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Botanical Survey

Mabe Table Bluff Botanical Survey

Reference: **016209**
Date: **August 11, 2016**
By: Joseph Saler, Biologist/Botanist

On July 27 and August 1, 2016 SHN Consulting Engineers & Geologists, Inc. botanist Joseph Saler conducted a botanical site reconnaissance and survey for special status botanical species[1] across the entire parcel designated APN 308-231-002. This included the portions of the parcel on both sides of Hawks Hill Road, and the right of way for Hawks Hill and Table Bluff Roads, along the parcel. This covers an area of approximately 4.68 acres along the top of the shoulder of Table Bluff. No project has been developed for the parcel, however, it is expected that the parcel would be developed with a single family dwelling and agricultural use. To ascertain such development potential the entire parcel was surveyed to ensure that no listed botanical species potentially occurring on the parcel were missed. The site is within the United States Geological Survey (USGS) 7.5-minute Fields Landing quadrangle located in Humboldt County. This Botanical Report documents the botanical site investigation and findings.

Background

The parcel designated APN 308-231-002 is located on Table Bluff at latitude 40.6654, and longitude -124.2257 (see figure 1). Table bluff has been the location of intense agricultural use for over 100 years, which has largely determined the botanical species found within the parcel during the survey. The parcel is surrounded by agricultural use on two sides, and was at one time used for agriculture as evidenced by fencing. Additionally, there was a mobile home on the parcel in the past as seen on old aerial imagery and evidenced by piping, electrical hookups, a cement pad and sidewalk, and a gravel driveway. Due to the past agricultural use of the parcel and the history of development on the parcel, it is unlikely that any listed botanical species would be found on site.

Soils across the parcel are of the Rhonerville soil series, which consists of silty clay loam textured soils with deep, dark topsoil down to approximately 24 inches. These soils are deep and well drained which can support a wide range of vegetation. Due to the well drained nature of the soils across the entire parcel, very little wetland species were observed, with few species having more than facultative upland species[1].

[1] The Term "Special Status Species" is used collectively to refer to species that are state or federally listed, species that are state or federal candidates for listing, and all species listed by the California Natural Diversity Database. This term is consistent with the biological resources that need to be assessed pursuant to the California Environmental Quality Act.

Figure 2: Survey area. Includes Right of way along Table Bluff Road and Hawks Hill Road (referred to as Rasmussen Rd in figure). Note agricultural fields to the south and west.

Methodology

A list of plant species potentially present within the parcel was developed from information available from the California Consortium of Herbaria and the Calflora Project. A search of the California Natural Diversity Data Base (CNDDB) for known rare, threatened, or endangered species within the Fields Landing and adjacent quadrangles resulted in 23 plant species. An additional search for known rare, threatened, or endangered species within the Fields Landing and adjacent quadrangles using the California Native Plant Society (CNPS) rare plant inventory resulted in 23 additional species for a total of 46 plant species. Of these, 11 species have low to medium potential to occur within the parcel (See Tables 1 and 2 for listed species). No listed species had a high potential of occurring on-site. The bulk of the remaining species occupy wetland habitats, beach habitat, or forested habitats. These species do not have suitable habitat within the parcel, which is on top of a shoulder of Table Bluff and is characterized by non-native grassland and shrubland, with a few isolated trees. Using information about sensitive species potentially

present in the project area, SHN undertook a botanical investigation in an attempt to determine if any of these species were actually located at the project site, and if project activities would have any adverse impacts to individuals or habitat.

Botanical Investigation

A focused botanical survey was conducted pursuant to the California Department of Fish and Wildlife (CDFW) *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW, 2009).

The survey protocol consisted of a database query and a focused botanical field survey for target species within suitable and potentially suitable habitat. Prior to conducting fieldwork, the following references were reviewed:

- CNDDB query for Field's Landing and the surrounding USGS 7.5 minute topographic quadrangles[2] (CDFW, 2016a).
- Electronic Inventory of Rare and Endangered Vascular Plants of California (California Native Plant Society [CNPS], 2016) query for a list of all plant species reported for the Field's Landing and the surrounding USGS 7.5 minute topographic quadrangles[2].
- U.S. Fish and Wildlife Service (USFWS) Listed/Proposed Threatened and Endangered Species for the Field's Landing Quadrangle (Candidates Included; USFWS, 2016).
- Biogeographical Information and Observation System (BIOS; CDFW, 2016b).

From the database query, a list of potential target species for the study area was compiled and is presented as Table 1 and Table 2 in Appendix A. These tables include all plant species reported by the CNDDB and CNPS. There are currently three botanical species identified by the USFWS as Threatened, Endangered, or Candidate species proposed for listing as either threatened or endangered under the Federal Endangered Species Act (FESA) that could potentially occur near the survey area. This includes the western lily (*Lilium occidentale*), beach layia (*Layia carnosa*), and Menzies' wallflower (*Erysimum menziesii*).

A field survey was conducted on July 27 and August 1, 2016 for all special status plant species potentially present (Table 1 and 2, Appendix A) in the study area. The survey was conducted on foot and covered the entire parcel as well as the right of way along Table Bluff and Hawks Hill Roads (Figure 1 for approximate survey boundary). The survey was conducted outside of the estimated flowering period for the seacoast ragwort (*Packera bolanderi* var. *bolanderi*), which has low potential of existing on site. The seacoast ragwort is known to have an estimated flowering period from April to May. It is unlikely that this species occurs within the survey area due to a lack of habitat; therefore it is unlikely that this species was missed due to the timing of the survey. Additional species had bloom periods outside the time of the survey however none of these species had any potential of existing within the survey area due to a lack of habitat. These species include the seaside bittercress (*Cardamine angulata*) (April-June), Oregon paintbrush (*Castelleja litoralis*) (June), pacific golden saxifrage (*Chrysosplenium glechomifolium*) (February-May), Menzies' wallflower (*Erysimum menziesii*) (March-April), shortleaved evax (*Hesperevax sparsiflora* var.

[2] Eureka, Arcata South, McWhinney Creek, Hydesville, Fortuna, Ferndale, Cannibal Island

brevifolia) (March-June), Howell's montia (*Montia howellii*) (March-May), and the California pinefoot (*Pityopsis californica*)(May). Because these species do not have habitat present within the parcel, they were not missed due to a lack of flowering during the time of the survey.

Reference sites were visited for listed species that occur near the survey area, to access these populations for vegetative, flowering or fruiting status. A nearby population of the western lily was observed as a reference site and found to be in full bloom, indicating that the survey was conducted within the correct bloom period for this species within the area.

In addition to surveying for target species, a list of all botanical species encountered was compiled. Plants were identified to the lowest taxonomic level possible to distinguish special-status species from others. A list of observed species is attached as Table 3, Appendix B. Botanical nomenclature follows *The Jepson Manual, Vascular Plants of California* (Baldwin et al. 2012) and subsequent online revisions.

Results

The habitat found across the parcel varied from non-native grassland to coastal shrubland dominated by cascara (*Frangula purshiana*), to large thickets of California blackberry (*Rubus ursinus*). Over 100 species were observed on site (Table 3, appendix B) of which 47.5% were native, reflecting the past agricultural and development uses of the parcel. The majority of the parcel was densely vegetated with some areas covered by large thickets of California blackberry. Several young Sitka spruce (*Picea sitchensis*) and Monterey pine (*Pinus radicata*) provided deep shade on the southern portion of the parcel. The parcel had 30% cover by non-native grassland, 65% cover by shrubs and cascara and 5% cover by maturing conifer trees. The habitats and plant communities within the parcel appear to represent a transitional community from an agricultural pasture to natural woodland, reflecting the years since the parcel was used for agriculture. Mature Sitka spruce and natural woodland is present to the northeast of the parcel across Table Bluff Road from the survey area. Dominant shrubs across the parcel include cascara, California blackberry, coyote brush (*Baccharis pilularis*), Scotch broom (*Cytisus scoparius*) and salal (*Gaultheria shallon*).

No listed species or special status plant species were observed on-site. The disturbed nature of the site, invasive species, high shrub density, and elevated levels of herbivory make it unlikely that any listed species are present within the parcel. Of the 46 listed species recorded for the Fields Landing and surrounding 7.5 minute quadrangles, 11 had some potential of occurring on site. Based on the habitat occurring on-site, the Siskiyou checkerbloom (*Sidalcea malviflora ssp. Patula*) and the western lily (*Lilium occidentale*) had moderate potential of occurring within the survey area, however neither was observed. The Siskiyou checkerbloom is found within coastal bluff scrub, coastal prairie, coastal coniferous forest, and along roadcuts. These habitat types are present within the survey area, or nearby. The coastal prairie within the survey area is of very low quality, and exhibits overwhelming dominance by non-native species such as sweet vernal grass (*Anthoxanthum odoratum*) and velvet grass (*Holcus lanatus*). The shrub habitat is very dense with California blackberry thickets and dense cover in some areas by scotch broom (*Cytisus scoparius*) possibly precluding the growth of this species. The road cuts represent potential habitat for the Siskiyou checkerbloom, however, no plants were observed. While potential habitat for this species did exist within the parcel, the parcel was scrutinized, and the survey occurred within the bloom period. The

Siskiyou checkerbloom was not observed, and therefore, most likely does not exist within the area of the survey.

The western lily occurs on Table Bluff nearby, and is listed as an endangered species by the United States Fish and Wildlife Service (USFWS). Due to the project's proximity to known populations of this species, the parcel was scrutinized for the existence of this species on site. Habitat to support this species was not present within the survey area. The western lily requires loose soils that are wet for portions of the year. The parcel represents a dry shoulder of Table Bluff, and is well drained, although roadside ditches did represent potential habitat. In addition to the dry nature of the site and moderately compacted soils, the parcel was heavily browsed by deer. The area was crisscrossed by deer paths, and many species of plants showed signs of heavy herbivory. The western lily is very susceptible to herbivory and is preferentially browsed. Because of the history of agricultural use of the parcel, high levels of herbivory, and the dry nature of the site, it is highly unlikely that this species exists on-site.

The other nine species with a low potential of occurrence on site were searched for during the survey. The lack of habitat for the species, and the heavy cover by non-native or invasive species, precluded them from occurring within the survey area.

Photo 1: View of project area looking southwest. Note adjacent agricultural field and cover by Rubus and poison hemlock.

Photo 2: View of project area looking south. Vegetation representative of the grassland habitat found across the parcel.

Photo 3: View of shrubs encroaching into grassland.

Conclusions

There are 46 special status botanical species reported within the region consisting of the study area's quadrangle (Fields Landing) and the surrounding topographic quadrangles (CDFW, 2016a; CNPS, 2016, USFWS, 2016). This section summarizes conclusions based on the research and field investigations documented.

Of the 46 special status botanical species, 11 species listed in Table 1 and Table 2 (Appendix A) are considered to have a low or moderate potential to occur within the study area. No special status plant species were detected during the survey, and no additional surveys or mitigation measures are warranted.

Avoidance and Minimization

No special status plant species were observed within or adjacent to the project area. Therefore, no avoidance or minimizations of impacts are recommended.

Mitigation Measures

No special status plant species were observed within or adjacent to the project area. There is limited, if any, habitat within the project area for rare plant species know to occur in the region. Therefore, no mitigation measures are recommended.

References Cited

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Appendix A

Regionally Potential Sensitive Species

Regionally Potential Sensitive Species
Mabe Botanical Survey
Loleta, California

A California Natural Diversity Database (CNDDB; CDFW, 2016a) RareFind and California Native Plant Society Electronic Inventory of Rare and Endangered Vascular Plants of California (CNPS 2016) search was completed for the 7.5-minute U.S. Geological Survey (USGS) Field's Landing quadrangle and the surrounding USGS 7.5 minute topographic quadrangles (Table 1 and Table 2). Additionally, the US Fish and Wildlife Service (USFWS) species list was used to determine the potential presence of federally protected plant species (Table 1 and Table 2).

The databases were queried for historical and existing occurrences of state and federally listed Threatened, Endangered, and Candidate plant species and species proposed for listing. In addition to querying the CNDDB, a list of all federally listed species that are known to occur or may occur in the Field's Landing quadrangle was obtained from the Arcata U.S. Fish and Wildlife Service (USFWS) website (USFWS, 2016). Three special status botanical species were reported by the USFWS including the beach layia (*Layia carnosa*), Menzies wallflower (*Erysimum menziesii*), and the western lily (*Lilium occidentale*). While these species were reported for the area, the USFWS stated that habitat was not present within the project area to support these species.

Table 1 and 2 present the botanical species reported from the queries, their preferred habitat, and whether there is suitable habitat present within the study area for the species. Each species was evaluated for its potential to occur within the study area according to the following criteria:

1) **None**. Species listed as having "none" with regard to their potential to occur on the study area are those species for which:
   - there is no suitable habitat present in the study area. (Habitats in the study area are unsuitable for the species requirements [for example, elevation, hydrology, plant community, disturbance regime, and so on].)
2) **Low**. Species listed as having a "low" potential to occur in the study area are those for which:
   - there is no known record of occurrence in the vicinity of the study area, and
   - there is marginal or very limited suitable habitat present in the study area.
3) **Moderate**. Species listed as having a "moderate" potential to occur on the study area are those species for which:
   - there is a known record of occurrence in the vicinity of the study area, and
   - there is suitable habitat present in the study area.
4) **High**. Species listed as having a "high" potential to occur in the study area are those species for which:
   - there is a known record of occurrence in the vicinity of the study area (there are many records and/or records in close proximity), and
   - there is highly suitable habitat present in the study area.
5) **Present**. Species listed as "present" in the study area are those species for which:
   - the species was observed in the study area during the investigations.

Table 1 CNDDB
Potential Regionally Occurring Special Status Botanical Species
Mabe, Loleta CA

Scientific Name	Common Name	FedList	CalList	SRank	RPlant Rank	Habitats	GenHab	MicroHab	Bloom Period	Potential of Occurrence
Abronia umbellata var. breviflora	pink sand-verbena	None	None	S1	1B.1	Coastal dunes	Coastal dunes and coastal strand.	Foredunes and interdunes with sparse cover. Usually the plant closest to the ocean. 0-10 m.	June – Oct.	**None.** Habitat not present
Anomobryum julaceum	slender silver moss	None	None	S2	4.2	Broadleaved upland forest, Lower montane conifer forest, North coast conifer forest	Broadleafed upland forest, lower montane conifer forest, N. coast conifer forest.	Grows on damp rocks and soil; acidic substrates. Usually on road cuts. 100-1000 m.	N/A	**None.** Habitat not present
Bryoria spiralifera	twisted horsehair lichen	None	None	S1S2	1B.1	North coast coniferous forest	North coast coniferous forest.	Usually on conifers. 0-30 m.	N/A	**None.** Habitat not present
Cardamine angulata	seaside bittercress	None	None	S1	2B.1	Lower montane conifer forest N. coast coniferous forest, Wetland	North coast coniferous forest, lower montane coniferous forest.	Wet areas, streambanks. 90-155 m.	April-June	**None.** Habitat not present
Carex arcta	northern clustered sedge	None	None	S1	2B.2	Bog & fen, North coast coniferous forest, Wetland	Bogs and fens, north coast coniferous forest.	Mesic sites. 60-1405 m.	June-Sept.	**None.** Habitat not present
Carex leptalea	bristle-stalked sedge	None	None	S1	2B.2	Bog & fen, Freshwater marsh, Marsh & swamp, Meadow & seep, Wetland	Bogs and fens, meadows, marshes&swamps, meadows&seeps.	Mostly known from bogs and wet meadows. 0-700 m.	Mar-July	**None.** Habitat not present
Castilleja litoralis	Oregon coast paintbrush	None	None	S3	2B.2	Coastal bluff scrub, Coastal dunes, Coastal scrub	Coastal bluff scrub, coastal dunes, coastal scrub.	Sandy sites. 5-255 m.	June	**None.** Habitat not present

Scientific Name	Common Name	FedList	CalList	SRank	RPlant Rank	Habitats	GenHab	MicroHab	Bloom Period	Potential of Occurrence
Erysimum menziesii	Menzies' wallflower	Endngrd	Endngrd	S1	1B.1	Coastal dunes	Coastal dunes.	Localized on dunes and coastal strand. 0-35 m.	Mar-April	**None.** Habitat not present
Fissidens pauperculus	minute pocket moss	None	None	S2	1B.2	North coast coniferous forest, Redwood	North coast coniferous forest.	Damp soil along the coast. In dry streambeds and on stream banks. 10-1024 m.	N/A	**None.** Habitat not present
Gilia capitata ssp. pacifica	Pacific gilia	None	None	S2	1B.2	Chaparral, Coastal bluff scrub, Coast prairie, Valley & foothill grassland	Coast bluff scrub, chaparral, coast prairie, valley & foothill grassland.	5-1345 m.	April-Aug	**Low.** Habitat potentially present
Gilia millefoliata	dark-eyed gilia	None	None	S2	1B.2	Coastal dunes	Coastal dunes.	2-30 m.	April-July	**None.** Habitat not present
Lathyrus japonicus	seaside pea	None	None	S2	2B.1	Coastal dunes	Coastal dunes.	1-30 m.	May-Aug	**None.** Habitat not present
Layia carnosa	beach layia	Endngrd	Endngrd	S2	1B.1	Coastal dunes | Coastal scrub	Semi-stabilized dunes, behind foredunes	On sparsely vegetated areas. 0-30 m.	Mar-July	**None.** Habitat not present
Lilium occidentale	western lily	Endngrd	Endngrd	S1	1B.1	Bog & fen, Coast bluff scrub, Coast prairie, Coast scrub, Freshwater marsh, Marsh & swamp, N. coast coniferous forest, Wetland	Coastal scrub, freshwater marsh, bogs and fens, coastal bluff scrub, coastal prairie, N. Coast conifer forest, marshes&swamps.	Well-drained, old beach washes overlain with wind-blown alluvium and organic topsoil; usually near margins of Sitka spruce. 2-185 m.	June-July	**Low.** Habitat and proper soils not present

Scientific Name	Common Name	FedList	CalList	SRank	RPlant Rank	Habitats	GenHab	MicroHab	Bloom Period	Potential of Occurrence
Lycopodium clavatum	running-pine	None	None	S3	4.1	Lower montane coniferous forest, Marsh & swamp, N. coast conifer forest, Wetland	Lower montane conifer forest, N. coast coniferous forest, marshes and swamps.	Forest understory, edges, openings, roadsides; mesic sites with partial shade and light. 45-1225 m.	June-Aug	**Low.** Quality habitat not present
Monotropa uniflora	ghost-pipe	None	None	S2	2B.2	Broadleaved upland forest, North coast coniferous forest	Broadleaved upland forest, north coast coniferous forest.	Often under redwoods or western hemlock. 15-855 m.	June-Aug	**None.** Habitat not present
Montia howellii	Howell's montia	None	None	S2	2B.2	Meadow & seep, N. coast conifer forest, Vernal pool, Wetland	Meadows and seeps, north coast coniferous forest, vernal pools.	Vernally wet sites; often on compacted soil. 10-1005 m.	Mar-May	**None.** Habitat not present
Packera bolanderi var. bolanderi	seacoast ragwort	None	None	S2S3	2B.2	Coastal scrub, North coast coniferous forest	Coastal scrub, north coast coniferous forest.	Sometimes along roadsides. 30-915 m.	April-May	**Low.** Habitat not present
Sidalcea malachroides	maple-leaved checkerbloom	None	None	S3	4.2	Broadleaf upland forest, Coast prairie, Coast scrub, N. coast conifer forest, Riparian forest	Broadleaf upland forest, coast prairie, coast scrub, North coast conifer forest, riparian forest.	Woodlands and clearings near coast; often in disturbed areas. 0-730 m.	April-Aug.	**Low.** Quality habitat not present
Sidalcea malviflora ssp. patula	Siskiyou checkerbloom	None	None	S2	1B.2	Coast bluff scrub, Coast prairie, N. coast conifer forest	Coast bluff scrub, coastal prairie, north coast coniferous forest.	Open coastal forest; roadcuts. 5-1255 m.	May-Aug.	**Medium.** Habitat present, disturbed

Scientific Name	Common Name	FedList	CalList	SRank	RPlant Rank	Habitats	GenHab	MicroHab	Bloom Period	Potential of Occurrence
Sidalcea oregana ssp. eximia	coast checkerbloom	None	None	S1	1B.2	Lower montane conifer forest, Meadow & seep, N. coast conifer forest, Wetland	Meadows and seeps, north coast coniferous forest, lower montane coniferous forest.	Near meadows, in gravelly soil. 5-1805 m.	June-Aug.	**None.** Wetland habitat not present
Usnea longissima	Methuselah's beard lichen	None	None	S4	4.2	Broadleaved upland forest | North coast coniferous forest | Oldgrowth | Redwood	North Coast coniferous forest, broadleafed upland forest.	"redwood zone" on big leaf maple, oaks, ash, Douglas-fir, and bay. 50-1460 m in California.	N/A	**None.** Habitat not present
Viola palustris	alpine marsh violet	None	None	S1S2	2B.2	Bog & fen, Coastal scrub, Wetland	Coastal scrub, bogs and fens.	Swampy, shrubby places in coastal scrub or coastal bogs. 0-150 m.	Mar-Aug.	**None.** Habitat not present

1. -: No Status/Listing
   CRPR: California Rare Plant Rank
   1A: includes plants presumed extinct in CA.
   1B: includes plants that are rare, threatened, or endangered in California and elsewhere.
   2A: includes plants presumed expatriated in California but more common elsewhere.
   2B: includes plants that are rare, threatened, or endangered in California but more common elsewhere
   3: includes plants for which more information is needed–a review list.
   4: includes plants of limited distribution and should be documented as they are watch list species
   Threat Ranks:
   .1: Seriously threatened in CA (over 80% of occurrence threatened/high degree and immediacy threat)
   .2: Moderately threatened in CA (20-80 % occurrences threatened).
   .3: Not very threatened in California (<20% of occurrences threatened).
2. Plant habitat descriptions are from The Jepson Manual (Baldwin *et al.* 2012), California Natural Diversity Database (CDFW, 2016), and CNPS (2016).
3. Blooming period from The Jepson Manual (Baldwin *et al.* 2012) and CNPS (2016).

Table 2 CNPS
Potential Regionally Occurring Special Status Botanical Species
Mabe, Loleta CA

Scientific Name	Common Name	Family	Lifeform	RPInt Rank	State Rank	Global Rank	Bloom Period	Potential of Occurrence
Abronia umbellata var. breviflora	pink sand-verbena	Nyctaginaceae	perennial herb	1B.1	S1	G4G5T2	June-October	None
Angelica lucida	sea-watch	Apiaceae	perennial herb	4.2	S3	G5	May-Sept.	None
Anomobryum julaceum	slender silver moss	Bryaceae	moss	4.2	S2	G5?	N/A	None
Astragalus pycnostachyus var. pycnostachyus	coastal marsh milk-vetch	Fabaceae	perennial herb	1B.2	S2	G2T2	April-Oct.	None
Bryoria pseudocapillaris	false gray horsehair lichen	Parmeliaceae	fruticose lichen (epiphytic)	3.2	S2	G3	N/A	None
Bryoria spiralifera	twisted horsehair lichen	Parmeliaceae	fruticose lichen (epiphytic)	1B.1	S1S2	G3	N/A	None
Cardamine angulata	seaside bittercress	Brassicaceae	perennial herb	2B.1	S1	G5	April-June	None
Carex arcta	northern clustered sedge	Cyperaceae	perennial herb	2B.2	S1	G5	June-Sept.	None
Carex leptalea	bristle-stalked sedge	Cyperaceae	perennial rhizomatous herb	2B.2	S1	G5	March-July	None
Carex lyngbyei	Lyngbye's sedge	Cyperaceae	perennial rhizomatous herb	2B.2	S3	G5	April-August	None
Carex praticola	northern meadow sedge	Cyperaceae	perennial herb	2B.2	S2	G5	May-July	Low
Castilleja litoralis	Oregon coast paintbrush	Orobanchaceae	perennial herb (hemiparasitic)	2B.2	S3	G3	June	None
Chloropyron maritimum ssp. palustre	Point Reyes bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	1B.2	S2	G4?T2	June-October	None

Scientific Name	Common Name	Family	Lifeform	RPInt Rank	State Rank	Global Rank	Bloom Period	Potential of Occurrence
Chrysosplenium glechomifolium	Pacific golden saxifrage	Saxifragaceae	perennial herb	4.3	S3	G5	Feb.-May	None
Clarkia amoena ssp. whitneyi	Whitney's farewell-to-spring	Onagraceae	annual herb	1B.1	S1	G5T1	June-August	None
Erysimum menziesii	Menzies' wallflower	Brassicaceae	perennial herb	1B.1	S1	G1	March-April	None
Erythronium revolutum	coast fawn lily	Liliaceae	perennial bulbiferous herb	2B.2	S3	G4G5	March-July	None
Fissidens pauperculus	minute pocket moss	Fissidentaceae	moss	1B.2	S2	G3?	N/A	None
Gilia capitata ssp. pacifica	Pacific gilia	Polemoniaceae	annual herb	1B.2	S2	G5T3	April-August	Low
Gilia millefoliata	dark-eyed gilia	Polemoniaceae	annual herb	1B.2	S2	G2	April-July	None
Glehnia littoralis ssp. leiocarpa	American glehnia	Apiaceae	perennial herb	4.2	S3	G5T5	May-August	None
Hesperevax sparsiflora var. brevifolia	short-leaved evax	Asteraceae	annual herb	1B.2	S2	G4T3	March-June	None
Hesperolinon adenophyllum	glandular western flax	Linaceae	annual herb	1B.2	S3	G3	May-August	None
Lathyrus japonicus	seaside pea	Fabaceae	perennial rhizomatous herb	2B.1	S2	G5	May-August	None
Lathyrus palustris	marsh pea	Fabaceae	perennial herb	2B.2	S2	G5	March-August	None
Layia carnosa	beach layia	Asteraceae	annual herb	1B.1	S2	G2	March-July	None
Lilium kelloggii	Kellogg's lily	Liliaceae	perennial bulbiferous herb	4.3	S3	G3	May-August	None
Lilium occidentale	western lily	Liliaceae	perennial bulbiferous herb	1B.1	S1	G1	June-Jul	Medium

Scientific Name	Common Name	Family	Lifeform	RPInt Rank	State Rank	Global Rank	Bloom Period	Potential of Occurrence
Lilium rubescens	redwood lily	Liliaceae	perennial bulbiferous herb	4.2	S3	G3	April-August	None
Listera cordata	heart-leaved twayblade	Orchidaceae	perennial herb	4.2	S4	G5	Feb.-July	None
Lycopodium clavatum	running-pine	Lycopodiaceae	perennial rhizomatous herb	4.1	S3	G5	June-August	Low
Mitellastra caulescens	leafy-stemmed mitrewort	Saxifragaceae	perennial rhizomatous herb	4.2	S4	G5	May-July	None
Monotropa uniflora	ghost-pipe	Ericaceae	perennial herb (achlorophyllous)	2B.2	S2	G5	June-August	None
Montia howellii	Howell's montia	Montiaceae	annual herb	2B.2	S2	G3G4	March-May	None
Oenothera wolfii	Wolf's evening-primrose	Onagraceae	perennial herb	1B.1	S1	G2	May-October	Low
Packera bolanderi var. bolanderi	seacoast ragwort	Asteraceae	perennial rhizomatous herb	2B.2	S2S3	G4T4	April-May	Low
Pityopus californicus	California pinefoot	Ericaceae	perennial herb (achlorophyllous)	4.2	S4	G4G5	May	None
Pleuropogon refractus	nodding semaphore grass	Poaceae	perennial rhizomatous herb	4.2	S4	G4	April-August	Low
Polemonium carneum	Oregon polemonium	Polemoniaceae	perennial herb	2B.2	S2	G3G4	April-Sept.	Low
Puccinellia pumila	dwarf alkali grass	Poaceae	perennial herb	2B.2	SH	G4?	July	None
Ribes laxiflorum	trailing black currant	Grossulariaceae	perennial deciduous shrub	4.3	S4	G5	March-July	Low
Sidalcea malachroides	maple-leaved checkerbloom	Malvaceae	perennial herb	4.2	S3	G3	April-August	Low
Sidalcea malviflora ssp. patula	Siskiyou checkerbloom	Malvaceae	perennial rhizomatous herb	1B.2	S2	G5T2	May-August	Medium

Scientific Name	Common Name	Family	Lifeform	RPlnt Rank	State Rank	Global Rank	Bloom Period	Potential of Occurrence
Sidalcea oregana ssp. eximia	coast checkerbloom	Malvaceae	perennial herb	1B.2	S1	G5T1	June-August	None
Usnea longissima	Methuselah's beard lichen	Parmeliaceae	fruticose lichen (epiphytic)	4.2	S4	G4	N/A	None
Viola palustris	alpine marsh violet	Violaceae	perennial rhizomatous herb	2B.2	S1S2	G5	March-August	None

1. -: No Status/Listing
   CRPR: California Rare Plant Rank
   1A: includes plants presumed extinct in CA.
   1B: includes plants that are rare, threatened, or endangered in California and elsewhere.
   2A: includes plants presumed expatriated in California but more common elsewhere.
   2B: includes plants that are rare, threatened, or endangered in California but more common elsewhere
   3: includes plants for which more information is needed–a review list.
   4: includes plants of limited distribution and should be documented as they are watch list species
   Threat Ranks:
   .1: Seriously threatened in CA (over 80% of occurrence threatened/high degree and immediacy threat)
   .2: Moderately threatened in CA (20-80 % occurrences threatened).
   .3: Not very threatened in California (<20% of occurrences threatened).
2. Plant habitat descriptions are from The Jepson Manual (Baldwin *et al.* 2012), California Natural Diversity Database (CDFW, 2016), and CNPS (2016).
3. Blooming period from The Jepson Manual (Baldwin *et al.* 2012) and CNPS (2016).

Appendix B

Species observed 7/27, 8/1/2016

Table 3 **Observed Botanical Species List** **Table Bluff Rd Loleta, CA**			
Plants Observed 7/27/16 and 8/1/16			
Scientific Name	**Common Name**	**Native?**	**Wetland Status**
Trees			
Abies grandis	grand fir	Y	FACU
Frangula purshiana	cascara	Y	FAC
Juniperus sp.	cultivated juniper	N	N/A
Picea sitchensis	Sitka spruce	Y	FAC
Pinus radiata	Monterrey pine	N	NL
Prunus cerasifera	wild plum	N	UPL
Pseudotsuga menziesii	Douglas fir	Y	FACU
Salix lasiandra	pacific willow	Y	FACW
Shrubs			
Baccharis pilularis	coyote brush	Y	UPL
Corylus cornuta	hazelnut	Y	FACU
Cytisus scoparius	scotchbroom	N	UPL
Erica lusitanica	Spanish heather	N	UPL
Gaultheria shallon	salal	Y	FACU
Genista monspessulana	French broom	N	UPL
Ilex aquifolium	English holly	N	FACU
Lonicera involucrata	twinberry	Y	FAC
Oemleria cerasiformis	indian plum	Y	FACU
Ribes sanguineum	flowering currant	Y	FACU
Rosa californica	California rose	Y	FAC
Rosa rubiginosa	sweetbriar	N	UPL
Rubus armeniacus	Himalayan blackberry	N	FAC
Rubus parviflorus	thimbleberry	Y	FACU
Rubus ursinus	California blackberry	Y	FACU
Sambucus racemosa	red elderberry	Y	FACU
Spirea douglasiana	Douglas spirea	Y	FACW
Symphoricarpos albus	common snowberry	Y	FACU
Vaccinium ovatum	evergreen huckleberry	Y	FACU
Herbs			
Achillea millefolium	common yarrow	Y	FACU
Anaphalis margaritaceae	pearly everlasting	Y	FACU
Aquilegia formosa	western columbine	Y	FAC
Brassica rapa	common mustard	N	FACU

Scientific Name	Common Name	Native?	Wetland Status
Carduus pycnocephalus	Italian thistle	N	UPL
Cirsium arvense	Canada thistle	N	FAC
Cirsium vulgare	bull thistle	N	FACU
Conium maculatum	poison hemlock	N	FAC
Crepis capillaris	smooth hawksbeard	N	FACU
Daucus carota	Queen Anne's lace	N	FACU
Digitalis purpurea	foxglove	N	FACU
Dipsacus fullonum	wild teasel	N	FAC
Epilobium ciliatum	Northern willowherb	Y	FACW
Erigeron canadensis	Canada horseweed	Y	FACU
Fragaria vesca	California strawberry	Y	FACU
Galium aparine	cleaver plant	N	FACU
Geranium dissectum	cutleaf geranium	N	UPL
Heracleum maxima	cow parsley	Y	FAC
Horkelia californica	California horkelia	Y	NL
Hypochaeris radicata	hairy cats-ear	N	FACU
Iris douglasiana	Douglas iris	Y	UPL
Leucantheumum vulgare	oxeye daisy	N	UPL
Linum bienne	flax	N	UPL
Lotus corniculatus	bird's foot trefoil	N	FAC
Lupinus rivularis	riverbank lupine	Y	FAC
Lysimachia arvensis	scarlet pimpernel	N	FAC
Maianthemum racemosum	false Solomon's seal	Y	FAC
Mentha pulegium	pennyroyal	N	OBL
Navarretia squarrosa	skunkweed	Y	FACU
Parentucellia viscosa	yellow glandweed	N	FAC
Plantago lanceolata	English plantain	N	FACU
Prunella vulgaris	self heal	Y	FACU
Pseudognaphalium ramosissimum	pink cudweed	Y	UPL
Ranunculus repens	creeping buttercup	N	FAC
Rhaphanus sativa	wild radish	N	UPL
Rumex acetosella	sheep sorrel	N	FACU
Rumex crispus	curly dock	N	FAC
Scrophularia californica	California bee plant	Y	FAC
Senecio minimus	coastal burnweed	N	FACU
Silybum marianum	blessed milk thistle	N	UPL
Solanum americanum	American nightshade	Y	FACU
Solanum aviculare	New Zealand nightshade	N	NL
Solidago elongata	West coast Canada goldenrod	Y	FACU
Sonchus olereacus	sow thistle	N	UPL

Scientific Name	Common Name	Native?	Wetland Status
Stachys ajugoides	bugle hedgenettle	Y	OBL
Symphyotrichum chilense	California aster	Y	FAC
Taraxicum officinale	dandelion	N	FACU
Tellima grandiflora	fringe cups	Y	FACU
Trifolium pratense	red clover	N	FACU
Trifolium repens	white clover	N	FAC
Urtica dioica	stinging nettle	Y	FAC
Vicia hirsuta	tiny vetch	N	UPL
Vicia sativa	spring vetch	N	UPL
Zeltnera venusta	charming centaury	Y	NL
Grasses			
Aira caryophylla	silver hairgrass	N	FACU
Anthoxanthum odoratum	sweet vernal grass	N	FACU
Avena sativa	wild oat	N	UPL
Briza maxima	large quaking grass	N	UPL
Briza minor	small quaking grass	N	FAC
Bromus carinatus	California brome	Y	NL
Bromus diandrus	ripgut brome	N	UPL
Bromus hordeacus	soft chess	N	FACU
Dactylis glomerata	orchard grass	N	FACU
Elymus glaucus	blue wildrye	Y	FACU
Festuca arundinacea	tall fescue	N	FACU
Festuca microstachys	small fescue	Y	UPL
Festuca perenne	Italian wildrye	N	FAC
Festuca rubra	red fescue	Y	FAC
Holcus lanatus	velvet grass	N	FAC
Phalaris aquatica	harding grass	N	FACU
Poa pratensis	Kentucky bluegrass	N	FAC
Ferns and Allies			
Polystichum munitum	sword fern	Y	FACU
Pteridium aquilinum	bracken fern	Y	FACU
Sedges and Rushes			
Carex leptopoda	slender footed sedge	Y	FAC
Total		47.5% Native	40.75% FAC or wetter species

1. (USDA 2012)
Indicators are abbreviated as follows:
OBL: Obligate
FACW: Facultative
FAC: Facultative
FACU: Facultative upland
UPL: Upland
NL: Not listed

Preliminary Jurisdictional Wetland Delineation

Jim Mabe Parcel

Loleta, California

Prepared for:

Jim Mabe

SHN Engineers & Geologists

812 W. Wabash Ave.

Eureka, CA 95501-2138

707-441-8855

August 2016

016209

Reference: 016209

Preliminary Jurisdictional Wetland Delineation

Jim Mabe Parcel

Loleta, California

Prepared for:

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Prepared by:

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812 W. Wabash Ave.
Eureka, CA 95501-2138
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August 2016

QA/QC: BB/CG

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List of Illustrations

Figures **Follows Page**

Abbreviations and Acronyms

ACOE	United States Army Corps of Engineers
APN	Assessor's parcel number
CDEC	California Data Exchange Center
CFR	Code of Federal Regulations
CP	control point
CWA	Clean Water Act
EPA	United States Environmental Protection Agency
ERDC/CRREL	United States Army Engineer Research and Development Center/Cold Regions Research and Engineering Laboratory
FAC	facultative wetland plant species
FACU	facultative-upland plant species
FACW	facultative-wet wetland plant species
GPS	global positioning system
NCDC	National Climatic Data Center
NL	not listed plant species
NOAA	National Oceanic & Atmospheric Administration
NR	no reference
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OBL	obligate wetland plant species
OHWM	ordinary high water mark
PF01C	freshwater forested/shrub wetland
R3UBF	Riverine Wetland
RWQCB	California Regional Water Quality Control Board
SHN	SHN Engineers & Geologists, Inc.
SWRCB	State Water Resources Control Board
TP	test pit
UPL	upland plant species
USC	United States Code
USDA	United States Department of Agriculture
USFWS	United States Fish & Wildlife Service
USGS	United States Geological Survey

WDRs	waste discharge requirements
WETS	NRCS Climate Analysis for Wetlands
WFO	weather forecast office
WoS	waters of the State
WoUS	waters of the United States

1.0 Introduction

SHN Engineers & Geologists, Inc. has prepared this preliminary jurisdictional wetland delineation for Jim Mabe in Loleta, California. On behalf of jurisdictional agencies over the study area, Mr. Mabe has requested a wetland delineation and botanical assessment for an open space consisting of one parcel divided into two portions by Rasmussen (Hawk's Hill) Road, near Loleta, CA.

1.1 Purpose

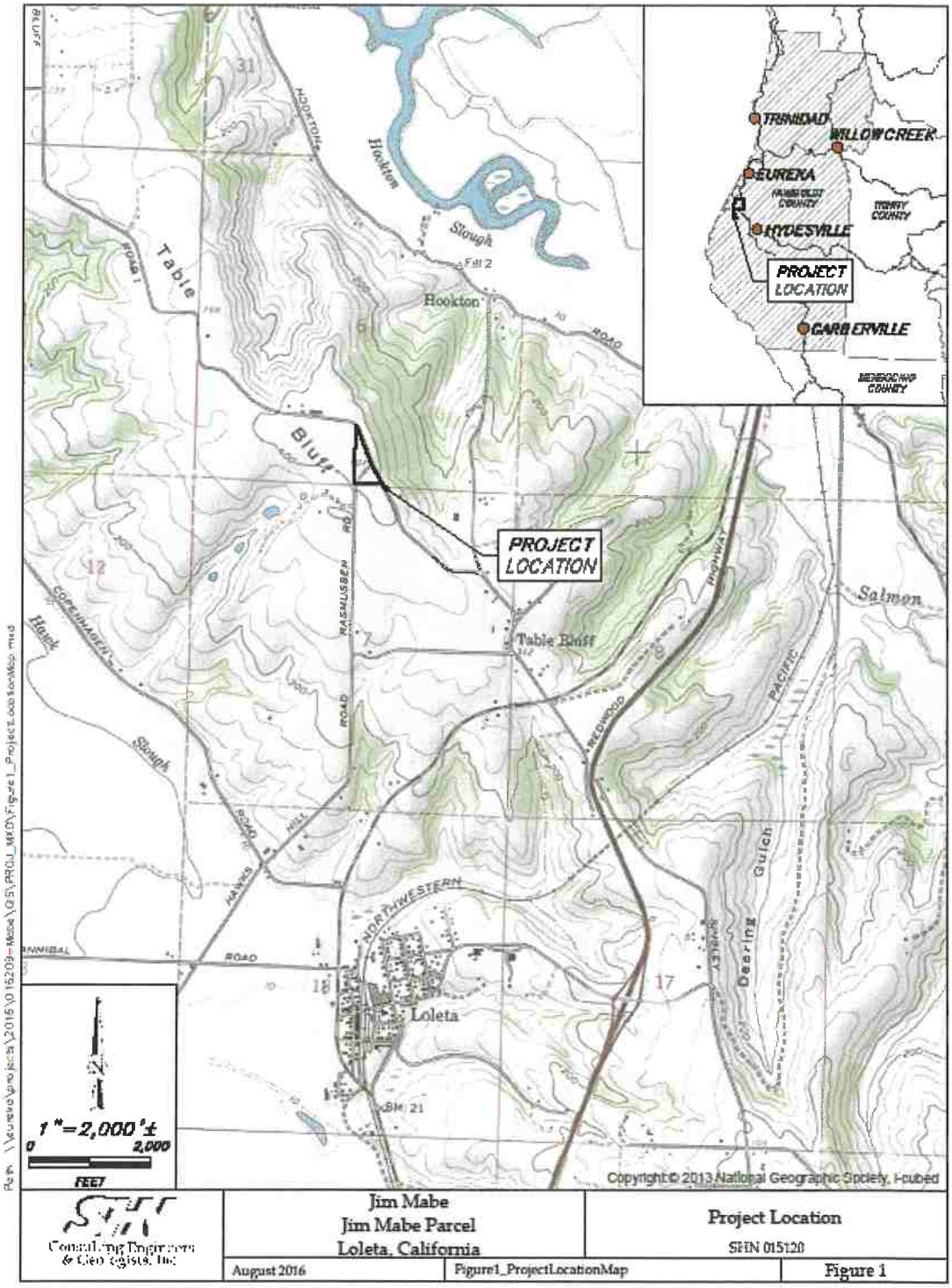
The purpose of this report is to identify potential wetlands and other waters of the U.S. within the study area, as defined by the United States Army Corps of Engineers (ACOE) methodology. The wetland delineation will help guide design, planning and permitting of a residential development within the study area. In conjunction with this delineation, a botanical assessment has been performed due to the site's habitat suitability for the western lily, *Lilium occidentale*, as well as a known population of this species three miles west of the parcel.

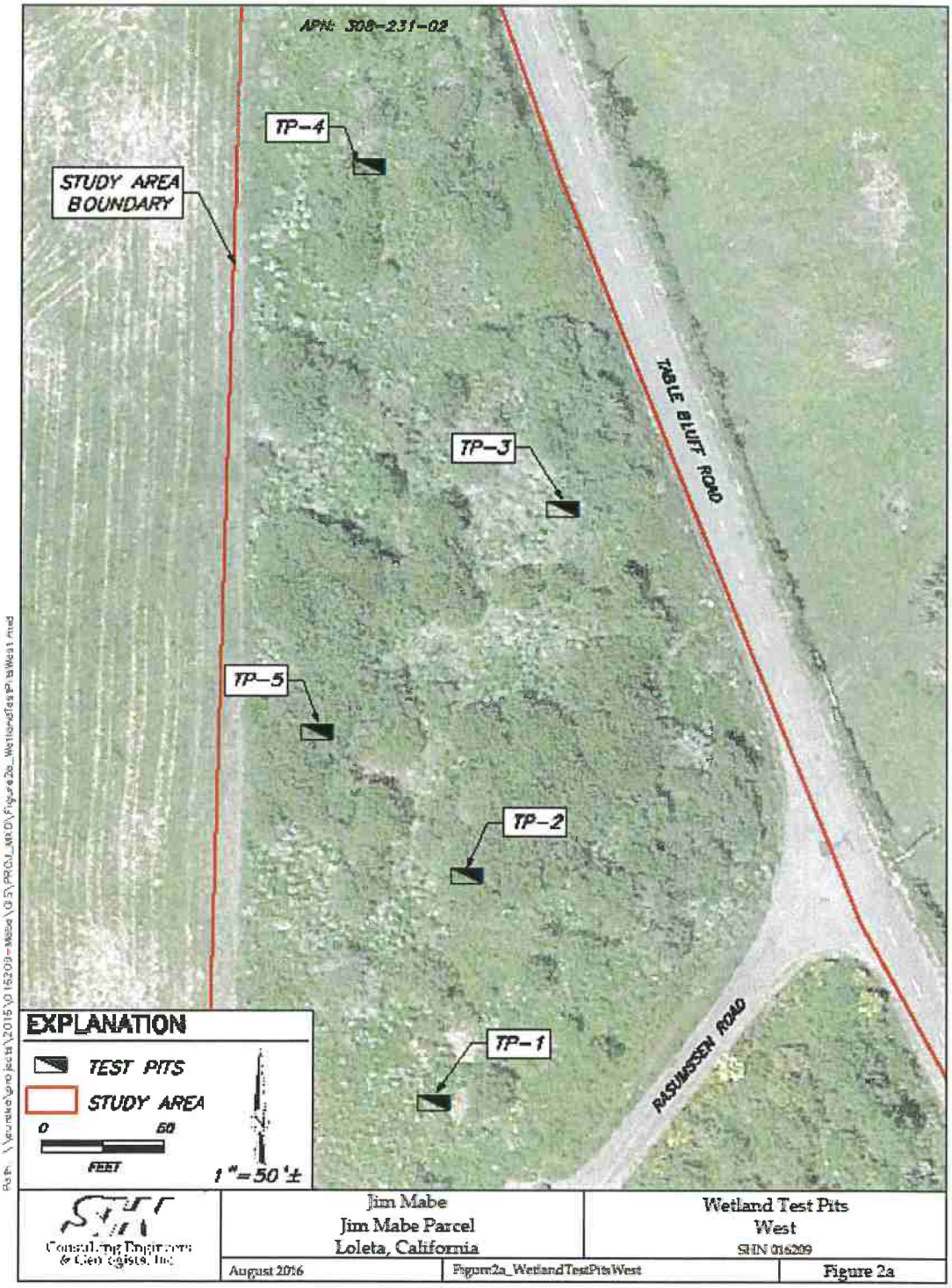
1.2 Project Location

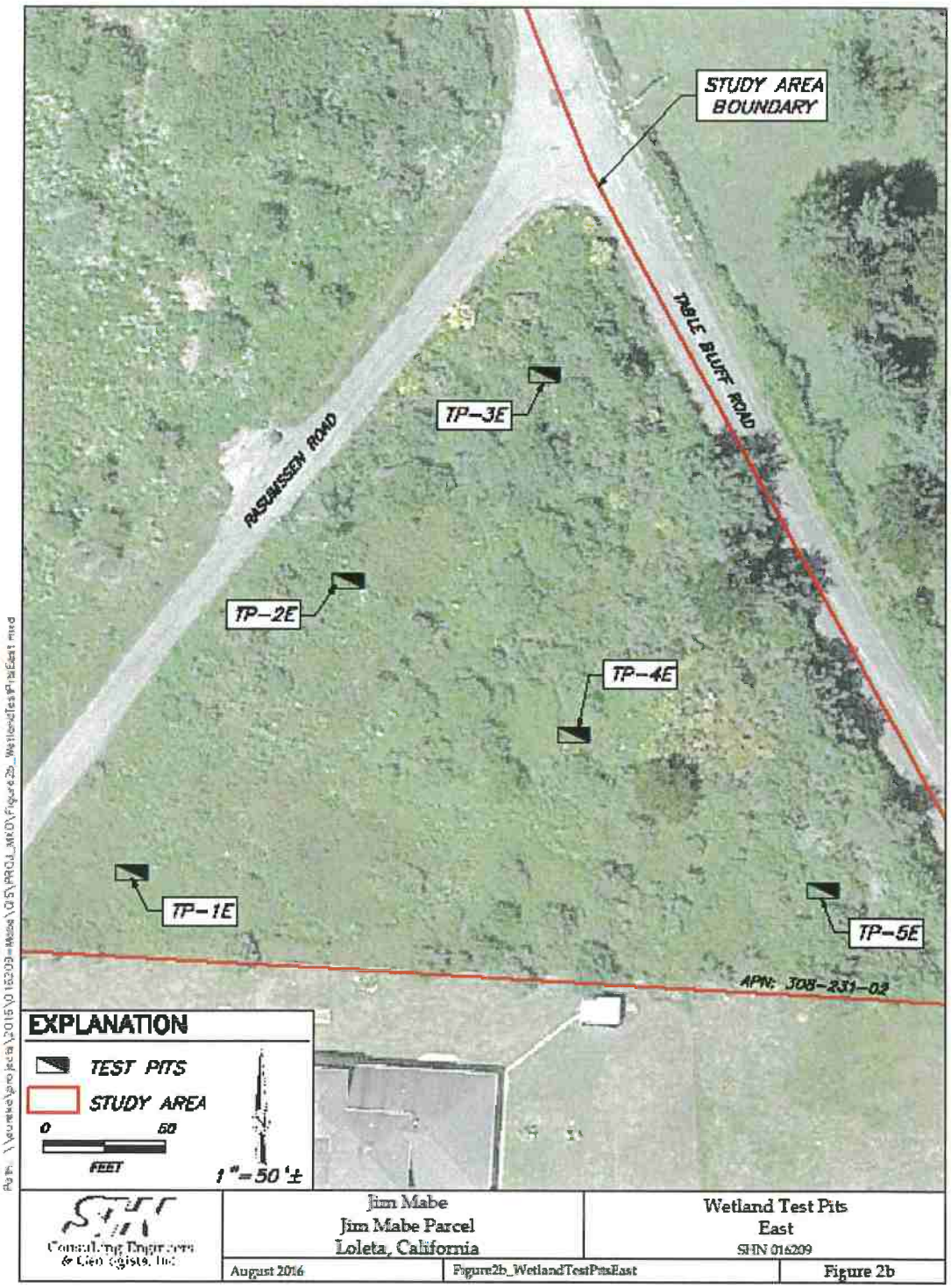
The project is located near Loleta, an un-incorporated community in Humboldt County (Figure 1; United States Geological Survey [USGS] Fields Landing 7.5-minute Quadrangle, Township 3 North, Range 1 West, Section 6, Humboldt Meridian). The property designated APN 308-231-002 straddles the north end of Hawk's Hill Road, at its junction with Table Bluff Road, 1.7 miles northeast of Loleta. The parcel lies 1.15 miles west of Highway 101 and 0.7 miles south of Hookton Slough, with a centerpoint latitude and longitude of 40.66536°/-124.22574°.

2.0 Project Description

The proposed project is a new single-family residential development. The site, surrounded by open pastureland that is grazed heavily, has been fenced long enough to allow shrubs and small broadleafed trees to emerge throughout the site. Before designing the development, a wetland delineation was required to determine setbacks and potential mitigation for the new construction. The United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) does not have wetlands mapped within the project area. This wetland study was performed to investigate the presence or absence of wetlands on-site, and (if present) to determine the size and an accurate boundary of wetlands found throughout the study area.


TRINIDAD
WILLOW CREEK
EUREKA
HUMBOLDT COUNTY
TRINITY COUNTY
HYDESVILLE
PROJECT LOCATION
GARBERVILLE
MENDOCINO COUNTY
PROJECT LOCATION
Hookton
Hookton Slough
Table Bluff
Bluff
Salmon
Hawk
Slough
Loleta
Deering Gulch
1"=2,000'±
0
2,000
FEET
Copyright © 2013 National Geographic Society, i-cubed
Jim Mabe
Jim Mabe Parcel
Loleta, California
Project Location
SHN 015120
August 2016
Figure1_ProjectLocationMap
Figure 1


APN: 308-231-02
TP-4
STUDY AREA BOUNDARY
TABLE BLUFF ROAD
TP-3
TP-5
TP-2
TP-1
RASMUSSEN ROAD
EXPLANATION
TEST PITS
STUDY AREA
0
60
FEET
1"=50'±
Jim Mabe
Jim Mabe Parcel
Loleta, California
Wetland Test Pits
West
SHN 016209
August 2016
Figure2a_WetlandTestPitsWest
Figure 2a


STUDY AREA BOUNDARY
TABLE BLUFF ROAD
RASMUSSEN ROAD
TP-3E
TP-2E
TP-4E
TP-1E
TP-5E
APN: 308-231-02
EXPLANATION
TEST PITS
STUDY AREA
0
50
FEET
1"=50'±
Consulting Engineers & Geologists, Inc.
Jim Mabe
Jim Mabe Parcel
Loleta, California
Wetland Test Pits
East
SHN 016209
August 2016
Figure2b_WetlandTestPitsEast
Figure 2b

3.0 Environmental Setting

Elevation throughout the project area averages approximately 418 feet above mean sea level. Topography is mostly flat, with a gentle slope (0-3%) from the central portion of the property sloping toward the south and north (See Figure 2 and Appendix B, photo B1 and B2). Zoned Agriculture exclusive on the County of Humboldt GIS zoning map, 4.68 acres comprise the parcel examined in this report. Lying on a coastal terrace north of the town of Loleta, the site overlooks the Loleta Bottoms to the southwest. As with the majority of coastal bluff habitats around Loleta and Humboldt Bay, the land area has been manipulated for nearly 100 years with agricultural practices such as wheat cropping and heavy grazing regimes (McLaughlin & Harradine 1965). This heavy impact has led to a loss of the native loam topsoil and native plant communities in the pasture areas. With relatively high clay content, wet season grazing has led to soil compaction and slope erosion on surrounding parcels (Photo 1, Appendix 2). Due to the perimeter fence on this parcel, livestock grazing and compaction have been prevented, maintaining soil development and health.

The average annual precipitation for this area from October 1 through March 31 is 40.33 inches (WeatherDB, 2016). Rainfall for the period from October 1, 2015, through March 31, 2016, was 43.87 inches (CDEC, 2016), indicating that the 2015-2016 rain season is in an above-normal category.

4.0 Geologic Setting

The site is set upon an uplifted marine terrace between Humboldt Bay and the Eel River Delta. Soils within the project area have the United States Department of Agriculture (USDA) classification of Rohnerville Series, and are mapped in the *Soils of Western Humboldt County California* soil survey (McLaughlin, 1965). This series is a brunizem soil formed from sedimentary rock alluvium. The rock alluvium is predominantly greywacke and sandstone, providing a medium acid reaction.

5.0 Regulatory Setting

5.1 Federal Laws

5.1.1 Section 401 and 404 of the Clean Water Act

Under Section 404 (33 U.S. Code [USC] 1344) of the Clean Water Act (CWA), as amended, the ACOE and the Environmental Protection Agency (EPA) retain primary responsibility for permits to discharge dredged or fill material into "navigable waters of the United States." All

discharges of dredged or fill material into jurisdictional Waters of the United States (WoUS) that result in permanent or temporary losses of the WoUS are regulated by the ACOE. A permit from the ACOE must be obtained before placing fill or grading in wetlands or other WoUS, unless the activity is exempt from the CWA Section 404 regulation (for example, certain farming and forestry activities).

In summary, the definition of WoUS as defined by 33 Code of Federal Regulations (CFR) Section 328.3 includes:

1. waters used for commerce,
2. interstate wetlands,
3. all other waters (including lakes, rivers, streams, mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, and natural ponds),
4. impoundments of water,
5. tributaries to aforementioned waters,
6. territorial seas, and
7. wetlands adjacent to waters.

Under 33 CFR 328.3, WoUS do not include prior converted cropland or waste treatment systems.

In 2008, the EPA and ACOE released a guidance memorandum implementing the Supreme Court's decision in the cases of the Rapanos v. U.S. and Carabell v. U.S. As a result of these cases, the agencies will apply a significant nexus standard to the following categories to determine if it meets the definition of WoUS:

- Non-navigable tributaries that are not relatively permanent
- Wetland adjacent to non-navigable tributaries that are not relatively permanent
- Wetland adjacent to but does not directly abut a relatively permanent tributary

Section 401 of the CWA (33 USC 1341) requires applicants that need a federal license or permit to obtain a certification from the state in which the discharge originates or would originate, or if appropriate, from the interstate water pollution control agency having jurisdiction over the affected waters at the point where the discharge originates or would originate, that the discharge will comply with the applicable effluent limitations and water quality standards. The responsibility for the protection of water quality in California rests with the State Water Resources Control Board (SWRCB) and it's nine Regional Water Quality Control Boards (RWQCBs).

5.1.2 Rivers and Harbors Appropriation Act of 1899

The River and Harbors Appropriation Act of 1899 addresses activities that involve the construction of dams, bridges, dikes, and other structures across any navigable water. Placing obstructions to navigation outside established federal lines and excavating from, or depositing material in, such waters, requires permits from the ACOE Section 10 (33 USC 403) of the Rivers and Harbors Appropriation Act. The Act further prohibits the unauthorized obstruction or alteration of any navigable WoUS.

5.2 State Laws - Porter-Cologne Water Quality Act

The state maintains independent regulatory authority over the placement of waste, including fill, into Waters of the State (WoS) under the Porter-Cologne Water Quality Act. WoS are defined by the Porter-Cologne Water Quality Act as "any surface water or groundwater, including saline waters, within the boundaries of the state." The SWRCB protects all waters in its regulatory scope, but has special responsibility for isolated wetlands and headwaters. WoS are regulated by the RWQCBs under the State Water Quality Certification Program, which regulates discharges of dredged and fill material under Section 401 of the CWA and the Porter-Cologne Water Quality Control Act.

Projects that require an ACOE permit, or fall under other federal jurisdiction, and have the potential to impact WoS are required to comply with the terms of the Water Quality Certification Program. If a proposed project does not require a federal license or permit, but does involve activities that may result in a discharge to WoS, then the local RWQCB has the option to regulate such activities under its state authority in the form of waste discharge requirements (WDRs) or certification of WDRs. Water Quality Order No. 2004-0004-DWQ specifies general WDRs for dredged or fill discharges to waters deemed by the ACOE to be outside of federal jurisdiction under Section 404 of the CWA.

6.0 Methodology

Wetland delineation methods described in the *U.S. Army Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory, 1987) and *The Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (ACOE, 2010) were used to identify potential wetlands and other waters. The routine method for wetland delineation described in the ACOE 1987 manual was used to identify potential wetlands within the study area. The ACOE method relies on a three-parameter approach, in which criteria for hydrophytic vegetation, hydric soils, and wetland hydrology must each be met (present at the point of field investigation) to conclude that an area qualifies as a jurisdictional wetland. Since this site lies within the Coastal Zone, 1-parameter wetlands were also sought.

Hydrophytic vegetation refers to plant species known to be adapted to wetland sites. To classify the hydrophytic plants onsite, the most recent *Western Mountains, Valleys, and Coast 2016 Regional Wetland Plant List* was used (ACOE, 2016). Hydric soils are soils that are formed under saturated conditions, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part of the soil profile (USDA, 2010). Wetland hydrology is demonstrated through direct evidence (primary indicators) or indirect evidence (secondary indicators) of flooding, ponding, or saturation for a significant portion of the growing season (ACOE, 2010).

At each investigation point, one test pit (TP) was excavated to determine if any wetland parameters were present or developing. When indicators of a wetland parameter are located, a pit is typically excavated within the apparent upland area, with a paired pit excavated in the apparent wetland area to determine the wetland boundary. No indications of wetland parameters were found onsite, so only individual pits were dug to document site conditions.

Prior to conducting the field investigation, SHN staff reviewed the 1979 USGS topographic quadrangle map (Figure 1), Soils of Western Humboldt County California, and NWI map (USFWS, 2016) (Appendix A). During the field investigation, sample points were characterized at the site for the aforementioned botanical, hydrological, and soil parameters.

Point locations were selected to:

- achieve appropriate coverage and characterization of wetland and upland habitats,
- document potential changes in the vegetative community (such as, a shift in the dominant species), and
- determine the approximate boundary line between wetlands and uplands by determining the extent of key wetland criteria (hydrology, hydric soils, and hydrophytic vegetation).

A preliminary scoping assessment was performed on May 25, followed by thorough field investigations on July 27 and August 1, 2016. A total of 11 test pits were excavated to characterize the area and record information for soils, vegetation, and hydrology on ACOE Wetland Determination Data Forms (Appendix C). None of the pits displayed wetland parameters so further investigation was not required. Locations of TPs are shown on Figure 2. Photos of the study area are included in Appendix B.

All field mapping was completed by marking pit locations in proximity to surrounding roads, fence lines and trees or tree clusters on an aerial image. Since soils were generally homogeneous throughout the site, it was determined that use of the global positioning system was not necessary. Pit locations were delineated by circling the pit with marking paint, along with installation of a numbered pin flag at each pit.

6.1 Vegetation Methodology

While the period considered ideal for botanical surveys is typically April through June, this site lies within the area known for the occurrence of the rare Western Lily, *Lilium occidentale*. Late July is the prime blooming time for this species. With normal winter and spring rains, all other species still contained seed heads, making identification easy. Streamline staff performed a preliminary wetland & botanical assessment on May 25 and found no trace of *Lilium, Sidalcea,* or other rare species at that time. During the May assessment, there was no indication of wetlands. While Streamline staff is well versed in spotting early basal leaves and late season seed stalks of plants such as checkerbloom and lilies, the final fieldwork was done during the prime lily blooming period to ensure maximum confidence in the survey.

Prior to the field investigation, a review of plant species reported from the project area was performed by querying the "Consortium of California Herbaria" database records and "Calflora" observations. Absolute percent cover of each plant species was visually estimated within the sample point and within each vegetation stratum. The herbaceous stratum was inspected at a 5-foot radius centered on the sample point. Botanical nomenclature follows *The Jepson Manual, Vascular Plants of California* (Baldwin *et al.*, 2012) in addition to the online Jepson Interchange (U. C. Berkeley, 2016) for verification of species whose taxonomy may have changed since its publication.

The wetland indicator status of plant species for this investigation was based on the *Western Mountains, Valleys, and Coast 2016 Regional Wetland Plant List* (Lichvar et al., 2016). Plant species were classified as:

- Obligate (OBL)-occurs almost always within a wetland (estimated probability 99%).
- Facultative-wet (FACW)-usually occurs in wetlands (estimated probability 67-99%).
- Facultative (FAC)-equally likely to occur in wetlands or non-wetlands (estimated probability 33-67%).
- Facultative-upland (FACU)-usually occurs in non-wetlands (estimated probability 1-33%).
- Upland (UPL)-occurs almost always in non-wetlands (estimated probability 99%).
- Not listed (NL)-is scored as an upland plant and is calculated as such on wetland determination forms.

The 50/20 method[1] was applied to each stratum to determine the dominant plant species and to satisfy the hydrophytic vegetation criteria. Since neither hydric soils nor wetland hydrology were present, the prevalence index[2] was not applied. The occurrence and type of plant cover determine whether jurisdictional areas are identified as satisfying the vegetation criteria of a wetland or other waters.

1. The 50/20 rule: for each stratum of the plant community, dominant species are the most abundant species that (when ranked in descending order of abundance and cumulatively totaled) immediately exceed 50% of total dominance measure for the stratum, plus any additional species that individually comprise 20% or more of the total dominance measure for the stratum (ACOE, 2010).

6.2 Soils Methodology

Soils were field-verified for the presence or absence of hydric conditions. All TPs were dug to the maximum depth that would incorporate hydric soil indicators. The thickness of each soil horizon was measured. The Munsell Soil Color Chart (Kollmorgen Instruments Corporation, 1998) was referenced to determine the redoximorphic features and moist soil matrix colors (if present). Soils were closely inspected for hydric soil indicators, as defined by the NRCS "Field Indicators of Hydric Soils in the United States" (Version 7.0; USDA, 2010).

6.3 Hydrology Methodology

The presence of wetland hydrology indicators was determined by direct observation (or lack thereof) of surface water, groundwater, or shallow soil saturation during the field investigation. Since direct observation gave negative results, hydrology determinations were sought based on hydrology indicators (for example, drainage patterns, geomorphic position, and dry season water table) rather than actual direct evidence from saturation or inundation. Additionally, observations were made that would indicate whether or not the site is subject to flooding or standing water. Potential indicators would include water marks, drift deposits, sediment deposits, and similar features. Indicators of extended period saturation would include oxidized rhizospheres surrounding living roots or the presence of reduced iron or hydrogen sulfide in the soil profile.

7.0 Results

The preliminary field investigation was conducted on May 25, with the final field work performed on July 27 and August 1, 2016. Test pits (TP) were dug to characterize the area and record information on soils, vegetation, and hydrology. Locations of TPs are shown on Figure 2; completed "Wetland Determination Data Forms" are presented in Appendix C. Photos of the study area are shown in Appendix B.

7.1.1 Vegetation

The study area consists of relatively flat pasture habitat that has allowed shrubs and small broadleaf trees to emerge since the fence has prevented livestock grazing. Non-native grass species comprised the majority of plant cover and biomass, with other non-native ruderal herbaceous species composing the remainder. The vegetation was relatively similar throughout the site, consisting primarily of *Rubus ursinus* mixed with non-native grasses (Photo B2).

2. The prevalence index is a weighted-average wetland indicator status of all plant species in the sampling plot or other sampling unit, where each indicator status category is given a numeric code (OBL = 1, FACW = 2, FAC = 3, FACU = 4, AND UPL = 5) and weighting is by abundance (absolute percent cover).

Scattered randomly around the site were *Frangula purshiana* and *Baccharis pilularis*. Although several facultative species such as *Frangula purshiana, Holcus lanatus* and *Conium maculatum* were common on the parcel, these plants were balanced out by the dominance of upland species such as *Rubus ursinus, Raphanus sativa* and *Anthoxanthum odoratum*. None of the test pit sites were dominated by hydrophytic vegetation.

A complete plant list is compiled in Table D-1 in Appendix D.

7.2 Soils

The wetland delineation study area, zoned Agriculture exclusive on the County of Humboldt GIS zoning map, contains 4.68 acres at latitude 40.6654 and longitude -124.2257. Lying on a coastal terrace north of the town of Loleta, the site overlooks the Loleta Bottoms to the southwest. While the surrounding soils showed evidence of overgrazing, including compaction and erosion, the parcel examined in this delineation had deep, friable soils showing evidence of healthy soil building processes and excellent infiltration (Photo B3). Although evidence of disturbance included the presence of ruderal species such as *Digitalis, Hieracleum* and *Raphanus*, along with the remains of a homestead, the volume of plant growth on the uncompacted soil has allowed organic matter, root mass and soil structure to develop, unlike the conditions found on the adjacent overgrazed parcels (Photo B4). Evidence of a former residence included a cement pad and stripped electrical hookups.

This site lies exclusively within the Rhonerville Soil Series described in the 1965 McLaughlin and Harradine Soil Survey, with the Rhonerville 2 map unit covering the entire site (Photo 2, Attachment 2). All of these are Silty Clay Loam-textured soils with deep, dark topsoil down to about 24 inches. This series is classified as a fine silty, mixed, isomesic Humic Normudult. With a moderate local climate and 40 inches of average annual rainfall, the local soils often support a dominance of facultative (hydrophytic) vegetation. However, the deep, well drained soils on this site appear to preclude development of wetland characteristics, including hydrophytic vegetation dominance (Photo 3, Attachment 2). The entire parcel was flat.

The Rohnerville soils qualify as Storie Rating 1 soils.

> *The Rohnerville Series consists of deep, moderately well drained, medium to fine textured alluvial soils on high river or marine terraces. Parent materials are mixed and the profile is medium in reaction. Slopes are flat or very gently undulating. Mean annual precipitation is between 1,016 to 1,270 millimeters. Mean annual temperature is about 11 degrees C.*

The typical profile:
A horizons:
Hue: 10YR

Value: 5 dry, 2 moist
Chroma: 2 (changing to 3 in A3 dry), moist or dry
Texture: silty clay loam
Clay content: 32 to 34 percent
Rock fragments: 0 percent gravel
Reaction: medium acid

B horizon:
Hue: 10YR dry, 7.5YR moist
Value: 6 dry, 5 moist
Chroma: 4, moist or dry
Texture: silty clay loam
Clay content: 34 to 40 percent
Rock fragments: 0 percent gravel
Reaction: medium acid

C horizon: (when present)
Hue: 10YR dry, 7.5YR moist
Value: 6 dry, 5 moist
Chroma: 4, moist or dry
Texture: silty clay loam
Clay content: 32 percent
Rock fragments: 0 percent gravel
Reaction: moderately acid

(McClaughlin & Harradine, 1965).

Eleven test pits were excavated in the wetland study area representing 11 study locations: all pits were excavated as individual sites since no significant changes in vegetation or geomorphic position were evident (Figure 2). No pits contained hydric soils.

7.3 Hydrology

No wetland hydrology was present at any of the test pits. Pits were excavated to a depth of 24 inches to check for dry season water table, but all pits displayed a negative test for this indicator as well as all other hydrology indicators.

7.4 Ordinary High Water Mark (OHWM)

No OHWM features were observed at any location within or near the parcel.

8.0 Conclusions

The USFWS NWI website (Appendix A) did not show any wetlands within the boundary of the survey area. This survey was conducted in order to investigate definitively the presence or absence of wetlands on site, and the boundaries of any potential wetlands, for both 3-parameter Army Corps jurisdictional classification, as well as 1-parameter California Coastal Act classification. SHN conducted a study to investigate and define any boundaries. The site investigation occurred during a season with above-normal rainfall through the winter and spring season of 2015-2016. Following the ACOE 3-parameter guidelines, no portion of this parcel displayed any wetland parameters.

9.0 Limitations

Table 1
Wetland Delineation Results
Jim Mabe Delineation, Loleta, CA

Upland Area	Area (acres)
1 (entire site)	4.68
Total	**4.68**

The conclusions in this report represent a "snapshot in time" and it is possible that some species were not present at the time of the fieldwork. This report documents the investigation by, and best professional judgment of, SHN's botanist and soil scientist. The conclusions should be verified by the ACOE through receipt of a jurisdictional determination letter.

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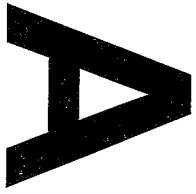

National Wetlands Inventory

U.S. Fish and Wildlife Service

National Wetlands Inventory

Mabe Wetlands Inventory

August 18, 2016

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

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.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

B

Site Photographs

Photo B1: West Edge of Site Overlooking Heavily Grazed Pasturelands.

Photo B2: Typical Site Vegetation Showing *Frangula, Baccharis, Anthoxanthum* and *Iris*.

Photo B3: Soil Pit Showing Dry, Friable Nature.

Photo B4: Soil Ped Showing Excellent Structure and Many Fine Roots.

Wetland Determination Data Forms

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

Project/Site: Mabe, Table bluff Rd. City/County: Humboldt Sampling Date: 7/27/16

Applicant/Owner: Jim Mabe State: CA Sampling Point: 1

Investigator(s): JS, SP Section, Township, Range: SW¼, SE¼ Sec 6, T3N, R1W

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

Subregion (LRR): A, MLRA Lat: 40.6654 Long: -124.2257 Datum: WGS84

Soil Map Unit Name: RoL, Rhonerville silty clay loam, 0-3% slope 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 ✓ 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 _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

RoL = Fine silty, mixed, isomesic Humic Northudult

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Rubus ursinus	70	✓	FACU
2. Rubus armeniacus	10		FAC
3. Conium maculatum	1		FAC
4. Baccharis pilularis	1		UPL
5. Polystichum munitum	5		FACU
6. Frangula purshiana	1		FAC
7. Cirsium vulgare	5		FACU
8.			
9.			
10.			
11.			
	102 = Total Cover	50%	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	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: 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
0-15	10YR 2/2	100					L	
15-19	10YR 3/2	100					L	
19-26	10YR 4/4	70					L	
	10YR 3/2	30					L	Cotovina

[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:

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): _____

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

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

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

Project/Site: Mabe, Table Bluff Rd. City/County: Humboldt Sampling Date: 7/27/16

Applicant/Owner: Jim Mabe State: CA Sampling Point: 2

Investigator(s): Joseph Saler, Sam Polly Section, Township, Range:

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

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

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 ____	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:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Frangula purshiana	95%	✓	FAC
2.			
3.			
4.			
	95%	= Total Cover	
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	
Herb Stratum (Plot size: ____)			
1. Rubus ursinus	52	✓	FACU
2. Conium maculatum	15		FAC
3. Raphanus sativa	27%	✓	UPL
4. Polystichum munitum	5		FACU
5. Stachys ajugoides	2		OBL
6. Heracleum maximum	3		FAC
7.			
8.			
9.			
10.			
11.			
	104%	= Total Cover	52 / 20.8
Woody Vine Stratum (Plot size: ____)			
1.			
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: 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

Remarks:

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)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-10	10YR 2/2	100					Loam	Some compaction,
10-17	10YR 3/2	100					L	prior disturbance
17-26	10YR 3/4	65					L	
	10YR 3/2	35					L	Crotovina

[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:

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): _____

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

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

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

Project/Site: Mabe, Table bluff Rd City/County: Humboldt Sampling Date: 7/27/16

Applicant/Owner: Jim Mabe State: CA Sampling Point: 3

Investigator(s): Joseph Sailer, Sam Polly Section, Township, Range:

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

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

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 ____	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:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: ____)			
1. Digitalis purpurea	27		FACU
2. Holcus lanatus	40	✓	FAC
3. Baccharis pilularis	20		UPL
4. Pteridium aquilinum	15		FACU
5. Rubus ursinus	56	✓	FACU
6. Conium Maculatum	5		FAC
7. Cirsium Vulgare	5		FACU
8. Frangula purshiana	1		FAC
9. Raphanus sativum	10		UPL
10.			
11.			
	179 = Total Cover		89.5 35.8
Woody Vine Stratum (Plot size: ____)			
1.			
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 ____	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: 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
0-14	10YR 2/2	100						
14-18	7.5YR 3/2	100						
18-24+	10YR 3/4	80						
	7.5YR 3/2	20						Cratovina

[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:

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): _____

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

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

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

Project/Site: Mabe, Table Bluff Rd. City/County: Humboldt Sampling Date: 7/27/16

Applicant/Owner: Jim Mabe State: CA Sampling Point: 4

Investigator(s): JS, SP Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 3

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: NWI classification: none

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 ____ No X
Hydric Soil Present?	Yes ____ No X	
Wetland Hydrology Present?	Yes ____ No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: ____)			
1. Rubus ursinus	82	✓	FACU
2. Stachys ajugoides	6		Obl
3. Holcus lanatus	25		FAC
4. Conium maculatum	12		FAC
5. Digitalis purpurea	12		FACU
6. Sonchus oleraceus	1		UPL
7. Lathyrus sativa	5		UPL
8. Epilobium ciliatum	1		FACW
9.			
10.			
11.	144	= Total Cover	72 / 28.8
Woody Vine Stratum (Plot size: ____)			
1.			
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: 0 (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: 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
0-12	10YR 2/2	100					L	
12-16	10YR 2/2	100					L	Compacted
16-24+	10YR 3/4	70					L	
	10YR 2/2	30					L	Cotovena

[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:

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): _____

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

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

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

Project/Site: Mabe, Table Bluff Rd. City/County: Humboldt Sampling Date: 7/27/16

Applicant/Owner: Jim Mabe State: CA Sampling Point: 5

Investigator(s): Sam Polly, Joseph Sater Section, Township, Range:

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

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

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 ____ 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:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Frangula purshiana	92	✓	FAC
2.			
3.			
4.			
	92	= Total Cover	
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____	= Total Cover	
Herb Stratum (Plot size: ____)			
1. Hieracleum maximum	3		FAC
2. Conium maculatum	11		FAC
3. Cirsium vulgare	8		FACU
4. Rubus ursinus	52	✓	FACU
5. Raphanus sativa	30	✓	UPL
6. Stachys ajugoides	10		Obl
7.			
8.			
9.			
10.			
11.			
	114	= Total Cover	57 42.8
Woody Vine Stratum (Plot size: ____)			
1.			
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: 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

Remarks:

SOIL

Sampling Point: 5

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	10YR 2/2	100					L	
10-22	10YR 3/2	100					L	
22-32+	10YR 3/2	87					L	
	10YR 3/2	13					L	Cobbles

[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:

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): _____

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

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

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

Project/Site: _____ City/County: Humboldt Sampling Date: 7/27/16

Applicant/Owner: Jim Mabe State: CA Sampling Point: 6

Investigator(s): JS, SP Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): none Slope (%): 3

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: none

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	
Hydric Soil Present?	Yes _____	No X	Is the Sampled Area within a Wetland? Yes _____ No X
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Cascara frangula purshiana	35	✓	
2.			
3.			
4.			
	35	= Total Cover	

Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

Herb Stratum (Plot size: _____)			
1. Rubus ursinus	80	✓	FACU
2. Heracleum maximum	2		FAC
3. Urtica dioica	8		FAC
4. Solanum americanum	2		FACU
5. Conium maculatum	25		FAC
6. Digitalis purpurea	10		FACU
7. Cirsium vulgare	2		FACU
8. Vicia hirsuta	2		FACU
9. Lysimachia arvense Pimpernel	2		FAC
10. Galium aparine	3		FACU
11.			
	136	= Total Cover	68 27.2

Woody Vine Stratum (Plot size: _____)			
1.			
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	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: 6

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
0-15	10YR 2/2	100					L	
15-20	10YR 3/2	92					L	
	10YR 5/8	8					L	
20-24+	10YR 3/4	92					L	
	10YR 3/2	8					L	Cotovena

[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:

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): _____

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

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

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

Project/Site: Mabe, Table bluff Road City/County: Humboldt Sampling Date: 8/1/16

Applicant/Owner: Jim Mabe State: CA Sampling Point: 1E

Investigator(s): Joseph Sales, Sam Polly Section, Township, Range:

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

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

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 ____	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:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: ____)			
1. Rubus ursinus	42	✓	FACU
2. Conium maculatum	5		FAC
3. Digitalis purpurea	12		FACU
4. Holcus lanatus	27	✓	FAC
5. Heracleum maximum	2		FAC
6. Poa pratensis	5		FAC
7. Senecio minimus	2		FACU
8. Achillea millefolium	3		FACU
9.			
10.			
11.			
	98 = Total Cover		49 / 19.6
Woody Vine Stratum (Plot size: ____)			
1.			
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 ____	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: 1E

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	10YR3/2	100					L	
10-24+	10YR3/2	100					L	

[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:

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): _____

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

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

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

Project/Site: Mabe, Table Bluff Rd. City/County: Humboldt Sampling Date: 8/1/16

Applicant/Owner: Jim Mabe State: CA Sampling Point: 2E

Investigator(s): Joseph Sadler, Sam Polly Section, Township, Range:

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

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

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 ____	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:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1. Baccharis pilularis	15	✓	UPL
2.			
3.			
4.			
5.			
	15 = Total Cover		
Herb Stratum (Plot size: ____)			
1. Rubus ursinus	70	✓	FACU
2. Pteridium aquilinum	5		FACU
3. Conium maculatum	2		FAC
4. Heracleum maxima	5		FAC
5. Dipsacus fullonum	3		FAC
6. Digitalis purpurea	10		FACU
7. Holcus lanatus	2		FAC
8.			
9.			
10.			
11.			
	97 = Total Cover		48.5 19.4
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		
% Bare Ground in Herb Stratum ____			

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	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: 2E

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
0-11	10YR 2/2	100					loam	
11-24	10YR 2/2	100					L	
24+	10YR 3/4	100					L	

[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:

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): _____

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

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

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

Project/Site: Mabe, Table bluff Rd. City/County: Humboldt Sampling Date: 8/1/16

Applicant/Owner: Jim Mabe State: CA Sampling Point: 3E

Investigator(s): SAM Polly, Joseph Siler Section, Township, Range:

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

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

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 ✓ 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	No X
Hydric Soil Present?	Yes	No X	
Wetland Hydrology Present?	Yes	No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1. Frangula purshiana	15	✓	FAC
2.			
3.			
4.			
	15 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Rubus ursinus	50	✓	FACU
2. Polystichum Munitum	13		FACU
3. Pteridium aquilinum	10		FACU
4. Heracleum maximum	8		FAC
5. Holcus lanatus	20		FAC
6. Carex leptopoda	3		FAC
7. Digitalis purpurea	6		FACU
8. Stachys ajugoides	2		Obl
9.			
10.			
11.			
	112 = Total Cover		5/6 22.4
Woody Vine Stratum (Plot size:)			
1.			
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	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: 3E

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	10YR2/2	100					loam	
20-24+	10YR4/3	62					L	
	10YR2/2	38						Mixed from upper horizon

[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:

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): _____

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

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

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

Project/Site: Mabe, Table Bluff Rd. City/County: Humboldt Sampling Date: 8/1/16

Applicant/Owner: Jim Mabe State: CA Sampling Point: 4'E

Investigator(s): Sam Polly, Joseph Sitler Section, Township, Range:

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

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

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	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:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1. Baccharis pilularis	15	✓	UPL
2.			
3.			
4.			
5.			
	15 = Total Cover		
Herb Stratum (Plot size:)			
1. Senecio minimus	5		FACU
2. Iris douglasiana	20	✓	UPL
3. Rubus ursinus	45	✓	FACU
4. Digitalis purpurea	10		FACU
5. Sonchus blestaceus	1		UPL
6. Achillea millefolium	1		FACU
7. Cirsium vulgare	1		FACU
8. Frangula purshiana	1		FAC
9. Lysimachia arvensis scarlet	1		FAC
10.			
11.			
	85 = Total Cover		42.5 1/2
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (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: 4E

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	10YR 2/2	100					Loam	
20-24	10YR 3/2	95					Loam	
	10YR 3/3	5					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:

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): _____

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

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

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

Project/Site: Mabe, Table Bluff Rd. City/County: Humboldt Sampling Date: 8/1/2016

Applicant/Owner: Jim Mabe State: CA Sampling Point: 5E

Investigator(s): Joseph Saler, Sam Polly Section, Township, Range:

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

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

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 ____	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:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Frangula purshiana	20	✓	FAC
2.			
3.			
4.			
	20 = Total Cover		

Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

Herb Stratum (Plot size: ____)			
1. Anthoxanthum odoratum	65	✓	FACU
2. Pteridium aquilinum	12		FACU
3. Rubus ursinus	10		FACU
4. Solidago elongata	5		FACU
5. Digitalis purpurea	3		FACU
6. Polystichum munitum	2		FACU
7. Galium aparine	1		FACU
8. Achillea millefolium	1		FACU
9.			
10.			
11.			
	99 = Total Cover		49.5 / 14.8

Woody Vine Stratum (Plot size: ____)			
1.			
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	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: 5E

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
0-13	10YR2/2	100					L	
13-20	10YR2/2	100					L	Gopher Castovina
20-24	10YR3/3	100					L	

[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:

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): _____

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

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

Plant List

Table D-1 **Observed Botanical Species List** **Table Bluff Rd Loleta, CA**			
Plants Observed 7/27/16 and 8/1/16			
Scientific Name	**Common Name**	**Native?**	**Wetland Status**
Trees			
Abies grandis	grand fir	Y	FACU
Frangula purshiana	cascara	Y	FAC
Juniperus sp.	cultivated juniper	N	N/A
Picea sitchensis	Sitka spruce	Y	FAC
Pinus radiata	Monterrey pine	N	NL
Prunus cerasifera	wild plum	N	UPL
Pseudotsuga menziesii	Douglas fir	Y	FACU
Salix lasiandra	pacific willow	Y	FACW
Shrubs			
Baccharis pilularis	coyote brush	Y	UPL
Corylus cornuta	hazelnut	Y	FACU
Cytisus scoparius	scotchbroom	N	UPL
Erica lusitanica	Spanish heather	N	UPL
Gaultheria shallon	salal	Y	FACU
Genista monspessulana	French broom	N	UPL
Ilex aquifolium	English holly	N	FACU
Lonicera involucrata	twinberry	Y	FAC
Oemleria cerasiformis	indian plum	Y	FACU
Ribes sanguineum	flowering currant	Y	FACU
Rosa californica	California rose	Y	FAC
Rosa rubiginosa	sweetbriar	N	UPL
Rubus armeniacus	Himalayan blackberry	N	FAC
Rubus parviflorus	thimbleberry	Y	FACU
Rubus ursinus	California blackberry	Y	FACU
Sambucus racemosa	red elderberry	Y	FACU
Spirea douglasiana	Douglas spirea	Y	FACW

Scientific Name	Common Name	Native?	Wetland Status
Symphoricarpos albus	common snowberry	Y	FACU
Vaccinium ovatum	evergreen huckleberry	Y	FACU
Herbs			
Achillea millefolium	common yarrow	Y	FACU
Anaphalis margaritaceae	pearly everlasting	Y	FACU
Aquilegia formosa	western columbine	Y	FAC
Brassica rapa	common mustard	N	FACU
Carduus pycnocephalus	Italian thistle	N	UPL
Cirsium arvense	Canada thistle	N	FAC
Cirsium vulgare	bull thistle	N	FACU
Conium maculatum	poison hemlock	N	FAC
Crepis capillaris	smooth hawksbeard	N	FACU
Daucus carota	Queen Anne's lace	N	FACU
Digitalis purpurea	foxglove	N	FACU
Dipsacus fullonum	wild teasel	N	FAC
Epilobium ciliatum	Northern willowherb	Y	FACW
Erigeron canadensis	Canada horseweed	Y	FACU
Fragaria vesca	California strawberry	Y	FACU
Galium aparine	cleaver plant	N	FACU
Geranium dissectum	cutleaf geranium	N	UPL
Heracleum maxima	cow parsley	Y	FAC
Horkelia californica	California horkelia	Y	NL
Hypochaeris radicata	hairy cats-ear	N	FACU
Iris douglasiana	Douglas iris	Y	UPL
Leucantheumum vulgare	oxeye daisy	N	UPL
Linum bienne	flax	N	UPL
Lotus corniculatus	bird's foot trefoil	N	FAC
Lupinus rivularis	riverbank lupine	Y	FAC
Lysimachia arvensis	scarlet pimpernel	N	FAC
Maianthemum racemosum	false Solomon's seal	Y	FAC
Mentha pulegium	pennyroyal	N	OBL

Scientific Name	Common Name	Native?	Wetland Status
Navarretia squarrosa	skunkweed	Y	FACU
Parentucellia viscosa	yellow glandweed	N	FAC
Plantago lanceolata	English plantain	N	FACU
Prunella vulgaris	self heal	Y	FACU
Pseudognaphalium ramosissimum	pink cudweed	Y	UPL
Ranunculus repens	creeping buttercup	N	FAC
Rhaphanus sativa	wild radish	N	UPL
Rumex acetosella	sheep sorrel	N	FACU
Rumex crispus	curly dock	N	FAC
Scrophularia californica	California bee plant	Y	FAC
Senecio minimus	coastal burnweed	N	FACU
Silybum marianum	blessed milk thistle	N	UPL
Solanum americanum	American nightshade	Y	FACU
Solanum aviculare	New Zealand nightshade	N	NL
Solidago elongata	West coast Canada goldenrod	Y	FACU
Sonchus olereacus	sow thistle	N	UPL
Stachys ajugoides	bugle hedgenettle	Y	OBL
Symphyotrichum chilense	California aster	Y	FAC
Taraxicum officinale	dandelion	N	FACU
Tellima grandiflora	fringe cups	Y	FACU
Trifolium pratense	red clover	N	FACU
Trifolium repens	white clover	N	FAC
Urtica dioica	stinging nettle	Y	FAC
Vicia hirsuta	tiny vetch	N	UPL
Vicia sativa	spring vetch	N	UPL
Zeltnera venusta	charming centaury	Y	NL
Grasses			
Aira caryophylla	silver hairgrass	N	FACU
Anthoxanthum odoratum	sweet vernal grass	N	FACU
Avena sativa	wild oat	N	UPL

Scientific Name	Common Name	Native?	Wetland Status
Briza maxima	large quaking grass	N	UPL
Briza minor	small quaking grass	N	FAC
Bromus carinatus	California brome	Y	NL
Bromus diandrus	ripgut brome	N	UPL
Bromus hordeacus	soft chess	N	FACU
Dactylis glomerata	orchard grass	N	FACU
Elymus glaucus	blue wildrye	Y	FACU
Festuca arundinacea	tall fescue	N	FACU
Festuca microstachys	small fescue	Y	UPL
Festuca perenne	Italian wildrye	N	FAC
Festuca rubra	red fescue	Y	FAC
Holcus lanatus	velvet grass	N	FAC
Phalaris aquatica	harding grass	N	FACU
Poa pratensis	Kentucky bluegrass	N	FAC
Ferns and Allies			
Polystichum munitum	sword fern	Y	FACU
Pteridium aquilinum	bracken fern	Y	FACU
Sedges and Rushes			
Carex leptopoda	slender footed sedge	Y	FAC
	Total	47.5% Native	40.75% FAC or Wetter Species

1. (USDA 2012)

Indicators are abbreviated as follows:
OBL: Obligate
FACW: Facultative
FAC: Facultative
FACU: Facultative upland
UPL: Upland
NL: Not listed