Delineation Findings

5.1 U.S. Army Corps of Engineers Determination

This delineation concludes that the wetland study area supports a small patch of federally-defined wetlands, located with an intermittent/perennial riparian corridor. The wetland occurs as an approximately 2.5' x 20' patch within the drainage swale. One data point found this area met all three parameters needed for federally-defined wetlands, pursuant to the current USACE manual.

The property was found to support sandy loam soils, yet despite the presence of dark soil additional required hydric soil indicators were absent at all samples except one (sample site #2). Direct observations of hydrologic features were not observed, except at sample site #2. Primary hydrologic indicators, such as soil saturation, surface water, and subsurface water, were observed at sample site #2 within one portion of the drainage swale. Secondary hydrology indicators were observed (water-stained leaves); however, these features appear to be the result of very short duration surface water directly tied to high rainfall events.

From a review of the aerial photo record, the former depression, located northwest of the drainage swale appears to have been constructed within an otherwise upland area. An open water feature recorded in 1975 aerial photos appears to have been located within the drainage swale and is not related to the former 2013/2016 depression feature.

Intended Use of this Report

The findings presented in this delineation are intended for the sole use of Pacific Coast Hardwoods and Santa Cruz County in evaluating regulatory jurisdiction for the subject wetland study area and presents BRG's best effort at determining the jurisdictional boundaries using the most current regulations, regulatory agency guidance, and professional expertise. The findings presented by BRG in this report are for information purposes only; they are not intended to represent the interpretation of any law pertaining to permitting actions within Federal jurisdictional areas or County-regulated lands. The interpretation of such laws and/or ordinances is the responsibility of the governing body.

Chapter 6. References

Baldwin (ed.), 2012. The Jepson Manual Vascular Plants of California. University of California Press.

Cowardin, L. M., V. Carter, F. C. Golet, and E. T. La Roe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. FWS/OBS 79-31. Washington: United States Fish & Wildlife Service Office of Biological Services.

Department of Defense, Department of the Army, Corps of Engineers and Environmental Protection Agency. 1993. 33 CFR Parts 323 and 328 and 40 CFR Part 110, et al. Clean Water Act Regulatory Programs; Final Rule, August 25, 1993. Federal Register 58 (163): 45008-45038.

Environmental Laboratory. 1987. Army Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. U. S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi. 100 pp. with Appendixes.

Environmental Laboratory. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region (Version 2.0). U. S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.

Kollmorgan Instruments Corporation. 1975. Munsell Soil Color Chart, revised edition (1990). Macbeth Division of Kollmorgan Instruments Corporation, Baltimore, Maryland.

Lichvar, Robert, D. banks, W. Kirchner, and N. Melvin. 2016. National Wetland Plant List for Western Mountains, Valleys, and Coasts) https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center.

National Technical Committee for Hydric Soils [NTCHS]. 1991. Hydric Soils of the United States, USDA, Soil Conservation Service Misc. Publ. 1491.

Soil Conservation Service. 1989. Field Office Official List of Hydric Soil Map Units for Santa Cruz County, California.

USDA/NRCS. 2016. Web Soil Survey for Santa Cruz County.

USDA/NRCS. 2010. Field Indicators of Hydric Soils in the United States. Guide for Indentifying and Delineating Hydric Soils, Version 7.0. In Cooperation with the National Technical Committee for Hydric Soils.

USFWS, 2016. Wetlands Mapper, National Wetlands Inventory.

USGS. 1980. Watsonville West, California 7-1/2-minute topographic quadrangle.

Appendix A Determination Data Forms

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WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Ranport Rd City/County: Santa Cruz Sampling Date: 10/3/14
Applicant/Owner: Pacific Hardwoods State: CA Sampling Point: SP#1
Investigator(s): K. Lyons Section, Township, Range: T15 R2E, no section
Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): concave Slope (%): <2
Subregion (LRR): LRR A, MLRA 4B Lat: Long: Datum:
Soil Map Unit Name: Tierra/Watsonville 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? no Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ✓, or Hydrology ____ naturally problematic? yes (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:
upper end of drainage swale; transition point from UPL to wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1. Salix lasiolepis	20	Y	FACW
2.			
3.			
4.			
5.			
	20 = Total Cover		
Herb Stratum (Plot size: ____)			
1. Cynodon dactylon	10	N	FACU
2. Polypogon monspeliensis	30	Y	FACW
3. Carduus pycnocephalus	10	Y	NI
4. Epilobium ciliatum	20	Y	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	60 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 20%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 66% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 0	x 1 = 0
FACW species 60	x 2 = 120
FAC species 0	x 3 = 0
FACU species 10	x 4 = 40
UPL species 10	x 5 = 50
Column Totals: 80 (A)	210 (B)

Prevalence Index = B/A = 2.63

Hydrophytic Vegetation Indicators:
____ 1 - Rapid Test for Hydrophytic Vegetation
✓ 2 - Dominance Test is >50%
✓ 3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
____ 5 - Wetland Non-Vascular Plants[1]
____ 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:
upper end of drainage swale; approx 3' wide.

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SOIL

Sampling Point: SP#1

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
0-10	10YR 3/3	100%	N/A					rocky/sand/basevock

[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)
- __ 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) (**except MLRA 1**)
- __ Loamy Gleyed Matrix (F2)
- __ Depleted Matrix (F3)
- __ Redox Dark Surface (F6)
- __ Depleted Dark Surface (F7)
- __ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- __ 2 cm Muck (A10)
- __ Red Parent Material (TF2)
- __ Very Shallow Dark Surface (TF12)
- __ 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:

evidence of fill material – base rock and native soil, native soil has no hydric features

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply) none

- __ Surface Water (A1)
- __ High Water Table (A2)
- __ Saturation (A3)
- ✓ Water Marks (B1)
- __ Sediment Deposits (B2)
- __ Drift Deposits (B3)
- __ Algal Mat or Crust (B4)
- __ Iron Deposits (B5)
- __ Surface Soil Cracks (B6)
- __ Inundation Visible on Aerial Imagery (B7)
- __ Sparsely Vegetated Concave Surface (B8)
- __ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- __ Salt Crust (B11)
- __ 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)
- __ Stunted or Stressed Plants (D1) (**LRR A**)
- __ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- __ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ✓ Drainage Patterns (B10)
- __ Dry-Season Water Table (C2)
- __ Saturation Visible on Aerial Imagery (C9)
- __ Geomorphic Position (D2)
- __ Shallow Aquitard (D3)
- __ FAC-Neutral Test (D5)
- __ Raised Ant Mounds (D6) (**LRR A**)
- __ Frost-Heave Hummocks (D7)

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:

Water marks on surface suggesting inundation in portions of year

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WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Ranport Road City/County: Santa Cruz Sampling Date: 10/3/16
Applicant/Owner: Pacific Hardwoods State: CA Sampling Point: SP#2
Investigator(s): K. Lyons Section, Township, Range: T15 R2E, no section
Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): concave Slope (%): <2%
Subregion (LRR): LRR A, MLRA 4B Lat: Long: Datum:
Soil Map Unit Name: Tierra/Watsonville 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? no Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? no (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:
within bottom of drainage swale, approx 2.5' wide x 20' long

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: ____)			
1. Mentha pulegium	80	Y	OBL
2. Polypogon monspeliensis	20	Y	FACW
3. Cyperus eragrostis	5	N	FACW
4. Lythrum hyssopifolium	5	N	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	110 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	110 = Total Cover		

% Bare Ground in Herb Stratum 10

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	85	x 1 =	85
FACW species	25	x 2 =	50
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	110 (A)		135 (B)

Prevalence Index = B/A = 1.23

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
✓ 2 - Dominance Test is >50%
✓ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ 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:

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SOIL

Sampling Point: SP#2

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
0-10	10YR2/1		N/A					sandy loam, some fill
10"	2.5YR4/4							gravel bed/hard pan?

[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)
- __ 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) (**except MLRA 1**)
- __ Loamy Gleyed Matrix (F2)
- __ Depleted Matrix (F3)
- __ Redox Dark Surface (F6)
- __ Depleted Dark Surface (F7)
- __ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- __ 2 cm Muck (A10)
- __ Red Parent Material (TF2)
- __ Very Shallow Dark Surface (TF12)
- __ Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: gravelly bedrock/compacted gravel
Depth (inches): 10"

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)
- __ Sediment Deposits (B2)
- __ Drift Deposits (B3)
- __ Algal Mat or Crust (B4)
- __ Iron Deposits (B5)
- __ Surface Soil Cracks (B6)
- __ Inundation Visible on Aerial Imagery (B7)
- __ Sparsely Vegetated Concave Surface (B8)
- __ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- __ Salt Crust (B11)
- __ 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)
- __ Stunted or Stressed Plants (D1) (**LRR A**)
- __ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- __ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ✓ Drainage Patterns (B10)
- __ Dry-Season Water Table (C2)
- __ Saturation Visible on Aerial Imagery (C9)
- __ Geomorphic Position (D2)
- __ Shallow Aquitard (D3)
- __ FAC-Neutral Test (D5)
- __ Raised Ant Mounds (D6) (**LRR A**)
- __ Frost-Heave Hummocks (D7)

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:

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WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Ranport Road City/County: Santa Cruz Sampling Date: 10/3/16
Applicant/Owner: Pacific Hardwoods State: Sampling Point: SP#3
Investigator(s): K. Lyons Section, Township, Range: T1S R2E, no section
Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): <2%
Subregion (LRR): LRR A, MLRA 4B Lat: Long: Datum:
Soil Map Unit Name: Tierra / Watsonville 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? NO Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? NO (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: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus agrifolia	40	Y	NI
2.			
3.			
4.			
	40 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: ____)			
1. Conium maculatum	40	Y	FAC
2. Cyperus eragrostis	20	Y	FACW
3. Brassica rapa	5	N	NI
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	105 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	105 = Total Cover		
% Bare Ground in Herb Stratum 10			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 66% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	20	x 2 = 40
FAC species	40	x 3 = 120
FACU species	0	x 4 = 0
UPL species	45	x 5 = 225
Column Totals:	105 (A)	385 (B)

Prevalence Index = B/A = 3.6

Hydrophytic Vegetation Indicators:
__ 1 - Rapid Test for Hydrophytic Vegetation
✓ 2 - Dominance Test is >50%
__ 3 - Prevalence Index is ≤3.0[1]
__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ 5 - Wetland Non-Vascular Plants[1]
__ 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:
Oak leaf litter

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SOIL

Sampling Point: SP#3

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
0-10	10YR 4/3	100%	N/A					sandy loam

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

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

- __ Histosol (A1)
- __ Histic Epipedon (A2)
- __ Black Histic (A3)
- __ Hydrogen Sulfide (A4)
- __ 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) (**except MLRA 1**)
- __ Loamy Gleyed Matrix (F2)
- __ Depleted Matrix (F3)
- __ Redox Dark Surface (F6)
- __ Depleted Dark Surface (F7)
- __ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- __ 2 cm Muck (A10)
- __ Red Parent Material (TF2)
- __ Very Shallow Dark Surface (TF12)
- __ 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:

pieces of gravel/base rock
dry condition, nonhydric soil

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply) none

- __ Surface Water (A1)
- __ High Water Table (A2)
- __ Saturation (A3)
- __ Water Marks (B1)
- __ Sediment Deposits (B2)
- __ Drift Deposits (B3)
- __ Algal Mat or Crust (B4)
- __ Iron Deposits (B5)
- __ Surface Soil Cracks (B6)
- __ Inundation Visible on Aerial Imagery (B7)
- __ Sparsely Vegetated Concave Surface (B8)
- __ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- __ Salt Crust (B11)
- __ 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)
- __ Stunted or Stressed Plants (D1) (**LRR A**)
- __ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- __ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ✓ Drainage Patterns (B10)
- __ Dry-Season Water Table (C2)
- __ Saturation Visible on Aerial Imagery (C9)
- __ Geomorphic Position (D2)
- __ Shallow Aquitard (D3)
- __ FAC-Neutral Test (D5)
- __ Raised Ant Mounds (D6) (**LRR A**)
- __ Frost-Heave Hummocks (D7)

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:

no water marks on surface, suggesting marginal inundation in this section of the drainage

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WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Ranport Road City/County: Santa Cruz Sampling Date: 10/3/16
Applicant/Owner: Pacific Hardwoods State: CA Sampling Point: SP #4
Investigator(s): K. Lyons Section, Township, Range: T15 & 2E, no Section
Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none) Concave Slope (%): <2%
Subregion (LRR): LRR A, MLRA 4B Lat: Long: Datum:
Soil Map Unit Name: Tierra/Watsonville 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? NO Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? NO (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:
Beneath canopy & willows a patch of Mentha, in drainage swale

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiolepis	90	Y	FACW
2.			
3.			
4.			
	90 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: ____)			
1. Mentha pulegium	20	Y	OBL
2. Conium maculatum	20	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	40 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	130 = Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	20	x 1 = 20
FACW species	90	x 2 = 180
FAC species	20	x 3 = 120
FACU species	0	x 4 = 0
UPL species	0	x 5 = 0
Column Totals:	130 (A)	320 (B)

Prevalence Index = B/A = 2.46

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
✓ 2 - Dominance Test is >50%
✓ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ 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:

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SOIL

Sampling Point: SP#4

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 %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 4/3		N/A					

[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)
- ___ 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) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ 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:

no hydric soil

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)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ 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)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ✓ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

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:

no water marks on surface, suggests marginal inundation in this section of drainage

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WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Ranport Road City/County: Santa Cruz Sampling Date: 10/3/16
Applicant/Owner: Pacific Hardwoods State: CA Sampling Point: SP#5
Investigator(s): K Lyons Section, Township, Range: T1S R2E, no section
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): <2%
Subregion (LRR): LRRA, MLRA 4B Lat: Long: Datum:
Soil Map Unit Name: Tierra/Watsonville 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? yes Are "Normal Circumstances" present? Yes ___ No ✓
Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? no (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:
area recently graded, former depression located here; vegetation patch at edge of concrete pad

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: ___)			
1. Cyperus eragrostis	80	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 20

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		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
✓ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ 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:
patch of vegetation is approx. 2' wide x 10' long; artifact of former depression that held water in spring 2016.

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SOIL

Sampling Point: #SP5

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 %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 4/3	100%	none					sandy loam, some base 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)
- ___ 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) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ 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:

no hydric soil possibly placed soil from elsewhere on site

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)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ 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)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

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:

no hydrology features evident, site had been recently graded level with concrete slab.

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Appendix B Web Soil Survey Map

Soil Type

174	Tierra-Watsonville complex, 15 to 30 percent slopes
119	Clear Lake clay, drained, 0 to 1 percent slopes, MLRA 14