BIOLOGICAL SCOPING
SURVEY REPORT, BOTANICAL SURVEY AND WETLAND DELINEATION

FOR

AVALON INN
(APN 069-241-27 & -04)
1201 & 1211 NORTH MAIN STREET
FORT BRAGG, CA
MENDOCINO COUNTY

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1.0 Summary

A survey on parcels 069-241-27 (~2.5 acres) and 069-241-04 (~1.2 acres) was conducted to locate special-status plants and plant communities, wetland and riparian areas, and special-status animal habitat to determine if they would be directly or potentially impacted by the proposed development, which would consist of a new visitor serving facility. Wetlands, special status plant communities, and potential habitat for special status wildlife species, including northern red-legged frog and special status birds, were observed. A reduced buffer analysis is included, with mitigation measures proposed to accommodate development while protecting on-site natural resources.

2.0 Background/Project Description

Surveys were conducted to identify a potential building envelope for a visitor serving facility on a previously developed ~3.7 acre property consisting of two parcels, zoned Highway Visitor Commercial (CH) and Open Space (OS), located in the City of Fort Bragg in the Coastal Zone. On February 28, March 2, April 11, May 20, August 7, and November 10, 2013, and February 11, March 1, 10, 11, 16, 17, 24, April 1, 2, 4, 8, 10, 14, 15, 24, June 4, 5, August 12 and 19, 2014, and February 10 and 17, 2015, biological scoping, wildlife, botanical, and wetland surveys were conducted on the properties located at 1201 and 1211 North Main Street (APN 069-241-27 and 069-241-04), ~3.7 acres) Fort Bragg, California ("Project Site"). The purpose of the studies was to describe the existing vegetation communities, survey the parcel for special-status (rare) plants and plant communities and animal habitats, wetlands, streams and riparian areas, and recommend appropriate mitigation measures if needed that help to avoid or reduce potential or direct impacts to areas that can be considered Environmentally Sensitive Habitat Areas (ESHA's) under the City of Fort Bragg Local Coastal Program.

The ESHA survey has been conducted to facilitate the issuance of a permit to build within the Coastal Zone in the City of Fort Bragg.

3.0 Project Site Description

3.1 General Site Description

The 3.7 acre Project Site consists of two adjacent parcels, 069-241-27 (~2.5 acres) and 069-241-04 (~1.2 acres). The properties are located in the City of Fort Bragg, within the Coastal Zone at 1201 and 1211 North Main Street, west of the highway (Main Street) and about 300 feet east of the ocean. The Haul Road borders the properties to the west side. The property is relatively flat, gently sloping westward towards the ocean. The elevation is approximately 30 to 50 feet above sea level. Soils are mapped as Tropaquepts, 0 to 15% slopes.

3.2 Vegetation

The property is comprised mainly of non-native, ornamental, and invasive plant species, with wetland communities along the northwest and southwest property boundaries. Within and near wetlands, several special status plant communities are present, including Coastal Blackberry Brambles (*Rubus ursinus* Shrubland Alliance G4 S3), Wax Myrtle Scrub (*Morella californica* Shrubland Alliance G3 S3), Small-Fruited Bulrush Marsh (*Scirpus microcarpus* Herbaceous Alliance G4 S2), Slough Sedge Swards (*Carex obnupta* Herbaceous Alliance G4 S3), and Water Parsley Marsh (*Oenanthe sarmentosa* Herbaceous Alliance G4 S2).

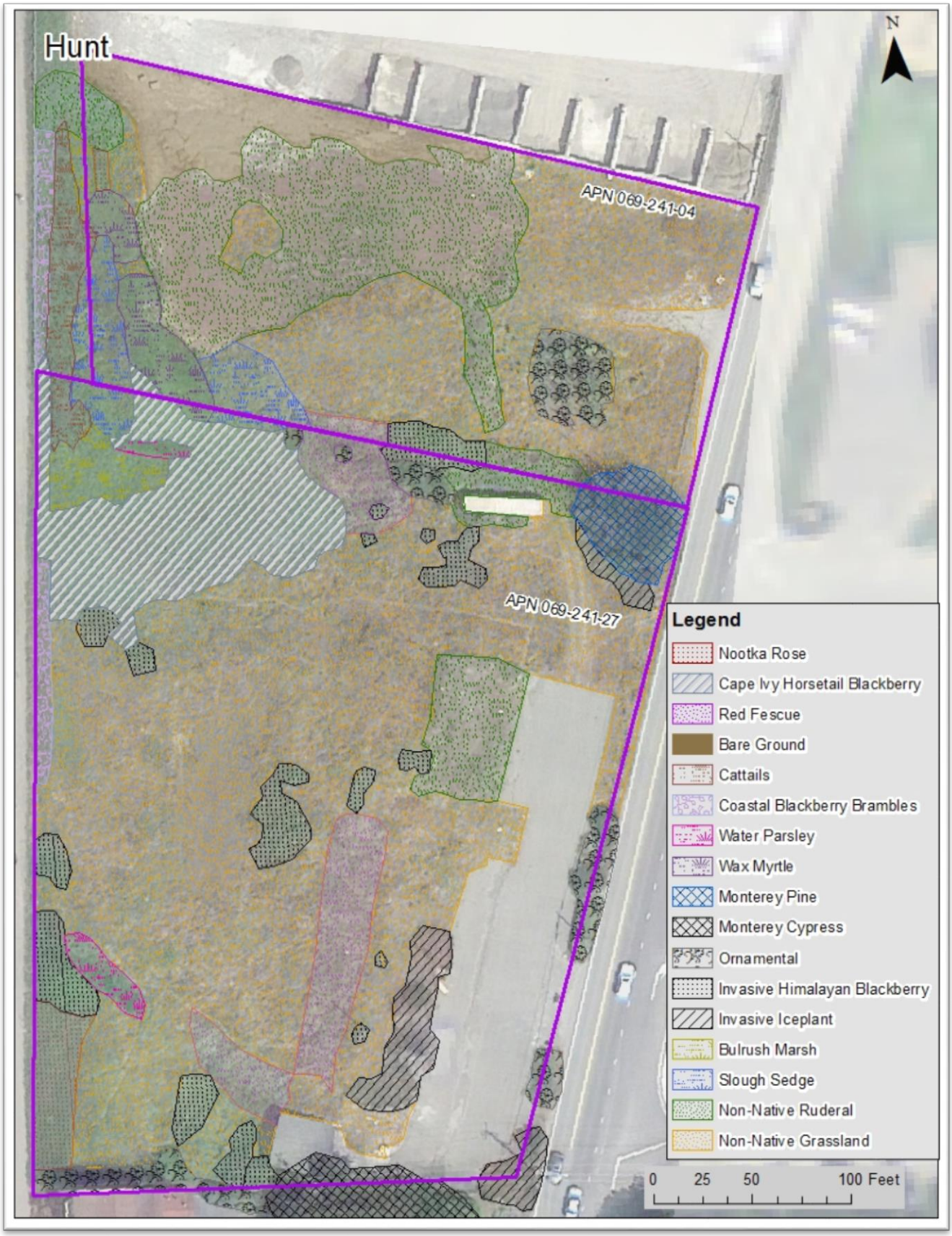


Figure 1. Plant communities map.

3.3 Wetlands

Two wetlands were identified on the property by the surveyor. Per sampled data points and personal observations, portions of each wetland may be considered three parameter Army Corps wetlands, and portions may be considered two to one-parameter Coastal Commission wetlands. Additionally, these wetlands may be considered Waters of the US. Wetland boundaries and the Waters of the US determination must be confirmed by the Army Corps of Engineers and California Coastal Commission. The boundaries of the wetlands, per the surveyor's professional opinion, are shown in Figure 2. As mapped, the northern wetland is approximately 19,000 square feet in size, and the southern wetland is approximately 10,000 square feet in size, for a total area of approximately 0.9 acre of wetlands on the subject properties.

As discussed in greater detail later in the report, facultative invasive and lawn grass species dominate a large portion of the property, which present a risk for misclassification of upland areas as one-parameter wetlands. Groundwater monitoring wells were installed and monitored in order to gain a better understanding of the hydrology of the site, and to inform the surveyor's determination of wetland boundaries.

3.4 Existing Development

The property was previously developed and contains an asphalt driveway and parking lot, a garage, and a storage container. Areas of red fescue (*Festuca rubra*) are remnants of past planted lawns.

4.0 Methods

4.1 Scoping Survey

Scoping surveys were based on the scoping lists in Tables 1-3 in Appendix A, and were conducted within the entire boundaries of the property and 100ft beyond. The investigator, Asa B. Spade, has a Bachelor's Degree in environmental science with an emphasis in landscape ecosystems as well as a minor in botany.

4.2 Botanical Survey

4.2.1 Blooming Period

Site visits and plant surveys were conducted on February 28, March 2, April 11, May 20, August 7, and November 10, 2013, and February 11, March 1, 10, 11, 16, 17, 24, April 1, 2, 4, 8, 10, 14, 15, 24, June 4, 5, and August 12 and 19, 2014, when all rare, threatened, or endangered species would have been both evident and identifiable for the species with the highest likelihood of occurring within the Study Area.

Reference populations of Blasdale's bent grass (*Agrostis blasdelei*), sea-watch (*Angelica lucida*), Point Reyes blennosperma (*Blennosperma nanum* var. *robustum*), Bolander's reed grass (*Calamagrostis bolanderi*), swamp harebell (*Campanula californica*), lyngbye's sedge (*Carex lyngbyei*), Oregon coast paintbrush (*Castilleja affinis* ssp. *litoralis*), Point Reyes ceanothus (*Ceanothus gloriosus* var. *gloriosus*), Whitney's farewell-to-spring (*Clarkia amoena* ssp. *whitneyi*), supple daisy (*Erigeron supplex*), Pacific gilia (*Gilia capitata* ssp. *pacifica*), dark eyed gilia (*Gilia millefoliata*), short-leaved evax (*Hesperevax sparsiflora* var. *brevifolia*), Point Reyes horkelia (*Horkelia marinensis*), perennial goldfields (*Lasthenia californica* ssp. *macrantha*), coast lily (*Lilium maritimum*), coastal lotus (*Hosackia gracilis*), north coast phacelia (*Phacelia insularis* var. *continentis*), corn lily (*Veratrum fimbriatum*), and dog violet (*Viola adunca*) were visited prior to project site visits to ensure that visits were made at a time when these plants were evident and identifiable.

4.3 Wetland Delineation

Wetlands are defined in part based on the environmental criteria indicating areas are wetlands. Areas are then identified as being wetlands or not based on field indicators of the requisite conditions of wetland criteria, and if the areas are wetlands, the field indicators are used to determine the spatial limits of the wetland boundary on the ground. Various federal, state, and local governing agencies use differing criteria to define wetlands, which leads to the determination of wetlands within a range of physical boundaries.

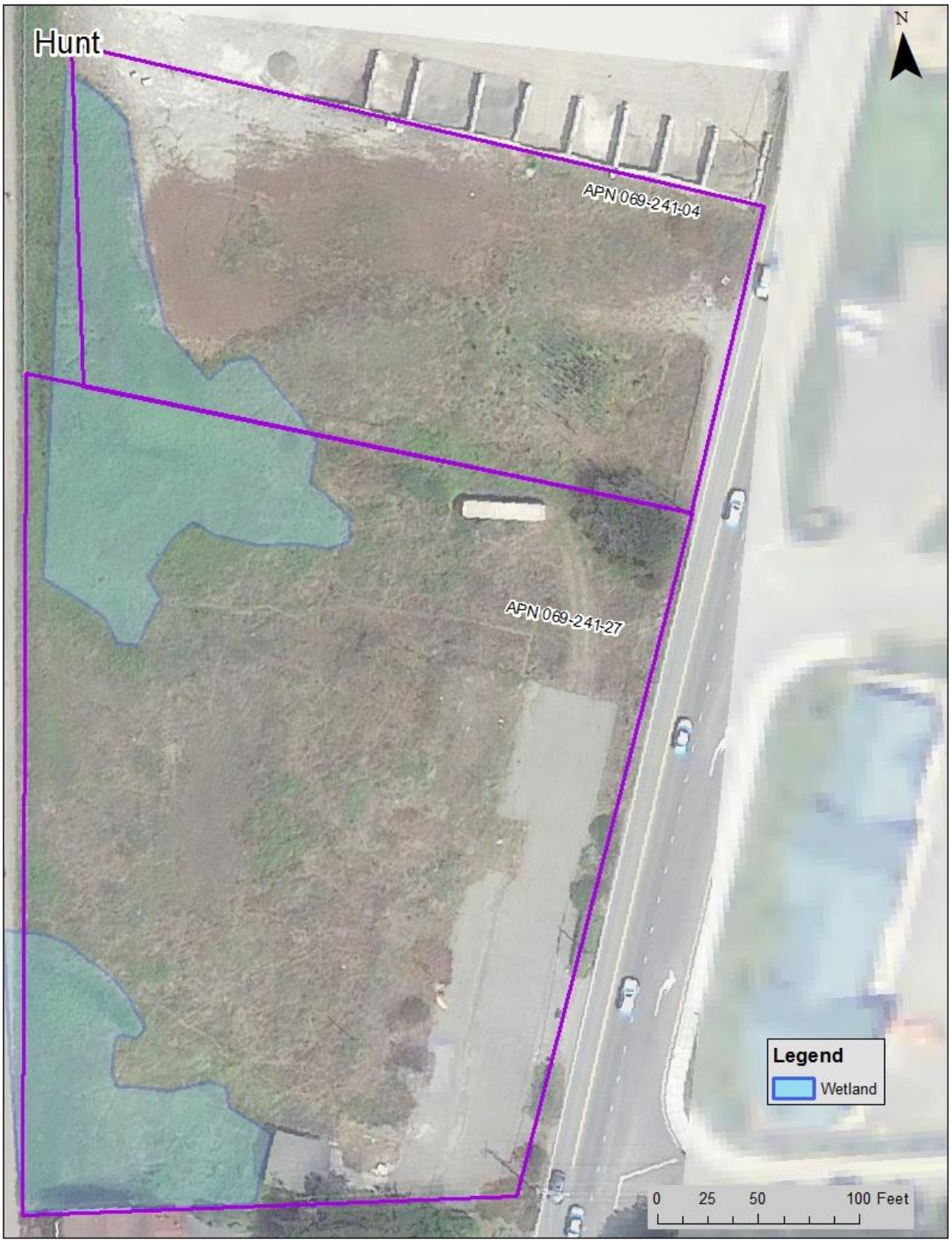


Figure 2. Wetland boundaries per the surveyor's professional opinion.

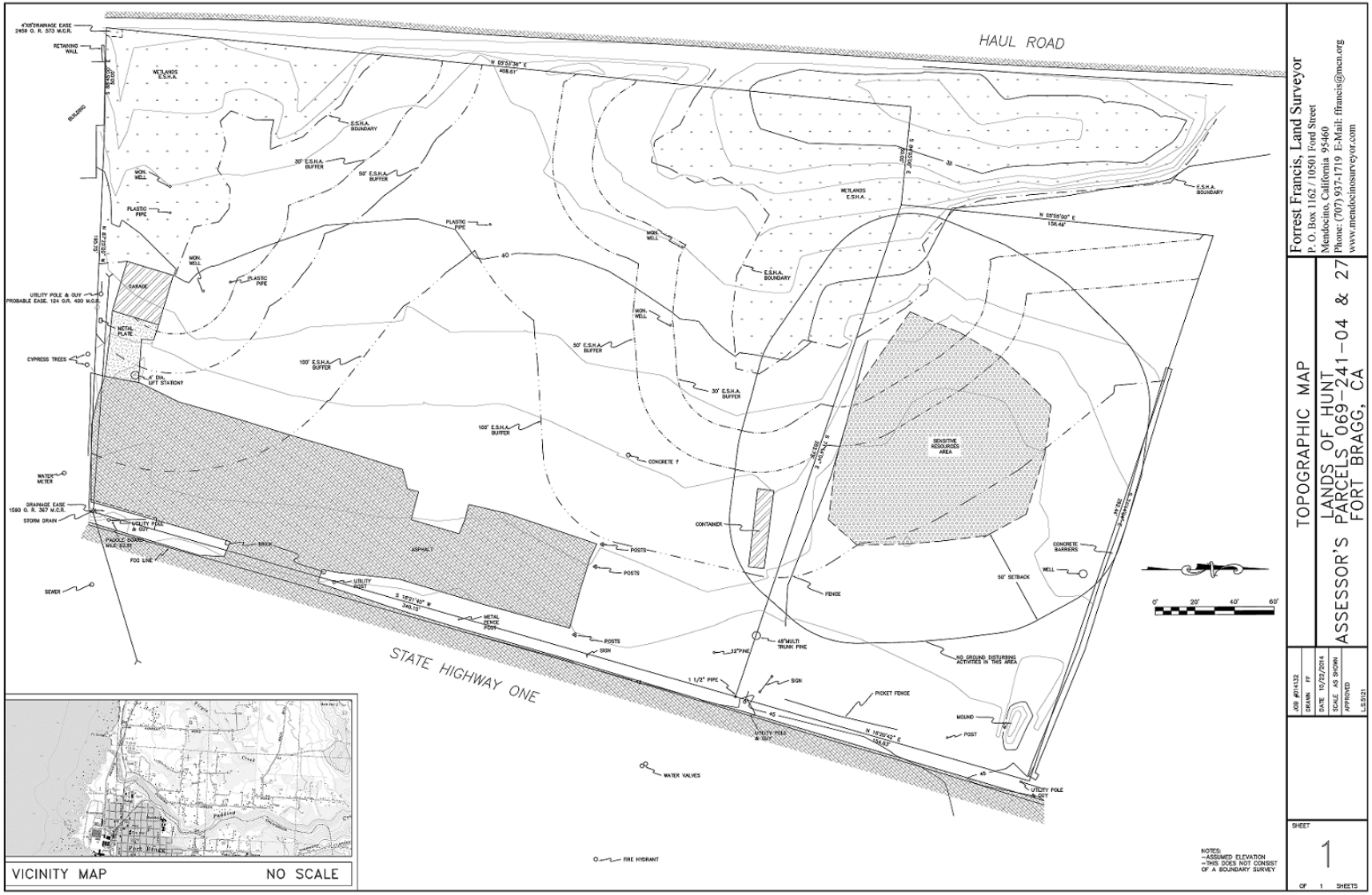


Figure 3. Wetland boundaries as staked by the wetland surveyor and mapped by the land surveyor.

The purpose of this delineation is to identify and describe the presence and extent of jurisdictional waters of the U.S. and waters of the State of California within the Study Area under the Clean Water Act and California state regulatory authority.

Surveys were conducted to identify the presence, extent, and quality of waters, including wetlands that may be considered jurisdictional by the U.S. Army Corps of Engineers (Corps) under Section 404 of the Clean Water Act. The Study Area Site for wetland delineation purposes is the entirety of the two subject properties, APNs 069-241-27 (~2.5 acres) and 069-241-04 (~1.2 acres).

This report summarizes the results of the wetland investigation and provides technical documentation for all delineated wetlands. Included in this report are the wetland delineation data necessary for a jurisdictional determination by the Corps, Regional Water Quality Control Board, (RWQCB, or Water Board), California Department of Fish and Wildlife (CDFW), and the California Coastal Commission (CCC). The wetland methodology used in this report is consistent with methods described in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (USACE, 2008) and the Corps of Engineers Wetland Delineation Manual (Environmental Laboratory, 1987). This wetland delineation summarizes the professional opinion of the wetland delineator, and is subject to review and approval by the RWQCB, USACE, CDFW, CCC, and City of Fort Bragg. The maps included in this report were generated from field measurements, aerial photography, Global Positioning System (GPS) data, and existing geospatial datasets.

4.3.1 Literature Review

Climate Data - Saturation at or near the surface, or inundation, for approximately 14 consecutive days or more during an area's growing season typically creates the necessary conditions in the soil to form and maintain wetlands. Precipitation data is useful to determine the amount of rainfall the Study Area has received before the time of the field investigation. For the purposes of this delineation, the growing season is considered to be 365 days a year.

Climate data from the Fort Bragg newspaper, Fort Bragg Advocate News (2014), and Desert Research Institute's Western Regional Climate Center were collected to determine the total rainfall in 2014 and daily rainfall between January 1 and April 15, 2014.

USGS Topographic Quadrangles - The U.S. Geological Survey (USGS) maps illustrate basic geological formations of the landscape with topographic contour lines showing elevation and shape of the terrain that reveal major surface features such as lakes, rivers, streams, canals, buildings, and other geomorphic and man-made features. Most streams are shown as "blue line" streams, but given the scale of most detailed topographic maps (7.5' = 1:24,000), many small streams that fall under state or federal jurisdiction are not depicted. These maps provide an excellent overview of general hydrological features within the Study Area but field surveys are needed to augment the extent of these features at a larger scale.

The Study Area occurs on the Fort Bragg USGS topo. The most recent map available was from 2012. No watercourses are shown in the project area on the USGS topo map.

Imagery - Aerial photographs or satellite imagery can be particularly useful for the identification of saturated soils where plant cover is sparse and ponding or where drainage patterns become evident. Particularly, a comparison of the same site over time and at different times during the year can show areas of inundation or saturation or patterns of vegetation reflecting hydric conditions. Numerous sources of imagery are available such as National Agriculture Imagery Program (NAIP), Land Satellite (LANDSAT), Digital Orthophoto Quadrangles (DOQ), and Google Earth. These types of images are also useful in the identification of riparian vegetation and prominent wetland features that are not accessible or that occur adjacent to but offsite the Study Area.

GoogleEarth imagery from 2013 was georeferenced to 2010 NAIP imagery to give the most recent and clear (unpixelated) aerial image of the Project Site (Figure 1 and 2, under other layers).

Saturation visible on aerial imagery is considered by the Corps as a secondary indicator for the presence of hydrology in a Study Area. These signatures of wetland hydrology can be examined in the office and then confirmed during a field site visit. Prior to site visits aerial imagery from NAIP and GoogleEarth Maps were used to determine any visible saturation in the Study Area.

National Wetland Inventory Maps - The USFWS produces wetland maps and geospatial wetland data for the United States and makes these data available to the public (USFWS 2013). Wetlands are primarily mapped by identifying them from aerial imagery and then classified using the Cowardin system (FGDC 2009). These maps are a supplemental tool for onsite wetland investigations and should be used with caution as all wetlands have not been mapped and the maps can be limited by scale.

A USFWS NWI map was created by using the web application (Appendix B) to show its relation to the Study Area. One NWI freshwater wetland feature is mapped within the Study Area.

Soil Survey - NRCS maintains published soil surveys for counties across the United States that provide information on the origin of soils, their composition and texture, and their use for agriculture. Additionally, NRCS maintains the "Hydric Soils List of California," which lists soils from county soil surveys that are sufficiently wet in the upper part to develop anaerobic conditions during the growing season.

The most current list of hydric soils (NRCS 2014) was reviewed prior to the spring field visit and a soil map and report of the Study Area were produced using NRCS's online Web Soil Survey (NRCS 2014). These reports are useful in determining the composition of the soil map units, which are rarely comprised of entirely the same soil.

A custom soil report for the Study Area was created using NRCS's online Web Soil Survey (Appendix G). The Study Area is comprised of Tropoquepts, 0-15 percent slopes (map unit 214), (hydric).

Tropoquepts soil types are included in the most current list of hydric soils (NRCS 2014).

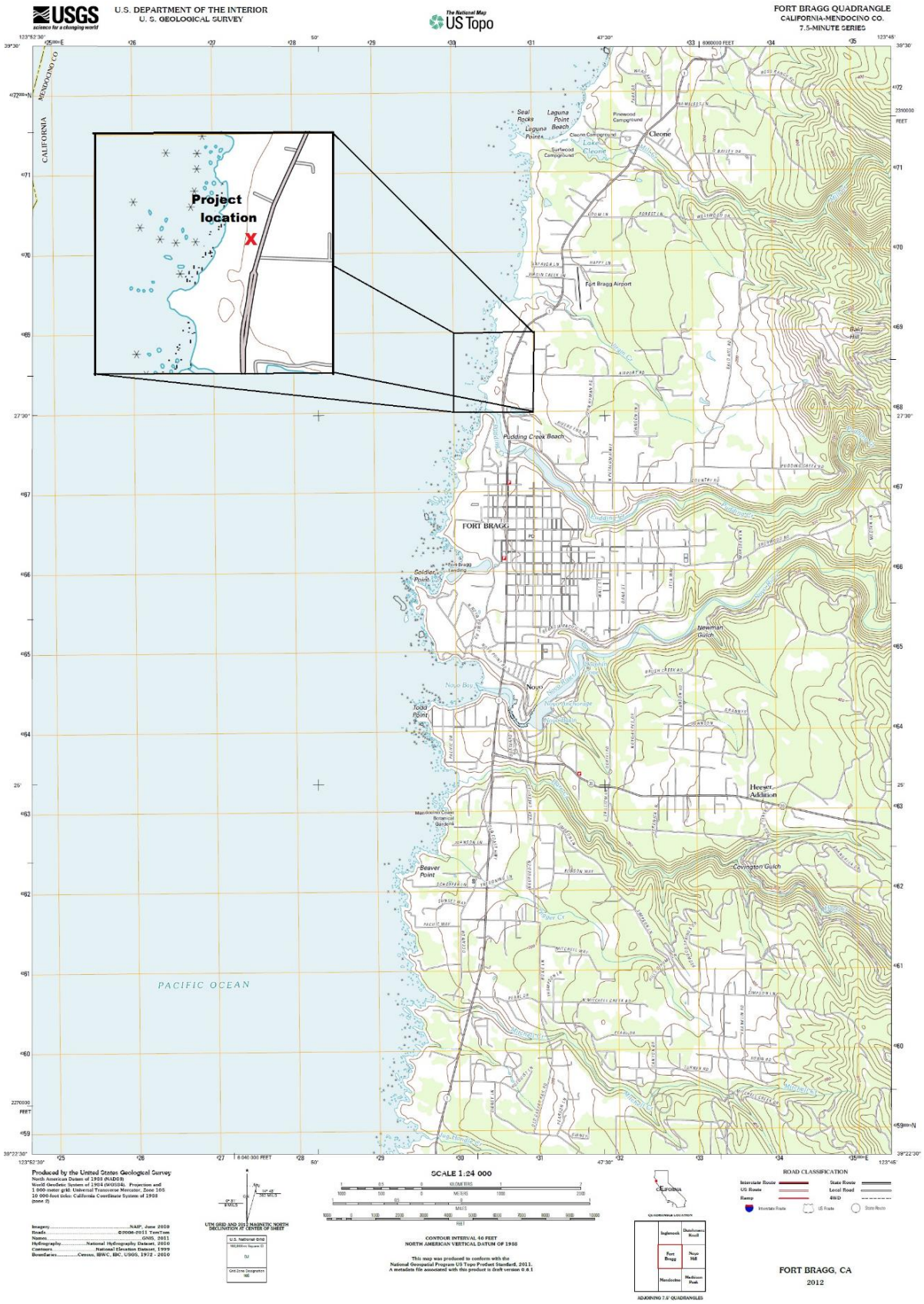


Figure 4. USGS Topographic Map with Project Location Expanded

4.3.2 Field Methods

Potential Section 404 Jurisdictional Wetlands - This delineation study has been conducted in accordance with the U.S. Army Corps of Engineers Wetlands Delineation Manual (Corps Manual) (Environmental Laboratory 1987) and the Western Mountains, Valleys, and Coast Region (Version 2.0) Regional Supplement (USACE 2010). This study evaluated the presence or absence of indicators of three wetlands parameters described in the Corps Manual. The three parameters used to determine the presence of wetlands are (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology. According to the Corps Manual (1987): "…[E]vidence of a minimum of one positive wetland indicator from each parameter (hydrology, soil, and vegetation) must be found in order to make a positive wetland delineation."

Sample points in the study area were established to collect data on vegetation, hydrology, and soils and reported on standard Corps data forms included in Appendix E. A description of these three indicators is summarized below. The location of these sample points and the extent of the wetland boundary were recorded using a WAAS corrected GPS receiver and the area of the delineated wetland was calculated using GIS software.

Hydrophytic Vegetation - The indicator status assigned to a species designates the probability of that species occurring in a wetland. A species with an indicator of OBL, FACW, or FAC is considered to be typically adapted for life in a wetland (hydrophytic vegetation). A species indicator of, FACU and UPL determines an upland species. The wetland occurrence probability and abbreviations utilized in the lists are presented below.

Table 1. Wetland Indicator Status Groups

Wetland Indicator Status	Definition
Obligate Wetland (OBL)	Almost always occur in wetlands
Facultative Wetland (FACW)	Usually occur in wetlands, but may occur in non-wetlands
Facultative (FAC)	Occur in wetlands or non-wetlands
Facultative Upland (FACU)	Usually occur in non-wetlands, but may occur in wetlands
Obligate Upland (UPL)	Almost never occur in wetlands

The dominant vegetation at each sampling point was noted and evaluated for prevalence of hydrophytes using the most recent list of hydrophytic plants (Lichvar 2014).

Hydric Soils - The Natural Resource Conservation Service defines a hydric soil as: "A hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part." (Federal Register July 13, 1994, US Department of Agriculture, Natural Resource Conservation Service.) Soils formed over long periods of time under wetland (anaerobic) conditions sometimes possess characteristics that indicate that they meet the definition of hydric soils. At each sampling point a soil pit was dug to a minimum 20-inch depth. In each pit distinct soil layer depths were noted and their matrix and mottle colors (if present) were compared to the Munsell soil color chart (GretagMacbeth 2000) for color appearance (hue), intensity (value), and shade (chroma). Redoximorphic features and soil texture were noted. In some instances, a determination for the presence or absence of hydric soils could be made at shallower depths and soil pits were dug less than 20 in.

Wetland Hydrology - Wetland hydrology is a term which encompasses hydrologic characteristics of areas that are periodically inundated or saturated within 6-12 inches of the surface at some time during the growing season. Recorded data can be used when available to determine wetland hydrology. Recorded data showing inundation or saturation within 6-12 inches of the surface for a minimum of five percent of the growing season (approximately 14 days) is considered evidence of wetland hydrology. When studies are conducted at a time of year when surface water, ground water, or saturated soils cannot be observed, evidence of wetland hydrology is based on observation of the hydrologic indicators described in the 1987 Corps Manual. Evidence of wetland hydrology can include direct evidence (primary indicators), such as visible inundation or saturation, surface sediment deposits, and drift lines, or indirect indicators (secondary indicators), such as oxidized root channels and algal mats. If indirect or secondary indicators are used, at least two secondary indicators must be present to conclude that an

area has wetland hydrology. The wet areas in the study area were examined for these hydrologic indicators. The presence of any primary or secondary wetland hydrologic indicators was noted at each sampling point.

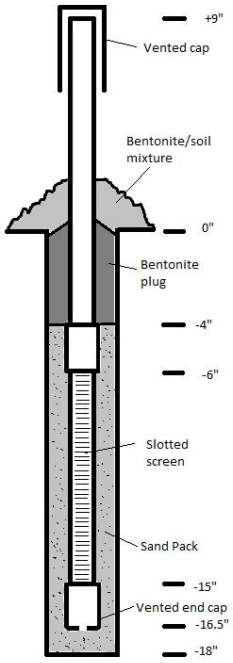


Figure 5. Schematic diagram of shallow groundwater monitoring well.

Shallow Groundwater Monitoring Wells – Shallow groundwater monitoring wells were utilized on the site in order to obtain quantitative information about shallow ground water regimes in and near potential wetlands. The groundwater monitoring wells were designed and installed according to guidance provided by the Wetlands Regulatory Assistance Program's guidance document, Installing Monitoring Wells/Piezometers in Wetlands, July 2000. Figure 5 illustrates the schematic diagram of the shallow monitoring wells installed on the site. Twelve shallow groundwater monitoring wells were installed. Groundwater level data was collected starting on February 11, 2014 and collected approximately every week through April 25.

Potential Section 404 Jurisdictional "Other Waters" - Non-wetland non-tidal waters are those bodies of water that convey water such as perennial, intermittent and ephemeral streams, or bodies of water such as lakes and ponds that are deep enough to exclude the growth of hydrophytic vegetation. Typically, these are hydrological features with a defined stream channel, bed, and bank.

All of these types of features were documented within the Study Area and mapped in the field with a GPS or also with the aid of georeferenced aerial photography in GIS.

Potential Section 401 Jurisdictional Waters - Some water bodies, such as isolated wetlands that the Corps would not regulate, fall under the jurisdiction of the SWRCB if there is discharge involved. However, if the Corps determines that a water body is not subject to regulation under Section 404, then no 401 certification is required by the State *if* there is no discharge into waters of the State. Because "waters of the State" is a much more encompassing term than "waters of the United States," it can be used to regulate isolated wetlands and wetlands not otherwise under federal jurisdiction.

Wetlands and other waters were delineated using the same methods for determining presence of wetland indicators: hydrophytic vegetation, hydric soils, and hydrology.

Potential Section 1602 Jurisdictional Waters- Riparian vegetation often includes vegetation beyond that growing in the active channel or floodplain. The measurement of riparian vegetation can extend to a point where vegetation provides shade for plants and wildlife as well as to a point where vegetation contributes large woody debris (LWD) or fine litter to the watercourse. This can be above the floodplain and even above the terrace on to the hillslope. Generally, CDFW's jurisdiction over lakes and streams is measured from channel to the top of the bank or edge of the riparian as determined by the upland side of the drip line, whichever is greater.

Potential California Coastal Act Jurisdictional Wetlands and Waters- All wetlands and waters that can be considered 404 and 401 jurisdictionally regulated, including one and two parameter wetlands and riparian vegetation and watercourses regulated under 1602 can be considered for regulation by the California Coastal Commission (CCC). Essentially, the CCC can regulate any and all wetlands and waters regulated or not regulated by ACOE, RWQCB, and CDFW. Therefore all methods for identifying federal and state waters and wetlands and riparian vegetation are used for identifying the same features regulated by the CCC.

5.0 Survey Results

5.1 Potential Occurrences

Special Status Plants

Rare plant surveys occurred during times of the year when all special status plants would have been evident and identifiable. No rare plants were observed on the property during surveys. No additional surveys are warranted.

Invertebrates

Western bumble bee – No bumblebees displaying field characteristics of the western bumble bee were observed during surveys. No further surveys are warranted.

Amphibians

Frogs – Northern red-legged frog –No amphibians were documented except a California newt and Pacific chorus frog, however potential habitat may be present ¼ mile south in the Ocean Lake mobile home park pond or ½ mile southeast in Pudding Creek. The likelihood of special status frogs using the building envelope as upland habitat is low. Most upland movement is between bodies of water, and woody vegetation or other debris are usually used as temporary habitat during movement.

Figure 6. California newt observed at site.

Birds

Raptors –Northern harrier, merlin, American peregrine falcon – No nests were documented from the Project Site during the surveys.

Other birds – snowy egret, burrowing owl, Rufous hummingbird, Allen's hummingbird, olive-sided flycatcher, purple martin, grasshopper sparrow, Bryant's savannah sparrow – No nests were documented during site investigations. No ground squirrel holes or other burrows sufficient for the use of the burrowing owl were found.

The project has a low likelihood for impacts to nesting birds. Nesting bird surveys are recommended prior to vegetation removal if it occurs during the nesting season. The bird breeding season typically extends from February to August.

Bats
Pallid bat, Yuma myotis, Long-eared myotis and hoary bat – These species roost in crevices in rocks and in bark, and/or in the foliage of trees and have the potential to occur wherever trees are present. Few trees are present on the project site. Because these species are nocturnal they may be present during the non-survey timing of the Project Site. None were documented during daytime surveys.

5.2 Documented occurrences

5.2.1 Non-Native Grassland (Holcus lanatus-Anthoxanthum odoratum Semi-Natural Herbaceous Stand)

The main plant community present on the property is non-native grassland. Dominant species within the non-native grassland include common velvet grass (*Holcus lanatus*), creeping bentgrass (*Agrostis stolonifera*), tall fescue (*Festuca arundinacea*), sweet vernal grass (*Anthoxanthum odoratum*) and wild radish (*Raphanus sativus*).

Some patches were dominated by red fescue (*Festuca rubra*), a native grass, as shown in Figure 1. This species occurs in much of California, and includes three subspecies and widely planted introduced cultivars (Sawyer 2009). The shape and location of the patches on the property, as well an interview with the property owner, indication that the patches of red fescue (*Festuca rubra*) on the property are likely comprised of an introduced cultivar, and that these areas were previously lawns associated with the prior use of the property. A review of historical images at Californiacoastline.org confirms that the area in question did in fact consist of a lawn in 2002 (Figure 7).

Figure 7. Image 11414, California Coastal Records Project, shows the lawn on the subject property in 2002.

5.2.2 Non-Native Ruderal, Invasive Plants and Ornamentals

Non-native ruderal areas, invasive plants and ornamentals cover a significant portion of the property not covered by non-native grassland. Dominant plant species in areas mapped as non-native ruderal include English plantain (*Plantago lanceolata*), bur-clover (*Medicago polymorpha*), buckhorn plantain (*Plantago coronopus*), wild radish (*Raphanus sativa*), vetch (*Vicia sativa*), and cape ivy (*Delairea odorata*).

Areas dominated by specific invasive plants were mapped as such in Figure 1 and include Himalaya-berry (*Rubus armeniacus*), iceplant (*Carpobrotus edulis*), Monterey cypress (*Hesperocyparis macrocarpa*), and Monterey pine (*Pinus radiata*).

An area located to the northwest corner of the southerly parcel (APN 069-241-27) is dominated by invasive cape ivy (*Delairea odorata*) and native California blackberry (*Rubus ursinus*), and also includes native giant horsetail (*Equisetum telmateia ssp. braunii*)

Ornamentals are left as a remnant of prior development and include calla lilies (*Zantedeschia aethiopica*), belladonna (*Amaryllis belladonna*), red-hot poker (*Kniphofia uvaria*), Japanese honeysuckle (*Lonicera japonica*), Aaron's beard (*Hypericum calycinum*), rosemary (*Rosmarinus officinalis*), escallonia (*Escallonia* sp.), monbretia (*Crocosmia Xcrocosmiiflora*), bulbil bugle lily (*Watsonia meriana*), echium (*Echium pininana*), and giant periwinkle (*Vinca major*).

Figure 8. Non-native and invasive plant species including Aaron's beard, echium, and iceplant.

5.2.3 Coastal Blackberry Brambles (*Rubus ursinus* Shrubland Alliance G4 S3)
Roughly 2,000 square feet of area is dominated by native blackberry (Rubus ursinus), present along the west property boundaries, just outside of wetlands, adjacent to the Haul Road.

5.2.4 Wax Myrtle Scrub (*Morella californica* Shrubland Alliance G3 S3)
Roughly 2,300 square feet of area within the northerly wetland is dominated by wax myrtle (*Morella californica*).

5.2.5 Slough Sedge Swards (Carex obnupta Herbaceous Alliance G4 S3)
Within the northerly wetland, roughly 3750 square feet of area is dominated by slough sedge (*Carex obnupta*).

5.2.6 Small-Fruited Bulrush Marsh (Scirpus microcarpus Herbacous Alliance G4 S2)
An area approximately 1,600 square feet in size, located within the northerly wetland, is dominated by small-fruited bulrush (*Scirpus microcarpus*). Also present in this area is common bog rush (*Juncus effusus*).

5.2.7 Water Parsley Marsh (*Oenanthe sarmentosa* Herbaceous Alliance G4 S2)
A ~700 square foot area dominated by water parsley (*Oenanthe sarmentosa*) is present in the southerly wetland, and a ~300 square foot area dominated by water parsley (*Oenanthe sarmentosa*) is located in the center of the northerly wetland.

Figure 9. Water parsley marsh.

5.2.8 Nootka Rose Briar Patch (*Rosa nutkana* Shrubland Alliance)

Roughly 2000 square feet of area in the south wetland contains a patch of native Nootka rose (*Rosa nutkana*).

Figure 10. Nootka rose briar.

5.2.9 Cattail Marsh (*Typha latifolia* Shrubland Alliance)

Roughly 2,500 square feet of area dominated by native cattails (*Typha latifolia*) is present in the north wetland.

Figure 11. Cattail marsh swath in center of photo.

5.2.10 Wetlands

In the surveyor's professional opinion, two wetlands are present on the property. Portions of these wetlands contain all three wetland parameters, and portions contain one to two parameters. They are considered Coastal Commission wetlands, however portions of these wetlands may be considered Army Corps wetlands, and could potentially be considered Waters of the US. Such determinations would need to be agreed upon by the Army Corps of Engineers and California Coastal Commission.

Facultative invasive and lawn grass species dominate a large portion of the property, and present a risk for misclassification of upland areas as one-parameter wetlands. Groundwater monitoring wells were installed and monitored in order to gain a better understanding of the hydrology of the site, and to inform the surveyor's determination of wetland boundaries.

As discussed in Dr. John Dixon's October 5, 2011 briefing on wetland to the California Coastal Commission, "A predominance of wetland vegetation indicator species is the only field indicator of the wetland vegetation parameter and although the use of this indicator is generally straightforward there are situations where it tends not to be reliable." Dr. Dixon states:

> The most common problem is when the vegetation is dominated by one or a few FAC species such as perennial ryegrass which is a poor wetland indicator. In such cases a great deal more evaluation has to be done considering all the factors that area present in the field (Dixon 2011).

On the subject property, purple velvet grass (*Holcus lanatus*) and red fescue (*Festuca rubra*), dominate the non-native grassland. These species are facultative and are considered poor wetland indicators. For this reason, a comprehensive hydrological analysis was conducted in order to determine hydrological trends over several months during the rainy season. Areas where FAC grass species were the only wetland indicator, and where the comprehensive groundwater monitoring survey data illustrated a lack of hydrology as defined by the Army Corps manual, were therefore considered within upland areas by the surveyor.

Dr. Dixon also indicates:

> Another problem situation may occur where there are patches of vegetation where there are only one or two species present; for example, where wetland indicator species including those listed as FACW or OBL grow as isolated clonal patches. Plants that spread by rhizome may form relatively large essentially mono-specific patches which pass the predominance test if sample plots ore small relative to the size of the plot. In such cases the species may not be representative of the vegetation community. When this patterning exists, I suggest that other pertinent data be considered and if there are no apparent topographical or hydrological differences between the patch and the surrounding vegetation I suggest the sample plot be enlarged to include the surrounding vegetation. The Corps manual includes provisions for adjusting the size of the sample plot based on site conditions and professional judgment (Dixon 2011).

Sample point SP5 was sampled because the vegetation in this location differed from surrounding vegetation. Only two species were observed in the sample area: salt rush (*Juncus lescurii* FACW), a clonal species, and purple velvet grass (*Holcus lanatus* FAC). The sample area dominated by salt rush (Juncus lescurii) was an isolated patch, with an approximately 9 foot radius, with no topographical or hydrological differences from surrounding vegetation, and did not show indications of wetland soils or hydrology. A shallow groundwater well was installed in this area and a shallow water table was not observed; rainwater drains quickly away from this area.

Figure 12 shows the delineated wetland and soil sample points. Figure 13 illustrates surface and subsurface site hydrology and includes locations of drainage ditches on and adjacent to the subject parcels. As per Appendix 8. California Coastal Commission Statewide Interpretive Guidelines: Appendix D. Technical Criteria for Identifying and Mapping Wetlands and Other Wet Environmental Sensitive Habitat, drainage ditches through constructed through otherwise upland areas were not considered to be wetlands for the purpose of this report, however, they may be considered Waters of the US.

5.2.10.1 Wetland Sample Points

Sample Point SP1: This sample point is located in an area dominated by non-native purple velvet grass (*Holcus lanatus*, FAC) and native blackberry (*Rubus ursinus*, FACU). Other plant species noted at the sample point include red fescue (*Festuca rubra*), sweet vernal grass (*Anthoxanthum odoratum*), colonial bentgrass (*Agrostis capillaris*), and Pacific potentilla (*Potentilla anserina*). Hydric soil was observed as depleted below dark surface, and the water table was observed at 22 inches below the soil surface. One wetland parameter was observed at this location, consisting of the soils parameter.

Sample Point SP2: Facultative grasses dominate vegetation in the vicinity of SP2, resulting in a positive indication of hydrophytic vegetation. Red fescue (*Festuca rubra*, FAC), purple velvet grass (*Holcus lanatus,* FAC) and Himalaya-berry (*Rubus armeniacus*, FACU) were the dominant plants observed. Other species noted include Pacific potentilla (*Potentilla anserina*), sheep sorrel (*Rumex acetosella*), dandelion (*Taraxacum officinale*), and white clover (*Trifolium repens*). No wetland soil indicators were observed and the water table was observed at 27 inches below the soil surface. One wetland parameter was observed at this location, with wetland vegetation, comprised of FAC grasses, the observed wetland parameter.

Sample Point SP3: This sample point is located in a swale, dominated by obligate wetland vegetation. Water parsley (*Oenanthe sarmentosa*, OBL), purple velvet grass (*Holcus lanatus*, FAC) and Himilaya-berry (*Rubus arminiacus*, FACU) are dominant plant species, with curly dock (*Rumex crispus*), wild radish (*Raphanus sativus*), Pacific potentilla (*Potentilla anserina*), coast hedge-nettle (*Stachys chamissonis*), nootka rose (*Rosa nutkana*), and fireweed (*Chamerion angustifolium*) also observed. Two percent prominent redox concentrations, occurring as pore linings within a dark surface, were observed as a hydric soil indicator. The water table was present within seven inches below the surface. All three wetland parameters were observed at SP3.

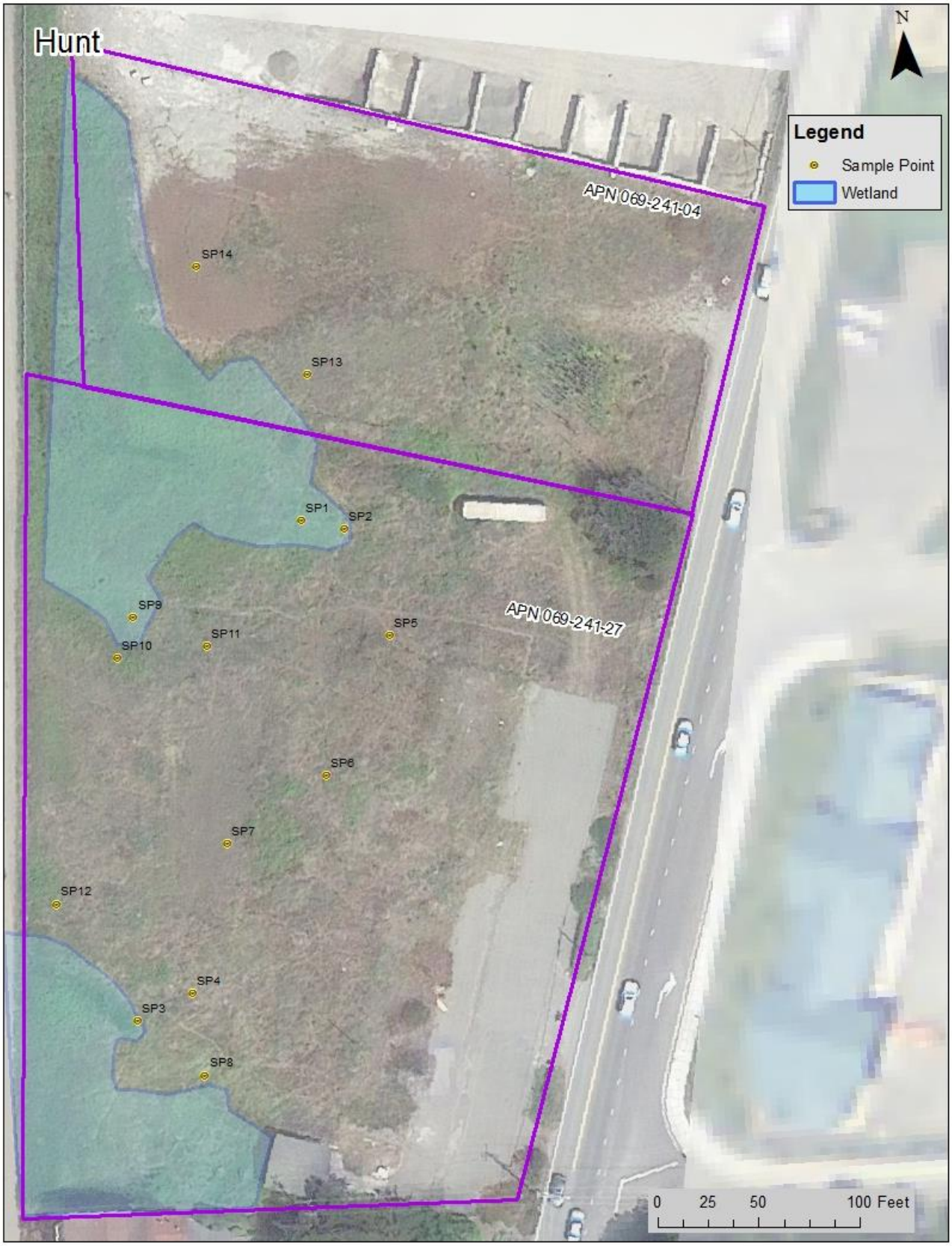


Figure 12. Wetland boundaries as delineated by the surveyor, and wetland sample points.

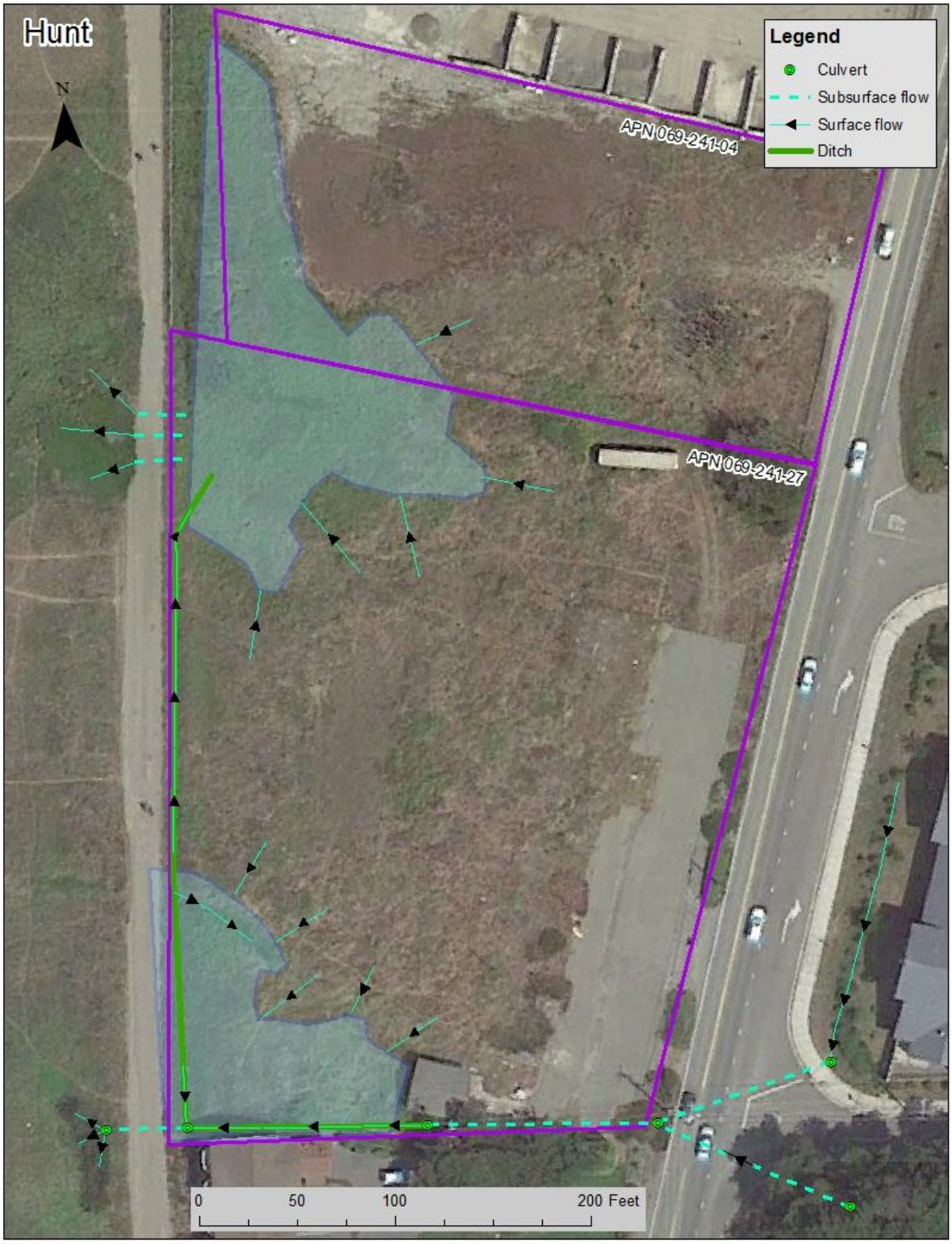


Figure 13. Site hydrology, culverts and drainage ditches

Sample Point SP4: Initially SP4 was dug within what appeared to be septic system infrastructure. The sample point was then moved over. Data listed on wetland sheet SP4B was therefore used for this sample point, and is summarized as follows: The vegetation at this sample point is dominated by FAC invasive and lawn grasses, resulting in a positive indicator of hydrophytic vegetation per the dominance test. The prevalence index and FAC-neutral tests do not indicate wetland vegetation. No wetland soils or hydrology were observed. Dominant vegetation species include purple velvet grass (*Holcus lanatus* FAC), red fescue (*Festuca rubra* FAC) and wild radish (*Raphinus sativus* FACU). Additional analysis in the form of ground water well monitoring was done to determine hydrological regimes. Based on ground water monitoring results, in the professional opinion of the surveyor, the sample point is not located in a wetland.

Sample Point SP5: This sample point was selected because the vegetation differs from surrounding vegetation: this sample point is located in a 9 foot radius patch of salt rush (*Juncus lescurii* FACW). Salt rush (Juncus lescurii) is the only dominant plant species observed in the sample area, and is an indicator of wetland vegetation. No soil or wetland hydrology indicators were observed in the project area. Sandy soil is present in the sample area, and the water table was not observed in the top 26 inches of the soil. Additional analysis in the form of ground water well monitoring was done to determine hydrological regimes. Based on ground water monitoring results, in the professional opinion of the surveyor, the sample point is not located in a wetland.

Sample Point SP6: This sample point is dominated by lawn grasses. Red fescue (*Festuca rubra*, FAC) and purple velvet grass (*Holcus lanatus*, FAC), dominate, with Himilaya-berry (*Rubus armeniacus*) also observed in the sample area. Wetland vegetation indicators were observed as FAC lawn and invasive grasses per the dominance test. The prevalence index and FAC-neutral tests do not indicate wetland vegetation. No wetland soils or hydrology indicators were observed. Additional analysis in the form of ground water well monitoring was done to determine hydrological regimes. Based on ground water monitoring results, in the professional opinion of the surveyor, the sample point is not located in a wetland.

Sample Point SP7: This sample point is dominated by clonal invasive non-native FAC grasses. Creeping bentgrass (*Agrostis stolonifera*, FAC) dominates, with red fescue (*Festuca rubra*), narrow-leaved plantain (*Plantago lanceolata*), hairy cat's ear (*Hypocharis radicata*), white clover (*Trifolium repens*), tall fescue (Festuca arundinacea), Himilaya-berry (*Rubus armeniacus*), beach strawberry (*Fragaria chiloensis*), Douglas iris (*Iris douglasiana*), sheep sorrel (*Rumex acetosella)*, and purple velvet grass (*Holcus lanatus*) also observed in the sample area. Wetland vegetation indicators were observed as FAC clonal invasive non-native grasses per the dominance test. The prevalence index and FAC-neutral tests do not indicate wetland vegetation. No wetland soils or hydrology indicators were observed. Additional analysis in the form of ground water well monitoring was done to determine hydrological regimes. Based on ground water monitoring results, in the professional opinion of the surveyor, the sample point is not located in a wetland.

Sample Point SP8: This sample point is dominated by invasive non-native FAC grasses. Purple velvet grass (*Holcus lanatus*, FAC) dominates, with tall fescue (*Festuca arundinacea*), red fescue (*Festuca rubra*), bird's-foot trefoil (*Lotus corniculatus*), common bog rush (*Juncus effusus*), hairy cat's ear (*Hypocharis radicata*), and Pacific potentilla (*Potentilla anserina*) also observed in the sample area. Wetland vegetation indicators were observed as FAC invasive grasses per the dominance test. The prevalence index and FAC-neutral tests do not indicate wetland vegetation. No wetland soils or hydrology indicators were observed. Additional analysis in the form of ground water well monitoring was done to determine hydrological regimes. Based on ground water monitoring results, in the professional opinion of the surveyor, the sample point is not located in a wetland.

Sample Point SP9: This sample point was dominated by purple velvet grass (*Holcus lanatus*, FAC). Also present was Pacific potentilla (*Potentilla anserina*), giant horsetail (*Equisetum telmateia*), Douglas iris (*Iris douglasiana*), self-heal (*Prunella vulgaris*), and narrow-leaved plantain (*Plantago lanceolata*). Some depletions were observed within the dark soil matrix however not enough to meet any wetland soil indicator. Wetland hydrology was observed as

the water table was within the top one inch of the soil. The professional opinion of the surveyor is that the sample point is located within a two-parameter Coastal Commission wetland.

Sample Point SP10: This sample point was dominated by purple velvet grass (*Holcus lanatus* FAC), narrow-leaved plantain (*Plantago lanceolata* FACU), Himalaya-berry (*Rubus armeniacus* FACU) and (*Rubus ursinus* FACU). Since dominant vegetation consists predominantly of FACU species, the wetland vegetation parameter was not observed. No wetland soil or hydrology indications were observed. It is the opinion of the surveyor that this sample point is not located in a wetland.

Sample Point SP11: This sample point was dominated by purple velvet grass (*Holcus lanatus* FAC), rigid hedge nettle (*Stachys rigida*), Himalaya-berry (*Rubus armeniacus* FACU) and (*Rubus ursinus* FACU). Based on dominant vegetation, the wetland vegetation parameter was not observed. No wetland soil or hydrology indications were observed. It is the opinion of the surveyor that this sample point is not located in a wetland.

Sample Point SP12: This sample point is located on a raised berm adjacent to the Haul Road. The sample point was selected because it is adjacent to the southerly swale and appears green on aerial photos due to the presence of Himalaya-berry (*Rubus armeniacus*). The sample point is dominated by purple velvet grass (*Holcus lanatus*, FAC), and Himalaya-berry (*Rubus armeniacus*, FACU). Based on dominant vegetation, the wetland vegetation parameter was not observed. This berm was likely created when the area was leveled to build the haul road, a soil pit was not dug because soil was presumed to be disturbed and the locally raised topography is unlikely to support wetland. It is the opinion of the surveyor that this sample point is not located in a wetland.

Sample Point SP13: This sample point is dominated by FAC invasive grasses. Purple velvet grass (*Holcus lanatus* FAC) dominates, with coastal gumweed (*Grindelia stricta*), salt rush (*Juncus lescurii*), purple-awned wallaby grass (*Rytidosperma penicillatum*), beach strawberry (*Fragaria chiloensis*) and narrow-leaved plantain (*Plantago lanceolata*) also observed. The wetland vegetation indicator was observed as FAC invasive grass per the dominance test. No wetland soils or hydrology indicators were observed. Based on ground water monitoring results, in the professional opinion of the surveyor, the sample point is not located in a wetland.

Sample Point SP14: This sample point was observed to be dominated by cut-leaf plantain (*Plantago coronopus* FACW) and California burclover (*Medicago polymorpha* FACU), with red-stemmed filaree (*Erodium cicutarium*), cut-leaved geranium (*Geranium dissectum*) and California blackberry (*Rubus ursinus*) also present. Based on dominant vegetation, the wetland vegetation parameter was not observed. No wetland soil or hydrology indications were observed. It is the opinion of the surveyor that this sample point is not located in a wetland.

5.2.10.2 Shallow Groundwater Monitoring Wells Shallow groundwater monitoring wells were utilized on the site in order to obtain quantitative information about shallow ground water regimes in and near potential wetlands. The groundwater monitoring wells were designed and installed according to guidance provided by the Wetlands Regulatory Assistance Program's guidance document, Installing Monitoring Wells/Piezometers in Wetlands, July 2000. Figure 5 illustrates the schematic diagram of the shallow monitoring wells installed on the site. Twelve shallow groundwater monitoring wells were installed. Groundwater level data was collected starting on February 11, 2014 and collected approximately every week through April 25. Figure 14 shows the location of each shallow groundwater monitoring well and the results are summarized as follows:

GWW 1: On February 28, 2014 the shallow ground water level was observed at 2 inches below the soil surface at this location, however by March 13, shallow ground water had receded to 12.5 inches below the soil surface. On April 1, 2014, the shallow ground water level was observed at four inches below the soil surface at this location, however by April 8, shallow ground water had receded to 13.5 inches below the soil surface. Evidence of wetland hydrology was not observed at GWW1 during the observation period.

GWW 2: On February 28, 2014, shallow ground water was observed at eight inches below the surface at this location, but had receded to 16.5 inches by March 10. On April 1, 2014 shallow ground water was observed at seven inches below the surface, however shallow ground water was observed at 15 inches by April 4. Again,

saturation or inundation of soil did not occur within the upper 12 inches for 14 or more consecutive days. GWW 2 did not show observations which would confirm wetland hydrology.

GWW 3: At no time during the groundwater monitoring period was shallow ground water observed within the top 12 inches of the soil at this location. GWW 3 did not evidence wetland hydrology during the observation period.

GWW4: Shallow ground water was observed for at least 14 consecutive days between February 28 (at 7.5 inches below surface) and March 13, 2014 (at 8 inches below the surface). Evidence of wetland hydrology was observed at GWW4.

GWW5: Shallow ground water was observed for at least 14 consecutive days between February 28 (at 6 inches below surface) and March 16, 2014 (at 6 inches below surface). Evidence of wetland hydrology was observed at GWW5.

GWW6: Shallow ground water was observed for at least 14 consecutive days between February 28 (at 4 inches below surface) and March 16, 2014 (at 9 inches below surface). Evidence of wetland hydrology was observed at GWW6.

GWW7: On February 28, 2014 shallow ground water was observed at 5.5 inches below the soil surface at this location, however by March 13, shallow ground water had receded to 14 inches below the soil surface. Evidence of wetland hydrology was not observed at GWW7 during the observation period.

GWW8: On February 28, 2014 shallow ground water was observed at the surface at this location, however by March 13, shallow ground water had receded to 13 inches below the soil surface. Evidence of wetland hydrology was not observed at GWW8 during the observation period.

GWW9: Shallow ground water within the top 12 inches of the soil surface was observed every data collection time during the observation period. Observed shallow ground water levels ranged from 1.5 to 7.25 inches below the surface during the data collection period. Evidence of wetland hydrology was observed at GWW9.

GWW10: On February 28, 2014 shallow ground water was observed at eight inches below the soil surface at this location, however by March 13, shallow ground water had receded to 14.5 inches below the soil surface. Evidence of wetland hydrology was not observed at GWW10 during the observation period.

GWW11: On February 28, 2014 shallow ground water was observed at six inches below the soil the surface at this location, however by March 13, the shallow ground water level had receded to 14 inches below the soil surface. Evidence of wetland hydrology was not observed at GWW12 during the observation period.

GWW12: Shallow ground water levels within the top 12 inches of the soil surface were observed every data collection time during the observation period. Observed shallow ground water levels ranged from at surface inundation to nine inches below the surface during the data collection period. Evidence of wetland hydrology was observed at GWW12.

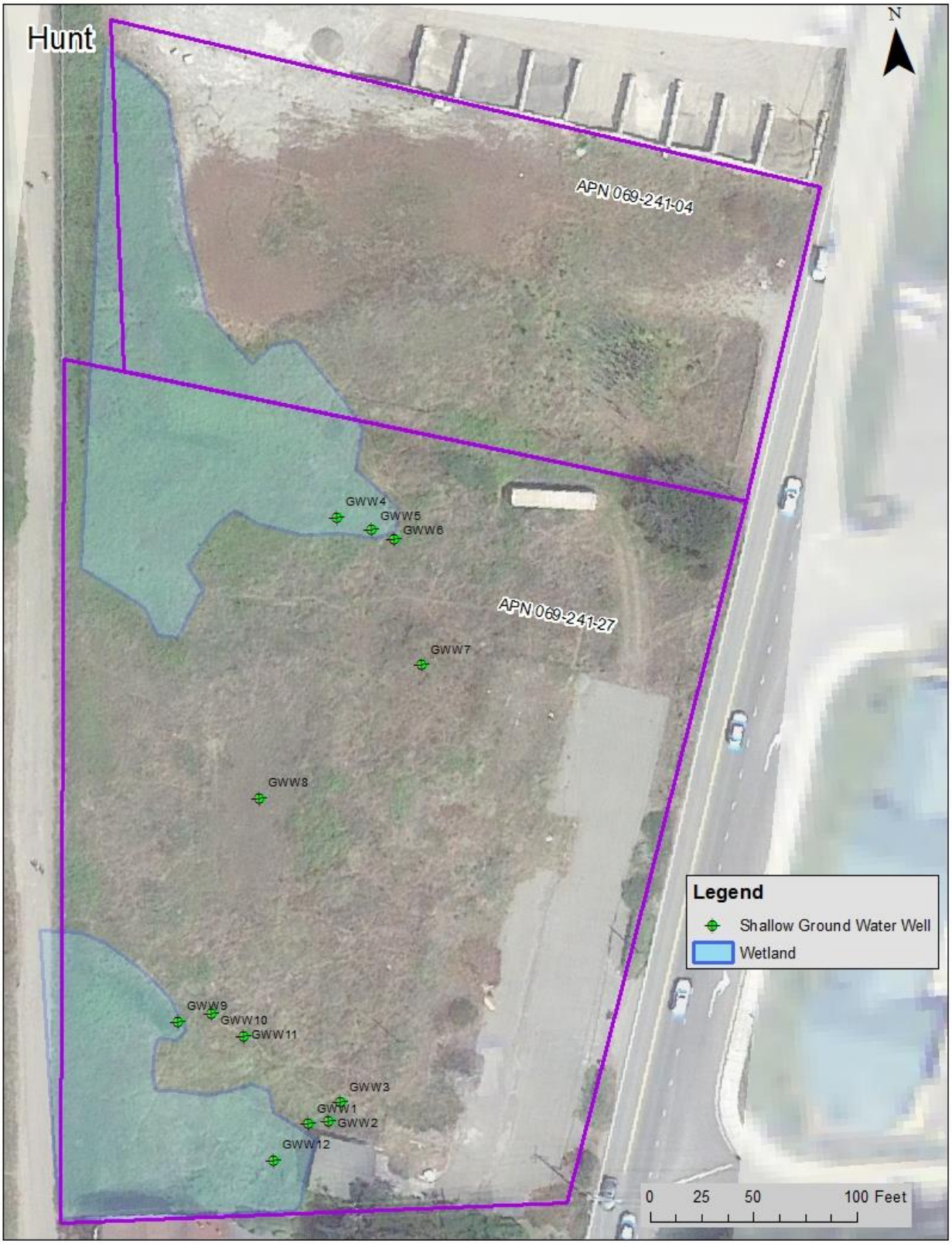


Figure 134. Shallow ground water well locations.

6.0 Discussion

Two wetlands were identified on the property by the surveyor. Per sampled data points and personal observations, portions of each wetland may be considered three parameter Army Corps wetlands, and portions may be considered two to one-parameter Coastal Commission wetlands. Additionally, these wetlands may be considered Waters of the US. Wetland boundaries and the Waters of the US determination must be confirmed by the Army Corps of Engineers and California Coastal Commission. The boundaries of the wetlands, per the surveyor's professional opinion, are shown in Figure 2. As mapped, the northern wetland is approximately 19,000 square feet in size, and the southern wetland is approximately 10,000 square feet in size, for a total area of approximately 0.9 acre of wetlands on the subject properties.

The property is comprised mainly of non-native, ornamental, and invasive plant species, with wetland communities along the northwest and southwest property boundaries. Within and near wetlands, several special status plant communities are present, including Coastal Blackberry Brambles (*Rubus ursinus* Shrubland Alliance G4 S3), Wax Myrtle Scrub (*Morella californica* Shrubland Alliance G3 S3), Small-Fruited Bulrush Marsh (*Scirpus microcarpus* Herbaceous Alliance G4 S2), Slough Sedge Swards (*Carex obnupta* Herbaceous Alliance G4 S3), and Water Parsley Marsh (*Oenanthe sarmentosa* Herbaceous Alliance G4 S2).

Outside of wetlands and special status plant communities, vegetation is dominated by non-native and invasive grasses, ruderal plants, and ornamental species. To the extent feasible, development should be limited to the disturbed portions of the property dominated by these non-native plants, and a sufficient buffer area should be maintained, providing protection from development to the wetlands and special status plant communities. Figure 15 shows the recommended buffer area to the special status plant communities and wetlands. This recommended buffer distance will need to be approved by the California Department of Fish and Wildlife and City of Fort Bragg.

An analysis of the proposed development utilizing the ESHA development criteria in the City of Fort Bragg Coastal Element, Policy 1-9, is included as Appendix D, in consideration of the reduced buffer to less than 100 feet from wetlands and special status plant communities. Recommended avoidance and mitigation measures are outlined in Section 6.2 of this report.

6.1 Potential Impacts

The project has the potential for temporary and long-term impacts to wetlands and special status plant communities. Temporary impacts during construction may include direct damage resulting from encroaching heavy equipment or materials storage, sedimentation from runoff during construction, or introduction of invasive species from contaminated equipment or weedy erosion control structures. Permanent detrimental impacts may include invasive plant proliferation, stormwater runoff pollution, and/or human encroachment impacts.

6.2 Mitigations

Buffer Area - A suitable buffer should be established from the wetlands and special status plant communities including Coastal Blackberry Brambles (*Rubus ursinus* Shrubland Alliance G4 S3), Wax Myrtle Scrub (*Morella californica* Shrubland Alliance G3 S3), Small-Fruited Bulrush Marsh (*Scirpus microcarpus* Herbaceous Alliance G4 S2), Slough Sedge Swards (*Carex obnupta* Herbaceous Alliance G4 S3), and Water Parsley Marsh (*Oenanthe sarmentosa* Herbaceous Alliance G4 S2). A buffer distance of 30 feet is recommended from the southern wetland and Coastal Blackberry Brambles, and a buffer distance of 50 feet is recommended from the northerly wetland and its associated special status wetland plant communities. These buffer distances will need to be agreed upon by the Department of Fish and Wildlife and City of Fort Bragg.

Invasive Plants – Many invasive plants are present on the property. After construction and prior to installation of landscaping, any plants listed as moderate to highly invasive by California Invasive Plant Council (Cal-IPC) should be removed. Invasive plants as listed by Cal-IPC should not be used as landscaping species, and landscaping should

ideally consist of native plants compatible with the on-site plant communities. All heavy equipment should be washed at an off-site location prior to use on site in order to remove any caked mud or other debris that could harbor invasive plant seed. All erosion control should be weed free.

Erosion Control – Standard Best Management Practices shall be employed to assure minimization of erosion resulting from construction. Ground disturbance shall be limited to the minimum necessary and disturbed soil areas shall be stabilized as soon as feasible.

Special Status Birds - The bird breeding season typically extends from February to August. Ideally, the clearing of vegetation and the initiation of construction can be done in the non-breeding season between September and January. If these activities cannot be done in the non-breeding season, a qualified biologist shall perform preconstruction breeding bird surveys within 14 days of the onset of construction or clearing of vegetation. If active breeding bird nests are observed, no ground disturbance activities shall occur within a minimum 100-foot exclusion zone. These exclusion zones may vary depending on species, habitat and level of disturbance. The exclusion zone shall remain in place around the active nest until all young are no longer dependent upon the nest. A biologist should monitor the nest site weekly during the breeding season to ensure the buffer is sufficient to protect the nest site from potential disturbances.

Special Status Frogs –
Within two weeks prior to construction, project contractors will be trained by a qualified biologist in the identification of the northern red-legged frog. Construction crews will begin each day with a visual search around all stacked or stored materials, as well as along any silt fences to detect the presence of frogs. If a northern red-legged frog is detected, construction crews will contact the Service or a qualified biologist prior to re-initiating work.

If a rain event occurs during the construction period, all exterior construction-related activities will cease for a period of 48 hours after the rain stops. Prior to resuming construction activities, trained construction crew member(s) will examine the site for the presence of frogs. If no northern red-legged frogs are found, construction activities may resume.

Wetlands Impacts –
Potential Construction-Related Impacts: Orange construction fencing paired with silt fencing shall be installed along the boundaries of the wetland buffer areas, separating the wetlands and their buffer zones from the construction related impact area. No materials storage, heavy equipment use or other impacts shall occur within the fenced off wetlands area. Silt fencing shall be properly trenched in and all fencing shall be maintained in a functional manner through the duration of construction and until all disturbed soil is stabilized. Fencing shall be checked and appropriate maintenance shall occur on a weekly basis and after every rain event. The name and contact information for the person responsible for fencing maintenance shall be provided to the City of Fort Bragg prior to the commencement of construction.

Potential Long-Term Wetland Impacts: Prior to commencement of construction, a landscaping plan shall be submitted to and approved by the City of Fort Bragg. The landscaping plan shall include a plan for removal of invasive plant species within the wetlands and wetland buffer areas. Such removal shall occur with hand tools only. The landscaping plan shall also include a buffer area landscaping plant list which is to be composed entirely of site and community appropriate native plant species to be used in the wetland buffer area. The landscaping plan shall include installation prep, soil amendments, and timing, number and size of plants to be used, a plan for protective measures needed to prevent deer browsing, watering method and schedule while plants adjust, and replacement plan for dead and dying plants.

A permeable pedestrian pathway should be installed within the buffer area to prevent pedestrian trampling and other harm within wetland areas and to provide a pedestrian connection to the Haul Road.

Storm water runoff shall be directed to a storm drain system which provides filtration of runoff prior to entry to the wetlands.

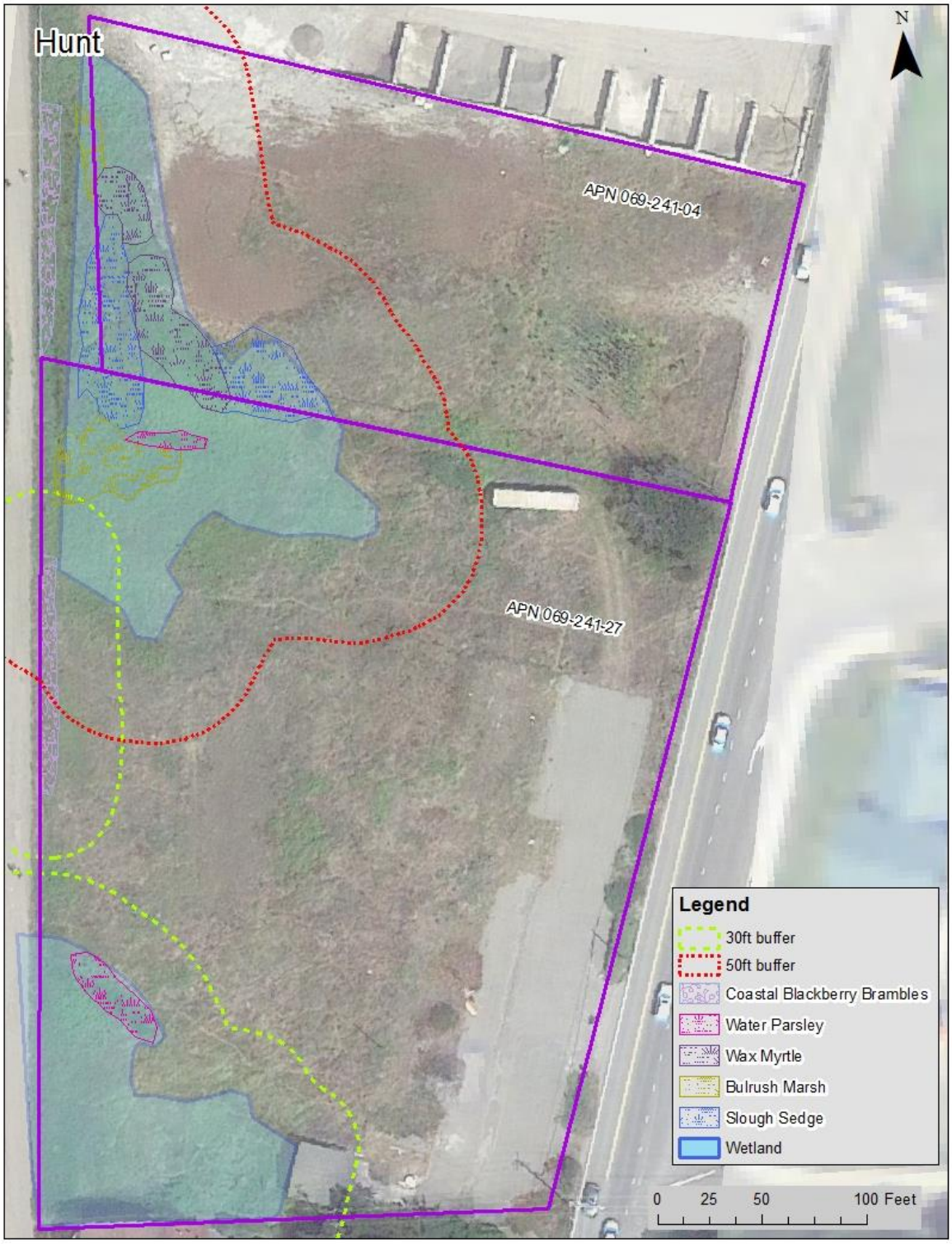


Figure 145. Recommended buffer distances to special status plant communities and wetlands.

Appendix A. Scoping Tables

Table 1. Special-Status Plants of Potential Occurrence on the Project Site. This table is derived from federal, state, and CNPS–listed plant species, including plants of regional significance. Explanation of column headings:

FED: federal status includes federally rare (FR), threatened (FT), or endangered (FE)
STATE: California state status includes rare (CR), threatened (CT), or endangered (CE)
CNPS: California Native Plant Society ranked inventory of native California plants thought to be at risk,
List 1A (1A) Presumed extinct in California.
List 1B (1B) Rare, threatened, or endangered in California and elsewhere.
List 2 (2) Rare, threatened or endangered in California but more common elsewhere.
List 3 (3) More information needed, a review list.
List 4 (4) Species of limited distribution, a watch list.

A Threat Code extension has been added following the CNPS List (e.g. 1B.1, 2.2 etc.)
Threat Code extensions and their meanings:
.1 - Seriously endangered in California
.2 – Fairly endangered in California
.3 – Not very endangered in California

CNDDB ELEMENT RANK

G-RANK: Global Ranking - The global rank (G-rank) is a reflection of the overall condition of an element throughout its global range.
SPECIES OR NATURAL COMMUNITY LEVEL
G1 = Less than 6 viable element occurrences (Eos) OR less than 1,000 individuals OR less than 2,000 acres.
G2 = 6-20 Eos OR 1,000-3,000 individuals OR 2,000-10,000 acres.
G3 = 21-80 Eos OR 3,000-10,000 individuals OR 10,000-50,000 acres.
G4 = Apparently secure; this rank is clearly lower than G3 but factors exist to cause some concern; i.e., there is some threat, or somewhat narrow habitat.
G5 = Population or stand demonstrably secure to ineradicable due to being commonly found in the world.

SUBSPECIES LEVEL
Subspecies receive a T-rank attached to the G-rank. With the subspecies, the G-rank reflects the condition of the entire species, whereas the T-rank reflects the global situation of just the subspecies or variety. For example: *Chorizanthe robusta* var. *hartwegii*. This plant is ranked G2TI. The G-rank refers to the whole species range i.e., *Chorizanthe robusta*. The T-rank refers only to the global condition of var. hartwegii.

S-RANK: STATE RANKING - The state rank (S-rank) is assigned much the same way as the global rank, except state ranks in California often also contain a threat designation attached to the S-rank.
S1 = Less than 6 viable Eos OR less than 1,000 individuals OR less than 2,000 acres
S1.1 = very threatened
S1.2 = threatened
S1.3 = not very threatened OR no current threats known
S2 = 6-20 Eos OR 1,000-3,000 individuals OR 2,000-10,000 acres
S2.1 = very threatened
S2.2 = threatened
S2.3 = not very threatened OR no current threats known
S3 = 21-80 Eos or 3,000-10,000 individuals OR 10,000-50,000 acres
S3.1 = very threatened
S3.2 = threatened
S3.3 = not very threatened OR no current threats known
S4 = Apparently secure within California; this rank is clearly lower than S3 but factors exist to cause some concern; i.e. there is some threat, or somewhat narrow habitat.
S5 = Demonstrably secure to ineradicable in California. NO THREAT RANK.

Notes:
1. Other considerations used when ranking a species or natural community include the pattern of distribution of the element on the landscape, fragmentation of the population/stands, and historical extent as compared to its modern range. It is important to take a bird's eye or aerial view when ranking sensitive elements rather than simply counting Eos.
2. Uncertainty about the rank of an element is expressed in two major ways:
   By expressing the rank as a range of values: e.g., S2S3 means the rank is somewhere between S2 and S3.
   By adding a ? to the rank: e.g., S2? This represents more certainty than S2S3, but less than S2.
3. Other symbols
   GH - All sites are historical; the element has not been seen for at least 20 years, but suitable habitat still exists (SH = All California sites are historical).
   GX - All sites are extirpated; this element is extinct in the wild (SX = All California sites are extirpated).
   GXC - Extinct in the wild; exists in cultivation.
   G1Q - The element is very rare, but there are taxonomic questions associated with it.
   T - Rank applies to a subspecies or variety.

Scientific Name	Common Name	CRPR	Federal	State	G-Rank	S-Rank	Life Form	Elevation	Detailed	Blooming Period	Habitat Suitability within Project Site
Abronia umbellata var. *breviflora*	pink sand-verbena	1B.1	N	N	G4G5T	S2.1	perennial herb	0-12 m.	Coastal dunes and coastal strand with sparse cover. Often the plant growing closest to the ocean.	June - October	No
Agrostis blasdalei	Blasdale's bent grass	1B.2	N	N	G2	S2.2	perennial rhizomatous herb	5-150 m.	Coastal dunes, coastal bluff scrub, coastal prairie. Sandy or gravelly soil close to rocks; often in nutrient-poor soil with sparse vegetation.	May - July	Yes
Angelica lucida	sea-watch	4.2	N	N	G5	S2S3	perennial herb	0-150 m.	Coastal bluff scrub, coastal scrub, coastal marshes and swamps, and coastal dunes. Bluff faces and rocky areas near the ocean. Fields and thickets along the coast.	May - September	Yes
Arctostaphylos nummularia ssp. *mendocinoensis*	pygmy manzanita	1B.2	N	N	G3?T1	S1	perennial evergreen shrub	90-200 m.	Closed-cone coniferous forest. Acidic sandy-clay soils in dwarfed coniferous forest. Only known location 2 miles east of Mendocino.	January	No
Astragalus agnicidus	Humboldt milk-vetch	1B.1	N	SE	G2	S2.1	perennial herb	575-750 m.	Broadleafed upland forests, North Coast coniferous forests, redwood forests. Disturbed openings in partially timbered forest lands; also along ridgelines; south aspects.	April - September	No
Astragalus pycnostachyus var. *pycnostachyus*	coastal marsh milk-vetch	1B.2	N	N	G2T2	S2.2	perennial herb	0-30 m.	Coastal scrub, coastal salt marshes and swamps, mesic sites in coastal dunes, and along streams.	April - October	No
Blennosperma nanum var. *robustum*	Point Reyes blennosperma	1B.2	N	SR	G4T1	S1.2	annual herb	10-145 m.	Coastal prairie, coastal scrub. On open hills in sandy soil. From Pt. Reyes and Glass Beach, Fort Bragg.	February - April	Marginal
Calamagrostis bolanderi	Bolander's reed grass	4.2	N	N	G3	S3.2	perennial rhizomatous herb	0-455 m.	Often mesic sites. Bogs and fens, broadleafed upland forest, closed-cone coniferous forest, coastal scrub, wet meadows and seeps, marshes and swamps (freshwater), North Coast coniferous forest.	May - August	Yes
Calamagrostis crassiglumis	Thurber's reed grass	2.1	N	N	G3Q	S1.2	perennial rhizomatous herb	10-45 m.	Coastal scrub (mesic), freshwater marshes and swamps. Usually in marshy swales surrounded by grassland or coastal scrub. Sporadic in marshes from Crescent City to Marin.	May - July	Yes
Calamagrostis foliosa	leafy reed grass	4.2	N	SR	G3	S3.2	perennial herb	0-1220 m.	Coastal bluff scrub, rocky cliffs and ocean-facing bluffs, clumps in rock crevices of bluff bank of river. North Coast coniferous forests, often on steep wooded cliffs. Many occurrences located in the King Range, HUM Co.	May - September	No
Calystegia purpurata ssp. *saxicola*	coastal bluff morning-glory	1B.2	N	N	G4T2	S2.2	perennial herb	15-105 m.	Coastal scrub, road edges and ruderal sites, coastal dunes, North Coast coniferous forest (openings and edges in forests near the coast). Intermediate with subsp. *purpurata*. Occurs in central Mendocino County and southward.	May - September	No
Campanula californica	swamp harebell	1B.2	N	N	G3	S3	perennial rhizomatous herb	1-405 m.	Bogs and fens, closed-cone coniferous forest, coastal prairie, meadows and seeps, freshwater marshes and swamps, and North Coast coniferous forests. Many occurrences have few plants; uncommon where it occurs.	June - October	Yes
Carex californica	California sedge	2.3	N	N	G5	S2?	perennial rhizomatous herb	90-250 m.	Bogs and fens, closed-cone coniferous forest, coastal prairie, meadows and seeps, marshes and swamps (often on margins or drier areas).	May - August	No
Carex lenticularis var. *limnophila*	lagoon sedge	2.2	N	N	G5T5	S1S2.2	perennial herb	0-6 m.	Lakeshores, beaches (often gravelly), bogs and fens, marshes and swamps, North Coast coniferous forest. Known from north road to Glen Blair.	June - August	Yes
Carex livida	livid sedge	1A	N	N	G5	SH	perennial rhizomatous herb	-	Sphagnum bogs in California. Possibly extirpated from the state.	June	No
Carex lyngbyei	Lyngbye's sedge	2.2	N	N	G5	S2.2	perennial rhizomatous herb	-	Brackish or freshwater marshes and swamps, in water in mucky soil, soughs. May be growing near *Scirpus pungens* and *Triglochin maritima*. From Marin to Del Norte Cos.	May - August	Yes
Carex saliniformis	deceiving sedge	1B.2	N	N	G2	S2.2	perennial rhizomatous herb	3-230 m.	Mesic sites of coastal prairie, coastal scrub, and meadows; seeps, marshes and swamps (coastal salt); boggy ground. Often growing with *Panicum acuminatum* in Mendocino County. Known to grown with *Arenaria paludicola*.	June - July	Yes
Carex viridula var. *viridula*	green yellow sedge	2.3	N	N	G5T5	S1.3	perennial herb	0-1600 m.	Freshwater marshes and swamps; bogs and fens; mesic sites of North Coast coniferous forest. Known from Inglenook Fen.	June - November	Marginal

Scientific Name	Common Name	CRPR	Federal	State	G-Rank	S-Rank	Life Form	Elevation	Detailed	Blooming Period	Habitat Suitability within Project Site
Castilleja affinis ssp. *litoralis*	Oregon coast paintbrush	2.2	N	N	G4G5T4	S2.2	perennial herb (hemiparasitic)	15-100 m.	Sandy sites in coastal bluff scrub and coastal scrub; coastal dunes. Grassy coastal bluffs. Cliffs above shore. In understory of mixed conifer forest with *Maianthemum* sp. Known from the bank of the Ten Mile River.	June	Marginal
Castilleja ambigua ssp. *humboldtiensis*	Humboldt Bay owl's-clover	1B.2	N	N	G4T2	S2.2	annual herb (hemiparasitic)	0-3 m.	Coastal salt marsh, sometimes with *Spartina*, *Distichlis*, *Salicornia*, Jaumea. Clay-peat soil with above species.	April - August	No
Castilleja mendocinensis	Mendocino Coast paintbrush	1B.2	N	N	G2	S2.2	perennial herb (hemiparasitic)	-	Coastal bluff scrub, coastal scrub, closed-cone coniferous forest, coastal dunes, coastal prairie.	April - August	No
Ceanothus gloriosus var. *exaltatus*	glory brush	4.3	N	N	G3G4T3	S3.3	perennial evergreen shrub	30-610 m.	Chaparral	March - June	No
Ceanothus gloriosus var. *gloriosus*	Point Reyes ceanothus	4.3	N	N	G3G4T3	S3.3	perennial evergreen shrub	5-520 m.	Sandy, coastal bluff scrub, closed-cone coniferous forest, coastal dunes, coastal scrub.	March - May	Yes
Chorizanthe howellii	Howell's spineflower	1B.2	FE	ST	G1	S1.2	annual herb	0-35 m.	Sandy, often disturbed, areas of coastal prairie and coastal scrub. Coastal dunes, sandy slopes.	May - July	No
Clarkia amoena ssp. *whitneyi*	Whitney's farewell-to-spring	1B.1	N	N	G5T2	S2.1	annual herb	-	Coastal bluff scrub, coastal scrub. Coastal bluffs; often in rocky clay soil; in sun on slopes of road cuts. Known from the vicinity of the Ten Mile River mouth.	June - August	Yes
Collinsia corymbosa	round-headed Chinese-houses	1B.2	N	N	G1	S1.2	annual herb	-	Coastal dunes, coastal prairie.	April - June	No
Coptis laciniata	Oregon goldthread	2.2	N	N	G4G5	S3.2	perennial rhizomatous herb	0-100 m.	Meadows and seeps; North Coast coniferous forest moist streambanks and other mesic sites. Banks and floodplains of rivers in North Coast coniferous forests. Cutbanks of old skid roads.	March - April	Yes
Cornus canadensis	bunchberry	2B.2	N	N	G5	S5	perennial herb	60-1920 m.	Bogs and fens, meadows and seeps, North Coast coniferous forest. Several populations at the southern end of its distribution in CA are extirpated. Many collections old; need field surveys.	May – July	No
Cordylanthus tenuis ssp. *brunneus*	serpentine bird's beak	4.3	N	N	G4G5T3	S3.3	annual herb (hemiparasitic)	475-915 m.	Usually serpentinite. Closed-cone coniferous forest, chaparral, cismontane woodland, along edge of a dirt road, non-serpentine, rocky (serpentine) summit Locally common annual herb to 75 cm in open areas on serpentine w/ *Madia elegans*, *Bromus carinatus*, *Lotus purshinaus* & *Elymus glaucus*. Flowers cream white with yellow	July - August	No
Cuscuta pacifica var. papillata	Mendocino dodder	1B.2	N	N	G5T1	S1	annual vine (parasitic)	0-50 m.	Coastal dunes (interdune depressions). Rediscovered at Point Arena in 2011. Many historical occurrences may be extirpated; need field surveys. Known to occur on *Gnaphalium*, *Silene*, and *Lupinus* spp. in Mendocino Co.; and on *Polycarpon tetraphyllum* and *Calystegia purpurata* ssp. *saxicola* with *Sanicula arctopoides* nearby in Sonoma Co.	July - October	No
Erigeron supplex	supple daisy	1B.2	N	N	G1	S1.1	perennial herb	5-50 m.	Coastal bluff scrub, coastal prairie. Usually in open rocky areas in grassy sites with short grasses.	May - July	Yes
Erysimum concinnum	headland wallflower	1B.2	N	N	G3	S3	perennial herb	0-185 m.	Coastal bluff scrub, coastal dunes, coastal prairie. Largest occurrence known from Pt. Reyes NS; possibly of hybrid origin. Some occurrences from Del Norte and Mendocino Counties are also of possible hybrid origin; further study is ongoing.	March – May	No
Erysimum menziesii	Menzies' wallflower	1B.1	FE	SE	G1	S1	perennial herb	0-35 m.	Localized on coastal dunes and coastal strand. In remnant, open, partially stabilized dune habitat. Plants treated as ssp.; not validly published.	March - June	No
Erythronium revolutum	coast fawn lily	2.2	N	N	G4	S2S3	perennial bulbiferous herb	0-1065 m.	Bogs and fens; broadleafed upland forests; North Coast coniferous forest. On timbered and brushy hillside; wet soil under redwoods. Shady and mesic glens. Sometimes associated with *Arbutus menziesii*, *Lithocarpus densiflorus*, *Quercus chrysolepis*, *Pseudotsuga menziesii.* On rock outcrops and slopes in forests.	March - August	No

Scientific Name	Common Name	CRPR	Federal	State	G-Rank	S-Rank	Life Form	Elevation	Detailed	Blooming Period	Habitat Suitability within Project Site
Fritillaria roderickii	Roderick's fritillary	1B.1	N	SE	G1Q	S1.1	perennial bulbiferous herb	15-610 m.	Coastal bluff scrub, coastal prairie, valley and foothill grassland. Grassy slopes, mesas.	March - May	No
Gilia capitata ssp. *chamissonis*	blue coast gilia	1B.1	N	N	G5T2	S2.1	annual herb	2-200 m.	Coastal dunes; coastal scrub. On disturbed Franciscan sage scrub on loose sandy soils. Growing with *Ericameria ericoides*, *Lupinus chamissonis*, *Erysimum franciscanum*, *Croton californicus*, *Camissonia cheiranthifolia*, *Phacelia distans*.	April - July	No
Gilia capitata ssp. *pacifica*	Pacific gilia	1B.2	N	N	G5T3T4	S2.2?	annual herb	5-300 m.	Coastal bluff scrub, openings in chaparral, coastal prairie, valley and foothill grassland. Steep cliffs, fields, and dry banks.	April - August	Yes
Gilia capitata ssp. *tomentosa*	woolly-headed gilia	1B.1	N	N	G5T1	S1.1	annual herb	15-155 m.	Coastal bluff scrub, valley and foothill grassland, rocky outcrops on the coast. Locally abundant on serpentine outcrop and serpentine-derived loam on west-facing slopes in grassland/pastureland. Grows with *Linum perenne*, *Lupinus* spp. and *Avena barbata*.	May - July	No
Gilia millefoliata	dark-eyed gilia	1B.2	N	N	G2	S2.2	annual herb	2-20 m.	Coastal dunes. Sandy, stabilized dune habitat. Sandy grassland between *Lupinus arboreus* shrubs dominated by nonnative grasses.	April - July	Yes
Glyceria grandis	American manna grass	2.3	N	N	G5	S1.3?	perennial rhizomatous herb	15-1980 m.	Bogs and fens, wet meadows and seeps, marshes and swamps (streambanks and lake margins). Ditches streams and ponds in valleys and lower elevations in the mountains. Sometimes standing in water; margins of rivers.	June - August	No
Hemizonia congesta ssp. *congesta*	seaside tarplant	1B.2	N	N	G5T2T3	S2S3	annual herb	25-200 m.	Coastal scrub; valley and foothill grasslands, grassy valleys and hills, sometimes on grassy slopes with thin clayish soils; often in fallow fields. Sometimes on roadsides. Known from Glen Blair, Comptche, and Pudding Creek.	April - November	No
Hesperevax sparsiflora var. *brevifolia*	short-leaved evax	1B.2	N	N	G4T2T3	S2S3	annual herb	0-200 m.	Sandy coastal bluffs; coastal dunes, coastal dune mat, and sandy openings in wet dune meadows. Coastal bluff scrub. Rocky, grassy slopes. In areas of sparse vegetation cover in sandy substrate.	March - June	Yes
Hesperocyparis pygmaea	pygmy cypress	1B.2	N	N	G2	S2	perennial evergreen tree	35-305 m.	Closed-cone coniferous forests, usually podzol-like soils or Blacklock soils in Mendocino cypress pygmy forests.	-	No
Horkelia marinensis	Point Reyes horkelia	1B.2	N	N	G2	S2.2	perennial herb	5-30 m.	Sandy sites in coastal dunes, coastal prairie, and coastal scrub.	May - September	Yes
Horkelia tenuiloba	thin-lobed horkelia	1B.2	N	N	G2	S2.2	perennial herb	45-500 m.	Mesic openings or sandy sites in broadleafed upland forests, chaparral, and valley and foothill grassland. Wet meadows and marshy areas surrounded by *Pseudotsuga menziesii*, *Rhamnus californica*, *Baccharis pilularis*. Growing on sandy loam in coastal scrub. On sandstone in "pine barrens."	May - July	No
Juncus supiniformis	hair-leaved rush	2.2	N	N	G5	S2.2?	perennial rhizomatous herb	20-100 m.	Bogs and fens; freshwater marshes and swamps near the coast. Around pools, in ruts and ditches in podzol soils.	April - June	No
Kopsiopsis hookeri	small groundcone	2.3	N	N	G5	S1S2	perennial rhizomatous herb (parasitic)	-	North Coast coniferous forest. Open woods, shrubby places. Pygmy forest intergrading with redwood and Douglas-fir forests with sandy soils and flat aspect. Generally on *Gaultheria shallon*. Plants concentrated around the base and/or drip line of *Arctostaphylos columbiana*, but also in close proximity with other ericaceous species. May be parasitic on *Arctostaphylos*.	April - August	No
Lasthenia californica ssp. *bakeri*	Baker's goldfields	1B.2	N	N	G3TH	SH	perennial herb	60-520 m.	Openings in closed-cone coniferous forest; coastal scrub; meadows and seeps; marshes and swamps. On windswept grassy hills; grazed areas. Early in the life of a plant the leaves may be wide and the plant prostrate; later the leaves become narrow and the plants' flowering stems turn upright.	April - October	No
Lasthenia californica ssp. *macrantha*	perennial goldfields	1B.2	N	N	G3T2	S2.2	perennial herb	5-520 m.	Coastal bluff scrub, coastal dunes, and coastal scrub. In clay soil on wind-swept ocean bluffs and coastal terraces, and in grassy patches and dried vernal pool beds. On sea bluffs and grassy plateaus back from the ocean. Coastal bluffs in heavy adobe; sandy soil of ocean headlands.	January - November	Yes

Scientific Name	Common Name	CRPR	Federal	State	G-Rank	S-Rank	Life Form	Elevation	Detailed	Blooming Period	Habitat Suitability within Project Site
Lasthenia conjugens	Contra Costa goldfields	1B.1	FE	N	G1	S1.1	annual herb	1-445 m.	Mesic sites in cismontane woodlands; alkaline playas; valley and foothill grasslands; vernal pools, swales, and low depressions. Extirpated from most of its range. Only one coastal location in Point Arena.	March - June	No
Lathyrus palustris	marsh pea	2.2	N	N	G5	S2S3	perennial herb	1-100 m.	Bogs and fens; mesic sites of coastal prairies, coastal scrub, lower montane coniferous forests, and North Coast coniferous forests, seasonal seeps surrounded by redwood/Douglas-fir/tanoak forests; marshes and swamps, including swamps adjacent to tidewater. Sometimes at the edge of wet *Carex* marshes in transition to scrub and spruce forests. Only one Mendocino occurrence.	March - August	No
Lilium maritimum	coast lily	1B.1	N	N	G2	S2	perennial bulbiferous herb	-	Broadleafed upland forests, closed-cone coniferous forests, coastal prairies, coastal scrub, freshwater marshes and swamps. Historically in sandy soil, often on raised hummocks or bogs; today mostly on roadsides or roadside ditches. Sometimes growing with *Veratrum fimbriatum*, *Lithocarpus*, *Pinus muricata*, *Vaccinium*, Gaultheria *shallon*, *Pteridium*, and *Morella*.	May - August	Yes
Hosackia gracilis	coast lotus	4.2	N	N	G4	S3.2	perennial rhizomatous herb	0-150 m.	Wetlands, roadsides, broadleafed upland forest, coastal bluff scrub, closed-cone coniferous forest, cismontane woodland, coastal prairie, coastal scrub, meadows and seeps, marshes and swamps, North Coast coniferous forest, valley and foothill grassland.	March - July	Yes
Lycopodium clavatum	running-pine	4.1	N	N	G5	S4.1	perennial rhizomatous herb	45-1640 m.	Marshes & swamps, North Coast coniferous forests (mesic)	June - August	No
Microseris borealis	northern microseris	2.1	N	N	G4?	S1.1	perennial herb	915-1830 m.	Bogs and fens, lower montane coniferous forest, meadows and seeps/mesic.	June - September	No
Microseris paludosa	marsh microseris; marsh silverpuffs	1B.2	N	N	G2	S2.2	perennial herb	5-300 m.	Closed-cone coniferous forests, cismontane woodlands, coastal scrub, valley and foothill grasslands. A 1968 collection from Point Arena (3.2 km to N, between Hwy. 1 and beach) is the northernmost occurrence and is disjunct from southern populations.	April - July	No
Mitellastra caulescens	leafy-stemmed mitrewort	4.2	N	N	G5	S4.2	perennial rhizomatous herb	6-1710 m.	Mesic sites in broadleafed upland forests, lower montane coniferous forests, meadows and seeps, North Coast coniferous forests. Moist alluvial soil under alder; mesic streamside and streambank habitat. Sides of roads in floodplains.	April - October	Yes
Oenothera wolfii	Wolf's evening-primrose	1B.1	N	N	G1	S1.1	perennial herb	3-800 m.	Sandy, usually mesic sites in coastal bluff scrub, coastal dunes, coastal prairie, and lower montane coniferous forests. Along roads on vertical cutbanks and in grassy median. On disturbed sterile soil; upper stabilized dunes; rocky slopes protected above strand; vertical cliffs above the ocean.	May - October	Yes
Packera bolanderi var. *bolanderi*	seacoast ragwort	2.2	N	N	G4T4	S1.2	perennial rhizomatous herb	30-650 m.	Coastal scrub, North Coast coniferous forests. In loose, rocky, poorly consolidated siltstone and mudstone. Associated with old growth redwood, Douglas-fir, tanoak, maple, dogwood, wild ginger, salal. Steep slopes in dry, sunny woods. Sandy stream banks, roadsides, rocky banks, old quarries.	February - July	No
Phacelia insularis var. *continentis*	North Coast phacelia	1B.2	N	N	G2T1	S1.2	annual herb	10-160 m.	Sandy, sometimes rocky, sites in coastal bluff scrub; open maritime bluffs; coastal dunes. Rocky, thin soil with native and non-native grasses and forbs. Sandy pastureland and grazed coastal prairie.	March - May	Yes
Pinus contorta ssp. *bolanderi*	Bolander's beach pine	1B.2	N	N	G5T2	S2	perennial evergreen tree	35-250 m.	Closed-cone coniferous forests with podzol-like soils. Associated with Mendocino cypress and bishop pine, and Mendocino pygmy cypress forests.	-	No
Pleuropogon hooverianus	North Coast semaphore grass	1B.1	N	ST	G1	S1.1	perennial rhizomatous herb	10-1150 m.	Open and mesic areas of North Coast coniferous and broadleafed upland forests (oak/madrone); grassy flats in the shade of redwoods. Meadows and seeps. Wet grassy, usually shady areas, sometimes in freshwater marshes and often associated with forest environments. In stagnant water of highway ditches.	April - June	No
Potamogeton epihydrus	ribbonleaf pondweed	2B.2	N	N	G5	S2.2?	perennial herb (rhizomatous)	369 – 2172 m.	Marshes and swamps (assorted shallow freshwater)	June - September	No

Scientific Name	Common Name	CRPR	Federal	State	G-Rank	S-Rank	Life Form	Elevation	Detailed	Blooming Period	Habitat Suitability within Project Site
Puccinellia pumila	dwarf alkali grass	2.2	N	N	G4?	S1.1?	perennial herb	1-10 m.	Coastal salt marshes and swamps; meadows and seeps, mineral spring meadows. Two known occurrences in Mendocino County.	July	No
Rhynchospora alba	white beaked-rush	2.2	N	N	G5	S2	perennial rhizomatous herb	60-2000 m.	Sphagnum bogs and fens (sometimes in Mendocino pygmy forests); meadows and seeps; marshes and swamps (freshwater). Sometimes in low, wet swales immediately surrounding grasslands. Known from Inglenook Fen and bog east of Fort Bragg.	July - August	No
Sanguisorba officinalis	great burnet	2.2	N	N	G5?	S2.2	perennial rhizomatous herb	60-1400 m.	Bogs and fens; broadleafed upland forests; meadows and seeps; marshes and swamps (marshy streams); North Coast coniferous forests; riparian forests. Serpentine seepage areas and along stream borders.	July - October	No
Sidalcea calycosa ssp. *rhizomata*	Point Reyes checkerbloom	1B.2	N	N	G5T2	S2.2	perennial rhizomatous herb	5-75 (245) m.	Freshwater marshes and swamps near the coast. Moist slopes from seeps and ephemeral streams, most areas quite marshy.	April - September	No
Sidalcea malachroides	maple-leaved checkerbloom	4.2	N	N	G3G4	S3S4.2	perennial herb	-	Broadleafed upland forests; coastal prairie, coastal scrub, North Coast coniferous forest, riparian woodland. Woodlands and clearings near the coast, often in disturbed areas. Sometimes along floodplains.	March - August	Marginal
Sidalcea malviflora ssp. *patula*	Siskiyou checkerbloom	1B.2	N	N	G5T2	S2	perennial rhizomatous herb	15-65 m.	Coastal bluff scrub; coastal prairie; broadleafed upland forests, open areas of North Coast coniferous forest. Pastures, grassy landings, and roadsides. Only 1 Mendocino occurrence.	May - August	No
Sidalcea malviflora ssp. *purpurea*	purple-stemmed checkerbloom	1B.2	N	N	G5T2	S2.2	perennial rhizomatous herb	15-65 m.	Broadleafed upland forests; coastal prairie; grassy hills.	May - June	No
Trifolium buckwestiorum	Santa Cruz clover	1B.1	N	N	G1	S1.1	annual herb	60-545 m.	Broadleafed upland forests, cismontane woodlands, coastal prairie. Moist grasslands. Disturbed sites on roadbed in redwood forest; Sparsely vegetated, gravelly, hardpacked, somewhat barren flats or gentle inclines, roadbeds or former roadbeds. Flat open areas with sun exposure, seasonal moisture, and gravelly, poor soils. Shallow depressions that collect water in rain. Common associates include *Juncus bufonius*, *Soliva sessilis*, *Danthonia californica*, and *Bromus hordeaceus*. In Mendocino Co., most collections from ~5 miles up Garcia River.	April - October	No
Trifolium trichocalyx	Monterey clover	1B.1	FE	CE	G1	S1	annual herb	30-240 m.	Closed-cone coniferous forest (sandy, openings, burned areas). Discovered in Big River Forest in 2011. Previously known from only two occurrences from the central portion of the Monterey Peninsula.	April - June	No
Triquetrella californica	coastal triquetrella	1B.2	N	N	G1	S1	moss	10-100 m.	Coastal bluff scrub, coastal scrub, valley and foothill grasslands. In open gravels or on thin soil over rocky outcrops. On roadsides, hillsides, rocky slopes, and fields. On beach sands with *Alnus* and *Gaultheria*. Only one Mendocino occurrence.	-	Yes
Usnea longissima	long-beard lichen	not ranked	N	N	G4	S4.2	lichen	-	In old-growth and late-successional conifer stands, hardwood stands, and riparian areas, particularly in coastal climates or on fog-swept mountains where humidity is high.	-	No
Veratrum fimbriatum	corn-lily	4.3	N	N	G3	S3.3	perennial herb	3-183 m.	Wet areas in coastal scrub and North Coast coniferous forests, meadows and seeps, bogs and fens. Restricted to coastal Sonoma and Mendocino Counties.	July - September	Yes
Viola adunca	Western dog violet	Not ranked	N	N	?	?	perennial herb	15-2200 m.	Yellow pine forest, red fir forest, lodgepole forest, redwood forest, mixed evergreen forest, subalpine forest, alpine fell-fields, wetland-riparian. Common and widespread on open sea bluffs to red fir forest.	April-August	Yes
Viola palustris	marsh violet	2.2	N	N	G5	S1S2	perennial rhizomatous herb	0-15 m.	Coastal bogs and fens; mesic coastal scrub. Swampy, shrubby places in coastal scrub or coastal bogs. Carpeting the ground in shady wet places but flowering rarely. Sometimes growing among Carex, or among brush at edges of swamps. Freshwater marsh on deep peat substrate (4-5').	March - August	Yes

Table 2. Plant Communities Occurring in Coastal Mendocino County. A partial list of vegetation alliances occurring in coastal Mendocino County is derived from the California Department of Fish and Wildlife's "List of Vegetation Alliances and Associations," (2010) (http://www.dfg.ca.gov/biogeodata/vegcamp/natural_communities.asp). See Table 1 for an explanation of the Global and State Ranking.

Scientific Name	Common Name	Global & State Rank
Woodland and Forest Alliances and Stands		
Abies grandis Alliance	Grand fir forest	G4 S2
Acer macrophyllum Alliance	Bigleaf maple forest	G4 S3
Alnus rubra Alliance	Red alder forest	G5 S4
Arbutus menziesii Alliance	Madrone forest	G4 S3
Callitropsis pigmaea Alliance	Mendocino pygmy cypress woodland	G2 S2
Chrysolepis chrysophylla Alliance	Golden chinquapin thickets	G2 S2
Lithocarpus densiflorus Alliance	Tanoak forest	G4 S3
Picea sitchensis Alliance	Sitka spruce forest	G5 S2
Pinus contorta ssp. *contorta* Alliance	Beach pine forest	G5 S3
Pinus muricata Alliance	Bishop pine forest	G3 S3
Pseudotsuga menziesii Alliance	Douglas fir forest	G5 S4
Pseudotsuga menziesii - Lithocarpus densiflorus Alliance	Douglas fir - tanoak forest	G4 S4
Sequoia sempervirens Alliance	Redwood forest	G3 S3
Tsuga heterophylla Alliance	Western hemlock forest	G5 S2
Umbellularia californica Alliance	California bay forest	G4 S3
Shrubland Alliances and Stands		
Arctostaphylos glandulosa Alliance	Eastwood manzanita chaparral	G4 S4
Arctostaphylos (nummularia, sensitiva) Alliance	Glossy leaf manzanita chaparral	G2 S2
Baccharis pilularis Alliance	Coyote brushscrub	G5 S5
Ceanothus thyrsiflorus Alliance	Blue blossom chaparral	G4 S4
Corylus cornuta var. *californica* Alliance	Hazelnut scrub	G3 S2?
Frangula californica Alliance	California coffee berry scrub	G4 S4
Garrya elliptica Provisional Alliance	Coastal silk tassel scrub	G3? S3?
Diplacas aurantiacus Alliance	Bush monkeyflower scrub	G3 S3?
Holodiscus discolor Alliance	Ocean spray brush	G4 S3
Morella californica Alliance	Wax myrtle scrub	G3 S3
Rhododendron neoglandulosum Alliance	Western Labrador-tea thickets	G4 S2?
Rhododendron occidentale Provisional Alliance	Western azalea patches	G3 S2?
Rosa californica Alliance	California rose briar patches	G3 S3
Rubus (parviflorus, spectabilis, ursinus) Alliance	Coastal brambles	G4 S3
Salix hookeriana Alliance	Coastal dune willow thickets	G4 S3
Sphagnum Bog	Sphagnum bog	G3 S1.2
Salix sitchensis Provisional Alliance	Sitka willow thickets	G4 S3?
Salix lasiolepis Alliance	Arroyo willow thickets	G4 S4
Toxicodendron diversilobum Alliance	Poison oak scrub	G4 S4
Herbaceous Alliances and Stands		
Abronia latifolia–Ambrosia chamissonis Alliance	Dune mat	G3 S3
Argentina egedii Alliance	Pacific silverweed marshes	G4 S2
Bulboschoenus maritimus Alliance	Salt marsh bulrush marshes	G4 S3
Calamagrostis nutkaensis Alliance	Pacific reed grass meadows	G4 S2
Camassia quamash Alliance	Small camas meadows	G4? S3?
Carex obnupta Alliance	Slough sedge swards	G4 S3
Carex pansa Alliance	Sand dune sedge swaths	G4? S3?
Danthonia californica Alliance	California oat grass prairie	G4 S3
Deschampsia caespitosa Alliance	Tufted hair grass meadows	G5 S4?
Distichlis spicata Alliance	Salt grass flats	G5 S4
Eleocharis macrostachya Alliance	Pale spike rush marshes	G4 S4
Elymus glaucus Alliance	Blue wild rye meadows	G3? S3?
Festuca rubra Alliance	Red fescue grassland	G4 S3?

Festuca idahoensis Alliance	Idaho fescue grassland	G4 S3?
Glyceria occidentalis	Northwest manna grass marshes	G3? S3?
Grindelia (stricta) Provisional Alliance	Gum plant patches	G3? S3?
Holcus lanatus-Anthoxanthum odoratum Alliance	Semi-natural herbaceous stands	None
Hordeum brachyantherum Alliance	Meadow barley patches	G4 S3?
Juncus articus (var. *balticus, mexicanus*)	Baltic and Mexican rush marshes	G5 S4
Juncus effusus Alliance	Soft rush marshes	G4 S4?
Juncus (oxymeris, xiphioides) Provisional Alliance	Iris-leaf rush seeps	G2? S2?
Juncus lescurii Alliance	Salt rush swales	G3 S2?
Juncus patens Provisional Alliance	Western rush marshes	G4? S4?
Leymus mollis Alliance	Sea lyme grass patches	G4 S2
Leymus triticoides Alliance	Creeping rye grass turfs	G4 S3
Mimulus (guttatus) Alliance	Common monkey flower seeps	G4? S3?
Poa secunda Alliance	Curley bluegrass grassland	G4 S3?
Schoenoplectus acutus Alliance	Hardstem bulrush marsh	G5 S4
Schoenoplectus californicus Alliance	California bulrush marsh	G5 S4?
Scirpus microcarpus Alliance	Small-fruited bulrush marsh	G4 S2
Solidago canadensis Provisional Alliance	Canada goldenrod patches	G4? S4?
Woodwardia fimbriata	Woodwardia thicket	G3 S3.2
Aquatic Vegetation		
Azolla (*filiculoides*, *mexicana*) Provisional Alliance	Mosquito fern mats	G4 S4
Hydrocotyle (*ranunculoides*, *umbellata*) Alliance	Mats of floating pennywort	G4 S3?
Lemna (*minor*) and Relatives Provisional Alliance	Duckweed blooms	G5 S4?
Nuphar lutea Provisional Alliance	Yellow pond-lily mats	G5 S3?
Oenanthe sarmentosa Alliance	Water-parsley marsh	G4 S2?
Sarcocornia pacifica (*Salicornia depressa*) Alliance	Pickleweed mats	G4 S3
Sparganium (*angustifolium*) Alliance	Mats of bur-reed leaves	G4 S3?
Typha (*angustifolia, domingensis, latifolia*) Alliance	Cattail marshes	G5 S5

Table 3. Special-Status Animal with Potential for Occurrence in Coastal Mendocino County. Species gleaned from the California Department of Fish and Wildlife's list, "Special Animals," (CDFW 2011). See Table 1 for an explanation of global and state rankings. An explanation of the field "Organization: Code" is at the end of the table.

Scientific name Common name	Federal Status	State Status	G Rank	S Rank	Organization: Code	Habitat	Potential for Occurrence on Project Site
INVERTEBRATES							
Snails, Slugs, and Abalone (*GASTROPODA*)							
Helminthoglypta arrosa pomoensis Pomo bronze shoulderband	None	None	G2G3T1	S1	IUCN:DD	Found near the coast in heavily-timbered redwood canyons of Mendocino County, from Big River and Russian Gulch watersheds. Found under redwoods. Generally, in somewhat moist duff. Found in scrub in forest opening under a power line in Russian Gulch.	No habitat.
Noyo interessa Ten Mile shoulderband	None	None	G2	S2	None	Known from a few locations in Mendocino County with limited habitat information. Known from Ten Mile Dunes.	No. No dune habitat.
Beetles (*INSECTA, Coleoptera*)							
Coelus globosus Globose dune beetle	None	None	G1	S1	IUCN:VU	Subterranean beetle that tunnels through sand under dune vegetation. Since coastal dune habitat in California is diminishing, the beetle is a special-status species.	None. No coastal dunes.
Butterflies & Moths (*INSECTA, Hymenoptera*)							
Lycaeides argyrognomon lotis lotis blue butterfly	Endangered	None	G5TH	SH	XERCES:CI	Not seen since 1983, it is primarily from Mendocino County but historically from northern Sonoma and possibly Marin Counties. Inhabits wet meadows, damp coastal prairie, and potentially bogs or poorly-drained sphagnum-willow bogs where soils are waterlogged and acidic. Presumed host plant is *Hosackia gracilis*.	No host plants found.
Speyeria zerene behrensii Behren's silverspot butterfly	Endangered	None	G5T1	S1	XERCES:CI	Historically from near the Town of Mendocino, Mendocino County, south to the area of Salt Point State Park, Sonoma County. Now presumed to be from Manchester south to Salt Point area. Inhabits coastal terrace prairie with caterpillar host plants: violet (*Viola adunca*) and adult nectar sources: thistles, asters, etc.	No host plants found.
Ants, Bees, & Wasps (*INSECTA, Hymenoptera*)							
Bombus occidentalis Western bumble bee	None	None	GU	S1	XERCES:IM	Populations in central California have declined since the 1990's. It visits flowers in a variety of habitats. Identified by a white patch on its abdomen hind tip. None recorded from coastal Mendocino County at http://www.xerces.org/bumblebees/	Potential habitat based on limited information.
FISH							
Lampreys (*PETROMYZONTIDAE*)							
Entosphenus tridentatus Pacific lamprey	None	None	G5	S4	AFS:VU	Anadromous lamprey found in freshwater rivers around the Pacific Rim, from Japan to Baja California. Adult Pacific Lamprey spawn in habitat similar to salmon: low gradient stream reaches, in gravel, often at the tailouts of pools and riffles.	No habitat.
Lampetra ayresii river lamprey	None	None	G4	S4	AFS:VU DFG:SSC	Anadromous lamprey that uses riffle and side channel habitats for spawning and for ammocoete rearing where good water quality is essential. Adult Pacific Lamprey spawn in habitat similar to salmon: low gradient stream reaches, in gravel, often at the tailouts of pools and riffles.	No habitat.
Trout & Salmon (*SALMONIDAE*)							
Oncorhynchus gorbuscha pink salmon	None	None	G5	S1	DFG:SSC	Most spawn in intertidal or lower reaches of streams and rivers in Sept and Oct. and move further upstream in Sacramento River. Optimal temp = 5.6 to 14.4° C. Embryos and alevins require fast-flowing well oxygenated water for development and survival.	No habitat.
Oncorhynchus kisutch Coho salmon - central California coast ESU	Endangered	Endangered	G4	S2?	AFS:EN	Require beds of loose, silt-free, coarse gravel for spawning. Also need cover, cool water and sufficient dissolved oxygen.	No habitat.
Oncorhynchus kisutch Coho salmon - southern Oregon / northern California ESU	Threatened	Threatened	G4T2Q	S2?	AFS:TH DFG:SSC	Require beds of loose, silt-free, coarse gravel for spawning. Also need cover, cool water and sufficient dissolved oxygen.	No habitat.
Oncorhynchus mykiss irideus summer-run steelhead trout	None	None	G5T4Q	S2	DFG:SSC	Cool, swift, shallow water and clean loose gravel for spawning, and suitably large pools in which to spend the summer.	No habitat.
Oncorhynchus mykiss irideus steelhead - central California coast DPS	Threatened	None	G5T2Q	S2	AFS:TH	Adult steelhead require high flows with water at least 18 cm deep for passage. They may leap up to ~3 m. For spawning, sufficient streamflow over clean gravel, cool water temperature, depth, and cover for escape (usually a deep pool with cover).	No habitat.

Scientific name Common name	Federal Status	State Status	G Rank	S Rank	Organization: Code	Habitat	Potential for Occurrence on Project Site
Oncorhynchus mykiss irideus steelhead-northern California DPS	Threatened	None	G5T2Q	S2	AFS:TH DFG:SSC	Cool, swift, shallow water and clean loose gravel for spawning.	No habitat.
Oncorhynchus tshawytscha chinook salmon – California coastal ESU	Threatened	None	G5	S2	AFS:TH	Adults depend on pool depth and volume, amount of cover, and proximity to gravel. Water temps >27° C lethal to adults.	No habitat
Minnows & Carp (*CYPRINIDAE*)							
Lavinia symmetricus navarroensis Navarro roach	None	None	G5T1T2	S1S2	DFG:SSC	Habitat generalists. Found in warm intermittent streams as well as cold, well-aerated streams. Found in the lower, warmer reaches of streams in the Russian and Navarro River drainages.	Not in range
Lavinia symmetricus parvipinnis Gualala roach	None	None	G5T1T2	S1S2	DFG:SSC	Habitat generalists. Found in warm intermittent streams as well as cold, well-aerated streams.	No habitat.
Gobies (*GOBIIDAE*)							
Eucyclogobius newberryi tidewater goby	Endangered	None	G3	S2S3	AFS:EN DFG:SSC IUCN:VU	Brackish water habitats along the California coast from Agua Hedionda lagoon, San Diego Co. to the mouth of the Smith River. Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels.	No habitat.
AMPHIBIANS & REPTILES							
Olympic salamanders (RHYACOTRITONIDAE)							
Rhyacotriton variegatus southern torrent (=seep) salamander	None	None	G3G4	S2S3	DFG:SSC IUCN:LC USFS:S	Found in Coastal redwood, Douglas fir, mixed conifer, montane riparian, and montane hardwood-conifer forests from northern California south to Point Arena. Aquatic habitat includes permanent cold creeks, steams and seepages with low water flow; associated with moss-covered rocks within trickling water and the splash zone of waterfalls; old-growth coniferous forests with closed canopy; <50% cobble in creeks, remainder mixture of pebble, gravel and sand.	No habitat.
Tailed frogs (ASCAPHIDAE)							
Ascaphus truei Pacific tailed frog	None	None	G4	S2S3	DFG:SSC IUCN:LC	Occurs in montane hardwood-conifer, redwood, Douglas-fir and ponderosa pine habitats. Coastal from Anchor Bay, Mendocino Co. to Oregon border. Cold, clear, rocky streams in wet forests. They do not inhabit ponds or lakes. A rocky streambed is necessary for cover for adults, eggs, and larvae. After heavy rains, adults may be found in the woods away from the stream.	No habitat.
Frogs (RANIDAE)							
Rana aurora aurora northern red-legged frog	None	None	G4T4	S2?	DFG:SSC USFS:S	Found in humid forests, woodlands, grasslands, and streamsides in northwestern California. Generally near permanent water, but can be found far from water, in damp woods and meadows, during non-breeding season. Integration zone between northern and California species is between Manchester and Elk.	Potential upland habitat.
Rana aurora draytonii California red-legged frog	Threatened	None	G4T2T3	S2S3	DFG:SSC IUCN:VU	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11-20 weeks of permanent water for larval development. Must have access to estivation habitat.	Not in range.
Rana boylii foothill yellow-legged frog	None	None	G3	S2S3	BLM:S DFG:SSC IUCN:NT USFS:S	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. Need at least some cobble-sized substrate for egg-laying.	No habitat.
Box & Water Turtles (EMYDIDAE)							
Emys marmorata marmorata western pond turtle	None	None	G3G4	S3	BLM:S DFG:SSC IUCN:VU USFS:S	Former scientific name: *Clemmys marmorata marmorata*. Associated with permanent or nearly permanent water in a wide variety of habitats. Requires basking sites. Nests sites may be found up to 0.5 km from water.	No habitat.

BIRDS							
Pelicans (*PELECANIDAE*)							
Pelecanus occidentalis californicus California brown pelican (nesting colony & communal roosts)	Delisted	Delisted	G4T3	S1S2	DFG:FP	Nest colonies are on offshore islands free of mammalian predators and human disturbance, are of sufficient elevation to prevent flooding of nests, and are associated with an adequate and consistent food supply. Brown pelicans roost communally, generally in areas that are near adequate food supplies, have some type of physical barrier to predation and disturbance, and provide some protection from environmental stresses such as wind and high surf.	No marine island habitat.
Cormorants (*PHALACROCORACIDAE*)							
Phalacrocorax auritus double-crested cormorant (nesting colony)	None	None	G5	S3	DFG:WL IUCN:LC	Rookery site: colonial nester on coastal cliffs, offshore islands, and along lake margins in the interior of the state. Nests along coast on sequestered islets, usually on ground with sloping surface, or in tall trees along lake margins.	No coastal cliffs or islands.
Herons, Egrets, and Bitterns (*ARDEIDAE*)							
Ardea alba great egret (nesting colony)	None	None	G5	S4	CDF:S IUCN:LC	Rookery: colonial nester in large trees. Rookery sites located near marshes, tide-flats, irrigated pastures, and margins of rivers and lakes. Breeding territory is limited to the immediate vicinity of nest, and is used for courtship and copulation as well as nesting. A monogamous, colonial nester.	No habitat in project area.
Ardea herodias great blue heron (nesting colony)	None	None	G5	S4	CDF:S IUCN:LC	Rookery: colonial nester in tall trees, cliffsides, and sequestered spots on marshes. Rookery sites in close proximity to foraging areas: marshes, lake margins, tide-flats, rivers and streams, wet meadows.	No rookery habitat in project area.
Egretta thula snowy egret (nesting colony)	None	None	G5	S4	CDF:S IUCN:LC	Rookery: colonial nester, with nest sites situated in protected beds of dense tules. Rookery sites situated close to foraging areas: marshes, tidal-flats, streams, wet meadows, and borders of lakes.	Potential habitat in wetlands.
Hawks, Kites, Harriers, & Eagles (*ACCIPITRIDAE*)							
Accipiter cooperii Cooper's hawk (nesting)	None	None	G5	S3	DFG:WL IUCN:LC	Nesting: woodland, chiefly of open, interrupted or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.	No habitat.
Accipiter gentilis northern goshawk (nesting)	None	None	G5	S3	BLM:S CDF:S DFG:SSC IUCN:LC USFS:S	Nesting: within and in vicinity of coniferous forest. Uses old nests, and maintains alternate sites. Usually nests on north slopes, near water. Red fir, lodge pole pine, Jeffrey pine, and aspens are typical nest trees. Northern goshawks typically nest in conifer forests containing large trees and an open understory on the west slope of the Sierra. There is historic nesting in Big River and Pudding Creek. Winter migrant on the coast.	No habitat.
Accipiter striatus sharp-shinned hawk (nesting)	None	None	G5	S3	DFG:WL	Nesting: ponderosa pine, black oak, riparian deciduous, mixed conifer and Jeffrey pine habitats. Prefers riparian areas. North-facing slopes, with plucking perches are critical requirements. Nests usually within 275 ft. of water. Nests in dense, even-aged, single-layered forest canopy, usually nests in dense, pole and small-tree stands of conifers, which are cool, moist, well shaded, with little ground-cover, near water. Foraging: Uses dense stands in close proximity to open areas.	No habitat.
Aquila chrysaetos golden eagle (nesting & wintering)	None	None	G5	S3	CDF:S DFG:FP DFG:WL IUCN:LC USFWS:BCC	Nesting and wintering: rolling foothills mountain areas, sage-juniper flats, desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas. Nests on cliffs of all heights and in large trees in open areas. Alternative nest sites are maintained, and old nests are reused. Builds large platform nest, often 10 ft. across and 3 ft. high, of sticks, twigs, and greenery. Rugged, open habitats with canyons and escarpments used most frequently for nesting.	No nesting habitat.
Buteo regalis ferruginous hawk (wintering)	None	None	G4	S3S4	DFG:WL IUCN:LC USFWS:BCC	Usually east of the coastal belt, uncommon migrant in coastal Mendocino County seen in open areas such as Bald Hill and Manchester. Feeding habitat in open, treeless areas. Does not breed in California.	No habitat.

Circus cyaneus Northern harrier (nesting)	None	None	G5	S3	DFG:SSC IUCN:LC	Northern harriers prefer sloughs, wet meadows, marshlands, swamps, prairies, plains, grasslands, and shrublands and perch on structures such as fence posts. Nesting habitat: nest on the ground, usually near water, or in tall grass, open fields, clearings, or on the water on a stick foundation, willow clump, or sedge tussock. Most nests built within patches of dense, often tall, vegetation (e.g., cattails) in undisturbed areas. They usually nest near hunting grounds. Foraging: They need open, low woody or herbaceous vegetation for nesting and hunting.	Potential habitat.
Elanus leucurus white-tailed kite (nesting)	None	None	G5	S3	DFG:FP IUCN:LC	Nesting: rolling foothills/valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland, open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching. Winter congregation of at least 20 birds seen at Manchester State Park in early 2000's. One nest known from a THP in Albion ~2006; nest was at the edge of conifer forest with no pasture immediately adjacent.	No habitat.
Haliaeetus leucocephalus bald eagle (nesting & wintering)	Delisted	Endangered	G5	S2	CDF:S DFG:FP IUCN:LC USFS:S USFWS:BCC	Nesting and wintering: ocean shore, lake margins, and rivers for both nesting and wintering. Most nests within 1 mile of water. Nests in large, old-growth, or dominant live tree with open branches, especially ponderosa pine. Roosts communally in winter. Known from winter in Lake Cleone, MacKerricher State Park and Little River.	Breeding sites not known from coastal Mendocino.
Pandion haliaetus Osprey (nesting)	None	None	G5	S3	CDF:S DFG:WL IUCN:LC	Nesting: ocean shore, bays, fresh-water lakes, and larger streams. Large nests built in tree-tops within 6-7 to 15 miles of good fish-producing body of water. Flattened portions of partially broken off snags, trees, rocks, dirt pinnacles, cacti, and numerous man-made structures such as utility poles and duck blinds are used for nests. Furthest nest inland may be McGuire's Pond.	No habitat.
Falcons (*FALCONIDAE*)							
Falco columbarius Merlin (wintering)	None	None	G5	S3	DFG:WL IUCN:LC	General wintering habitat: Uncommon winter migrants on the coast. Habitat apparently similar to breeding habitat, (open forest and grasslands). Regularly hunts prey (e.g., shorebirds) concentrated on tidal flats. Often winters in cities throughout its range, where frequently perches on buildings, power poles, and tall trees. Also winters in open woodland, grasslands, open cultivated fields, marshes, estuaries, and seacoasts. Frequents open habitats at low elevation near water and tree stands.	Some potential for wintering habitat.
Falco peregrinus anatum American peregrine falcon (nesting)	Delisted	Delisted	G4T3	S2	CDF:S DFG:FP USFWS:BCC	Nesting: near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape on a depression or ledge in an open site.	Potential habitat.
Plovers & Relatives (CHARADRIIDAE)							
Charadrius alexandrinus nivosus western snowy plover (nesting)	Threatened	None	G4T3	S2	ABC:WLBCC DFG:SSC USFWS:BCC	Nesting: federal listing applies only to the pacific coastal population. Sandy beaches, salt pond levees and shores of large alkali lakes. Needs sandy, gravelly or friable soils for nesting. Sand spits, dune-backed beaches, unvegetated beach strands, open areas around estuaries, and beaches at river mouths are the preferred coastal habitats for nesting. Less common nesting habitat includes salt pans, coastal dredged spoil disposal sites, dry salt ponds, and salt pond levees and islands.	No coastal strand, open dune, or open river gravel bar habitat.
Oystercatchers (HAEMATOPODIDAE)							
Haematopus bachmani Black oystercatcher (nesting)	None	None	G5	S2	IUCN:LC USFWS:BCC	From the Aleutian Islands to Baja California, the forage on intertidal macroinvertebrates along gravel or rocky shores and in the southern part of their range nest primarily on rocky headlands and offshore rocks.	No rocky headlands or offshore rocks for nesting habitat.
Gulls & Terns (LARIDAE)							
Larus californicus California gull (nesting)	None	None	G5	S2	DFG:WL IUCN:LC	Colony nesters and usually occurring on an island or vegetated offshore rock.	No coastal island habitat.

Auklets, Puffins, & Relatives (ALCIDAE)							
Brachyramphus marmoratus marbled murrelet (nesting)	Threatened	Endangered	G3G4	S1	ABC:WLBCC CDF:S IUCN:EN	Nesting: feeds near-shore; nests inland along coast, from Eureka to Oregon border and from Half Moon Bay to Santa Cruz. Nests in old-growth redwood-dominated forests, up to six miles inland, often in Douglas-fir. Presence of platforms (flat surface at least four inches in diameter) appears to be the most important stand characteristic for predicting murrelet presence. Stands can be: 1) mature (with or without an old-growth component); 2) old-growth; 3) young coniferous forests with platforms; and 4) include large residual trees in low densities sometimes less than one tree per acre.	No large trees for nesting.
Fratercula cirrhata tufted puffin (nesting colony)	None	None	G5	S2	DFG:SSC IUCN:LC	Nesting colony: open-ocean bird; nests along the coast on islands, islets, or (rarely) mainland cliffs free of human disturbance and mammalian predators. Nests in burrows or rock crevices when sod or earth in unavailable for burrowing. Occurs year-road offshore near breeding colonies in northern California, but more common in winter. Breeding records from Goat Rock, Mendocino Headlands State Park.	No coastal island habitat.
Owls (*STRIGIDAE*)							
Athene cunicularia burrowing owl (burrow sites and some winter sites)	None	None	G4	S2	BLM:S DFG:SSC IUCN:LC USFWS:BCC	Burrow sites: open, dry annual or perennial grasslands, deserts and scrublands, and dunes characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Low potential. No ground squirrel burrows.
Strix occidentalis caurina northern spotted owl	Threatened	None	G3T3	S2S3	ABC:WLBCC CDF:S DFG:SSC IUCN:NT	Old-growth forests or mixed stands of old-growth and mature trees. Occasionally in younger forests w/patches of big trees. High, multistory canopy dominated by big trees, many trees w/cavities or broken tops, woody debris, and space under canopy.	No forested nesting habitat.
Swifts (*APODIDAE*)							
Chaetura vauxi Vaux's swift (nesting)	None	None	G5	S3	DFG:SSC IUCN:LC	Nesting: redwood, Douglas fir, and other coniferous forests. Nests in large hollow trees and snags. Often nests in flocks. Forages over most terrains and habitats but shows a preference for foraging over rivers and lakes. The most important habitat requirement appears to be an appropriate nest-site in a large, hollow tree. Forages over most terrains and habitats, often high in the air. Shows an apparent preference for foraging over rivers and lakes.	No forest habitat.
Hummingbirds (*TROCHILIDAE*)							
Selasphorus rufus rufous hummingbird (nesting)	None	None	G5	S1S2	IUCN:LC USFWS:BCC	Breeds in open or shrubby areas, forest openings, yards and parks, and sometimes in forests, thickets, and meadows. Late winter and spring migrant on the California coast. Breeding range from southeast Alaska and as far south as northwestern California.	Some potential appropriate habitat.
Selasphorus sasin Allen's hummingbird (nesting)	None	None			ABC:WLBCC IUCN:LC USFWS:BCC	Breeds only along a narrow strip of coastal California and southern Oregon. Nests in densely vegetated areas and forests. An early migrant compared with most North American birds, arriving in summer breeding grounds as early as January. Breeds in moist coastal areas, scrub, chaparral, and forests. Winters in forest edge and scrub clearings with flowers.	Some potential appropriate habitat for nesting in scrub.
Woodpeckers (*PICIDAE*)							
Picoides nuttallii Nuttall's woodpecker (nesting)	None	None	G5	SNR	ABC:WLBCC IUCN:LC	Ranging from west of the Cascade mountains and in the Sierra Nevada from southern Oregon to Northern Baja California. Nests are excavated in dead branches or snags of various trees, usually in close association with oak woodlands and riparian zone, habitat vulnerable to development. At least one Mendocino Coast record from 2011 Audubon Christmas Bird Count.	No nesting habitat, which is associated with oak woodlands inland from coast.
Sphyrapicus ruber red-breasted sapsucker	None	None	G5	SNR	None	Breeds primarily in coniferous forests, but also uses deciduous and riparian habitat, as well as orchards and power line corridors. The nest is a hole usually dug in a live deciduous tree (e.g. alder, willow, madrone) with possible preference for larger trees showing decay-softened wood.	No large deciduous trees.
Tyrant Flycatchers (*TYRANNIDAE*)							
Contopus cooperi olive-sided flycatcher (nesting)	None	None	G4	S4	ABC:WLBCC DFG:SSC IUCN:NT USFWS:BCC	Breeds in montane and northern coniferous forests, at forest edges and openings, such as meadows and ponds. Tall standing dead trees are used as perch trees for catching flying insects. Accordingly, an open canopy is a key components of suitable habitat. Nest is an open cup of twigs, rootlets, and lichens, placed out near tip of horizontal branch of a tree.	Potential nesting site.

Swallows (*HIRUNDINIDAE*)							
Progne subis purple martin	None	None	G5	S3	DFG:SSC IUCN:LC	Nesting: inhabits woodlands, low elevation coniferous forest of Douglas fir, Ponderosa pine, and Monterey pine. Nests in old woodpecker cavities mostly, also in human-made structures such as weep holes in bridges. Nest often located in tall, isolated trees and snags. Nesting on the Mendocino Coast known, in part, from Juan Creek, Ten Mile, Noyo, and Big River, and snags from Ten Mile River to Pudding Creek. Need open foraging habitats.	Potential habitat.
Wood-warblers (*PARULIDAE*)							
Dendroica occidentalis hermit warbler (nesting)	None	None	G4G5	S3?	ABC:WLBCC IUCN:LC	Breeding range is relatively limited to the Pacific Coast and the Cascade and Sierra Nevada mountain ranges of Washington, Oregon, and California. Some winter along the coastal central and southern California, but most winter primarily in the mountains of western Mexico and Central America. Nesting habitats in Pacific northwest are coniferous forests with a high canopy volume, generally preferring mature stands of pine and Douglas fir. Avoids areas with a high deciduous volume; absent from riparian areas and clearcuts. Birds of coniferous forests; they prefer cool, wet fir forests at elevation, and moist forests of Douglas-fir, hemlock, and western red cedar closer to sea level. Major threat to this species appears to be the degradation of breeding habitat. Not known as frequently nesting on the coast, perhaps more common inland.	No habitat.
Sparrows, Buntings, Warblers, & Relatives (*EMBERIZIDAE*)							
Ammodramus savannarum grasshopper sparrow (nesting)	None	None	G5	S2	DFG:SSC IUCN:LC	Nesting: dense grasslands on rolling hills, lowland plains, in valleys and on hillsides on lower mountain slopes. Favors native grasslands with a mix of grasses, forbs and scattered shrubs. Loosely colonial when nesting. Summer (breeding) resident in Mendocino County known from north of Ten Mile River.	Potential habitat.
Passerculus sandwichensis alaudinus Bryant's savannah sparrow (nesting)	None	None	G5T2T3	S2S3	DFG:SSC	California endemic from near Humboldt Bay, Humboldt Co. to Morro Bay, San Luis Obispo Co. Breeds in low tidally influenced habitats in higher parts of pickleweed/saltgrass marshes, adjacent ruderal areas, moist grasslands within and just above the fog belt, bottomlands and dairy pastures in the taller grasses and rushes along roads and fences, and infrequently, drier grasslands. In moist upland grasslands, it occurs where herbaceous vegetation is relatively short, with no or little woody plant cover. Open areas, whether provided by tidal mudflats or upland interstitial areas between clumps of vegetation, appears to be an important component of occupied habitat.	Potential habitat.
Blackbirds (*ICTERIDAE*)							
Agelaius tricolor tricolored blackbird (nesting colony)	None	None	G2G3	S2	ABC:WLBCC BLM:S DFG:SSC IUCN:EN USFWS:BCC	Nesting colony: highly colonial species, most numerous in central valley and vicinity. Largely endemic to California. Requires open water, protected nesting substrate, such as cattails and foraging area with insect prey within a few km of the colony. Known inland from McGuire's Pond.	No nesting habitat.
Mammals							
Evening Bats (*VESPERTILIONIDAE*)							
Antrozous pallidus pallid bat	None	None	G5	S3	BLM:S DFG:SSC IUCN:LC USFS:S WBWG:H	A wide variety of habitats deserts, grasslands, shrublands, woodlands and forests from sea level up through mixed conifer forests. Most common in open, dry habitats with rocky areas for roosting. A yearlong resident in most of the range. Day roosts are in caves, crevices, mines, and occasionally in hollow trees and buildings where there is protection from high temperatures.	Marginal roosting habitat.

Corynorhinus townsendi Townsend's big-eared bat	None	None	G4	S2S3	BLM:S DFG:SSC IUCN:LC USFS:S WBWG:H	Generally found in the dry uplands throughout the West, but also occur in mesic coniferous and deciduous forest habitats along the Pacific coast. Unequivocally associated with areas containing caves and cave-analogs for roosting habitat. Requires spacious cavern-like structures for roosting during all stages of its life cycle. Typically, they use caves and mines, but have been noted roosting in large hollows of redwood trees, attics and abandoned buildings, lava tubes, and under bridges. Extremely sensitive to disturbance.	No caves-analogs for roosting.
Lasionycteris noctivagans silver-haired bat	None	None	G5	S3S4	IUCN:LC WBWG:M	Ranges throughout California in coastal and montane forests. May be found anywhere in California during spring and fall migrations. Primarily a forest (tree-roosting) bat associated with north temperate zone conifer and mixed conifer/hardwood forests. Prefers forested (frequently coniferous) areas adjacent to lakes, ponds, and streams. During migration, sometimes occurs in xeric areas. Roosts in dead or dying trees with exfoliating bark, extensive vertical cracks, or cavities, rock crevices, and occasionally under wood piles, in leaf litter, under foundations, and in buildings, mines and caves. The primary threat is likely loss of roosting habitat due to logging practices that fail to accommodate the roosting needs of this species (e.g., clusters of large snags).	Not good potential habitat.
Lasiurus blossevillii western red bat	None	None	G5	S3?	DFG:SSC IUCN:LC	Locally common in some areas of California from Shasta County south to the Mexican border. California Central Valley is the species' primary breeding region. Species appears to be strongly associated with riparian habitats for roosting and foraging, particularly mature stands/large diameter of cottonwood/sycamore. Roosts in woodland borders, rivers, agricultural areas, and urban areas with mature trees in the foliage of large shrubs and trees, usually sheltering on the underside of overhanging leaves. It often hangs from one foot on the leaf petiole and may resemble a fruit or dead leaf. Rarely observed roosting in mines.	Not good potential habitat.
Lasiurus cinereus hoary bat	None	None	G5	S4?	IUCN:LC WBWG:M	Most widespread North American bat. Solitary species that winters along the coast and in southern California. Roosts in foliage of trees near ends of branches. Blends with the bark of trees. Highly associated with forested habitats but can be found in suburbs with old, large trees.	Potential winter roosting sites.
Myotis evotis long-eared myotis	None	None	G5	S4?	BLM:S IUCN:LC WBWG:M	Widespread in California, but generally is believed to be uncommon in most of its range. It avoids the arid Central Valley and hot deserts, occurring along the entire coast and interior mountains. Found in nearly all brush, woodland, and forest habitats, from sea level to at least 9,000 ft., but coniferous woodlands and forests seem to be preferred. Roosts in loose bark in tall, open-canopied snags; stumps in south-facing clear-cuts with minimal vegetation overgrowth in younger forests, and conifer snags in older forests, rocks, caves, bridges and abandoned mines.	Low potential habitat.
Myotis yumanensis Yuma myotis	None	None	G5	S4?	BLM:S IUCN:LC WBWG:LM	Optimal habitats are open forests and woodlands with sources of water over which to feed. Distribution is closely tied to bodies of water. Maternity colonies in caves, mines, buildings or crevices.	Low potential.
Mountain Beavers (*PLODONTIDAE*)							
Aplodontia rufa nigra Point Arena mountain beaver	Endangered	None	G5T1	S1	DFG:SSC IUCN:LC	Generally known from 2 miles north of Bridgeport Landing to 5 miles south of the town of Point Arena. Coastal areas often near springs or seepages; mesic coastal scrub, northern dune scrub, edges of conifer forests, and riparian plant communities. North facing slopes of ridges and gullies with friable soils and thickets of undergrowth.	Not within range.
Mice, Rats, & Voles (*MURIDAE*)							
Arborimus pomo Sonoma tree vole	None	None	G3	S3	DFG:SSC IUCN:NT	Species split into red tree vole and Sonoma tree vole; approximate boundary between two species is Klamath River. Inhabits north coast fog belt from Oregon border to Somona Co. in old-growth and other forests, mainly Douglas-fir, redwood, and montane hardwood-conifer habitats. Feeds almost exclusively on Douglas-fir needles. Will occasionally take needles of grand fir, hemlock or spruce.	No habitat.

Weasels & Relatives (*MUSTELIDAE*)							
Martes americana humboldtensis Humboldt marten	None	None	G5T2T3	S2S3	DFG:SSC USFS:S	Endemic to the coastal forests of northwestern California with a historical range described as "the narrow northwest humid coast strip, chiefly within the redwood belt" from the Oregon border to northern Sonoma county. However, the one known remnant Humboldt marten population occurs in the north-central portion of the described range in an area dominated by Douglas-fir and tanoak. Typically associated with closed-canopy, late-successional, mesic coniferous forests with complex physical structure near the ground. Very rare on the Mendocino coast.	No contiguous dense forest.
***Martes pennanti* (*pacifica*) DPS** Pacific fisher	Candidate	None	G5	S2S3	BLM:S DFG:SSC USFS:S	Intermediate to large-tree stages of coniferous forests and deciduous-riparian areas with high percent canopy closure. Use cavities, snags, logs and rocky areas for cover and denning. Need large areas of mature, dense forest. Very rare on the Mendocino coast.	No contiguous dense forest.
Sea Lions & Fur Seals (*OTARIIDAE*)							
Arctocephalus townsendi Guadalupe fur-seal	Threatened	Threatened	G1	S1	DFG:FP IUCN:NT	Solitary, non-social "eared" seals breed in the tropical waters off southern California/Mexico region but have been seen on rare occasion off Mendocino.	None.
Callorhinus ursinus northern fur-seal	None	None	G3	S1	IUCN:VU	Mostly pelagic seal ranging throughout the Pacific Rim, from Japan to the Channel Islands. Pacific rookeries in the Channel and Farallon Islands. Infrequent visitor to the Mendocino Coast. One was stranded on Albion flat in 2013 and rescued by the Marine Mammal Center.	None.
Eumetopias jubatus Steller (=northern) sea-lion	Threatened	None	G3	S2	IUCN:EN MMC:SSC	Range throughout the North Pacific Rim from Japan to central California. Unlike California sea lions, Stellers tend to remain off shore or haul out in unpopulated areas. Breeding rookery on Año Nuevo Island.	None.

Explanation of "Organization: Code" taken from CDFW 2011.

ABC: American Bird Conservancy – The United States WatchList is a joint project between the American Bird Conservancy and the National Audubon Society. It reflects a comprehensive analysis of all the bird species in the United States. It reveals those in greatest need of immediate conservation attention to survive a convergence of environmental challenges, including habitat loss, invasive species, and global warming. The list builds on the species assessments conducted for many years by Partners in Flight (PIF) for land birds. It uses those same PIF standards but it is expanded to cover all bird species, not just land birds. The list is based on the latest available research and assessments from the bird conservation community, along with data from the Christmas Bird Count and Breeding Bird Survey. More information is available at:
http://www.abcbirds.org/abcprograms/science/watchlist/index.html
WLBCC - United States WatchList of Birds of Conservation Concern

AFS: American Fisheries Society – Designations for freshwater and diadromous species were taken from the paper: Jelks, H.L., S.J. Walsh, N.M. Burkhead, S.Contreras-Balderas, E. Díaz-Pardo, D.A. Hendrickson, J. Lyons, N.E. Mandrak, F. McCormick, J.S. Nelson, S.P. Platania, B.A. Porter, C.B. Renaud, J. J. Schmitter-Soto, E.B. Taylor, and M.L. Warren, Jr. 2008. Conservation status of imperiled North American freshwater and diadromous fishes. Fisheries 33(8):372-407. Available at:
http://www.fisheries.org/afs/docs/fisheries/fisheries_3308.pdf Designations for marine and estuarine species were taken from the paper: Musick, J.T. et al. 2000. "Marine, Estuarine, and Diadromous Fish Stocks at Risk of Extinction in North America (Exclusive of Pacific Salmonids). Fisheries 25(11):6-30. Available at:
http://www.flmnh.ufl.edu/fish/sharks/sawfish/Reprint1390.pdf
EN - Endangered
T - Threatened
VU – Vulnerable

BLM: Bureau of Land Management – BLM Manual §6840 defines sensitive species as"...those species that are (1) under status review by the FWS/NMFS; or (2) whose numbers are declining so rapidly that Federal listing may become necessary, or (3) with typically small and widely dispersed populations; or (4) those inhabiting ecological refugia or other specialized or unique habitats." Existing California-BLM policy concerning the designation of sensitive species identifies two conditions that must be met before a species may be considered as BLM sensitive: (1) a significant population of the species must occur on BLM-administered lands, and (2) the potential must exist for improvement of the species' condition through BLM management. The "Sensitive Species" designation is not meant to include federally listed species, proposed species, candidate species or State-listed species. It is BLM policy to provide sensitive species with the same level of protection that is given federal candidate species. The list is available at: http://www.blm.gov/ca/pdfs/pa_pdfs/biology_pdfs/SensitiveAnimals.pdf
S - Sensitive

CDFW: California Department of Fish and Wildlife – The name California Department of Fish and Game (CDFG, or DFG) was changed to the California Department of Fish and Wildlife in 2013 and the changes are reflected here. It is the goal and responsibility of the Department of Fish and Game to maintain viable populations of all native species. To this end, the Department has designated certain vertebrate species as "Species of Special Concern" because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction. The goal of designating species as "Species of Special Concern" is to halt or reverse their decline by calling attention to their plight and addressing the issues of concern early enough to secure their long term viability. Not all "Species of Special Concern" have declined equally; some species may be just starting to decline, while others may have already reached the point where they meet the criteria for listing as a "Threatened" or "Endangered" species under the State and/or Federal Endangered Species Acts. More information is available at:
http://www.nrm.dfg.ca.gov/fileHandler.ashx?DocumentID=3778 The 1995 report for fish, the 1994 report for amphibians and reptiles and the 1986 & 1998 reports for mammals are available on-line.
Fish: http://www.dfg.ca.gov/wildlife/nongame/publications/docs/fish_ssc.pdf
Amphibians & Reptiles: http://www.dfg.ca.gov/wildlife/nongame/publications/docs/herp_ssc.pdf
Mammals: http://www.dfg.ca.gov/wildlife/nongame/publications/bm_research/docs/86_27.pdf
http://www.dfg.ca.gov/wildlife/nongame/ssc/1998mssc.html
Updates of all three reports are in preparation. Information on the Amphibian and Reptile Species of Special Concern report is available at: http://arssc.ucdavis.edu
Information on the mammal report is available at: http://www.dfg.ca.gov/wildlife/nongame/ssc/mammals.html and
http://www.dfg.ca.gov/wildlife/nongame/ssc/docs/mammal/MSSCProjectTimeline.pdf
A new California Bird Species of Special Concern report was completed in 2008. More information is available at:
http://www.dfg.ca.gov/wildlife/species/ssc/birds.html
A new category of "Taxa to Watch" was created in the new California Bird Species of Special Concern report. The birds on this Watch List are 1) not on the current Special Concern list but were on previous lists and they have not been state listed under CESA; 2) were previously state or federally listed and now are on neither list; or 3) are on the list of "Fully Protected" species. More information and brief accounts for each species is available in the report.

DFG (CDFW): Fully Protected: The classification of Fully Protected was the State's initial effort to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for fish, amphibians and reptiles, birds and mammals. Most of the species on these lists have subsequently been listed under the state and/or federal endangered species acts; white-tailed kite, golden eagle, trumpeter swan, northern elephant seal and ring-tailed cat are the exceptions. The white-tailed kite and the golden eagle are tracked in the CNDDB; the trumpeter swan, northern elephant seal and ring-tailed cat are not.
The Fish and Game Code sections dealing with Fully Protected species state that these species "....may not be taken or possessed at any time and no provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected" species, although take may be authorized for necessary scientific research. This language arguably makes the "Fully Protected" designation the strongest and most restrictive regarding the "take" of these species. In 2003 the code sections dealing with fully protected species were amended to allow the Department to authorize take resulting from recovery activities for state-listed species. More information on Fully Protected species and the take provisions can be found in the Fish and Game Code, (birds at §3511, mammals at §4700, reptiles and amphibians at §5050, and fish at §5515). Additional information on Fully Protected fish can be found in the California Code of Regulations, Title 14, Division 1, Subdivision 1, Chapter 2, Article 4, §5.93. The category of Protected Amphibians and Reptiles in Title 14 has been repealed. The Fish and Game Code is available online at: http://www.leginfo.ca.gov/cgi-bin/calawquery?codesection=fgc&codebody=&hits=20. Title 14 of the California Code of Regulations is available at: http://ccr.oal.ca.gov/linkedslice/default.asp?SP=CCR-1000&Action=Welcome
FP - Fully Protected
SSC - Species of Special Concern
WL - Watch List

CDF: California Department of Forestry & Fire Protection – The Board of Forestry classifies as "sensitive species" those species that warrant special protection during timber operations. The list of "sensitive species" is given in §895.1 (Definitions) of the California Forest Practice Rules. The 2010 Forest Practice Rules are available at:
http://www.fire.ca.gov/resource_mgt/downloads/2010_FP_Rulebook_w-Diagrams_wo-TechRule_No1.pdf
S - Sensitive

IUCN: International Union for Conservation of Nature – provides objective, scientifically-based information on the current status of globally threatened biodiversity. More information at http://www.iucnredlist.org/technical-documents/categories-and-criteria; detailed information on the IUCN and the Red List is available at: http://www.redlist.org/
CD - Conservation Dependent
CR - Critically Endangered
DD - Data Deficient
EN - Endangered
LC - Least Concern
NT - Near Threatened
VU - Vulnerable

MMC: Marine Mammal Commission – Section 202 of the Marine Mammal Protection Act directs the Marine Mammal Commission, in consultation with its Committee of Scientific Advisors, to make recommendations to the Department of Commerce, the Department of the Interior, and other federal agencies on research and management actions needed to conserve species of marine mammals. To meet this charge, the Commission devotes special attention to particular species and populations that are vulnerable to various types of human-related activities, impacts, and contaminants. Such species may include marine mammals listed as endangered or threatened under the Endangered Species Act or as depleted under the Marine Mammal Protection Act. In addition, the Commission often directs special attention to other species or populations of marine mammals not so listed whenever special conservation challenges arise that may affect them. More information on the Marine Mammal Protection Act and the Species of Special Concern list is available at: http://www.mmc.gov/species
SSC: Species of Special Concern

NMFS: National Marine Fisheries Service – National Oceanic and Atmospheric Administration (NOAA): The Office of Protected Resources (OPR) is a headquarters program office of NOAA's National Marine Fisheries Service (NOAA Fisheries Service, or NMFS), under the U.S. Department of Commerce, with responsibility for protecting marine mammals and endangered marine life. NOAA's Office of Protected Resources works to conserve, protect, and recover species under the Endangered Species Act (ESA) and the Marine Mammal Protection Act (MMPA) in conjunction with our Regional offices, Science Centers, and various partners. The category Species of Concern was established by the (NMFS) effective 15 April 2004. Species of Concern are those species about which NOAA's National Marine Fisheries Service (NMFS) has some concerns regarding status and threats, but for which insufficient information is available to indicate a need to list the species under the Endangered Species Act (ESA). Proactive attention and conservation action is drawn to these species. "Species of concern" status does not carry any procedural or substantive protections under the ESA. More information is available at: http://www.nmfs.noaa.gov/pr/species/concern
SC: Species of Concern

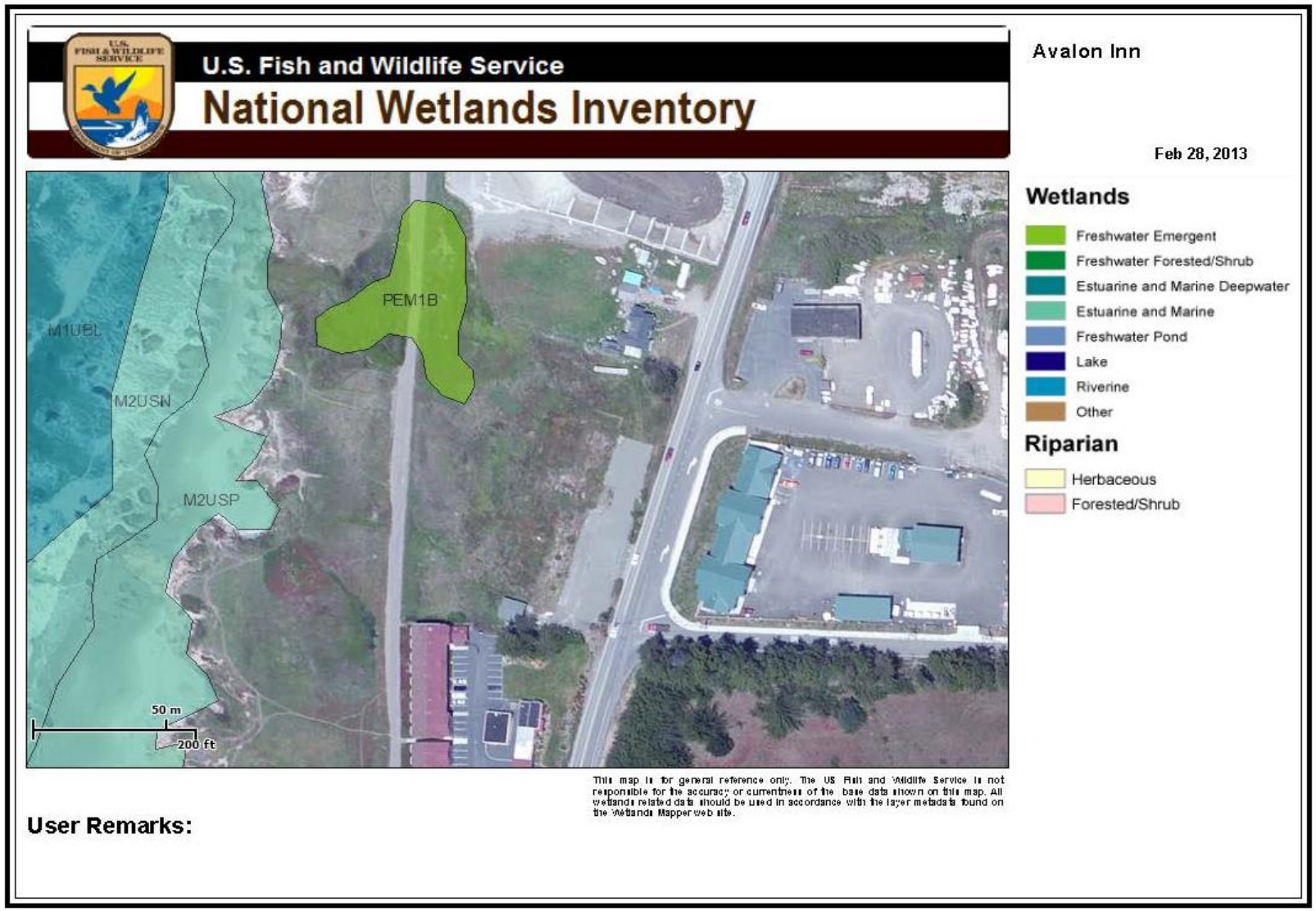
USFS: United States Forest Service - USDA Forest Service defines sensitive species as those plant and animal species identified by a regional forester that are not listed or proposed for listing under the federal Endangered Species Act for which population viability is a concern, as evidenced by significant current or predicted downward trends in population numbers or density, or significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution. Regional Foresters shall identify sensitive species occurring within the region. California is the Pacific Southwest Region (Region 5).The list of sensitive animals for Region 5 is undergoing revision. The anticipated completion date was spring 2009, however it still has not

been updated in spring 2010. The sensitive designation on this list is based on the previous list. More information is available at: http://www.fs.fed.us/r5/projects/sensitive-species/

USFWS: United States Fish and Wildlife Service – The goal of the Birds of Conservation Concern 2008 report is to accurately identify the migratory and nonmigratory bird species (beyond those already designated as Federally threatened or endangered) that represent our highest conservation priorities and draw attention to species in need of conservation action. We hope that by focusing attention on these highest priority species, this report will promote greater study and protection of the habitats and ecological communities upon which these species depend, thereby ensuring the future of healthy avian populations and communities. This report is available at: http://library.fws.gov/Bird_Publications/BCC2008.pdf
BCC - Birds of Conservation Concern

WBWG: Western Bat Working Group - comprised of agencies, organizations and individuals interested in bat research, management and conservation from the 13 western states and provinces. Species designated as "High Priority" are imperiled or are at high risk of imperilment based on available information on distribution, status, ecology and known threats. More information is available at: http://www.wbwg.org
H - High Priority
LM - Low-Medium
M - Medium Priority
MH - Medium-High Priority

XERCES: The Xerces Society is an international non-profit organization dedicated to protecting biological diversity through invertebrate conservation. Their core programs focus on endangered species, native pollinators, and watershed health. More information on the Red list is available at: http://www.xerces.org/
CI - Critically Imperiled
DD - Data Deficient
IM - Imperiled
VU - Vulnerable


U.S. Fish and Wildlife Service
National Wetlands Inventory
Avalon Inn
Feb 28, 2013
PEM1B
M1UBL
M2USN
M2USP
50 m
200 ft
Wetlands
Freshwater Emergent
Freshwater Forested/Shrub
Estuarine and Marine Deepwater
Estuarine and Marine
Freshwater Pond
Lake
Riverine
Other
Riparian
Herbaceous
Forested/Shrub
This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.
User Remarks:

Appendix C. References

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Appendix D. List of All Plant Species Documented in the Study Area.

GROUP	FAMILY	LATIN NAME	COMMON NAME	NATIVE STATUS
FERNS AND ALLIES				
	Dryopteridaceae			
		Polystichum munitum	western sword fern	Y
	Equisetaceae			
		Equisetum telmateia ssp. braunii	giant horsetail	Y
GYMNOSPERMS				
	Cupressaceae			
		Hesperocyparis macrocarpa	Monterey cypress	Y
	Pinaceae			
		Pinus contorta ssp. contorta	shore pine; beach pine	Y
		Pinus radiata	Monterey pine	Y
DICOTS				
	Aizoaceae			
		Carpobrotus edulis	sea fig, hottentot fig, iceplant	N
	Apiaceae			
		Conium maculatum	poison hemlock	N
		Oenanthe sarmentosa	Pacific oenanthe, water parsely	Y
	Apocynaceae			
		Vinca major	greater periwinkle, periwinkle	N
	Asteraceae			
		Achillea millefolium	yarrow	Y
		Baccharis pilularis	coyote brush	Y
		Bellis perennis	English daisy	N
		Cirsium vulgare	bull thistle	N
		Delairea odorata	German ivy, cape ivy	N
		Euchiton japonicus	father and child plant, Japanese cudweed	N
		Grindelia stricta	coastal gumweed	Y
		Hypochaeris radicata	rough cat's ear, hairy cat's ear	N
		Senecio glomeratus	cut-leafed erechtites, New Zealand fireweed, burnweed	N
		Sonchus asper ssp. asper	prickly sow thistle	N
		Taraxacum officinale	dandelion	N
	Boraginaceae			
		Echium pininana	echium, Dr. Seuss tree	N
	Brassicaceae			
		Raphanus sativus	wild radish	N
	Caprifoliaceae			
		Lonicera japonica	Japanese honeysuckle	N
	Caryophyllaceae			
		Cerastium glomeratum	mouse-ear chickweed	N
		Stellaria media	common chickweed	N
	Convolvulaceae			
		Convolvulus arvensis	field bindweed, bindweed, field morning-glory	N
	Dipsacaceae			
		Dipsacus fullonum	wild teasel	N
	Escalloniaceae			
		Escallonia sp.	Escallonia landscaping shub	N

GROUP	FAMILY	LATIN NAME	COMMON NAME	NATIVE STATUS
	Fabaceae			
		Lotus corniculatus	bird's-foot trefoil	N
		Medicago polymorpha	California burclover	N
		Trifolium pratense	red clover	N
		Trifolium repens	white clover	N
		Vicia sativa	common vetch	N
	Geraniaceae			
		Erodium cicutarium	red-stemmed filaree	N
		Geranium dissectum	cut-leaved geranium	N
	Hypericaceae			
		Hypericum calycinum	Aaron's beard	N
	Lamiaceae			
		Mentha pulegium	pennyroyal	N
		Prunella vulgaris	self heal	
		Rosmarinus officinalis	rosemary	N
		Stachys rigida	rigid hedge-nettle	Y
		Stachys chamissonis	coast hedge-nettle	Y
	Malvaceae			
		Alcea rosea	hollyhock	N
	Myricaceae			
		Morella californica	wax myrtle	Y
	Onagraceae			
		Chamerion angustifolium	fireweed	N
	Phrymaceae			
		Mimulus guttatus	common yellow monkeyflower, seep monkey flower	Y
	Plantaginaceae			
		Plantago coronopus	cut leaf plantain	N
		Plantago lanceolata	English plantain, ribwort, narrow leaved plantain, ribgrass	N
	Polygonaceae			
		Rumex acetosella	common sheep sorrel	N
		Rumex crispus	curly dock	N
		Rumex salicifolius	willow dock	Y
	Primulaceae			
		Anagallis arvensis	scarlet pimpernel, poor man's weathervane	N
	Rhamnaceae			
		Ceanothus thyrsiflorus	blueblossom	Y
	Rosaceae			
		Cotoneaster franchetii	Francheti cotoneaster	N
		Fragaria chiloensis	beach strawberry	Y
		Potentilla anserina ssp. pacifica	Pacific potentilla	Y
		Rosa sp.	cultivated rose	N
		Rosa nutkana var. nutkana	Nootka rose	Y
		Rubus armeniacus	Himalaya-berry	N
		Rubus ursinus	California blackberry	Y
	Tropaeolaceae			
		Tropaeolum majus	nasturtium, garden nasturtium	N

GROUP	FAMILY	LATIN NAME	COMMON NAME	NATIVE STATUS
MONOCOTS				
	Araceae			
		Zantedeschia aethiopica	calla lily, Calla-lily	N
	Cyperaceae			
		Carex abrupta		Y
		Carex obnupta	slough sedge	Y
		Cyperus eragrostis	tall flatsedge	Y
		Isolepis cernua	low lateral bulrush	Y
		Scirpus microcarpus	mountain bog bulrush	Y
	Iridaceae			
		Crocosmia Xcrocosmiiflora	monbretia	N
		Iris douglasiana	Douglas' iris	Y
		Sisyrinchium bellum	blue-eyed grass	Y
		Watsonia meriana	bulbil bugle lily	N
	Juncaceae			
		Juncus breweri	Brewer's rush	N
		Juncus effusus	common bog rush	Y
		Juncus lescurii	dune rush; salt rush	Y
	Liliaceae			
		Amaryllis belladonna	Naked Ladies	N
		Kniphofia uvaria	red hot poker	N
	Poaceae			
		Agrostis capillaris	colonial bentgrass	N
		Agrostis stolonifera	creeping bentgrass	N
		Anthoxanthum odoratum	sweet vernal grass	N
		Briza minor	little quaking grass; quaking grass	N
		Bromus carinatus	California brome	Y
		Bromus diandrus	ripgut brome; ripgut	N
		Bromus hordeaceus	soft chess	N
		Cynosurus echinatus	hedgehog dogtail-grass; annual dogtail-grass	N
		Dactylis glomerata	orchard-grass	N
		Danthonia californica	California oatgrass, wild oatgrass	Y
		Deschampsia cespitosa ssp. holciformis	coastal tufted hair-grass	Y
		Festuca arundinacea	tall fescue, meadow fescue	N
		Festuca myuros	rattail six week grass	N
		Festuca perennis	ryegrass	N
		Festuca rubra	red fescue	Y
		Holcus lanatus	common velvetgrass	N
		Hordeum murinum ssp. glaucum	farmer's foxtail	N
		Poa annua	annual blue grass	N
		Poa pratensis ssp. pratensis	Kentucky bluegrass	N
		Rytidosperma penicillatum	Purple-awned wallaby grass	N
	Typhaceae			
		Typha latifolia	broadleaf cattail; common cat-tail; broad-leaved cat-tail	Y

Appendix E. Reduced Buffer Analysis.

Policy OS- 1-9 Utilize the following criteria to establish buffer areas:
a. Biological Significance of Adjacent Lands. *Lands adjacent to a wetland, stream, or riparian habitat area vary in the degree to which they are functionally related to these habitat areas. Functional relationships may exist if species associated with such areas spend a significant portion of their life cycle on adjacent lands. The degree of significance depends upon the habitat requirements of the species in the habitat area (e.g., nesting, feeding, breeding, or resting).* *Where a significant functional relationship exists, the land supporting this relationship shall also be considered to be part of the ESHA, and the buffer zone shall be measured from the edge of these lands and be sufficiently wide to protect these functional relationships. Where no significant functional relationships exist, the buffer shall be measured from the edge of the ESHA that is adjacent to the proposed development.* No functional relationships are noted. Lands adjacent to the wetlands are disturbed ruderal areas and non-native grasslands.
b. Sensitivity of Species to Disturbance. *The width of the buffer zone shall be based, in part, on the distance necessary to ensure that the most sensitive species of plants and animals will not be disturbed significantly by the permitted development. Such a determination shall be based on the following after consultation with the Department of Fish and Game or others with similar expertise:* *(1b-i) Nesting, feeding, breeding, resting, or other habitat requirements of both resident and migratory fish and wildlife species;* *(1b-ii) An assessment of the short-term and long-term adaptability of various species to human disturbance;* *(1b-iii) An assessment of the impact and activity levels of the proposed development on the resource.* No sensitive plant or wildlife species were observed. Surveys for nesting birds and avoidance measures for special status frogs are recommended prior to development, as outlined in proposed mitigation measures, in order to avoid any impacts.
c. Erosion susceptibility. *The width of the buffer zone shall be based, in part, on an assessment of the slope, soils, impervious surface coverage, runoff characteristics, erosion potential, and vegetative cover of the parcel proposed for development and adjacent lands. A sufficient buffer to allow for the interception of any additional material eroded as a result of the proposed development should be provided.* The building envelope is relatively flat with low potential for detrimental impacts to sensitive areas from construction related erosion. Silt fencing is recommended as outlined in the proposed mitigation measures.
d. Use natural topography. *Where feasible, use hills and bluffs adjacent to Environmentally Sensitive Habitat Areas, to buffer these habitat areas. Where otherwise permitted, locate development on the sides of hills away from Environmentally Sensitive Habitat Areas. Include bluff faces in the buffer area.* There are no topographical features that would apply as a buffer to the wetlands/special status plant communities.
e. Use existing man-made features. *Where feasible, use man-made features such as roads and dikes to buffer environmentally sensitive habitat areas.* There are no existing cultural features to utilize in the proposed improvement area.

Policy OS- 1-9 Utilize the following criteria to establish buffer areas:
f. Lot Configuration and Location of Existing Development. *Where an existing subdivision or other development is largely built-out and the buildings are a uniform distance from a habitat area, at least that same distance shall be required as a buffer zone for any new development permitted. However, if that distance is less than one hundred (100) feet, additional mitigation measures (e.g., planting of native vegetation) shall be provided to ensure additional protection.* Buildings to the south are directly adjacent to the south wetland, and the lot to the north is developed with gravel storage/driveway areas to the edge of the northern wetland. The proposed buffers would ensure on-site structures would be located a greater distance from the wetlands then surrounding development to the north and south. Additionally, planting of native vegetation in the buffer is recommended to ensure additional protection.
g. Type and Scale of Development Proposed. *The type and scale of the proposed development will, to a large degree, determine the size of the buffer zone necessary to protect the ESHA. Such evaluations shall be made on a case-by-case basis depending upon the resources involved, the degree to which adjacent lands are already developed, and the type of development already existing in the area.* *Required buffer areas shall be measured from the following points as applicable:* • *The outer edge of the canopy of riparian vegetation for riparian ESHA, or from the top of stream bank where no riparian vegetation exists.* • *The upland edge of a wetland for a wetland ESHA.* • *The outer edge of the plants that comprise the rare plant community for rare plant community ESHA.* Proposed development is to consist of a 50,689 square foot, 66-room visitor serving facility with a conference center and 86 parking spaces. The adjacent property to the south is developed with a visitor serving facility and the property to the north is developed with an industrial gravel storage and processing plant. Taking into consideration the proposed and adjacent developments and recommended protective measures, a 30 foot buffer area is recommended to protect the south wetland and Coastal Blackberry Brambles, and a 50 foot buffer is recommended to protect the north wetland and the plant communities therein. The buffer area is measured from the outer edge of the wetlands and special status plant communities.

Appendix F. Wetland Data Sheets

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

Project/Site: Avalon Inn City/County: Fort Bragg Mendocino Sampling Date: 01MAR13
Applicant/Owner: Bob Hunt State: CA Sampling Point: 1
Investigator(s): Asa B Spade Section, Township, Range: S31 T19 N R17W
Landform (hillslope, terrace, etc.): Field Local relief (concave, convex, none): None Slope (%): 0
Subregion (LRR): A Lat: N39°27.849' Long: W123°48.372' Datum: NAD83
Soil Map Unit Name: Tropoquepts 0 to 15 percent slopes NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30'r)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 20'r)			
1. None			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 10'r)			
1. Holcus lanatus	50	Yes	FAC
2. Festuca rubra	15	No	FAC
3. Anthoxanthum odoratum	5	No	FACU
4. Agrostis capillaris	5	No	FAC
5. Potentilla anserina	5	No	OBL
6.			
7.			
8.			
9.			
10.			
11.	20% = 16		
	80 = Total Cover		
Woody Vine Stratum (Plot size: 10'r)			
1. Rubus ursinus	10	Yes	FACU
2.			
	= Total Cover		

% Bare Ground in Herb Stratum ____

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: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	0	x 2 =	0
FAC species	70	x 3 =	210
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	80 (A)		235 (B)

Prevalence Index = B/A = 3.35

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 X

Remarks: Potentilla dried up but identifiable

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SOIL

Sampling Point: 1

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
0-22	10YR2/1	100	NONE				Sandy Loam	
22-30	10YR2/1	100	NONE				Loam	
30-34	10YR2/1	99	10YR5/6	1	C	M	Clay loam	
34-36	10YR4/1	70	10YR5/8	30	C	M	Sandy Clay	Depleated matrix
36-40+	5/10G	70	10YR5/8	30	C	M	Sandy clay	Gleyed Matrix

[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)
- X 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 X 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 X Depth (inches): ____

Water Table Present? Yes X No ____ Depth (inches): 22

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 21

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

Test pit 15 ft west of SP1 had Hydrogen Sulfide smell ~12" deep

Next day water table 20"

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

Project/Site: Avalon Inn City/County: Fort Bragg Mendo Sampling Date: 01MAR13
Applicant/Owner: Bob Hunt State: CA Sampling Point: 2
Investigator(s): Asa B Spade Section, Township, Range: 531 T19N R17W
Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): none Slope (%): 2%
Subregion (LRR): A Lat: 39°27.846' Long: W123°48.369' Datum: NAD83
Soil Map Unit Name: Tropaquepts, 0 to 15 percent slopes NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation No, Soil No, or Hydrology No 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 CCC No ACE
Hydric Soil Present?	Yes _____ No _____	
Wetland Hydrology Present?	Yes _____ No _____	

Remarks: Dry year

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30'r)			
1. None			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 20'r)			
1. None			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 10'r)			
1. Festuca rubra	15	Yes	FAC
2. Holcus lanatus	30	Yes	FAC
3. Potentilla anserina	5	No	OBL
4. Rumex acetosella	1	No	FAC
5. Taraxacum officinale	1	No	FACU
6. Trifolium repens	1	No	FAC
7.			
8.			
9.			
10.			
11.			
	53 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. Rubus armeniacus	5	Yes	FACU
2.			
	5 = Total Cover		

% Bare Ground in Herb Stratum ~50% thatch

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	5	x 1 =	5
FACW species	0	x 2 =	0
FAC species	47	x 3 =	141
FACU species	6	x 4 =	24
UPL species		x 5 =	
Column Totals:	58 (A)		170 (B)

Prevalence Index = B/A = 2.93

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
X 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 X No _____

Remarks: Veg dominated by FAC grasses not a strong hydrophitic veg indicator

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SOIL

Sampling Point: 2

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
0-24	10YR2/1	100	None				Sandy loam	
24-34	10YR2/1	100	None				Loam	
34-38	10YR2/1	99	10YR5/6	1	C	M	Clay loam	
38-40+	10YR3/1	96	10YR5/8	4	C	M	Sand	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ 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 X

Remarks: Sand @ 38-40+" did not have 70% sand particles Masked

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 X Depth (inches): _____

Water Table Present? Yes ✓ No _____ Depth (inches): 27"

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

Wetland Hydrology Present? Yes _____ No X

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

Remarks: Next day water table at 27"

dug pit between 1 & 2, No depleted gley in upper 40" water table next day in intermediate pit was 24" deep

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

Project/Site: Avalon Inn City/County: Fort Bragg Mendo Sampling Date: 02MAR13
Applicant/Owner: Bob Hunt State: CA Sampling Point: 3
Investigator(s): Asa B Spade Section, Township, Range: 531 T19N R17W
Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): A Lat: 39°27.808' Long: 123°48.393' Datum: NAD83
Soil Map Unit Name: Tropaquepts, 0 to 15 percent slopes NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X No ____	Is the Sampled Area within a Wetland?	Yes AcE CCC No ____
Hydric Soil Present?	Yes X No ____		
Wetland Hydrology Present?	Yes X No ____		

Remarks: Sample point in a swale dominated by OBL wetland veg

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30'r)	Absolute % Cover	Dominant Species?	Indicator Status
1. —			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 20'r)			
1. —			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 10'r)			
1. Gentle Sap, Mentosa	50	yes	OBL
2. Rubus lanatus	30	Yes	FAC
3. Raphanus Sativus	2	no	NI (UPL)
4. Rumex crispus	2	no	FAC
5. Potentilla anserina	1	no	OBL
6. Stellaria chamissonis	2	no	FACW
7. Rosa nutkana	1	no	FAC
8. Chamerion angustifolium	1	no	NI
9.			
10.			
11.			
	89 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1. Rubus ursinus	5	yes	FACU
2.			
	5 = Total Cover		
% Bare Ground in Herb Stratum 0			

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 ____	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:
X 1 - Rapid Test for Hydrophytic Vegetation
X 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 X No ____

Remarks:

SOIL

Sampling Point: 3

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	7.5YR 2.5/1	100	–	–	–	–	Loam	undecomposed fibers organic soil
6-21	10YR 3/1	98	5YR 5/8	2	C	PL	loam	many fine roots
21+	10YR 6/2	80	10YR 5/8	20			SAND	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ 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)
- X 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 X No _____

Remarks: 2% Prominent Redox Concentrations occurring as pore linings within dark surface

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): 7 in

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 0

Wetland Hydrology Present? Yes X No _____

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

Remarks: Water table @ 7 inches below surface

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

Project/Site: Avalon Inn City/County: Fort Bragg Mendocino Sampling Date: 02 MAR 13
Applicant/Owner: Bob Hunt State: CA Sampling Point: 4 wetland
Investigator(s): Asa B Spade Section, Township, Range: 531 T19N R17W
Landform (hillslope, terrace, etc.): Field Local relief (concave, convex, none): None Slope (%): 0.5
Subregion (LRR): A Lat: 39 27.811 Long: 123° 48.389 Datum: NAD83
Soil Map Unit Name: Tropoquepts 0-15% slopes NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation No, Soil Yes, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil No, or Hydrology No 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 X
Hydric Soil Present? Yes ____ No ____
Wetland Hydrology Present? Yes ____ No ____
Is the Sampled Area within a Wetland? Yes ____ No X

Remarks: Dry year Dark grey plastic pipe found @ 23" deep => Moved pit over => see pit 4B

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30'r)			
1. None			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 20'r)			
1. None			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 10'r)			
1. Holcus lanatus	40	Yes	FAC
2. Raphanus sativa	30	Yes	NI (UPL)
3. Festuca rubra	10	No	FAC
4. Rumex acr	3	↓	FAC
5. Plantago lance	5	↓	FACU
6. Cirsium vulgare	2	↓	FACU
7.			
8.			
9.			
10.			
11.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: 10')			
1. Rubus armeniacus	25	Yes	FACU
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0

Remarks: dominant plants emerging through thatch

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 ____	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 X

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SOIL

Sampling Point: 4

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	10 YR 3/1	100	–	–	–	–	LOAM	Fine grass roots
6-8	10 YR 3/1	95	10YR 6/6	5	C	M		
8-12	10YR 2/1	60	10YR 6/6	30	C	M		
			10YR 6/2	10	D	M	LOAMY SAND	
12-	10YR 6/3	50	10YR 5/6				LOAMY SAND	Dark gray plastic pipe @ 23 inches 3-4 inch diameter

[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.

approx 1 inch gravel atop pipe

Restrictive Layer (if present):
Type: ____
Depth (inches): ____
Hydric Soil Present? Yes ____ No ____

Remarks: Soil seemed disturbed w/ a mixture of black/light brownish gray/yellowish brown patches @ 23" deep a dark grey plastic pipe ~3-4" diameter was found Moved soil pit over and dug again SP4B

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: Avalon Inn City/County: Fort Bragg, Mendocino Sampling Date: 02MAR13
Applicant/Owner: Hunt State: Sampling Point: 4B
Investigator(s): Asa B Spade Section, Township, Range: S31 T19N R17W
Landform (hillslope, terrace, etc.): field Local relief (concave, convex, none): None Slope (%): 0.4
Subregion (LRR): A Lat: 39° 27.810 Long: 123 48.387 Datum: NAD83
Soil Map Unit Name: Tropaquepts 0-15% slopes NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil No, or Hydrology No 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 weak No ____	Is the Sampled Area within a Wetland? Yes CCC No ACE
Hydric Soil Present?	Yes ____ No X	
Wetland Hydrology Present?	Yes ____ No X	

Remarks: Paired with point in wetland swale. Veg met but is a weak indicator based on FAC grass. Not functioning as a wetland

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30'r)			
1. None			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 20'r)			
1. None			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 10')			
1. Holcus lanatus	30	Yes	FAC
2. Festuca rubra	30	Yes	FAC
3. Rapigrass salivus	20	Yes	FACU
4. Anthoxanthum odoratum	10	NO	FACU
5. Rumex acetosella	4		FAC
6. Fragraria chiloensis	2		FACU
7. Hypochaeris radicata	1		FACU
8.			
9.			
10.			
11.			
	97 = Total Cover		
Woody Vine Stratum (Plot size: 10'r)			
1. None			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

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	0	x 2 =	0
FAC species	64	x 3 =	192
FACU species	33	x 4 =	132
UPL species		x 5 =	
Column Totals:	97 (A)		324 (B)

Prevalence Index = B/A = 3.34

Hydrophytic Vegetation Indicators:
__ 1 - Rapid Test for Hydrophytic Vegetation
X 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 X No ____

Remarks: Veg dominated by invasive and lawn grass species with FAC status => Not a strong indicator

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
0-8	10YR3/1	100					Loam	
8-14	10YR2/1	75	10YR4/3	25	C	M	Loamy sand	colors blend not distinct
14-20	10YR5/4	95	10YR3/1	5	C	M	Loamy sand	
21-22+	10YR5/6	100	—				Sandy clay	

[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: Sandy clay

Depth (inches): 21"

Hydric Soil Present? Yes ____ No X

Remarks: @13" deep found a black (tarred?) pipe ~4" diameter @ a right angle to grey pipe continued pit on opposite side of pipe where soil appeared undisturbed

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 X Depth (inches): >22

Water Table Present? Yes ____ No X Depth (inches): >22

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): >22

Wetland Hydrology Present? Yes ____ No X

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

Remarks: No wetland hydrology indicators observed

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

Project/Site: Avalon Inn City/County: Fort Bragg/Mendo Sampling Date: 17MAR13
Applicant/Owner: Hunt State: CA Sampling Point: SP5
Investigator(s): Asa B Spade Section, Township, Range: S31 T19N R17W
Landform (hillslope, terrace, etc.): field Local relief (concave, convex, none): slight concave Slope (%): 0.5
Subregion (LRR): A Lat: 39° 27.837 Long: 123° 48.361 Datum: NAD83
Soil Map Unit Name: Tropoquepts 0-15% Slopes NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil No, or Hydrology No 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 CCC No ACE
Hydric Soil Present?	Yes ____	No ____	
Wetland Hydrology Present?	Yes ____	No ____	

Remarks: Point taken in a patch of salt rush => differs from the surrounding veg

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30'r)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 20'r)			
1. None			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: ____)			
1. Juncus lescurii	95	Yes	FACW
2. Holcus lanatus	5	No	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	____ = Total Cover		
Woody Vine Stratum (Plot size: 10'r)			
1. None			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum ____

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
X 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 X No ____

Remarks: Salt rush is a clonal species

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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)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6"	10YR3/1	100	—				sandy loam	
6-11	10YR4/3	90	7.5YR5/8	10	C	M	loamy sand	
11-14	2.5Y 6/4	100	—				loamy sand	
14-26+	2.5Y6/4	65	10YR5/8	35			sandy clay	diffuse boundaries

[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: Higher clay content
Depth (inches): 14"

Hydric Soil Present? Yes ____ No X

Remarks: No hydric soil indicators sandy soil may be reason for salt rush patch → perhaps a depression filled at the time of original construction?

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 X Depth (inches): ____
Water Table Present? Yes ____ No X Depth (inches): 726"
Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): 726"

Wetland Hydrology Present? Yes ____ No X

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

Remarks: No wetland hydrology indicators

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

Project/Site: Avalon Inn City/County: Fort Bragg / Mendo Sampling Date: 17MAR2013
Applicant/Owner: Hunt State: CA Sampling Point: SP6
Investigator(s): Az B Spade Section, Township, Range: S31 T19N R17W
Landform (hillslope, terrace, etc.): Field Local relief (concave, convex, none): slight concave Slope (%): 0.5
Subregion (LRR): A Lat: 39° 27.826 Long: 123° 48.369 Datum: NAD83
Soil Map Unit Name: Tropoqvepts 0-15% slopes NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil No, or Hydrology No 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 X 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: 30'r)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 20'r)			
1. None			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 10'r)			
1. Festuca rubra	70	Yes	FAC
2. Holcus lanatus	28	Yes	FAC
3. Rubus armeniacus	2	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1. ~~Rubus armeniacus~~ ↑ put in Herb	~~2%~~		
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 0

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		x 1 =	
FACW species		x 2 =	
FAC species	98	x 3 =	294
FACU species	2	x 4 =	8
UPL species		x 5 =	
Column Totals:	100 (A)		302 (B)

Prevalence Index = B/A = 3.02

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
X 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 X No ____

Remarks: Veg dominated by FAC grasses in a lawn area = poor veg indicator

SOIL

Sampling Point: SP6

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	10YR 2/2	100	—				loam	
4-6	10YR 2/2	80	10YR 5/3	17	D	M	clay loam	
—	—	—	7.5YR 5/8	3	C	M		
6-7	10YR 2/2	80	10YR 5/3	18	D	M	clay loam	
—	—	—	7.5YR 5/8	2	C	PL		
7-12	10YR 3/1	100	—					
12-16	10YR 3/1	88	10YR 4/2	10	D	M	Sandy loam	
			7.5YR 5/8	2	C	M		

[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 X

Remarks: 16-20 10YR 5/4 98% 10YR 3/2
20-24+ 10YR 5/4 50% 7.5YR 5/8 50 C M Sandy clay
Does not meet any hydric soil indicators top 7 inches historic fill?

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 X Depth (inches): 24

Water Table Present? Yes _____ No X Depth (inches): 24

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): 24

Wetland Hydrology Present? Yes _____ No X

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

Remarks: No wetland hydrology indicators to 24"

US Army Corps of Engineers

Western Mountains, Valleys, and Coast – Version 2.0

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

Lost Data sheet

Project/Site: Avalon Inn City/County: Fort Bragg / Mendo Sampling Date: 02/13/15

Applicant/Owner: Hunt State: Sampling Point: SP7

Investigator(s): Asa B Spade Section, Township, Range: S31 T19N R17W

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

Subregion (LRR): A Lat: 39° 27.821 Long: 123° 48.381 Datum: NAD83

Soil Map Unit Name: Tropaquepts 0-15% slopes NWI classification: None

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

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

Are Vegetation No, Soil No, or Hydrology No 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 Weak No ____	Is the Sampled Area within a Wetland?	Yes CCC No ACE
Hydric Soil Present?	Yes ____ No X		
Wetland Hydrology Present?	Yes ____ No X		

Remarks: Relatively wet year after 3 dry years

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30'r)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 20'r)			
1. None			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 10'r)			
1. Agrostis stolonifera	90	Yes	FAC
2. Festuca rubra	2	No	FAC
3. Plantago lanceolata	3	No	FACU
4. Hypochaeris radicata	1	No	FACU
5. Trifolium repens	1	No	FAC
6. Festuca arundinacea	1	No	NI/UPL
7. Rubus armeniacus	1	NO	FACU
8. Fragraria chiloensis	1	NO	FACU
9. Iris douglasiana	1	NO	NI/UPL
10. Rumex acetosella	1	NO	FAC
11. Holcus lanatus	1	NO	FAC
	103	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1. <5%			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 0

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	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	95	x 3 =	285
FACU species	8	x 4 =	32
UPL species	2	x 5 =	10
Column Totals:	105 (A)		327 (B)

Prevalence Index = B/A = 3.11

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 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 X No ____

Remarks: Dominated by clonal invasive non-native grass with FAC indicator status not a good indicator of wetland veg

SOIL

Sampling Point: SP7

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
0-7	10YR2/2	100	—				Sndy loam	Many fine roots Some gravel
7-10	10YR4/3	96	10YR5/2	2	D	M	My Sand	Gravel 10-30cm
—			10YR2/2	2	—	—		
10-14	10YR4/3	90	10YR5/8	10	C	M	Sndy clay	
14-17	10YR3/1	60	10YR6/3	15			Sndy loam	Dark soil is sandy loam
+			7.5YR5/8	25	C	M	Sand	while other components are sand
17-20	10YR6/3	70	7.5YR5/8	30	C	M	Sand	
20-24+	10YR6/2	60	10YR6/3	20			Sand ↓	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ 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 X

Remarks:

7.5YR5/8 20 CM

Soil does not meet any hydric soil indicators. Buried loam may indicate historic disturbance

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 X Depth (inches): >24"

Water Table Present? Yes _____ No X Depth (inches): >24"

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): >24"

Wetland Hydrology Present? Yes _____ No X

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

Remarks: No wetland hydrology indicators

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

Lost data sheet +

Project/Site: Avalon Inn City/County: Fort Bragg / Mendo Sampling Date: 02/13/15

Applicant/Owner: Hunt State: CA Sampling Point: SP8

Investigator(s): Ara B Spade Section, Township, Range: S31 T19N R17W

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

Subregion (LRR): A Lat: 39°27.800 Long: 123°48.384 Datum: NAD83

Soil Map Unit Name: Tropaquepts 0-15% slopes NWI classification: None

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

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

Are Vegetation No, Soil No, or Hydrology No 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 X	No ____	Is the Sampled Area within a Wetland? Yes CCC No ACE
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: Relatively wet year after 3 dry years

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30'r)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 20'r)			
1. None			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 10'r)			
1. Holcus lanatus	75	Yes	FAC
2. Festuca arundinacea	10	No	FAC
3. Festuca rubra	10		FAC
4. Lotus corniculatus	2		FACW
5. Juncus effusus	2		FACW
6. Hypochaeris radicata	1		FACU
7. Potentilla anserina	1		OBL
8.			
9.			
10.			
11.			
	101 = Total Cover		
Woody Vine Stratum (Plot size: 10'r)			
1. None			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum ____

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
- X 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: Dominated by invasive non-native grasses Not a good hydric veg indicator

SPS

SOIL

Sampling Point: _____

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
0-10	10YR2/1	100					Sandy loam	Fine roots
10-14	10YR2/1	94	7.5YR5/8	1	C	M	loamy sand	
14-18	10YR3/2	97	10YR 6/3	3	D	M	loamy sand	
18-24+	10YR3/2	100	–				Sand	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ 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 X

Remarks: First hole had plastic at 7" then gravel → French drain or leach field
moved over 3' and dug again
Does not meet any hydric soil indicators

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 X Depth (inches): _____

Water Table Present? Yes X No _____ Depth (inches): 15"

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 14"

Wetland Hydrology Present? Yes _____ No X

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

Remarks: No wetland hydrology indicators near wetland boundary as indicated by presence of water table at 15" Due to recent heavy rain

US Army Corps of Engineers — Western Mountains, Valleys, and Coast – Version 2.0

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

Project/Site: Avalon Inn City/County: Fort Bragg/Mendo Sampling Date: 11MAR14
Applicant/Owner: Hunt State: CA Sampling Point: SP9
Investigator(s): Asa B Spade Section, Township, Range: 531 T19N R17W
Landform (hillslope, terrace, etc.): Field Local relief (concave, convex, none): Concave Slope (%): 0.5
Subregion (LRR): A Lat: 39° 27.840 Long: 123° 48.388 Datum: NAD83
Soil Map Unit Name: Tropaqueptz 0-15% slopes NWI classification: PEMIB
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil No, or Hydrology No 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 X No ____
Hydric Soil Present?	Yes ____ No ____	
Wetland Hydrology Present?	Yes ____ No ____	

Remarks: within NWI mapped wetland

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30'r)			
1. None			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 20'r)			
1. None			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 10'r)			
1. Holcus lanatus	95	Y	FAC
2. Potentilla anserina (Argentina)	15	N	OBL
3. Equisetum telmatia	5	N	FACW
4. Iris douglasiana	5	N	NI(UPL)
5. Prunella vulgaris	5	N	FACU
6. Plantago lanceolata	2	N	FACU
7.			
8.			
9.			
10.			
11.			
	127 = Total Cover; 20% = 25.4		
Woody Vine Stratum (Plot size: 10'r)			
1. None			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

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	15	x 1 =	15
FACW species	5	x 2 =	10
FAC species	95	x 3 =	285
FACU species	7	x 4 =	28
UPL species	5	x 5 =	25
Column Totals:	127 (A)		363 (B)

Prevalence Index = B/A = 2.85

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
X 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 X No ____

Remarks: Veg dominated by invasive FAC grass not a strong indicator However OBL veg also present => stronger evidence

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SOIL

Sampling Point: SP9

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
0-20	10YR2/1	100					loam	Fine roots down to 6"
20-24	10YR2/1	80	10YR4/1	18	D	M	clayloam	diffuse boundaries
			10YR5/8	2	C	M		
24-26	10YR3/1	100					sand	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ 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 X

Remarks: Some depleted soil within black matrix however not high enough %, nor thick enough to meet any hydric soil indicator

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- X 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 X Depth (inches): _____

Water Table Present? Yes X No _____ Depth (inches): 1

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 1

Wetland Hydrology Present? Yes X No _____

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

Remarks: High water table, filled hole to within 1" of surface

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

Project/Site: Avalon Inn City/County: Fort Bragg / Mendo Sampling Date: 11 MAR 14
Applicant/Owner: Hunt State: CA Sampling Point: SP 10
Investigator(s): Asa B Spade Section, Township, Range: S31 T19N R17W
Landform (hillslope, terrace, etc.): Field Local relief (concave, convex, none): None Slope (%): 1
Subregion (LRR): A Lat: 39° 27.836 Long: 123° 48.390 Datum: NAD83
Soil Map Unit Name: Tropaquepts 0-15% slopes NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil No, or Hydrology No 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 X	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: Uphill and to the south of SP9

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30'r)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 20'r)			
1. None			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 10'r)			
1. Holcus lanatus	75	Y	FAC
2. Plantago lanceolata	25	Y	FACU
3. Iris douglasiana	8	N	NI(UPL)
4. Deschampsia caespitosa	3		FACW
5. Fragaria chiloensis	3		FACU
6. Hypochaeris radicata	2		
7. Rumex acetosella	1		FAC
8.			
9.			
10.			
11.			
	117 = Total Cover 58.5 23.4		
Woody Vine Stratum (Plot size: ____)			
1. Rubus armeniacus	20	Yes	FACU
2. Rubus ursinus	10	Yes	FACU
	30 = Total Cover		
% Bare Ground in Herb Stratum 0	15/6		

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 25% (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 X

Remarks:

SOIL

Sampling Point: SP10

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
0-18	10YR 2/1	100	—				sandy loam	
18-21	10YR 3/1	70					sandy loam	
	10YR 3/2	28	10YR 4/6	2	C	M		
21-24+	10YR 5/3	60	10YR 5/8	30	C	M	—D	sandy clay soft masses within
			10YR 4/1	10	D	M		a sand matrix

[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 X

Remarks: Concentrations and depletions too deep to meet any hydric soil indicators

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 X Depth (inches): _____

Water Table Present? Yes √ No _____ Depth (inches): 16

Saturation Present? (includes capillary fringe) Yes √ No _____ Depth (inches): 15

Wetland Hydrology Present? Yes _____ No X

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

Remarks: No saturation within the upper 12". paired w/ point SP9 which had water table at 1" today.

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

Project/Site: Avalon Inn City/County: Fort Bragg / Mendo Sampling Date: 11MAR14
Applicant/Owner: Hunt State: CA Sampling Point: SP11
Investigator(s): Asa B Spade Section, Township, Range: S31 T19N R17W
Landform (hillslope, terrace, etc.): Field Local relief (concave, convex, none): None Slope (%): 1
Subregion (LRR): A Lat: 39° 27.837 Long: 123° 48.381 Datum: NAD83
Soil Map Unit Name: Tropaquepts 0-15% slopes NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil No, or Hydrology No 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 X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____ No X	
Wetland Hydrology Present?	Yes ____ No X	

Remarks: Uphill and east of SP9

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30'r)			
1. None			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 20'r)			
1. None			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 10'r)			
1. Holcus lanatus	65	Y	FAC
2. Stachys rigida	50	Y	FAC
3. Festuca rubra	3	N	FAC
4. Potentilla anserina (Argentina)	1	N	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	119 = Total Cover		
Woody Vine Stratum (Plot size: 10'r)			
1. Rubus ursinus	10	Y	FACU
2. Rubus armeniacus	5	Y	FACU
	15 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (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 X

Remarks:

SOIL

Sampling Point: SP 11

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
0-21+	10YR3/1	100					Sandy loam	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ 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 X

Remarks: No hydric soil indicators Value too high in upper layers to necessitate deeper pit.

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 X Depth (inches): _____

Water Table Present? Yes X No _____ Depth (inches): 21

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 21

Wetland Hydrology Present? Yes _____ No X

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

Remarks: Water table at 21 inches on same day SP9 had water at 1" =7 too deep to meet high water table

US Army Corps of Engineers

Western Mountains, Valleys, and Coast – Version 2.0

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

Project/Site: Avalon Inn City/County: Fort Bragg/Mendo Sampling Date: 8/11/2014
Applicant/Owner: Hunt State: CA Sampling Point: SP12
Investigator(s): Asa B Spade Section, Township, Range: S31 T19N R17W
Landform (hillslope, terrace, etc.): Small hill Local relief (concave, convex, none): Convex Slope (%): 0
Subregion (LRR): A Lat: 39° 27.817 Long: 123° 48.398 Datum: NAD83
Soil Map Unit Name: Tropaquepts 0-15% slopes NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation No, Soil Yes, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation No, Soil No, or Hydrology No 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 X

Remarks: Raised soil berm adjacent to haul road vegetated with Rub grm Investigated due to adjacency to swale to the south and because area appeared green on aerial photo; green is due to Rub grm

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30'r)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 20'r)			
1. None			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: _____)			
1. Holcus lanatus	70	Yes	FAC
2. Polystichum munitum	1	No	NI(UPL)
3. Plantago lanceolata	5		FACU
4. Fragaria chiloensis	5		FACU
5. Hypochaeris radicata	2		FACU
6. Festuca arundinacea	1	↓	NI
7.			
8.			
9.			
10.			
11.			
	84 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. Rubus armeniacus	40%	Yes	
2.			
	46 = Total Cover		

% Bare Ground in Herb Stratum 0

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 _____	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 X

Remarks: Did not include plants on compacted trail edge (3' wide) nor trail itself

SOIL

Sampling Point: SP 12

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

[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: Presumed disturbed burm of trail construction did not dig soil profile

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 X

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

Remarks: No hydrology on top of burm due to topography narrow drainage ditch along haul road trail drainage ditch is otherwise upland area

SOIL

Sampling Point: SP B

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
0-8	10YR2/1	100					loam	
8-12	10YR2/1	100					loam	w 2% shell fragments
12-16	10YR2/1	95	5YR5/8	5	C	M	loam	Carc nodules
16-18	10YR3/1	100					sandy loam	
18-24+	10YR3/1	93	7.5YR5/8	7	C	M	Sandy loam	Carc soft masses

[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 X

Remarks: Shell fragments visible @ surface in gopher mounds
No hydric soil indicators observed

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 X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): >24

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): >24

Wetland Hydrology Present? Yes _____ No X

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

Remarks: No wetland hydrology indicators

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

Project/Site: Avalon Inn City/County: Fort Bragg/Mendo Sampling Date: 11 MAR 14
Applicant/Owner: Hunt State: CA Sampling Point: SP14
Investigator(s): Asa B Spade Section, Township, Range: S31 T19N R17W
Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): 1
Subregion (LRR): A Lat: 39° 27.867 Long: 123° 48.379 Datum: NAD83
Soil Map Unit Name: Tropaquepts 0-15% slopes NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil No, or Hydrology No 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 X	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes ____ No X	
Wetland Hydrology Present?	Yes ____ No X	

Remarks: Area to the east of break in slope down to Scirpus microcarpus wetland. SP14 is in an area that has been scraped in the past

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30'r)			
1. None			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 20'r)			
1. None			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 10'r)			
1. Plantago coronopus	60	Yes	FACW
2. Medicago polymorpha	25	Yes	FACU
3. Erodium cicutarium	1	NO	NI(UPL)
4. Geranium dissectum	1	No	NI(UPL)
5. Rubus ursinus	1	No	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	88 = Total Cover 44/17.6		
Woody Vine Stratum (Plot size: 10'r)			
1. <5% => placed in herbs			
2.			
	= Total Cover		
% Bare Ground in Herb Stratum ____			

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 ____	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 X

Remarks: Ruderal species

SOIL

Sampling Point: SP14

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 %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6	10YR2/1	100					Sandy loam	fine roots small gravel
6-7	Gley1 5/5GY	60						60% 10-30mm
	10YR4/3	40						
7-13+	10YR4/3	100						80% gravel w/angular 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: High percentage compacted gravel
Depth (inches): surface

Hydric Soil Present? Yes ____ No X

Remarks: Next door to geo-aggragate company - likely fill covered with shallow layer with soil very difficult to dig No hydric soil indicators observed

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 X Depth (inches): ____
Water Table Present? Yes ____ No X Depth (inches): >13
Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): >13

Wetland Hydrology Present? Yes ____ No X

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

Remarks: H2O probably runs off into adjacent areas rather than infiltrating compacted gravel substrate.

US Army Corps of Engineers — Western Mountains, Valleys, and Coast – Version 2.0

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

Project/Site: Avalon Inn City/County: Fort Bragg/Mendo Sampling Date: 11 MAR 14
Applicant/Owner: Hunt State: CA Sampling Point: SP 13
Investigator(s): Asa B Spade Section, Township, Range: S31 T19N R17W
Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): 1
Subregion (LRR): A Lat: 39° 27.858 Long: 123° 48.368 Datum: NAD83
Soil Map Unit Name: ItopaqueptS NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil No, or Hydrology No 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 X	No ____	**Is the Sampled Area within a Wetland?** Yes CCC No ACE
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: Area to te North of breakin slope where Carex obnupta is present

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30'r)			
1. None			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 20'r)			
1. None			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 10'r)			
1. Holcus lanatus	60	Yes	FAC
2. Grindelia stricta	15	No	FACW
3. Juncus lescurii	20		FACW
4. Rytidosperma penicillatum	12		NI(UPL)
5. Fragaria chiloensis	10		FACU
6. Plantago lanceolata	3		FACU
7.			
8.			
9.			
10.			
11.			
	120 = Total Cover 60/24		
Woody Vine Stratum (Plot size: 10'r)			
1. None			
2.			
	= Total Cover		
% Bare Ground in Herb Stratum 0			

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	0	x 1 =	0
FACW species	35	x 2 =	70
FAC species	60	x 3 =	180
FACU species	13	x 4 =	52
UPL species	12	x 5 =	60
Column Totals:	120 (A)		(B)

Prevalence Index = B/A = 3.02

Hydrophytic Vegetation Indicators:
__ 1 - Rapid Test for Hydrophytic Vegetation
X 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 X No ____

Remarks: Veg is representative of veg outside + adjacnt to Carex obnupta sward just to te south. Veg is dominated by invasive FAC grass Not a strong indicator

US Army Corps of Engineers — Western Mountains, Valleys, and Coast – Version 2.0

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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

Custom Soil Resource Report for Mendocino County, Western Part, California

Avalon Inn

February 12, 2015

Preface

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

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

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

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

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

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

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Contents

How Soil Surveys Are Made

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

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

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

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

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

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

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

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

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

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

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

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

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

Custom Soil Resource Report
Soil Map

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Mendocino County, Western Part, California
Survey Area Data: Version 10, Sep 30, 2014

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

Date(s) aerial images were photographed: Jun 16, 2010—Jun 27, 2010

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

Map Unit Legend

Mendocino County, Western Part, California (CA694)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
214	Tropaquepts, 0 to 15 percent slopes	3.8	100.0%
Totals for Area of Interest		**3.8**	**100.0%**

Map Unit Descriptions

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

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

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

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

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

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

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

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

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

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

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

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

Mendocino County, Western Part, California

214—Tropaquepts, 0 to 15 percent slopes

Map Unit Composition

Tropaquepts and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tropaquepts

Setting

Landform: Marine terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Fluviomarine deposits derived from igneous, metamorphic and sedimentary rock

Properties and qualities

Depth to restrictive feature: More than 80 inches
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Minor Components

Tregoning

Percent of map unit: 5 percent
Landform: Marine terraces

Shinglemill

Percent of map unit: 5 percent
Landform: Marine terraces

Aborigine

Percent of map unit: 5 percent
Landform: Marine terraces

Blacklock

Percent of map unit: 5 percent
Landform: Marine terraces

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ADDENDUM TO BIOLOGICAL SCOPING SURVEY REPORT, BOTANICAL SURVEY AND WETLAND DELINEATION

FOR

AVALON INN
(APN 069-241-27 & -04)
1201 & 1211 NORTH MAIN STREET
FORT BRAGG, CA
MENDOCINO COUNTY

prepared for:
Robert Hunt
Hunt InnVestments
210 N 3rd Street
McCall, ID 83638

prepared by:
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November 30, 2015

Purpose

This document serves as an addendum to the Biological Scoping Survey Report, Botanical Survey and Wetland Delineation published by Spade Natural Resources Consulting, dated April 21, 2015. Over the last several months the project has been refined as agencies including the California Coastal Commission, City of Fort Bragg, California Department of Fish and Wildlife, and the US Army Corps of Engineers have provided additional information and guidance. This document will address concerns expressed, changes in the project, and changes in interpretation of the rarity of a plant community, that have occurred since the April 21, 2015 report was published.

1. Coastal Blackberry Brambles

The April 2015 report describes a "roughly 2,000 square feet of area… dominated by native blackberry (*Rubus ursinus*), present along the west property boundaries, just outside of wetlands, adjacent to the Haul Road." This area was considered a potential ESHA for the purpose of the report due to its currently published state rarity ranking of "S3" and a 30ft buffer was recommended through reduced buffer analysis.

Spade Natural Resources Consulting's Environmental Scientist, Asa B. Spade, noted that *Rubus ursinus* coastal bramble seemed much more common than the S3 ranking describes. Mr. Spade initiated personal communication with CDFW Staff Environmental Scientist, Todd Keeler-Wolf, who agreed with Mr. Spade's observations saying in part:

> "Following our work in Sonoma County this past year we have found that the more we have looked, the more we see of that generic *Rubus ursinus* community, while we are still clear that the other 4 associations are less common. That means upon finalizing our descriptions for Sonoma county, we will "demote" the *R. ursinus* association rarity to a G4 rather than a G3 and rank only the *R. spectabilis*, *R. parviflorus*, or the more diverse associations with more than one *Rubus* species, (in addition to other species) as the rarer (S3) types of associations."

The *Rubus ursinus* patches present on the subject parcels do not contain *R. spectabilis* or *R. parviflorus,* nor are they highly diverse plant communities; rather, they are low diversity, low quality patches that have resulted from the lack of maintenance over the last decade. In addition, *Rubus ursinus* is a common plant throughout coastal California and for some distance inland. It can quickly become dominant in open areas when a disturbance regime, such as grazing or mowing, is removed. In our professional opinion the *Rubus ursinus* coastal brambles present should not be considered a rare plant community, and do not require any direct protection or buffers.

2. Development Within Buffers

The proposed development includes portions of trail (Figure 1) connecting the user serving facility buildings with the Haul Road, as well as stormwater swales, within protective wetland buffers recommended by SpadeNRC. In our professional opinion these proposed developments will not promote significant negative impacts to the adjacent wetlands, and in some ways will improve conditions and the protective nature of the buffer area. Included as an appendix to

this document is a new analysis of the proposed development utilizing the ESHA development criteria in the City of Fort Bragg Coastal Element, Policy 1.9, in consideration of the reduced buffer to less than 100 feet from wetlands, as well as Policy 1.10, Permitted Uses within ESHA Buffers.

Trails proposed within the wetland buffers total 261ft in length. They will be raised walkways, 5 feet in width constructed of weather resistant decking and will include wood curbs and pathway lighting. The proposed trails will benefit the adjacent wetland areas by directing foot traffic and providing a visual and physical boundary between landscaped areas that visitors can be expected to use, and the natural area and wetland habitat beyond. Without dedicated surfaced trails it is common for "volunteer" trails to form between locations. Volunteer trails often form in less than ideal locations and are hard to direct, maintain, and eliminate when necessary. Visitors can be expected to utilize a portion of the outdoor area adjacent to their accommodations. A trail for shared use of all visitors can act as a physical and visual boundary; the difference in landscaping on each side of the trail, along with interpretive signage, will signal to visitors that the area beyond the trail is natural habitat and not intended for visitor use. Constructing the trails too close to the buildings may defeat this physiological effect; increasing the overall footprint of visitor use.

Figure 1. Project footprint. The proposed development and undeveloped areas. Depicted in the upper (western) portion of the drawing are lines delineating the edge of the wetland, a 30-foot and 50-foot buffer. Portions of the trail are proposed within the 50-foot buffer adjacent to the higher quality wetland and within the 30-foot buffer of the lower quality wetland.

The locations of the proposed trails and stormwater swales are currently vegetated primarily by invasive non-native grass species. The vegetation currently present is not functionally related to the wetland habitat to be protected. Allowing installation of stormwater swales vegetated by carefully selected native species will increase the wetlands' functional capacity, their ability to be self-sustaining and to maintain natural species diversity. Stormwater swales adjacent to a wetland habitat can increase the functionality of the buffer area and the adjacent wetland habitat areas. The stormwater swales can be designed to provide nesting, feeding, breeding, resting and safety for species that spend at least part of their life cycle within the adjacent wetland habitat. The swales will also benefit the adjacent wetland by slowing runoff water which will carry less sediment into the wetlands and allow a greater amount of time for the water to infiltrate and merge with the shallow groundwater-table. The swales will contribute to the groundwater, and therefore the sustainability of the wetland, more than a flat topography because they will be able to retain a greater volume of water during higher flow rain events; a flat topography would result in more of the water leaving the site as surface flow.

Conclusion

Recommendations for the protection of *Rubus ursinus* coastal brambles have been removed; they are unlikely to be considered rare and sensitive and do not need protection. Trails and stormwater swales within the wetland buffer area are consistent with allowable development and will not increase the impact to the wetland habitat being protected by the buffer. Trails with signage will educate visitors on the value of the habitat present and provide visual and physical boundaries to visitor use. Stormwater swales will buffer the wetlands during high flow rain events and allow more water to infiltrate into the ground. The swales will provide habitat that is more functionally related to the invasive species currently present, providing areas more useful to species present in the wetlands.

Appendix A. Reduced Buffer Analysis.

Policy OS- 1.9 Utilize the following criteria to establish buffer areas:
a. Biological Significance of Adjacent Lands. *Lands adjacent to a wetland, stream, or riparian habitat area vary in the degree to which they are functionally related to these habitat areas. Functional relationships may exist if species associated with such areas spend a significant portion of their life cycle on adjacent lands. The degree of significance depends upon the habitat requirements of the species in the habitat area (e.g., nesting, feeding, breeding, or resting).* *Where a significant functional relationship exists, the land supporting this relationship shall also be considered to be part of the ESHA, and the buffer zone shall be measured from the edge of these lands and be sufficiently wide to protect these functional relationships. Where no significant functional relationships exist, the buffer shall be measured from the edge of the ESHA that is adjacent to the proposed development.* No functional relationships are noted. Lands adjacent to the wetlands are disturbed ruderal areas and non-native grasslands.
b. Sensitivity of Species to Disturbance. *The width of the buffer zone shall be based, in part, on the distance necessary to ensure that the most sensitive species of plants and animals will not be disturbed significantly by the permitted development. Such a determination shall be based on the following after consultation with the Department of Fish and Game or others with similar expertise:* *(1b-i) Nesting, feeding, breeding, resting, or other habitat requirements of both resident and migratory fish and wildlife species;* *(1b-ii) An assessment of the short-term and long-term adaptability of various species to human disturbance;* *(1b-iii) An assessment of the impact and activity levels of the proposed development on the resource.* No sensitive plant or wildlife species were observed. Surveys for nesting birds and avoidance measures for special status frogs are recommended prior to development, as outlined in proposed mitigation measures, in order to avoid any impacts.
c. Erosion susceptibility. *The width of the buffer zone shall be based, in part, on an assessment of the slope, soils, impervious surface coverage, runoff characteristics, erosion potential, and vegetative cover of the parcel proposed for development and adjacent lands. A sufficient buffer to allow for the interception of any additional material eroded as a result of the proposed development should be provided.* The building envelope is relatively flat with low potential for detrimental impacts to sensitive areas from construction related erosion. Silt fencing is recommended as outlined in the proposed mitigation measures.
d. Use natural topography. *Where feasible, use hills and bluffs adjacent to Environmentally Sensitive Habitat Areas, to buffer these habitat areas. Where otherwise permitted, locate development on the sides of hills away from Environmentally Sensitive Habitat Areas. Include bluff faces in the buffer area.* There are no topographical features that would apply as a buffer to the wetlands/special status plant communities.
e. Use existing man-made features. *Where feasible, use man-made features such as roads and dikes to buffer environmentally sensitive habitat areas.* There are no existing cultural features to utilize in the proposed improvement area.

Policy OS- 1.9 Utilize the following criteria to establish buffer areas:
f. Lot Configuration and Location of Existing Development. *Where an existing subdivision or other development is largely built-out and the buildings are a uniform distance from a habitat area, at least that same distance shall be required as a buffer zone for any new development permitted. However, if that distance is less than one hundred (100) feet, additional mitigation measures (e.g., planting of native vegetation) shall be provided to ensure additional protection.* Buildings to the south are directly adjacent to the south wetland, and the lot to the north is developed with gravel storage/driveway areas to the edge of the northern wetland. The proposed buffers would ensure on-site structures would be located a greater distance from the wetlands then surrounding development to the north and south. Additionally, planting of native vegetation in the buffer is recommended to ensure additional protection.
g. Type and Scale of Development Proposed. *The type and scale of the proposed development will, to a large degree, determine the size of the buffer zone necessary to protect the ESHA. Such evaluations shall be made on a case-by-case basis depending upon the resources involved, the degree to which adjacent lands are already developed, and the type of development already existing in the area.* *Required buffer areas shall be measured from the following points as applicable:* • *The outer edge of the canopy of riparian vegetation for riparian ESHA, or from the top of stream bank where no riparian vegetation exists.* • *The upland edge of a wetland for a wetland ESHA.* • *The outer edge of the plants that comprise the rare plant community for rare plant community ESHA.* Proposed development is to consist of a 50,689 square foot, 66-room visitor serving facility with a conference center and 86 parking spaces. The adjacent property to the south is developed with a visitor serving facility and the property to the north is developed with an industrial gravel storage and processing plant. Taking into consideration the proposed and adjacent developments and recommended protective measures, a 30-foot buffer area is recommended to protect the south wetland and a 50-foot buffer is recommended to protect the north wetland and the plant communities therein. The buffer area is measured from the outer edge of the wetlands and special status plant communities.

Policy OS- 1.10 Permitted Uses within ESHA Buffers. Development within an Environmentally Sensitive Habitat Area buffer shall be limited to the following uses:
a. Wetland Buffer. *i. Uses allowed within the adjacent Wetland ESHA pursuant to Policy OS-1.3.* *ii. Nature trails and interpretive signage designed to provide information about the value and protection of the resources.* *iii. Invasive plant eradication projects if they are designed to protect and enhance habitat values.* i. No diking, dredging, or filling is proposed within the buffer area. ii. A total of 261 linear feet of 5-foot wide, raised weather resistant decking walkways are proposed within the wetland buffer areas. Trails proposed within the buffer area will connect the user serving facilities to the Haul Road which is a popular natural recreation destination and access to the beach in many locations. The trails are proposed to include interpretive signage designed to provide information about the value and protection of the adjacent wetland habitat. Dedicated trails will provide control of visitor foot traffic and prevent informal trails from forming in undesired locations. Trails will provide physical and visual boundaries between areas indented for visitor use and the natural areas on the opposite side. iii. The locations of the proposed trails and stormwater swales are currently vegetated primarily by invasive non-native grass species. The vegetation currently present is not functionally related to the wetland habitat to be protected. Allowing installation of stormwater swales vegetated by carefully selected native species will increase the wetlands' functional capacity, their ability to be self-sustaining and to maintain natural species diversity.
b. Riparian Buffer. *i. Uses allowed within the adjacent River and Stream ESHA pursuant to Policy OS-1.5.* *ii. Uses allowed within the adjacent ESHA pursuant to Policy OS-1.6.* *iii. Buried pipelines and utility lines.* *iv. Bridges.* *v. Drainage and flood control facilities.* No development is proposed within Riparian Buffer.
c. Other types of ESHA Buffer. *i. Uses allowed within the adjacent ESHA pursuant to Policy OS-1.6.* *ii. Buried pipelines and utility lines.* *iii. Bridges.* *iv. Drainage and flood control facilities.* No development is proposed within ESHA buffers other than the Wetland Buffers addressed above.

Wynn COASTAL PLANNING & BIOLOGY

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March 22, 2018

Bob Hunt, Hunt Investments
PO Box 1470
McCall, ID 83638

RE: Update to Stay Current on Biology
1201 & 1211 North Main Street
Fort Bragg, CA
APN 069-241-27 & -04

Dear Mr. Hunt,

Spade Natural Resources Consulting performed biological surveys and published a Biological Scoping Survey Report, Botanical Survey and Wetland Delineation in April of 2015. I, Asa Spade, author of the 2015 report, now working as Senior Biologist for Wynn Coastal Planning Inc., conducted follow up surveys of the original two project parcels as well as additional surveys on adjacent State Parks lands in 2017. Survey dates in 2017 included February 28, March 8 and May 30. Progress on the site design, informed by my 2015 and later survey efforts has continued and as time has passed we felt it prudent to conduct an additional survey to ensure that all site conditions continue to be consistent with those reported in 2015.

On March 19, 2018, I visited the two Hunt-Avalon project parcels. I spent approximately an hour conducting a botanical and biological update survey. All site conditions were consistent with the information provided in the April 2015 report. No significant change in plant communities, wetland, and other resources have occurred. The 2015 report accurately describes resources and current conditions at the site as of the date of this latest site visit.

Sincerely,

Asa B. Spade

Senior Biologist
Wynn Coastal Planning

Encl: n/a
CC: file

ADDENDUM
to
BIOLOGICAL SCOPING SURVEY REPORT, BOTANICAL SURVEY and WETLAND DELINEATION:

Stormwater Runoff Capture and Pretreatment Design Alternatives Analysis and Reduced Buffer Analysis

for

The Avalon Inn
1201 & 1211 North Main Street
Fort Bragg, CA
(APNs 069-241-07 & 069-241-04)
Mendocino County

Property Owner
Robert Hunt
Hunt InnVestments
210 N 3rd Street
McCall, ID 83638

Report Prepared By:

Teresa R. Spade, AICP, Senior Biologist

March 26, 2018

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Purpose

This document serves as a second addendum to the Biological Scoping Survey Report, Botanical Survey and Wetland Delineation published by Spade Natural Resources Consulting, dated April 21, 2015. Over the last several months, a design to capture and treat stormwater runoff has been developed and refined for the project. The preferred option for stormwater treatment consists of a Low Impact Development (LID) swale system which is generally located approximately 30 to 50 feet from existing wetlands, and spillways to address stormwater runoff beyond the design storm which connect to wetlands and are therefore as close as zero feet to the wetlands. This document is a Reduced Buffer Analysis, which substantiates the buffer reduction to 30 feet for the purpose of the LID stormwater runoff swale developments, and the buffer reduction to zero feet for spillways. The reduced buffer analysis is supported by an Alternatives Analysis, included as **Appendix A**.

Reduced Buffer Analysis

The subject of the reduced buffer analysis is for a stormwater management design which captures and treats stormwater from the proposed Avalon Inn and its parking area. The design consists of a system of Low Impact Development swales to be located 30 to 50 feet south of the existing wetlands. Additionally, emergency spillways are to be constructed within the buffer area, connecting directly to the wetlands, for the purpose of addressing storms above and beyond the design storm.

An addendum dated November 30, 2015 was submitted, which is comprised of a Reduced Buffer Analysis for proposed trails within 30 feet of the southern wetland and within 50 feet of the northern wetland. At the time of that analysis, the stormwater runoff design was in its early design stages. Although the swale system is mentioned in the earlier analysis, its location is not shown on the project footprint figure included with the earlier analysis, and its specific location relative to the wetland resource is now discussed. Several iterations of design have occurred since, culminating in the preferred option, which is the proposed option discussed herein.

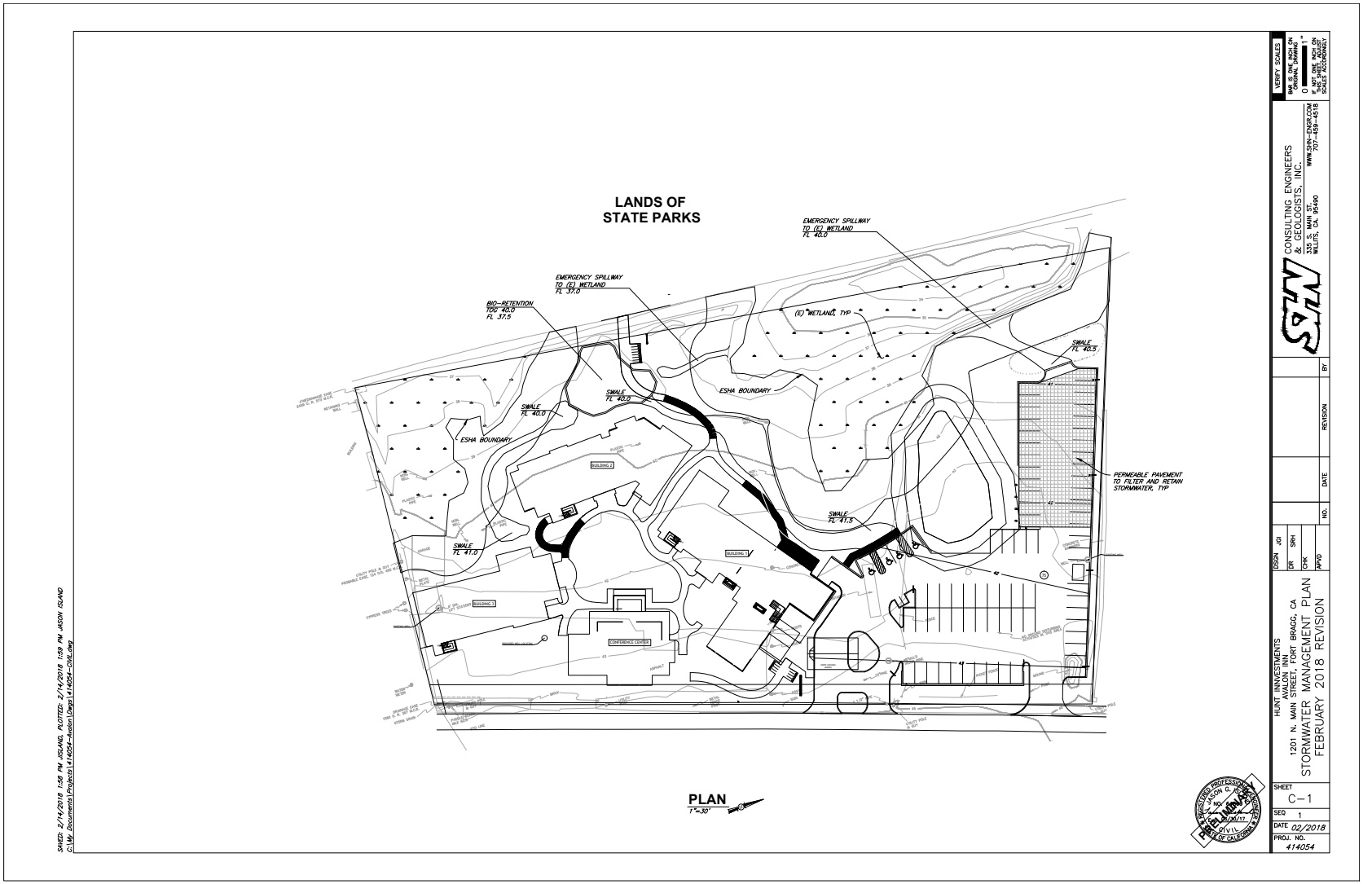

Figure 1. Project footprint. The proposed stormwater runoff design plan relative to wetlands.

Reduced Buffer Analysis.

Policy OS- 1.9 Utilize the following criteria to establish buffer areas:
a. Biological Significance of Adjacent Lands. *Lands adjacent to a wetland, stream, or riparian habitat area vary in the degree to which they are functionally related to these habitat areas. Functional relationships may exist if species associated with such areas spend a significant portion of their life cycle on adjacent lands. The degree of significance depends upon the habitat requirements of the species in the habitat area (e.g., nesting, feeding, breeding, or resting).* *Where a significant functional relationship exists, the land supporting this relationship shall also be considered to be part of the ESHA, and the buffer zone shall be measured from the edge of these lands and be sufficiently wide to protect these functional relationships. Where no significant functional relationships exist, the buffer shall be measured from the edge of the ESHA that is adjacent to the proposed development.* No functional relationships are noted. Lands adjacent to the wetlands are disturbed ruderal areas and non-native grasslands. It is appropriate for the buffer area to be measured from the edge of the existing wetland.
b. Sensitivity of Species to Disturbance. *The width of the buffer zone shall be based, in part, on the distance necessary to ensure that the most sensitive species of plants and animals will not be disturbed significantly by the permitted development. Such a determination shall be based on the following after consultation with the Department of Fish and Game or others with similar expertise:* *(1b-i) Nesting, feeding, breeding, resting, or other habitat requirements of both resident and migratory fish and wildlife species;* *(1b-ii) An assessment of the short-term and long-term adaptability of various species to human disturbance;* *(1b-iii) An assessment of the impact and activity levels of the proposed development on the resource.* Surveys for nesting birds and avoidance measures for special status frogs are recommended prior to development, as outlined in proposed mitigation measures, in order to avoid any impacts during construction. Ongoing function of the swale systems to be located 30 feet from the wetland are not expected to result in detrimental impacts to wildlife located in the adjacent wetland. Spillways address emergency flooding for storms above the design storm. This occasional stormwater input is not expected to result in detrimental impacts to wildlife species.
c. Erosion susceptibility. *The width of the buffer zone shall be based, in part, on an assessment of the slope, soils, impervious surface coverage, runoff characteristics, erosion potential, and vegetative cover of the parcel proposed for development and adjacent lands. A sufficient buffer to allow for the interception of any additional material eroded as a result of the proposed development should be provided.* The building envelope is relatively flat with low potential for detrimental impacts to sensitive areas from construction related erosion. Silt fencing is recommended as outlined in the proposed mitigation measures. The purpose of the proposed swale is to pretreat stormwater to prevent pollutants from entering the wetlands. The constructed spillways will prevent erosion of the Haul Road and other areas adjacent to the wetlands during heavy stormwater events.
d. Use natural topography. *Where feasible, use hills and bluffs adjacent to Environmentally Sensitive Habitat Areas, to buffer these habitat areas. Where otherwise permitted, locate development on the sides of hills away from Environmentally Sensitive Habitat Areas. Include bluff faces in the buffer area.* There are no topographical features that would apply as a buffer to the wetlands/special status plant communities.
e. Use existing man-made features. *Where feasible, use man-made features such as roads and dikes to buffer environmentally sensitive habitat areas.* There are no existing cultural features to utilize in the proposed improvement area. The existing wetland areas to be protected are, in part, man-made features resulting from the construction of the Haul Road and the concentration of water through culverts beneath Highway 1.

Policy OS- 1.9 Utilize the following criteria to establish buffer areas:
f. Lot Configuration and Location of Existing Development. *Where an existing subdivision or other development is largely built-out and the buildings are a uniform distance from a habitat area, at least that same distance shall be required as a buffer zone for any new development permitted. However, if that distance is less than one hundred (100) feet, additional mitigation measures (e.g., planting of native vegetation) shall be provided to ensure additional protection.* Buildings to the south are directly adjacent to the south wetland, and the lot to the north is developed with gravel storage/driveway areas to the edge of the northern wetland. The proposed buffers would ensure on-site structures would be located a greater distance from the wetlands then surrounding development to the north and south. Additionally, planting of native vegetation in the buffer is recommended to ensure additional protection.
g. Type and Scale of Development Proposed. *The type and scale of the proposed development will, to a large degree, determine the size of the buffer zone necessary to protect the ESHA. Such evaluations shall be made on a case-by-case basis depending upon the resources involved, the degree to which adjacent lands are already developed, and the type of development already existing in the area.* *Required buffer areas shall be measured from the following points as applicable:* • *The outer edge of the canopy of riparian vegetation for riparian ESHA, or from the top of stream bank where no riparian vegetation exists.* • *The upland edge of a wetland for a wetland ESHA.* • *The outer edge of the plants that comprise the rare plant community for rare plant community ESHA.* Proposed stormwater runoff design is to treat stormwater from a ~46,500 square foot (footprint), visitor serving facility and 77 associated vehicle parking spaces. The adjacent property to the south is developed with a visitor serving facility and the property to the north is developed with an industrial gravel storage and processing plant. Taking into consideration the proposed and adjacent developments and recommended protective measures, for the stormwater runoff swale system, a 30-foot buffer area is recommended to protect the south wetland and a 30-foot buffer is recommended to protect the north wetland and the plant communities therein. The buffer area is measured from the outer edge of the wetlands and special status plant communities. The spillways, by necessity, need to be directly connected to the wetlands.

Policy OS- 1.10 Permitted Uses within ESHA Buffers. Development within an Environmentally Sensitive Habitat Area buffer shall be limited to the following uses:
a. Wetland Buffer. *i. Uses allowed within the adjacent Wetland ESHA pursuant to Policy OS-1.3.* *ii. Nature trails and interpretive signage designed to provide information about the value and protection of theresources.* *iii. Invasive plant eradication projects if they are designed to protect and enhance habitatvalues.* A reduction to the buffer area from 100 to 30 feet is proposed, with proposed stormwater treatment swales to be located as close as 30 feet to wetlands. Within the 30 foot buffer area, emergency spillways would be constructed to allow for stormwater runoff above and beyond the design storm, which is the 85th percentile 24 hour storm event, to be conveyed to the wetlands in a safe and efficient manner, minimizing erosion potential which could otherwise damage built structures such as the Haul Road, and could result in an increase in sedimentation from erosion. Policy OS 1.3 allows for a limited number of uses within a wetland, including diking, filling and dredging when there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects. New uses are limited to uses such as new port, energy, and coastal dependent industrial facilities, including commercial fishing facilities, maintaining existing dredged depths, navigational channels, turning basins, mooring areas, and boat launching ramps, incidental public services like burying cables and pipes, inspection of piers, and maintenance of existing intake and outfall pipelines, restoration, nature study, aquaculture, or similar resource dependent activities. The proposed spillways are flood control structures which fall within the intended meaning of the limitations outlined above. The structures have been carefully considered and have been determined to be the least environmentally damaging alternative. Failure to install the spillways has the potential to result in damage to nearby structures such as the Haul Road from occasional significant storm events, which would as an associated impact increase sedimentation into the wetlands.
b. Riparian Buffer. *i. Uses allowed within the adjacent River and Stream ESHA pursuant to Policy OS-1.5.* *ii. Uses allowed within the adjacent ESHA pursuant to Policy OS-1.6.* *iii. Buried pipelines and utility lines.* *iv. Bridges.* *v. Drainage and flood control facilities.* No development is proposed within a Riparian Buffer.
c. Other types of ESHA Buffer. *i. Uses allowed within the adjacent ESHA pursuant to Policy OS-1.6.* *ii. Buried pipelines and utility lines.* *iii. Bridges.* *iv. Drainage and flood control facilities.* The proposed development consists of a spillway, which is a drainage and flood control facility. This is an allowable use within the ESHA buffer area for "Other types of ESHA," as listed above.

ALTERNATIVES ANALYSIS FOR HUNT AVALON DRAINAGE PLAN

for
The Avalon Inn
1201 & 1211 North Main Street
Fort Bragg, CA 95437
APNs 069-241-07, -04
Mendocino County

Property Owners:
Robert Hunt
Hunt Inn Investments
201 N 3rd Street
McCall, ID 83638

Report Prepared By:
Teresa R. Spade, AICP, Senior Biologist

March 26, 2018
Exhibit update August 22, 2018

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1. BACKGROUND

Improvements are proposed to the ~3.32 acre property that will result in an increase in impervious surfaces from construction of new inn structures and an associated parking lot. The lot gently slopes to the west towards the ocean, and stormwater runoff from the site and surrounding areas sheets across gently sloping areas to wetlands located along the northwest and southwest boundaries of the property. These wetlands are currently fed in part by the sheet flow that runs through the project area. The increase in impervious surfaces from new construction is expected to result in an increase in sheet flow of stormwater runoff from the project area after the structures are built. Pollutants from parked cars and other new development would potentially flow with stormwater runoff directly into wetlands if no pretreatment is built into the design. Additionally, due to the increase in runoff, there is a potential for flooding of the parking area, new structures, and/or the Haul Road without proper drainage engineering.

The conceptual designs for the stormwater runoff drainage plan have been refined over the course of the past two years. The final stormwater designs that were considered (Alternatives A, B & C) follow a Low Impact Development (LID) tenet; stormwater runoff is pre-treated via natural soil permeation onsite, improving water quality to wetlands and other water resources beyond the project area. The designs are to be engineered and sized for an 85th percentile storm, and incorporate placement of retention basins and swales, and locations of spillways, outlets and dissipaters in order to most efficiently pretreat stormwater, protect and allow for sustainability of onsite wetlands, and prevent unwanted flooding of existing and new structures.

The refinement of the design focused on ways to best protect the wetlands and structures. The final locations of detention basins, swales and spillways were selected because they allow for effective pretreatment of design storm runoff in swales while assuring larger storm events will not cause flooding and damage to existing and proposed structures.

The alternatives that were considered are discussed below as Alternative A, Alternative B, and Alternative C. These alternatives are additionally shown as **Figure 1, Figure 2, & Figure 4**.

2. ALNTERNATIVE A DESIGN FEATURES

Alternative A is the preferred alternative.

This plan features on-site stormwater retention swales and basins which capture and pre-treat stormwater runoff to the 85th percentile design storm. Emergency spillways are included in the design to direct stormwater from storms above the 85th percentile to flow directly into the wetlands. This alternative is preferred because it allows for pretreatment of runoff from most stormwater events, while also safely directing flows from larger storm events away from man-made structures and into the wetlands. This most recent alternative incorporates a new design not seen in the previous versions, to best protect on-site resources in the vicinity of the wetlands, and also responds to the latest updates in the parking design. This alternative is illustrated in **Figure 1**.

2.1. Northwest Permeable Pavement and Emergency Spillway

Shaded areas shown in the northernmost portion of the parking lot would be paved with a permeable treatment which is expected to address stormwater runoff to the 85th percentile design storm. Runoff from storms above the 85th percentile storm would enter a constructed spillway swale to the wetland.

2.2. Northwest Swale

Stormwater from the lower portion of the parking area, Building 1 and some of Building 2 would be captured in the Northwest Swale and Central Bio-Retention Area. Flows in excess of 85th percentile storms would spill over the Central Bio-Retention Area and through an Emergency Spillway path into the northwest wetland.

2.3. Southwest Swale

A Southwest Swale would capture stormwater flows in the vicinity of Building 2 and Building 3, and route stormwater to the Central Bio-Retention Area. Stormwater runoff in excess of the 85th percentile storm would spill over from the Central Bio-Retention Area into the existing northwest wetland.

3. ALTERNATIVE B DESIGN FEATURES

This plan features on-site stormwater retention basins which capture and pre-treat stormwater runoff before it enters wetlands. This plan uses existing topography to allow flows in excess of the 85th percentile design storm to flow naturally to wetlands. No infrastructure would occur within the 30 foot buffer area to wetlands or off-site. This alternative was rejected because of the potential for flows from large storms to cause damage to the Haul Road and other built structures. Without proper engineering of spillways, stormwater in excess of the design storm cannot be sufficiently routed away from man-made structures. This alternative is illustrated in **Figure 2.**

3.1. Northwest Surround Swale

Stormwater from the parking area, Building 1 and some of Building 2 would be captured in the Northwest Surround Swale. A detention basin/swale would be constructed just beyond the 30 foot buffer to the existing wetland; the continuous basin/swale would wrap around the entire east side of the existing wetland, and would be designed to retain and treat stormwater runoff up to the 85th percentile design storm. Flows in excess of 85th percentile storms would naturally spill over to the existing ditch on the east side of the Haul Road, and would naturally flow via the existing ditch to the wetlands, as is the existing condition **Figure 3**.

3.2. Southwest Detention Basins

Two stormwater detention ponds would treat runoff flowing from the southeastern area of the parcel, where stormwater runoff from the Event Center, Building Three, and portions of Building Two would drain. Water from southwest detention basins would permeate the soil and seep towards the southern wetland, allowing for pretreated runoff to infiltrate into the wetland. The detention basins will be sized to treat stormwater up to the 85th percentile storm. Stormwater runoff in excess of the 85th percentile storm would naturally spill over into the existing southwest wetland.

4. ALTERNATIVE C DESIGN FEATURES

Drainage naturally flows in three directions on the site: 1) to the southwest; 2) to the west; and 3) to the northwest **Figure 4**. This stormwater design alternative focuses on allowing runoff to maintain its natural course, and allows for pre- treated hydrological replenishment of existing wetlands at a level similar to pre- development. Spade Natural Resources Consulting (SNRC) prepared a Biological Scoping Survey on State Parks land to the west of the subject property to aid in evaluating this alternative (Addendum Biological Scoping Survey Report and Wetland Delineation, dated March 7, 2017; available by request). Though natural resource avoidance was not impossible, this alternative was rejected because of heavy infrastructure footprint and infrastructure maintenance requirements on both the subject property and on State Parks property to the west.

4.1. Southwest Detention Basins

Two stormwater ponds would treat runoff flowing from the southeastern area of the parcel, where stormwater runoff from the Event Center, Building Three, and portions of Building Two would drain. Water from southwest detention basins would permeate the soil and seep towards the southern wetland, allowing for pretreated runoff to infiltrate into the wetland. Drainage would also be connected to the central detention basins, so that runoff beyond the 85th percentile design storm would safely flow to the low elevation outlet.

4.2. Central (West) Stormwater Detention Basins and Low Elevation Outlet

The majority of the runoff heads in a westerly direction from the central portion of the site where development is proposed, towards the larger wetland present in the northwest corner of the property. Stormwater runoff from most of the parking area, Building 1, and portions of Building 2 would flow to

stormwater detention basins created along the southern edge of the larger wetland. Permeation between basins and wetlands would allow for pre-treated hydrology to seep into the larger wetland on the easternmost side of the central basin system, while a pipe under the Haul Road would outlet at a low elevation of around 28 feet above sea level on California State Parks property, facilitating responsible direction of flows beyond the 85th percentile design safely away from existing and proposed structures. These large storm flows would outlet on a riprap energy dissipater to allow soil permeability while preventing erosion at the stormwater outlet on State Parks property.

4.3. Northwest Detention Basin

The northwestern most portion of the parking area will dip to a low elevation of approximately 37 feet above sea level when improvements are made to accommodate visual resources. Drainage at this elevation would need to be pumped if it were to be forced south to a central stormwater basin. Instead, a northern basin is designed to intercept and pre-treat stormwater flows from the north part of the parking area. The northern basin would allow pretreated water to permeate to the north wetland; overflow from the northern basin would be piped to the central detention system to accommodate large storm treatment.

5. ALTERNATIVES THAT WERE NOT PURSUED AND WHY

5.1. No Runoff Plan

The “no runoff plan” alternative consists of not developing a plan to address stormwater runoff. This would not meet stormwater treatment requirements and would likely result in flooding of the parking area and potential flooding of the new hotel buildings and Haul road. Allowing runoff from newly created impervious surfaces could cause potential erosion and sedimentation issues on and offsite, and would result in untreated stormwater runoff entering into wetlands.

5.2. Wetland Avoidance Design

Runoff pre-treatment in a series of basins disconnected from the existing wetlands would effectively result in the creation of new wetlands emanating as pre-treatment basins, at the cost of hydrological sustainability of the existing wetlands. The existing wetlands would be reduced in size due to the decrease in stormwater runoff, which would instead be directed to the newly created basins. Additionally, the potential for damage to man-made structures resulting from flooding is an issue when the wetland is disconnected from the surrounding hydrology.

6. CONCLUSION

Alternative A is the preferred alternative. This alternative pre-treats stormwater from the project area through a combination of permeable paving and Low Impact Development swales and Bio-Retention Area. Emergency spillways connect to the northern wetland, conveying stormwater from storms above the 85th percentile design storm safely away from structures.

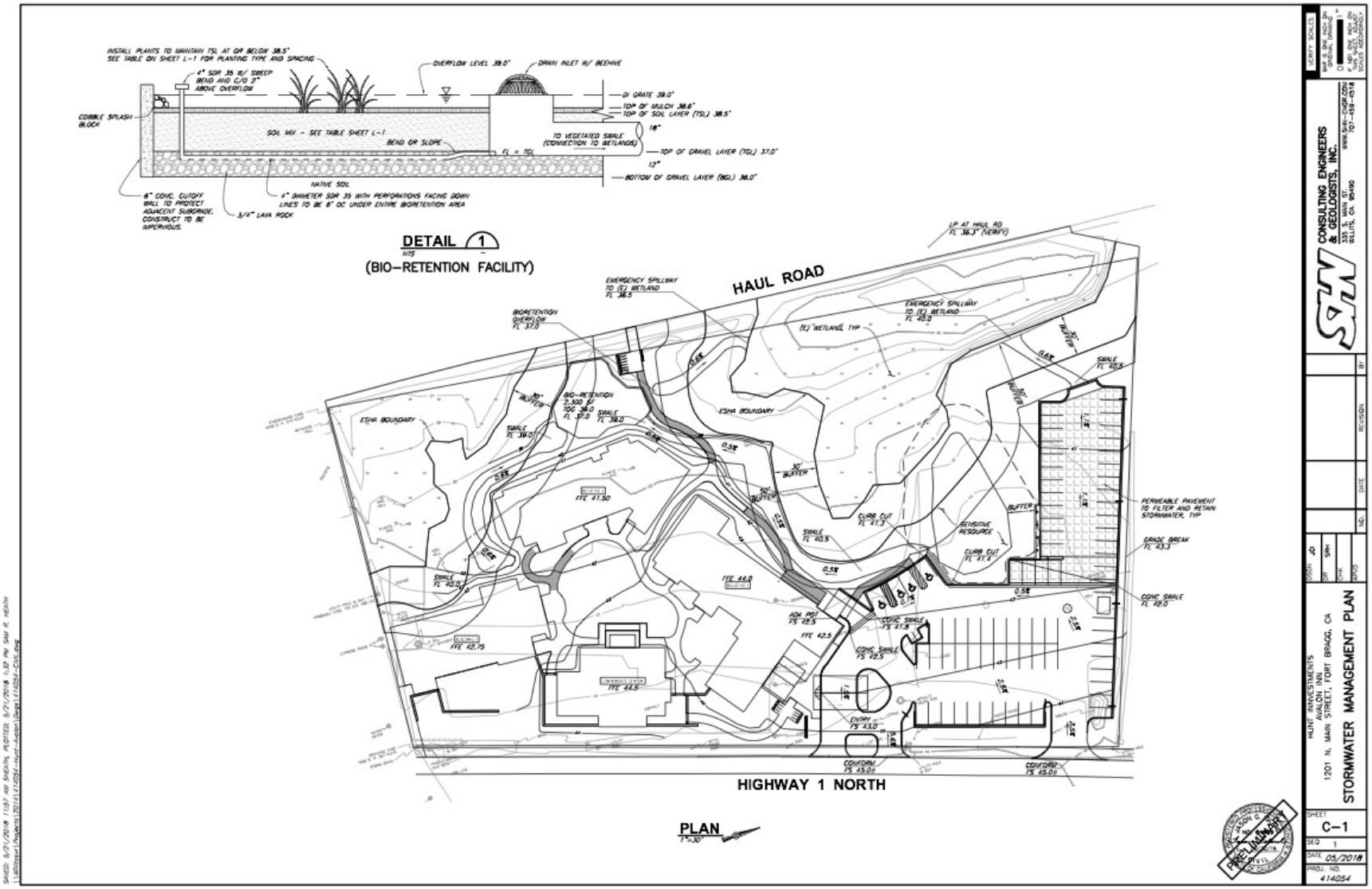

Figure 1 SHN Stormwater Management Plan Sheet C-1, 2018.08, Alternative A (preferred alternative).

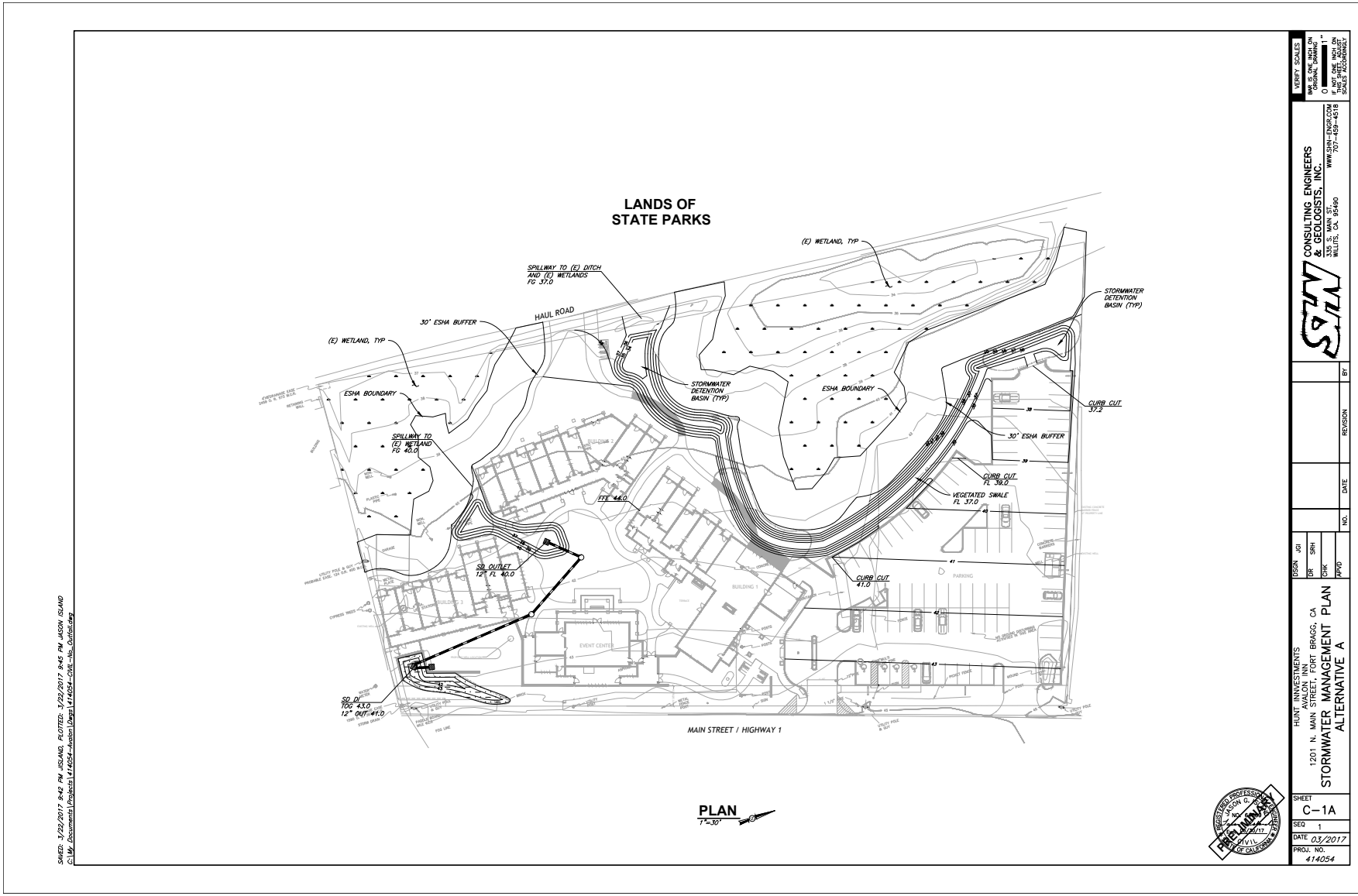

Figure 2 SHN Stormwater Management Plan, 2017.03, Sheet C-1A, on-site drainage [Alternative B for the purpose of this analysis].

Figure 3 Stormwater runoff flow from ditch to wetlands along Haul Road per Alternative B.

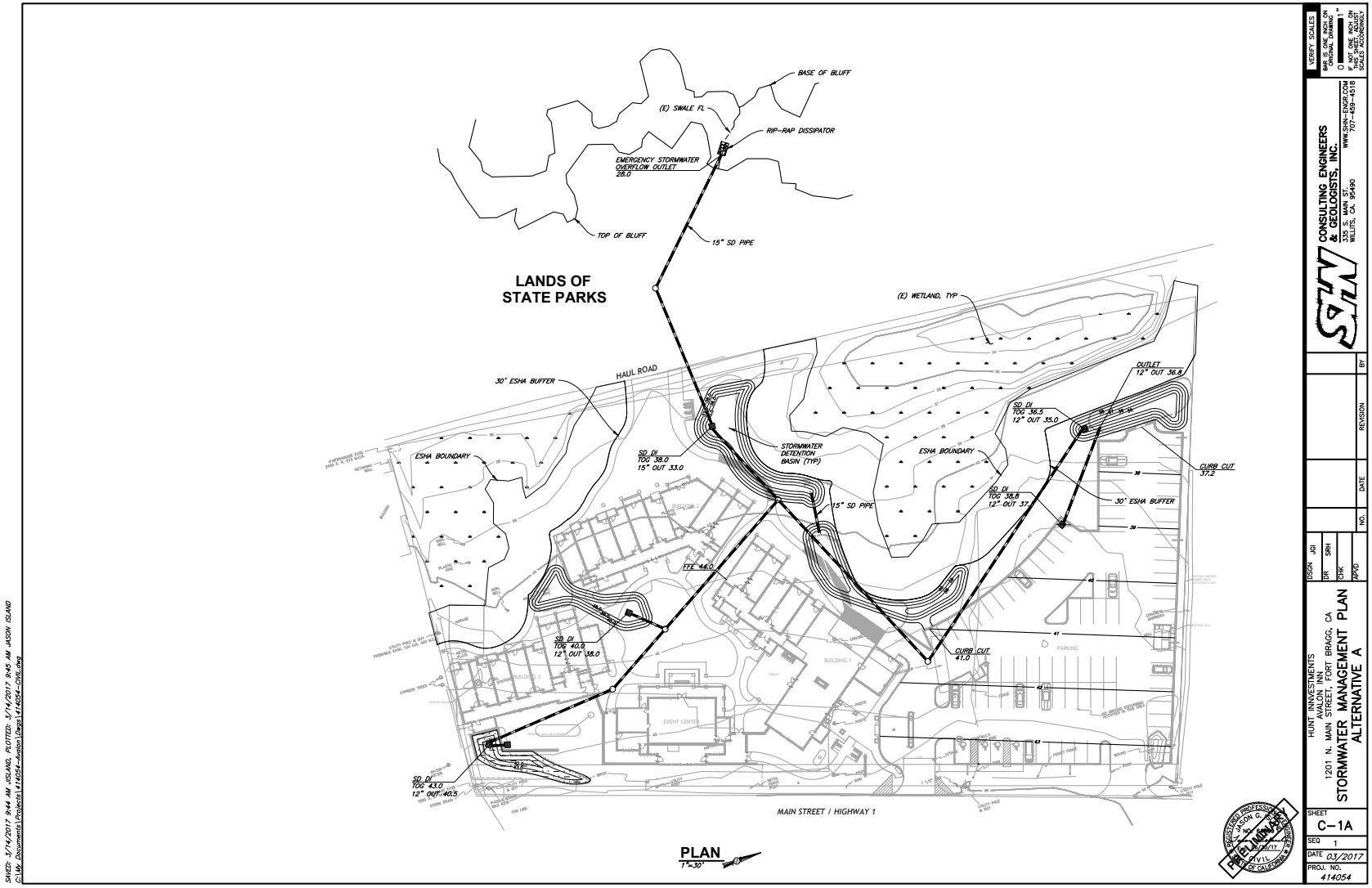

Figure 4 SHN Stormwater Management Plan, 2017.03, Sheet C-1A, with outlet to State Parks, [Alternative C, for the purpose of this analysis].

WETLAND RESTORATION, BUFFER ENHANCEMENT, & MITIGATION AND MONITORING PLAN

for

1201 & 1211 North Main Street
Fort Bragg, CA
APN 069-241-27 & -04
Mendocino County

Property Owners:
Bob Hunt, Hunt Investments
PO Box 1470
McCall, ID 83638

Report Prepared By:
Asa Spade – Senior Biologist

August 7, 2019

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1. PROJECT SUMMARY

Natural resources and wetland delineation surveys were conducted as a part of the coastal development permit (CDP #1-2013) process to identify the potential building envelope for a visitor serving facility and parking area on a previously developed ~3.7-acre property consisting of two parcels, zoned Highway Visitor Commercial (CH) and Open Space (OS), located in the City of Fort Bragg in the Coastal Zone.

Two wetlands were identified on the property. The northern wetland is approximately 19,000 square feet in size, and the southern wetland is approximately 10,000 square feet in size, for a total area of approximately 0.9 acre of wetlands on the subject properties.

The project was designed to maximize developable area of the parcel for an inn and parking lot while avoiding the southern wetland by at least 30 feet and the northern wetland by at least 50 feet. SHN designed infrastructure and created a stormwater management plan to accommodate runoff up to the 85th percentile storm. The system is designed to treat and infiltrate the majority of rainwater running off the buildings, parking lot, and other non-permeable surfaces. Rain in excess of the 85th percentile storm will enter the northern wetlands through two swales designed to minimally alter topography within the wetland buffer in order to enhance the buffer area and wetland beyond it.

Currently, the two wetland areas are moderately impacted by invasive plant species including Himalayan blackberry, cape ivy, yellow flag iris, callalily, and wild radish. The areas outside the wetland, within the wetland buffers, are dominated by non-native plants that do not have functional relationships to the wetland habitat. As a part of the development process, the owners are proposing to enhance the wetlands and wetland buffer areas to improve the wetland habitat, and the functional relationships and protective ability of the habitat surrounding the wetlands. Enhancement will include removal of invasive species, planting appropriate natives, and soil amendment and minor re-contouring within the buffer area to improve wetland hydrology and habitat values.

2. BACKGROUND

A Biological Scoping Survey and wetland delineation was performed on the combined 3.7-acres of two parcels (APN 069-241-27 & -04) by Asa Spade, and published on April 21, 2015. The purpose of the studies was to locate special status plants and communities, wetlands and riparian areas, and special status animal habitats to determine if they would be directly or indirectly impacted by the proposed development. Subsequent surveys and studies have been conducted to provide additional information and to ensure that the reports reflects current conditions.

In order to maximize the usable area of the parcels and minimize wetland buffer distance while providing sufficient protection to the natural resources present this wetland restoration, buffer enhancement, and mitigation and monitoring plan has been developed.

2.1. Responsible Parties

The party responsible for making sure Mitigation and Monitoring Plan performance goals are met is:

Bob Hunt, Hunt InnVestments
PO Box 1470
McCall, ID 83638

This wetland restoration, buffer enhancement, & mitigation and monitoring plan was written by:

Asa Spade
Senior Biologist
Wynn Coastal Planning & Biology
703 North Main Street
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3. PREVIOUS AND EXISTING ECOLOGICAL CONDITIONS

A fire in 2007 destroyed the inn that existed on the site prior to that time. **Figure 1** is a photograph of the inn on the southern parcel and residence and gravel stockpiles on the northern parcel, as well as the surrounding ecological conditions in 2002. The majority of the inn grounds were kept as a mowed lawn. Wetland vegetation can be seen in the lower left-hand side of the inn lot in the photo and a channel to the lower right. The vegetation along the strip of land lower in the photo (west of the lawn) appears to more closely resemble the vegetation further west across the Haul Road on State Parks land. The second parcel, to the north of the inn parcel shown, was used by the then adjacent business, Baxman Gravel, to stockpile gravel and other road base materials.

Figure 1. Image 11414, California Coastal Records Project, shows the lawn on the subject property in 2002.

Currently the vegetation on the subject parcels is comprised mainly of non-native, ornamental, and invasive plant species, with wetland communities along the northwest and southwest property boundaries. The main plant community present on the property, including the majority of the wetland buffer, is non-native grassland. Dominant species within the non-native grassland include common velvet grass (*Holcus lanatus*), creeping bentgrass (*Agrostis stolonifera*), tall fescue (*Festuca arundinacea*), sweet vernal grass (*Anthoxanthum odoratum*) and wild radish (*Raphanus sativus*). Non-native ruderal areas, invasive plants and ornamentals cover a significant portion of the property not covered by non-native grassland. Dominant plant species in ruderal areas, including the wetland buffer area east of the northern wetland, on what was the Baxman gravel site, include English plantain (*Plantago lanceolata*), bur-clover (*Medicago polymorpha*), buckhorn plantain (*Plantago coronopus*), wild radish (*Raphanus sativa*), vetch (*Vicia sativa*), and cape ivy (*Delairea odorata*).

Two areas of wetland are present on site. The northern wetland is approximately 19,000 square feet in size, and the southern wetland is approximately 10,000 square feet in size, for a total area of approximately 0.9 acre of wetlands on the subject properties. Within and near wetlands, patches of native vegetation were present. California blackberry brambles (*Rubus ursinus* ~2,000sqft) were present along the west property boundaries, just outside of wetlands, adjacent to the Haul Road. California wax myrtle (*Morella californica* ~2,300sqft) was present along the eastern edge of the northern wetland. Small-fruited bulrush (*Scirpus microcarpus* ~1,600sqft), broadleaf cattails (*Typha latifolia* ~2,500sqft), slough sedge (*Carex obnupta* ~3,750sqft), and water parsley (*Oenanthe sarmentosa* ~300sqft), were present within the northern wetland. Nootka rose (*Rosa nutkana* ~2,000sqft) occurred in a narrow patch along the Haul Road on the western side of the southern wetland.

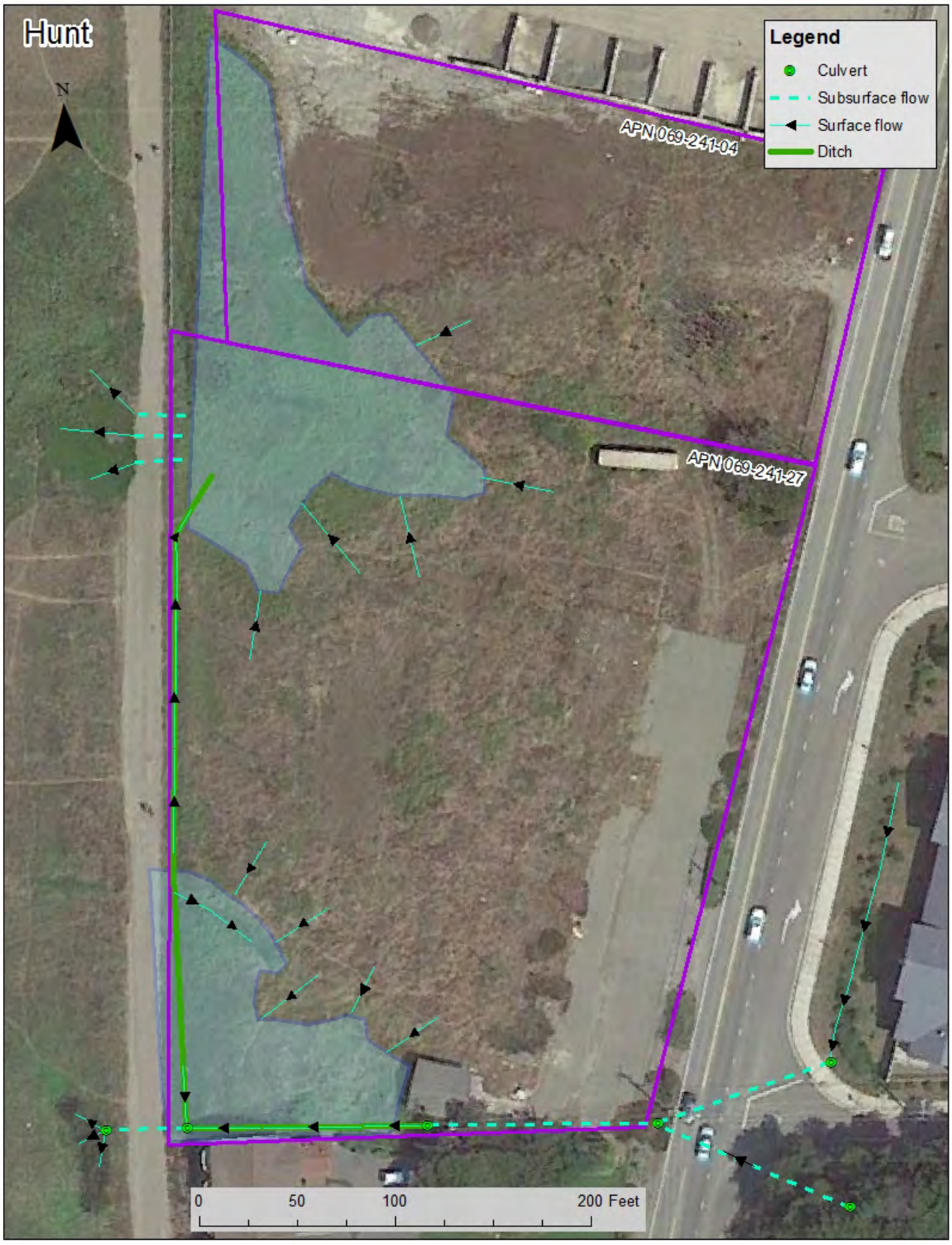

Figure 2. Wetlands documented on the site, with site hydrology indicated.

Portions of the wetlands on site are dominated by non-native invasive plants including Himalayan blackberry (*Rubus armeniacus*), cape ivy (*Delairea odorata*), pennyroyal (*Mentha pulegium*), callalily (*Zantedeschia aethiopica*), lollypop tree (*Myoporum laetum*), and yellow flag iris (*Iris pseudacorus*).

Figure 3. Himalayan blackberry along the western parcel boundary.

Figure 4. Calla lily within the northern wetland.

Figure 5. Lollypop trees within the southern wetland.

Figure 6. Yellow flag iris within the southern wetland at the southwestern corner of the project site.

Figure 7. Cape ivy within the northern wetland.

Figure 8. Iceplant within the northern wetland buffer area.

Figure 9. Wild radish directly adjacent to the northern wetland along the Haul Road.

Figure 10. Compacted soils and ruderal vegetation east of the northern wetland on the parcel that was previously Baxman gravel's stockpile area.

4. RESTORATION POTENTIAL

Targeted removal of specified non-native invasive plants will allow areas to revegetate with native species. Native plant species are more appropriate for native wildlife and will improve habitat. Minor recontouring of areas within the wetland buffer will improve site hydrology allowing for the best retention of rainwater on site. Ripping and amending the hard-compacted soils in the portion of the wetland buffer affected by the Baxman gravel operation will allow ruderal non-native vegetation to be replaced with native vegetation and allow rainwater to infiltrate the soil in this area. Removal of non-native vegetation within the wetland buffer and installation of appropriate native plants will enhance the wetland habitat, increasing the functional relationship between the wetlands and the habitat within the buffer area. Installation of appropriate native plants within the wetland and wetland buffer areas can increase biodiversity, add missing biological functions to the habitat, and perform habitat protective functions such as reducing light and noise entering the wetland habitat.

5. RESTORATION PLAN

5.1. Basis for Design

The intent of the Wetland Restoration and Buffer Enhancement Mitigation & Management Plan is to provide guidance on improving and maintaining a healthy wetland ecosystem. Following this plan will allow for development and use of the parcel at the same time are making the wetland habitat better than its conditions at the start of the project. This plan outlines performance goals and suggests methods for the property owner to meet these goals in order to increase wetland quality and improve the protective and habitat functions of the wetland buffer.

The proposed plan is performance-based which allows for management to be carried out in an adaptive manner whereby monitoring provides feedback and shows the manager areas within which efforts are successful, as well as areas that may need a different approach in order to meet the performance goals. Monitoring and restoration should occur for five years to meet the performance goals.

5.2. Performance Goals and Success Criteria

Goals for active management are as follows:

1. Maintain or increase the area meeting the definition of Coastal Act Wetland. At the end of the mitigation monitoring period wetland area shall be ≥ 29,000 square feet.
2. Remove target non-native invasives: Himalayan blackberry (*Rubus armeniacus*), cape ivy (*Delairea odorata*), callalily (*Zantedeschia aethiopica*), iceplant (*Carpobrotus* spp.), bulbil bugle lily (*Watsonia meriana*), and yellow flag iris (*Iris pseudacorus*), from the wetland and buffer area. No plants of these target species shall be present within the wetland nor buffer area at the end of the mitigation monitoring period.
3. Increase wetland and wetland buffer native biodiversity. The wetland and wetland buffer areas shall support 20% more species of native plants at the end of the mitigation and monitoring period than the baseline count at the beginning of the project.
4. Increase relative coverage of native plants as compared to non-native plants. Relative coverage of native plants shall be ≥80% within the wetland and ≥70% within the buffer area at the end of the mitigation monitoring period. It should be noted that complete elimination of non-native species is an unrealistic goal. Some active management of non-natives within the wetland and buffer areas will always be necessary but the goal is to establish self-sustaining populations of native plants that will exclude as many non-natives as possible. Repeated soil disturbance caused by more intensive plant management provides more opportunities for ruderal non-native species to become established and this activity may also be more detrimental to native wildlife than the presence of some non-native plants.
5. Facilitate the wetland's natural flood control function and groundwater infiltration by contouring site topography and improving compacted soils to make them more friable.
6. Produce a quarterly record of management activities and site performance and submit this information to the planning department on a yearly basis. Photo points shall be established and photographs of the northern wetland, northern wetland buffer area, southern wetland, and southern wetland buffer area shall be taken each quarter. The annual report shall include

qualitative and quantitative data regarding each of the performance criterion outlined above.

6. IMPLEMENTATION

Suggested implementation procedures for the wetland restoration and buffer enhancement are outlined below. Completion of these procedures is a means and not an end; other ways to meet the goals and performance criteria outlined above may be utilized. Some adaptive management based on results is appropriate and expected. Conditions at the site, weather, and plant performance will all inform management decisions.

6.1. Contour Topography within the Wetland Buffer

SHN Consulting Engineers & Geologists, INC. has developed a stormwater management plan for the site. Within the wetland buffer, the plan includes two emergency spillways and a swale directing runoff from impervious surfaces on the site into a bio-retention swale outside the buffer area. Minor grading and recontouring of these areas within the buffer should be completed in order to direct overflow water resulting from large storm events into the northern wetland. The baseline condition of two of these areas is that they are vegetated with non-native grasses. The third area, an emergency spillway at the northern end of the project site, will be located in an area that is compacted and sparsely vegetated with non-native ruderal species. Grading and contouring should disturb and move the minimum volume of substrate necessary to achieve the functionality of the swale and emergency spillways as designed by SHN. Soils in these areas should be amended as necessary to support native vegetation and should be revegetated with native vegetation appropriate to the function of these features and the adjacent wetland habitat. These activities will improve the wetland buffer habitat by increasing native vegetation and will improve the wetland by maximizing the amount of stormwater runoff retained on site.

6.2. Rip and Amend Compacted Substrate within the Northern Wetland Buffer

Soils above the wetland on the western portion of the northern parcel have been compacted over time by the gravel operations on this parcel. The soil within the wetland buffer is thin and compacted, supporting only ruderal non-native species and non-native grasses. This area has very low habitat value and no functional relationships to the wetland it is buffering. Rather than taking a hands-off approach to this buffer area it should be enhanced in order to better protect the wetland and to expand the habitat value.

Soils in this area should be evaluated to determine the extent of fill and compaction. The upper layers should be ripped with appropriate heavy equipment (excluding within the Sensitive Resource Area no-dig zone), such as a backhoe or excavator, to a depth that effectively eliminates the compacted layer, or at least to 12 inches. Most plant roots are within the upper 12 inches of soil. Soils in this area should be tested for their ability to support native grasses and forbs and amended with appropriate materials according to the testing. Loosening of soil and adding amendments will result in a greater soil volume than the baseline. The removal of some of the soils may be necessary to maintain appropriate topography. Minor recountouring should occur in this area to facilitate natural drainage and to direct water discharged from the emergency spillway during a heavy rainfall event, as described in implementation section 6.1. above.

6.3. Invasive Plant Removal

Himalayan blackberry (*Rubus armeniacus*), cape ivy (*Delairea odorata*), callalily (*Zantedeschia aethiopica*), iceplant (*Carpobrotus* spp.), bulbil bugle lily (*Watsonia meriana*), and yellow flag iris (*Iris pseudacorus*) should be removed to the greatest extent practicable. These plants are to be specifically targeted for 100% removal, which should be achievable with the proper effort over the 5 year restoration period. These plant species easily resprout from roots and/or rhizomes, which must be grubbed out. Non-native plants within the wetland should be removed with hand tools. Power tools such as chainsaws and rototillers may be appropriate but heavy equipment should not be used within the wetland or in the Sensitive Resource Area no-dig zone. Within the buffer area the use of heavy equipment and vehicles used to load up and remove material should be minimized.

The majority of the invasive plants should be removed in a single effort in the first year of the

project; however, it is expected that root and rhizomes will be missed and will begin to regenerate. These plants should be removed when they become identifiable, or at least yearly until all plants of the target species listed above are eliminated (**Table 1**).

A second set of plants that should be removed includes Monterey pine (*Pinus radiata*), lollypop tree (*Myoporum laetum*), red hot poker (*Kniphofia uvaria*), garden nasturtium (*Tropaeolum majus*), cotoneaster (*Cotoneaster* spp.), Escallonia (*Escalonia* sp.). These plants are ornamental non-native plants introduced as landscaping that can spread but are generally not as pernicious. 100% removal of these species should be relatively easy to achieve.

Additional non-native plants present within the wetland and buffer area that should be removed to the extent practicable include poison hemlock (*Conium maculatum*), periwinkle (*Vinca* spp.), bull thistle (*Cirsium vulgare*), wild radish (*Raphanus sativus*), teasel (*Dipsacus* spp.), burclover (*Medicago* spp.), Aaron's beard (*Hypericum calycinum*), pennyroyal (*Mentha pulegium*), monbretia (*Crocosmia* ×*crocosmiiflora*), bentgrass (*Agrostis* spp.), sweet vernal grass (*Anthoxanthum odoratum*), rattlesnake grass (*Briza maxima*), ripgut brome (*Bromus diandrus*), orchard grass (*Dactylis glomerata*), ryegrass (*Festuca perennis*), common velvetgrass (*Holcus lanatus*), and purple-awned wallaby grass (*Rytidosperma penicillatum*). This category of plants includes non-native invasive species that have become naturalized in coastal Northern California. The plants in this third category are unlikely to be eliminated from the project site; they should be managed as well as possible. The performance criteria allow for some presence of non-native plant coverage in acknowledgement of the diminishing returns expected in the effort to eliminate all non-native invasive species present within the wetland and buffer areas.

Category 1 species listed separately at the beginning of this section and within the performance criteria have been chosen because of their significant baseline coverage and due to the potential for eventual success eliminating them from the site. Category 2 species should be relatively easy to eliminate. Category 3 plants will be practically impossible to completely eliminate from the site but should be reduced as much as possible.

Table 1. Non-native and invasive species targeted for removal.

Category 1: Targeted invasive species - 100% Eradication	
Rubus armeniacus	Himalayan blackberry
Delairea odorata	cape ivy
Zantedeschia aethiopica	callalily
Carpobrotus spp.	iceplant
Watsonia meriana	bulbil bugle lily
Iris pseudacorus	yellow flag iris
Category 2: Non-Native but not as invasive – 100% removal	
Pinus radiata	Monterey pine
Myoporum laetum	lollypop tree
Escalonia sp.	Escallonia
Kniphofia uvaria	red hot poker
Tropaeolum majus	garden nasturtium
Cotoneaster spp.	cotoneaster
Category 3: Ongoing Management – Removal to greatest extent feasible	
Conium maculatum	poison hemlock
Vinca spp.	periwinkle
Cirsium vulgare	bull thistle
Raphanus sativus	wild radish
Dipsacus spp.	teasel
Medicago spp.	burclover
Hypericum calycinum	Aaron's beard
Mentha pulegium	pennyroyal

Crocosmia ×crocosmiiflora	monbretia
Agrostis spp.	bentgrass
Anthoxanthum odoratum	sweet vernal grass
Briza maxima	rattlesnake grass
Bromus diandrus	ripgut brome
Dactylis glomerata	orchard grass
Festuca perennis	ryegrass
Holcus lanatus	common velvetgrass
Rytidosperma penicillatum	purple-awned wallaby grass

6.4. Establish Native Plants to Increase Native Coverage and Biodiversity

Removal of non-native plants from the wetland and buffer areas will result in disturbed bare soil. Elimination of invasives may be more successful if disturbed soils are immediately watered and allowed to rest for two to three weeks. This will encourage seeds in the soil to sprout. Two to three weeks later non-native seedlings should be eliminated with a hoe. Once seedlings are eliminated, areas with barren soil should be immediately planted and seeded with native plants. Allowing disturbed soils to rest for two to three weeks prior to planting as described is recommended but may not always be practical depending on the time of year activities occur.

In some cases plant removal will need to occur at different times of the year than plant installations depending upon the best strategy against target non-native plants. Generally, the best time to install new plants will be in the fall when rains begin, in order to minimize the necessity for watering and to maximize plant survival.

Table 2 is a list of appropriate native plants for the habitat present within the wetland and surrounding buffer. Many of the plants are already present within the wetland; others are suggested additions to the wetland and/or buffer areas. Adding additional species to those present will increase biodiversity of plants as well as wildlife that utilize these plants as food, cover, nesting materials, etc. The table includes information on the average maximum height and preferred moisture gradient of the plants, as well as the zones denoted in the planting map (**Figure 11)** where each species is appropriate. The list also denotes with an asterisk, those plants that were not documented on the site during previous surveys. This list can be used to determine which plants are new to the site for purposes of increasing species richness, which is one of the criteria for success.

Table 2. Site appropriate plants for the wetland and buffer area. Plants marked with an asterisk were not documented during the initial surveys but are native and appropriate to the habitat present. Addition of these species would count toward increasing site biodiversity. Average height was determined based on biologist's knowledge of and familiarity with these species in comparable habitats on the Mendocino Coast.*

Scientific name	**Common name**	**Average Height (feet)**	**Wetland Status**	**Planting Zones**
Erythranthe guttata	seep monkeyflower	1.5	OBL	C
*Erythranthe inodora**	musk monkeyflower	0.1	OBL	C
*Juncus bolanderi**	Bolander's rush	1.7	OBL	C
Carex obnupta	slough sedge	2	OBL	C
Carex harfordii	Monterey sedge	1.5	OBL	C
Scirpus microcarpus	small panicled bulrush	2	OBL	C
Potentilla anserina ssp. pacifica	Pacific potentilla	0.1	OBL	C, E
*Rhododendron columbianum**	Labrador tea	4.5	OBL	D
Equisetum telmatia	giant horsetail	3	FACW	C
*Camassia quamash**	Camas lily	1.7	FACW	E
*Grindelia stricta**	gumweed	2	FACW	E, F
Stachys chamissonis	coast hedge-nettle	1	FACW	C
*Calamagrostis nutkaensis**	Pacific reedgrass	2.5	FACW	E, F
*Artemesia douglasiana**	California mugwort	3	FACW	B, D
Plantago subnuda	naked plantain	0.3	FACW	C, E
Juncus breweri	Brewer's rush	1	FACW	C
*Juncus hesperius**	coast rush	1	FACW	C, F
*Sisyrinchium californicum**	golden-eyed grass	0.5	FACW	C
Deschampsia cespitosa ssp. holciformis	coastal tufted hairgrass	0.3	FACW	E
*Juncus patens**	spreading rush	1.5	FACW	E
*Lilium maritimum**	coast lily	3	FACW	E, F
Morella californica	wax myrtle	10	FACW	D
Stachys rigida	hedge nettle	1.2	FACW	E
Grindelia stricta	coastal gumweed	2	FACW	E
Sisyrinchium bellum	blue-eyed grass	0.5	FACW	E
Hosackia gracilis	coastal lotus	0.1	FACW	E
Rosa nutkana var. nutkana	Nootka rose	3.5	FAC	B
Heracleum lanatum	cow parsnip	3.5	FAC	D, F
Scrophularia californica	California bee plant	2	FAC	F
*Athyrium filix-femina**	lady fern	2	FAC	E, F
*Danthonia californica**	California oatgrass	1.3	FAC	B
Elymus glaucus	blue wildrye	2	FACU	B
*Carex tumulicola**	split awn sedge	0.5	FACU	F
*Ribes sanguineum**	pink flowering current	6	FACU	B, D
*Vaccinium ovatum**	evergreen huckleberry	5	FACU	B, D
Prunella vulgaris	self-heal	0.3	FACU	F
Fragaria chiloensis	beach strawberry	0.1	FACU	F
Erigeron glaucus	seaside daisy	0.2	FACU	F
Achillea millefolium	yarrow	1	FACU	F
*Artemesia suksdorfii**	coastal mugwort	3	FACU	B, D
Polystichum munitum	western sword fern	2.5	FACU	B, D
Solidago canadensis	Canadian goldenrod	2	FACU	B, F
Solidago spathulata	coast goldenrod	0.5	FACU	B, F
Chamerion angustifolium	fireweed	1	FACU	F
Anaphalis margaritacea	pearly everlasting	1	FACU	B, F
Iris douglasiana	Douglas iris	1.5	UPL	B, F
Marah oreganus	wild cucumber	3	UPL	B
Baccharis pilularis	coyote brush	5	UPL	B
*Frangula californica**	California coffeeberry	5	UPL	D
Bromus carinatus	California brome	2	UPL	B, D
Treatment: A=preservation, B=soil amendment, C=wetland restoration, D=buffer enhancement (shrubs), E=spillway (low plants), F=buffer enhancement (low plants)				

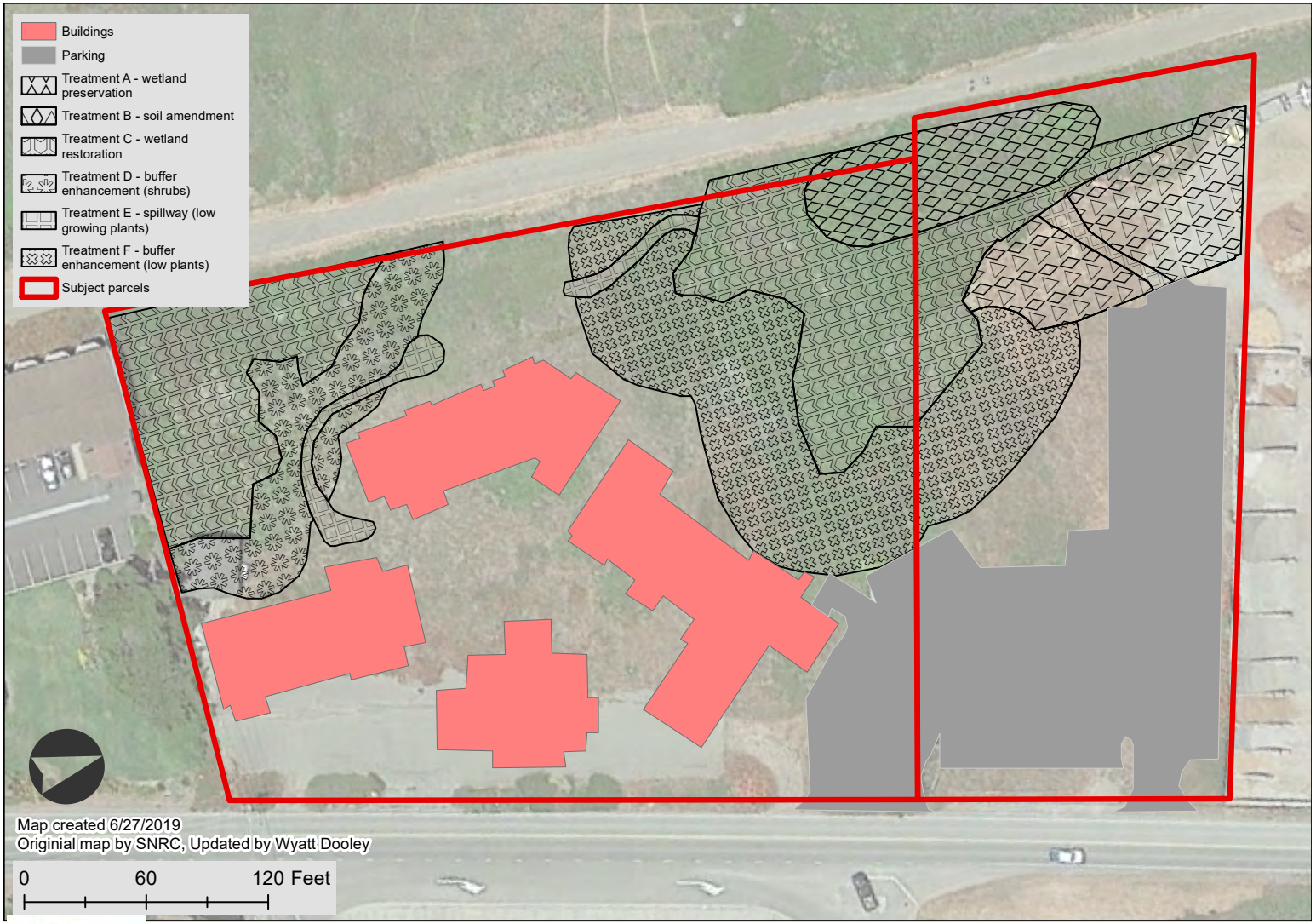

Figure 11. Restoration Planting Map, illustrating various Treatment Areas keyed to Table 2 Species List

6.5. Establish Native Plants to Provide Screening

In some locations it may be desirable to plant shrubs within the wetland buffer between the development and the wetland. Shrubs will help reduce entry into the wetland by guests and will screen the wetland from noise, nighttime light, and visual disturbance. These functions will provide better conditions for wildlife using the wetland areas. A line of wax myrtle shrubs (**Figure 12**), presumably shaped by wind and salt spray, occurs along a portion of the eastern edge to the northern wetland. This hedge provides a good model of what can be created in the other target areas within the wetland buffer. Concerns over public view of the ocean from the highway may preclude the installation of a hedge along the remainder of the northern wetland. The view of the ocean from the highway over portions of the northern wetland, and the southern wetland, however, will already be blocked by proposed development. In these areas native shrubs should be planted along the outside (eastern) edge of the buffer area. Care will be taken to ensure that first-floor guests are afforded a view of the ocean. Probably the most likely shrub species to successfully become established will be wax myrtle (*Morella californica*). For variety and biodiversity some additional evergreen shrub species can be substituted including coyote brush (*Baccharis pilularis*), evergreen huckleberry (*Vaccinium ovatum*), California coffeeberry (*Frangula californica*), or Labrador tea (*Rhododendron columbianum*). Sword fern (*Polystichum munitum*) may also be used in some locations.

Figure 12. Hedge of wax myrtle along the edge of the northern wetland that performs a screening function protecting the wetland habitat beyond.

6.6. Project Adaptation

Using the annual monitoring procedure, active management components will be assessed based upon the performance goals. If the performance goals are not being achieved or if there is evidence that they are vulnerable to failure, a consultation with CA Department of Fish and Wildlife should occur where criteria may be reassessed based upon current and projected conditions.

6.7. Monitoring

An active management monitoring report will be written on an annual basis, for a minimum of five years, and until most or all performance goals have been met for three consecutive years. The report will describe the methods used during that monitoring period to eradicate weeds, improve wetland quality and conditions develop and maintain wetland buffer vegetation and functionality. Any new invasive plant species observed will be described. Barriers to achieving the performance goals should be identified, described, and strategies to overcome these barriers shall be developed and implemented. Pictures will be included, and a description of whether and how performance goals were met will be noted.

7. SCHEDULE

The table below gives an approximate outline of when in the life of the project each component of the restoration plan should be undertaken.

Table 3. Restoration plan implementation schedule

Phase	Implementation Date	Description
Phase 1 - Site Grading and Restoration		
Establish photo points	Before other activities	Establish photo points for northern wetland, northern wetland buffer area, southern wetland, and southern wetland buffer area. Record baseline conditions.
Contour topography	Fall, Year 1	Contour topography for 2 emergency spillways and swale (Area E)
Loosen and amend compacted soils	Fall, Year 1	Upper layer of soil in Area B should be ripped and amended
Begin invasive plant removal	Year 1	Begin removing invasive plants in Areas B - F. Category 1 plants should be targeted for removal. Category 2 plants should be removed to a feasible extent (**Table 1**)
Recommended - germinate seed bank	Year 1	After soils are disturbed and barren of vegetation, soil should be watered sufficiently to allow present seed bank to germinate. Two to three weeks later seedlings should be eliminated with a hoe.
Plant and seed natives in barren soil	Year 1	After the above recommended step or immediately after soil is barren, barren areas should be planted and seeded with natives. If this occurs during the dry portion of the year watering should occur until rains are sufficient.
Establish screening plants	Winter, Year 1	Shrubs should be planted in Area D. If this occurs during the dry portion of the year watering should occur until rains are sufficient.
Establish low growing plants	Winter, Year 1	Low growing plants should be planted and established in Area E. If this occurs during the dry portion of the year watering should occur until rains are sufficient
Document efforts	Winter, Year 1	Document restoration efforts through photographs, number and location of plants installed, record qualitative and quantitative data for each success criteria.
Phase 2 – Maintenance and Documentation		
Site monitoring	Quarterly, Year 2-5+	Document restoration efforts through photographs, number and location of plants installed, record qualitative and quantitative data for each success criteria.
Yearly reporting	Winter, Year 2-5+	Provide all documentation recorded in quarterly monitoring to the appropriate authority as discussed in the reporting section below.
Supplemental invasive removal	Quarterly, Year 2-5+	Remove resprouting invasive plants in Areas B-F.
Supplemental native planting	Winter, Year 2-5+	Seed and install native plants as necessary to achieve success criteria
Final Report	Winter, Year 5+	Write and submit a final report when success criteria have been achieved and maintained. If success criteria have not been achieved at the end of the 5th year then the restoration efforts shall continue until these criteria are met. If it becomes apparent that some criteria will not be met then coordination with City Planning shall occur to determine how criteria can be met and/or to re-assess what goals must be achieved for the restoration to be considered successful.

8. REPORTING

Reporting will occur on an annual basis, and reports will be received by the City of Fort Bragg Planning Department by December 31 of each year until all (or most with agency consultation) performance goals have been met for at least three consecutive years.

Reports will be sent by US Mail to:

Attn: Sarah McCormick, Assistant Planner
Community Development Department
City of Fort Bragg
416 North Franklin Street
Fort Bragg, CA 95437

Reports will include the following information:

- Name and contact information of person in charge of monitoring activities, and name and contact information of reporting party.
- Evaluation of each of the performance criterion; along with recommendations for meeting each of the criterion not already met.
- Color photos of the active management areas, from each photo point, each quarter of the reporting period.
- A summary of any issues encountered and management steps taken during the reporting period.
- Methods used during that monitoring period to eradicate weeds, improve wetland and buffer quality.
- Any new invasive plant species observed or evidence of other potential problems will be described.

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10. INVESTIGATOR BIOGRAPHIES

Contributing Biologists

Asa B Spade graduated from Humboldt State University with a Bachelor's Degree in Environmental Science, with a concentration in Landscape Ecosystems as well as a minor in Botany. Since that time, he has been working in the natural resources field, first with Mendocino County Environmental Health and later with California State Parks and the Department of Fish and Game. He has been trained in Army Corps wetland delineation by the Coastal Training Program at Elkhorn Slough and in Advanced Wetland Delineation by the Wetland Science and Coastal Training Program. He has been trained in the environmental compliance process for wetland projects in San Francisco bay and outer coastal areas. Asa has trained with the Carex Working Group in identifying grasses and sedges of Northern California. He is on the Fish and Wildlife Service approved list for Point Arena mountain beaver surveys and has done surveys for Behren's silverspot butterfly, Northern spotted owl, Sonoma tree vole, and the California red-legged frog. He has contributed to more than 150 coastal development projects in Mendocino County.