# Wetlands Habitat Mitigation & Monitoring Plan_Rev1

## We Are Up Housing Project

We Are Up

24 March 2025

→ The Power of Commitment

**Prepared for:**

We Are Up
144 Weirup Lane
McKinleyville, CA 95519

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# Appendices

# 1. Introduction

This document supports the Project's permitting and construction planning as deemed appropriate. This report is subject to, and must be read in conjunction with, the limitations set out in **Section 10**, Scope and Limitations, and the assumptions and qualifications contained throughout the report.

## 1.1 Project Location

The Project is located in the unincorporated community of McKinleyville, within Section 5, Township 06 North, Range 01 East, Arcata North USGS 7.5 Minute Quadrangle, Humboldt Base and Meridian, in Humboldt County, California. McKinleyville is situated on the Pacific Coast, approximately 14 miles north of Eureka, California and 90 miles south of the Oregon border.

The Project is located on Assessor's Parcel Numbers (APNs) 509-181-61, 509-181-03, 509-181-12, and 509-181-05, encompassing approximately 17.38 acres (**Appendix A, Figure 1**). The Project Area is situated within an established commercial and residential area and within the Urban Development Area as defined by the McKinleyville Community Plan (Humboldt County 2017). The northwest portion of APN 509-181-61 consists of a vacant field, two-unit residential structure (duplex), three outbuildings, and a barn. The remainder of the parcel is undeveloped. APNs 509-181-03, 509-181-12, and 509-181-05 contain existing residential structures and maintained lawns. Terrain across the Project Area gradually slopes to the southeast. Vegetation throughout the Project Area consists of non-native grasses and other low-habitat value vegetation (GHD 2024).

## 1.2 Project Description

The Project is to be funded and operated by We Are Up, a 501(c)(3) non-profit organization. We Are Up was founded in 2021 with the mission to support seniors, adults on the autism spectrum and/or I/DD, and those with physical, intellectual and/or developmental disabilities by providing a secure, integrated, community-based, long-term, and affordable place to call home. The Project will facilitate training and education that leads to improved life skills and opportunities for employment, allowing people with disabilities to contribute to our community and enrich their lives.

The Project will offer safe housing opportunities for people with autism and/or I/DD needs who would not otherwise be able to live on their own. The Project will consist of new infill residential development within a Housing Opportunity Zone located in McKinleyville, California (**Appendix B**). The Project will address the urgent need for new accessible housing in the region with a focus on the shortage of housing specifically for individuals with disabilities.

The Project will construct housing units, a community center, a greenhouse, and install associated site improvements, including an access road, walking trails, related lighting, stormwater features, wetland creation, riparian planting, and community access (**Appendix B**).

In addition to housing, the Project will create functional and community spaces to be used by We Are Up residents for resident enrichment and education. The community spaces are comprised of a greenhouse, garden space, orchard, walking trails, and shelters/pens for livestock to provide practical opportunities for resident enrichment, social interaction, and education. Wetland and streamside habitat areas on the Project site will be created and enhanced.

## 1.3 Purpose

This Wetland Habitat Mitigation and Monitoring Plan (WHMMP) has been prepared on behalf of We Are Up for the We Are Up Housing Project (Project) for the U.S. Army Corps of Engineers (USACE) and Regional Water Quality Control Board (RWQCB, or Regional Board) to satisfy water quality permit requirements. The Project will impact regulated jurisdictional wetlands. The Project will thus require authorization from the USACE under Section 404 of the Clean Water Act (CWA) and a corresponding Section 401 Certification from the Regional Board. As part of the Section 404

permitting process, the USACE will review the Project under NEPA and Section 106 of the National Historic Preservation Act.

Wetlands and other regulated waters impacted by the Project will require compensatory mitigation in coordination with the USACE and Regional Board, which will occur onsite and the project is self-mitigating.

Additionally, the Conservation and Open Space Element of the Humboldt County General Plan (2017a) summarizes policies relevant to the protection of biological resources. Policies include establishing Streamside Management Areas (SMA) for watercourses and wetlands (Policy BR-P5, BR-P7, BR-S5, BR-S7, BR-S10, and BR-S11). Buffers established for riparian corridors are 100 feet measured horizontally from the edge of top of bank or edge of riparian dripline, whichever is greater, and the SMA width applied to wetlands is designated as 50 feet for seasonal wetlands and 150 feet for perennial wetlands. The site contains a perennial creek and seasonal wetlands. The setback begins at the edge of the delineated wetland.

The purpose of the WHMMP is to provide detailed methods for creation and monitoring the success of wetlands and riparian habitat to compensate for impacts to federal and state jurisdictional three-parameter wetlands resulting from Project implementation.

This WHMMP is patterned on Regulatory Program Regulation (33 CFR) guidance published by the USACE (2015), along with guidance from the Regional Board Clean Water Act Section 401 Water Quality Certification application (*Wetland Mitigation Checklist*). This WHMMP provides information on impacts to and creation of wetlands and enhancement of existing riparian habitat. Both USACE and NCRWQCB jurisdictional three-parameter wetlands will be impacted by the Project. The Project will be compensated at a ratio that satisfies regulatory agencies at a ratio that achieves no net loss of wetland habitat. Consultation with both agencies has occurred on behalf of the Project and mitigation ratios have been proposed and agreed upon. The Project will monitor wetlands in accordance with a WHMMP to ensure no net loss of these resources. This WHMMP provides mitigation and monitoring details for wetlands and riparian habitat in accordance with Project permit requirements, including the following elements:

1. Baseline information on location and extent of existing resources.
2. Identification of jurisdictional resources to be impacted by Project activities and calculations of impacts.
3. Identification of mitigation sites for each resource impacted.
4. Proposed mitigation objectives and ratios.
5. Mitigation design and maintenance plan.
6. Monitoring protocols and reporting responsibilities.
7. Adaptive management plan.
8. Ecological performance standards for each resource mitigated for.
9. Site protection instrument.
10. Responsible parties for actions identified in this WHMMP.

# 2. Baseline Information

## 2.1 Studies within the Project Area

An Aquatic Resources Delineation and Sensitive Habitat Report (GHD 2024) was prepared to assess baseline aquatic resources within the Project Area and is included as **Appendix C.** These studies evaluate the potential for any special status plants, wildlife species, or any sensitive natural communities (SNCs) or aquatic resources to occur and an analysis of potential impact. Furthermore, the accompanying data collected from these studies was used to inform the mitigation design for wetland creation and riparian enhancement, using existing conditions and species lists derived

from the studies to guide the design. A comprehensive species list and all vegetation communities within the Project Area were mapped during these studies. The existing communities on-site and associated species assemblages have helped guide what vegetation assemblages the Project will aim to re-establish post-construction, with special attention paid to establishing native communities.

The following subsections present the location, function, and value of existing wetlands in the Project Area that are anticipated to be affected by implementation of the Project**.** Additionally, existing resources (wetland habitat, upland habitat surrounding wetlands, and riparian vegetation communities) will be summarized, as they have informed the mitigation design for wetland creation and riparian habitat enhancement and provide a baseline by which to compare future results. **No impact to riparian habitat will occur during Project implementation**. The Project seeks to enhance existing riparian habitat as part of the wetland mitigation package.

## 2.2 Jurisdictional Areas

### Project Background and Regulatory History

On behalf of We Are Up, GHD prepared the Nationwide Authorization and Section 401 Certification application package and accompanying appendices in support of the We Are Up Development Project in April 2023.

The application package was reviewed and approved by NCRWQCB and USACE in November and December of 2023 under water quality certification WDID No. 1B23047WNHU and Nationwide Permit (NWP) 29 for Residential Developments (USACE File ID: SPN-2023-00205), which outlined conditions for the Project based on all permit application materials provided in the original submittal (April 2023) and subsequent responses to the USACE's and NCRWQCB's requests for more information. The information included in the original submittals regarding wetlands were based on the delineation of potential jurisdictional aquatic resources in the Project Area outlined in the *Aquatic Delineation and Sensitive Habitat Report_Rev2* (GHD 2024), which encompassed parcel APN 509-181-61.

Since the date of those approvals some Project adjustments have occurred, namely (1) expansion of the Project Area to include three new parcels (APNs 509-181-03, 509-181-12, and 509-181-05) to the west of APN 509-181-61 (**Appendix A, Figure 1**), for which proposed design features have been shifted and (2) the Project is preparing a new CEQA document (previously an IS/MND). The Project has expanded its footprint since the first iteration of design located on APN 509-181-61; however, the total area of permanent impacts to jurisdictional wetlands has been reduced as a result. The footprint has been shifted geographically to be positioned more exclusively within the expanded Project Area parcels and on the western edge of APN 509-181-61. GHD has completed a delineation of potential jurisdictional aquatic resources for the expanded Project Area outlined in *Aquatic Resources Delineation and Sensitive Habitat Report* (GHD 2024).

The Project team re-engaged the NCRWQCB and USACE in December 2024 to discuss updates to the Project. The updated wetland delineation results were reviewed during a site visit on January 31, 2025 with Stephen Ryan (USACE). It was determined during this site visit that only Wetland-1 is federally jurisdictional. The Project received formal written verification via email on February 18th, 2025 that the Project will need to apply for a new NWP 29 that focuses on federally jurisdictional wetland impacts only. Thereafter, the Project received written verification via email on March 6th, 2025 that the Project qualifies for an amendment to the existing 401 Certification based on Project updates. In his March 6th, 2025 response, Ryan Bey also agreed that Wetland-4 is not a State jurisdictional aquatic feature based on rationale provided by GHD, which is briefly outlined in this WHMMP (Ryan Bey, personal communication, March 6th, 2025). Therefore, Wetland-4 is not included in total three-parameter wetland calculations for the Project henceforth. In the first 401 Certification application review in 2023, it was determined that the fill of a stormwater detention pond historically constructed by the McKinleyville Community Services District (MCSD) (**Appendix A, Figure 2.1**) located on APN 509-181-61 is state jurisdictional, and therefore will be included in three-parameter wetland fill calculations for state jurisdictional wetlands.

## Jurisdictional Resources within the Project Area

A wetland delineation was completed in 2024 (**Appendix C** and **Appendix A, Figure 2.1**) to determine the extent of wetlands and Other Waters within the Project Area based on hydrophytic vegetation, hydric soils, and wetland hydrology using methods and indicators outlined in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (USACE 2010). In addition, under the McKinleyville Community Plan (Humboldt County 2017) Section 3422 (7), Wetland Areas shall be defined as satisfying at least one of the following three criteria: (1) the presence of at least periodic predominance of hydrophytic vegetation; (2) predominately hydric soils; (3) periodic inundation for seven (7) consecutive days (i.e., one-parameter wetlands). One one-parameter wetland jurisdictional to the County of Humboldt under the Mckinleyville Community Plan was detected onsite outside of the delineated three-parameter wetlands. Wetlands jurisdictional to the County will be addressed during CEQA review and therefore will not be addressed further in this WHMMP. Within the boundaries of mapped vegetation communities, no wetlands were mapped.

Mill Creek, a third order stream and tributary of the Mad River, flows just along the southern boundary of the Project Area. No instream work or work within the ordinary high-water mark (OHWM) is planned, nor in areas with riparian vegetation.

One contiguous three-parameter palustrine emergent wetland (Wetland-1) was mapped within the APN 509-181-61 totaling 8.68 acres and due to the hydrologic connection with Mill Creek is confirmed jurisdictional to the USACE and RWQCB. A historically constructed stormwater feature delineated as a three-parameter palustrine emergent wetland was also mapped within APN 509-181-61 and is jurisdictional to the state, but not the USACE (**Appendix A, Figure 2.1**).

Three three-parameter wetland areas were delineated and mapped (**Appendix A, Figure 2.1**) on APNs 509-181-03, 509-181-12, and 509-181-05: Wetland-2 (0.1 acres), Wetland-3 (0.03 acres), and Wetland-4 (0.05 acres). These wetlands do not have hydrologic connectivity to Mill Creek or to Wetland-1 and therefore are not federally jurisdictional wetlands. Correspondence with the NCRWQCB in March 2025 confirmed that Wetland-4 is not jurisdictional to the state; therefore, Wetland-2 and Wetland-3 are jurisdictional to the state within these parcels, but not the USACE.

### *Wetland-4 Jurisdictional Determination*

Wetland-4 was delineated and mapped as a three-parameter wetland within 509-181-12 and 509-181-05. Wetland-4 (0.05 ac) is an isolated wetland in a residentially developed, regularly mowed, and maintained yard and was likely artificially developed due to stormwater from the adjacent uphill dwellings draining toward and collecting in this feature. Water roof downspouts from the dwellings upslope of Wetland-4 were pointing directly onto a concrete slab that conveyed the water downslope into the lawn. Additionally, a gravel road was also conveying water from upslope developments (including the parking lot of the commercial businesses that immediately border the northern parcel). The elevation of the site slopes generally southeast toward the Mill Creek drainage; therefore, stormwater runoff would naturally drain through this lawn on the site. However, the volume of runoff was artificially magnified as a result of the directional drainage on the site, thereby artificially creating hydrology that created the wetland.

Wetland-4 is less than an acre in size, does not have a surface hydrological connection to any Other Water of the State or Water of the U.S., and does not otherwise satisfy the criteria for Waters of the State set forth in Section II.2, II.3.a, II.3.b, or II.3.c of the State Water Resource Control Board (SWRCB) Procedures for Discharges of Dredged or Fill Material into Waters of the State (SWRCB 2021). The stormwater conveyance to this area does not satisfy II.3.d.iii of the Procedures because it was not a feature designed to be part of a stormwater permitting program; however, it appears that the site layout had informally created an area of stormwater infiltration in this maintained lawn by proxy of landscape position.

It is assumed that without the direct conveyance of stormwater directed at this portion of the lawn (“ongoing maintenance”), Wetland-4 would cease to exist naturally (i.e., not a “relatively permanent part of the natural landscape”). Wetland-4 was therefore recommended to not to be considered jurisdictional to the NCRWQCB, which was agreed upon and confirmed in March 2025 in correspondence with the NCRWQCB.

A summary of wetlands delineated within the Project Area is included in **Table 2.2-1**.

***Table 2.2-1 Delineated wetlands within the Project Area***

| Wetland ID | Wetland Type | Location (APN) | Jurisdictional Status[1] | Total Area (square feet / acres) |
|---|---|---|---|---|
| Wetland-1 | Palustrine emergent three-parameter (PEM) | 509-181-61 | USACE / NCRWQCB | 377,918 sf / 8.68 ac |
| MCSD Stormwater Facility | PEM | 509-181-61 | NCRWQCB | 1,520 sf / 0.03 ac |
| Wetland-2 | Palustrine scrub-shrub (PSS) | 509-181-12 | NCRWQCB | 4,436 sf / 0.10 ac |
| Wetland-3 | PSS | 509-181-03 and 509-181-12 | NCRWQCB | 1,404 sf / 0.03 ac |
| Wetland-4 | PEM | 509-181-12 and 509-181-05 | Non-jurisdictional | 2,094 sf / 0.05 ac |

1. Jurisdictional status of each wetland area has been confirmed through agency correspondence.

# 2.3 Existing Habitat in the Project Area

The parcels collectively contain pasture and residential lawns dominated by non-native grasses that comprise a mosaic of wetlands and uplands with vegetation assemblages meeting the *Manual of California Vegetation Online* (CNPS 2022) definition of Coastal willow thickets and Sitka spruce stands around the north-eastern and south-eastern edge of the Project Area, some of which is functioning as riparian vegetation along the Mill Creek corridor.

## Three Parameter Wetlands

Wetland-1 was open and mostly free of rooted woody vegetation and is classified according to the Cowardin system as a palustrine emergent wetland (PEM) (FGDC 2013). The vegetation was primarily characterized by redtop (*Agrostis stolonifera*, FAC, invasive non-native), reed fescue (*Festuca arundinacea,* FAC, invasive non-native), common velvetgrass (*Holcus lanatus*, FAC, invasive non-native), Italian rye grass (*Festuca perennis*, FAC, invasive non-native), slough sedge (*Carex obnupta*, OBL, native), and small fruited bullrush (*Scirpus microcarpus*, OBL, native). Wetland-1 passed the dominance test for hydrophytic vegetation (in wetland plots), but in some plots, only passed for hydrophytic vegetation due to dominance of facultative species. When prevalence index and the FAC-neutral test were employed, the vegetation did not pass. In short, vegetation proved to be problematic in some areas of the wetland, as it was overwhelmingly non-native facultative grass species. Presence of hydrology indicators and hydric soils were replied upon heavily to help determine upland and wetland boundaries.

Wetland-2 and Wetland-3 are dominated by woody vegetation (Arroyo willow [*Salix lasiolepis*], FACW) and therefore classified as palustrine scrub-shrub (PSS) wetlands according to the Cowardin system of classification (FGDC 2013). Despite the presence of Arroyo willow in the tree stratum, the understory herb composition was very similar to that of Wetland-1—dominated by non-native herbaceous herbs and grasses (Kentucky blue grass [*Poa pratensis*], redtop, creeping buttercup [*Ranunculus repens*], and common velvet grass), with a minor presence of native species (slough sedge and horsetail [*Equisetum telmateia*], and California blackberry [*Rubus ursinus*] and Himalayan blackberry [*R. armeniacus*]).

The upland areas around these wetlands were dominated exclusively by non-native species, including maintained residential lawns. Upland areas were dominated by redtop (FAC, invasive non-native), sweet vernal grass (*Anthoxanthum odoratum*, FACU, invasive non-native), ribwort (*Plantago lanceolata*, FACU, invasive non-native), and hawkbit (*Leontodon saxatillis*, FACU, non-native).

### Riparian Corridor

The riparian corridor of Mill Creek was mapped to the drip line and no wetlands were assessed underneath the canopy. The riparian dripline was mapped as displayed in **Appendix A, Figure 2.1**. Much of the two vegetation communities are present within the Mill Creek riparian corridor and function as riparian vegetation.

#### *Sitka Spruce Alliance*

The Sitka Spruce Alliance corresponds to the Rapid Assessment datasheet WEIR001 in **Appendix C**. The Sitka Spruce Alliance was observed in the north, northwest, and southwest edges of the Project Area and covers 0.75 acres of the Project Area. This community contained a tree canopy cover of 40% Sitka spruce (*Picea sitchensis*, FAC, native), 35% red alder (*Alnus rubra*, FAC, native), and 20% incense cedar (*Thuja plicata*, FAC, native), and is associated with California blackberry (*Rubus ursinus*, FACU, native).

#### *Coastal Willow Alliance*

The Coastal Willow Alliance corresponds to the Rapid Assessment datasheet WEIR002 in **Appendix C**. The Coastal Willow Alliance was observed in the north, northwest, and southwest edges of the Project Area and covers 0.85 acres of the Project Area. This community contained a tree canopy cover of 2% red alder, a shrub layer of 85% coastal willow (*Salix hookeriana,* FACW, native), and 20% California blackberry.

## 2.4 Project Impacts to Jurisdictional Wetlands

### Impacts to Jurisdictional Wetlands within the Project Area

Based on the current design, the Project will have temporary and permanent impacts to three-parameter wetlands (**Table 2.4-1** and **Appendix A, Figure 2.1**). Permanent fill of wetlands will occur due to the construction of buildings, and of the asphalt driveway and parking areas (**Appendix A, Figure 2.1** and **Appendix B**). Temporary impacts will occur due to temporary road construction for equipment to access the wetland mitigation sites and temporary construction impacts from grading around the perimeter of building construction and culvert installation.

***Table 2.4-1 Approximate impacts to jurisdictional wetlands***

| Wetland ID and Type | Jurisdictional Status | Total Area (square feet / acres) | Temporary Impact | Permanent Impact |
|---|---|---|---|---|
| Wetland-1: PEM three-parameter wetland | USACE / NCRWQCB | 377,918 sf / 8.68 ac | 9,852 sf | 6,207 sf |
| MCSD Stormwater Facility: PEM three-parameter wetland | NCRWQCB | 1,520 sf / 0.03 ac | 0 | 1,520 sf |
| Wetland-2: PSS three-parameter wetland | NCRWQCB | 4,436 sf / 0.10 ac | 0 | 4,436 sf |
| Wetland-3: PSS three-parameter wetland | NCRWQCB | 1,404 sf / 0.03 ac | 0 | 1,404 sf |
| | **Total** | **385,276 sf** | **9,852 sf / 0.22 ac** | **13,594 sf / 0.31 ac** |

# 3. Mitigation Plan

## 3.1 Mitigation Objectives

To compensate for the impact to wetlands during Project construction, two primary methods of compensation are proposed that will in total create a synergistic effect toward habitat recovery and enhancement: (1) creation of palustrine emergent and palustrine scrub shrub wetland habitat on-site and in-kind with revegetation of native wetland plant species and (2) enhancing existing riparian habitat through expansion of the Mill Creek riparian corridor through planting with native tree and shrub species that associate with vegetation communities observed on-site (**Appendix A, Figure 2.2**).

The overarching goal of the mitigation is to ensure that potential impacts to sensitive resources resulting from Project implementation are adequately and successfully compensated to achieve no net loss of sensitive resources.

### Mitigation Ratio and Methods of Compensation

Installation of new stormwater facilities and development area grading will require filling wetlands. Based on the current conceptual plan approximately 13,594 square feet (0.31 acres) of three-parameter wetlands will be filled; however, the jurisdictional status of each wetland varies and therefore the mitigation area required to compensate for wetland loss for each jurisdictional agency is different. **Table 3.1-1** summarizes the total permanent impacts to jurisdictional wetland and the proposed mitigation strategy to compensate for wetland loss. All mitigation proposed is on-site and wetland creation is in-kind and adjacent to existing three-parameter wetlands.

Temporary impacts to wetlands would be restored in place immediately following construction at a 1:1 ratio, to an equal or better condition, using an appropriate native seed mix to revegetate disturbed areas.

There are two compensatory wetland mitigation sites that will create three-parameter palustrine emergent and palustrine scrub shrub wetlands along the edges of existing upland islands that exist within the larger contiguous three-parameter wetland on APN 509-181-61 (**Appendix A, Figure 2.2**). Proposed wetland creation consists of the expansion of existing wetland areas by excavating uplands adjacent to the wetlands and replanting of the excavated areas with native wetland plant species. The proposed hydrologic design will result in a consistent and relatively simple management of natural processes, leading to a high likelihood of success. There is one riparian enhancement site that borders the edge of the existing riparian dripline of Mill Creek (**Appendix A, Figure 2.2**). The Project seeks to convert 15,834 square feet of uplands to three-parameter wetlands with a seasonally flooded water regime and enhance 6,600 square feet of the riparian corridor with native riparian plantings (**Appendix A, Figure 2.2**).

***Table 3.1-1 Proposed mitigation for permanent impacts to jurisdictional wetlands***

| Wetland ID and Type | Jurisdictional Status | Permanent Impacts | Mitigation Ratio | Mitigation Area Required | Method of Compensation[1] |
|---|---|---|---|---|---|
| **Waters of the U.S.** | | | | | |
| Wetland-1: PEM | USACE / NCRWQCB | 6,207 sf | 1.3:1 | 8,069 sf | -Creation of 8,069 sf of PEM three-parameter wetlands |
| **Waters of the State** | | | | | |
| - Wetland-1: PEM three-parameter wetland | NCRWQCB | 13,594 sf | 1.64:1 *Note: This mitigation ratio is split between two | 22,294 sf | -Creation of 15,834 sf of PEM / PSS three-parameter |

| Wetland ID and Type | Jurisdictional Status | Permanent Impacts | Mitigation Ratio | Mitigation Area Required | Method of Compensation[1] |
|---|---|---|---|---|---|
| - MCSD Stormwater Facility: PEM<br><br>- Wetland-2: PSS<br><br>- Wetland-3: PSS | | | distinct methods of compensation, wetland creation and riparian enhancement. | | wetlands at **1.16:1** ratio<br><br>-Enhancement of 6,600 sf of Mill Creek riparian corridor at **0.48:1** ratio |
| 1. Compensation for each agency is distinct for each jurisdictional wetland area. The wetland area created to compensate for NCRWQCB jurisdictional wetlands in inclusive of the wetland area created to compensate for USACE jurisdictional wetlands, as all Waters of the U.S. are also considered Waters of the State. Impacts to Wetland-1 are only counted once for mitigation purposes. | | | | | |

### Riparian Enhancement

The filling of state jurisdictional wetlands will be mitigated at a 1.64:1 ratio, which would be achieved by providing new onsite wetland areas (creation) as described above and providing approximately 6,600 square feet (0.15 acres) of riparian plantings at a 0.48:1 ratio. Riparian plantings would be installed along the south-eastern corner and eastern portions of the project site adjacent to existing riparian vegetation associated with Mill Creek. This area would be enhanced by planting native riparian vegetation (mainly trees, limited shrubs). Riparian habitat will be enhanced using native species that mimic a similar natural community composition to that which is adjacent to it.

#### *Ethnobotanically Significant Species*

A Wiyot tribe botanist was consulted during the development of this WHMMP to create a species list for planting that includes culturally significant species. Species chosen for wetland and riparian plantings that are also considered sources of food, medicine, and/or use in other culturally important practices include: red alder, California blackberry, cascara, grand fir, Sitka spruce, wax myrtle, and ninebark (Adam Canter, personal communication, February 27, 2023).

## 3.2 Wetlands Creation Site Selection

Wetland creation sites are in two locations within the Project Area (**Appendix A, Figure 2.2**). Design criteria is modelled after juxtaposed wetlands in the Project Area, both topographically and through groundwater monitoring of upland and wetland areas. Each location was chosen based on topography and water table data obtained from monitoring wells installed in or near those areas. The wetland creation sites are directly adjacent to, and will become integrated with, the larger palustrine emergent three-parameter wetland that comprises most of the Project Area.

### Wetland Reference Site

Baseline conditions were characterized in the We Are Up aquatic resource delineation report (GHD 2024), and success will largely be determined with the criteria listed in **Section 7**. Due to the high occurrence of non-native species dominating the Project Area, native species within delineated wetland plots were targeted for the planting plan and helped inform planting zones. Additional species were chosen based on site suitability and regional native plant communities.

The data collected from groundwater monitoring in and around Wetland-1 will create target depths that the wetland mitigation sites will be excavated to, ensuring adequate hydrology to support wetland creation.

To ensure successful design and implementation of created three-parameter wetlands, the proposed depth for wetlands created will be determined in final design plans and will use elevation data from existing juxtaposed wetlands (Wetland-1) to guide the grade established. The mitigation wetlands will be graded on the uphill slope at a 3:1 or 4:1 slope into a flattened "bottom" that grades into and generally matches the elevation of the juxtaposed wetlands. Current drainage patterns at the mitigation sites are surface overflow and groundwater conveyance from the surrounding slopes to the north and west of the Project Area, which drain generally southeast to Mill Creek. The wetland mitigation sites are situated mid-slope near a swale and will be fed primarily through groundwater discharge in winter, promoting success of establishment.

## Groundwater Monitoring Wells

Ten monitoring wells (piezometers) were installed onsite on January 11, 2022. The wells were installed in potential wetlands and mapped uplands. Wells installed in potential wetlands were installed to determine if wetlands hydrology exists or does not exist (groundwater within 12 inches of the surface for 14 consecutive days). Other wells were installed in uplands to inform wetlands creation and stormwater infiltration (to inform the stormwater engineering design).

Once half of the annual average rainfall occurred monitoring of the wells commenced. Monitoring started on January 17, 2023, and was completed on February 21, 2023. Depth to groundwater was measured with an electronic groundwater measurement device that "beeped" when water was encountered. Depth to groundwater was measured in a tenth of a foot and is recorded in **Table 3.2-1**.

The results from MW-5 through MW-10 (bolded in the table), in conjunction with hydrology soil pit data (described below), were used to discern suitable excavation depth for each wetland creation site.

***Table 3.2-1 Results from Monitoring Wells***

| | **DATE:** | **1/17/2023** | **1/24/2023** | **1/31/2023** | **2/7/2023** | **2/14/2023** | **2/21/2023** |
|---|---|---|---|---|---|---|---|
| | Rainfall YTD: | 20.97 | 21.80 | 21.93 | 23.34 | 23.69 | 23.89 |
| | Normal YTD: | 18.93 | 20.39 | 21.77 | 23.15 | 24.52 | 25.96 |
| | Current % Norm: | 110.8% | 106.9% | 100.7% | 100.8% | 96.6% | 92.0% |
| | Name(s) of Data Recorders: | M.Schwarz | M.Schwarz | M.Schwarz | M.Schwarz | A.Crowe | M.Schwarz |
| Monitoring Well Number | TOC (feet ags) | Water Depth (feet bgs) (DTW - TOC) | Water Depth (feet bgs) (DTW - TOC) | Water Depth (feet bgs) (DTW - TOC) | Water Depth (feet bgs) (DTW - TOC) | Water Depth (feet bgs) (DTW - TOC) | Water Depth (feet bgs) (DTW - TOC) |
| MW-1 | 0.90 | 1.00 | 1.55 | 2.08 | 1.60 | 1.27 | 2.08 |
| MW-2 | 0.85 | 1.36 | 1.90 | 2.40 | 1.60 | 0.76 | 2.30 |
| MW-3 | 1.04 | 0.61 | 1.06 | 1.71 | 0.71 | 0.50 | 1.58 |
| MW-4 | 0.69 | 0.91 | 1.36 | 1.94 | 1.36 | 1.06 | 1.96 |
| **MW-5** | 0.90 | **1.00** | **1.50** | **2.55** | **1.55** | **1.86** | **2.74** |
| **MW-6** | 1.04 | **0.76** | **0.97** | **1.22** | **0.76** | **0.50** | **1.11** |
| **MW-7** | 1.02 | **0.68** | **0.78** | **1.01** | **0.73** | **0.17** | **0.73** |
| **MW-8** | 0.98 | **0.82** | **2.12** | **2.64** | **1.92** | **3.03** | **3.64** |
| **MW-9** | 1.08 | **1.32** | **2.22** | **3.52** | **1.54** | **1.12** | **3.07** |
| **MW-10** | 1.06 | **0.84** | **1.44** | **2.17** | **0.99** | **0.56** | **1.87** |

**NOTES:**
TOC = Top of Casing (measured in inches and converted to decimal-feet)
DTW = Depth to Water (measured at TOC)
Bgs = below ground surface, Ags = above ground surface

### Hydrology Soil Pits

Two hydrology soil pits (HP) were excavated just downslope of MW-9 and MW-10, to investigate the groundwater level in finer detail between and around the monitoring wells, concurrent with the dates that piezometers were monitored. This data was used to inform grading depths for wetland mitigation areas, since the monitoring wells were installed upslope of the area outlined for wetland creation. The hydrology pits surrounding MW-9 and MW-10 were monitored on February 7 and February 21, 2023. The depth to the water table (DTW) was measured from the ground surface, and results for each date and hydrology pit are as follows:

**HP-8**

2/7/2022: DTW = 8.5 inches

2/21/2023: DTW = 13.5 inches

**HP-9**

2/7/2022: DTW = 15 inches

2/21/2023: DTW = 18 inches

Results from these hydrology pits provided additional data to inform excavation depths for the wetland mitigation sites.

## 3.3 Wetland Mitigation Planting Zones

Planting zones at the wetland mitigation sites have been separated into four planting zones: the bottom of the created wetland (Zone 1), the side(s) (Zone 2 and Zone 3), and the rim to the outer edge of the wetland (10-15 feet from rim, Zone 4).

The excavated areas will be planted with the following species found in **Table 3.3-2** using a mix of container stock and hydro-mulch. The suggested planting lists follow along with the most current reference, *National USACE 2020 Wetland Plant List* as defined by the USACE 2020 Western Valleys, Mountain, and Coasts (WMVC) designation (**Table 3.3-1**).

The following steps will be taken to revegetate the mitigation wetland. The bottom of the excavated area (**Zone 1**) and up a portion of the sides (**Zone 2**) will be planted with the species found in **Table 3.3-2,** using container stock. The upper slope up to the edges of the three-parameter wetlands being established will be hydroseeded with the species shown in **Table 3.3-2** for **Zone 3,** with a 10-15 foot halo around the edge of the wetland that will be scarified and planted with ReGreen, yarrow, and a native upland-associated grass seed (either single species or mix) (**Zone 4**). The proposed planting list for created wetlands is based on the native species composition present in wetland habitats (and those adjacent) as described in the wetland delineation report (GHD 2024) and supplemented with additional native species, including those recommended by CDFW. The planting plan supports the goal of in-kind establishment. All species proposed for planting have been cross-referenced with local native plant nurseries based on their available stock; however, suitable substitutions for species in the table may occur with oversight and guidance from a professional botanist/plant ecologist if stock becomes unavailable at the time of revegetation.

Any soil impacted from temporary road impacts or from temporary construction impacts will be disked and seeded with a native wetland grass and herb mix (**Zone 3**).

***Table 3.3-1 USACE wetland indicator status definitions for WMVC***

| Indicator Status | Abbreviation | Definitions |
|---|---|---|
| Obligate | OBL | Almost always occur in wetlands. |
| Facultative Wetland | FACW | Usually occur in wetlands, but may occur in non-wetlands. |
| Facultative | FAC | Occur in wetlands and non-wetlands. |

| Indicator Status | Abbreviation | Definitions |
|---|---|---|
| Facultative Upland | FACU | Usually occur in non-wetlands, but may occur in wetlands. |
| Upland | UPL | Almost never occur in wetlands. |

***Table 3.3-2 Wetland planting zones***

| Scientific name | Common name | Lifeform | WMVC Indicator Status | Unit | Plant Spacing[1] | Number of plants / Lbs. per acre[3] |
|---|---|---|---|---|---|---|
| **Planting List for Wetland Bottom (Zone 1)** | | | | | | |
| *Carex obnupta* | slough sedge | perennial sedge | OBL | plant band / plug | 2 ft | 686 |
| *Potentilla anserina* | silver weed cinquefoil | perennial herb | OBL | plant band / plug | 2 ft | 686 |
| *Scirpus microcarpus* | small-fruited bulrush | perennial grass-like herb | OBL | plant band / plug | 3 ft | 305 |
| **Planting List for Sides (Zone 2)** | | | | | | |
| *Salix lasiolepis*[2] | Arroyo willow | shrub/tree | FACW | container | 15 ft | 81 |
| *Juncus* species *(J. balticus, J. effuses* var. *pacifica,* and/or *J. hesperius*) | wire rush, Pacific rush, and/or coast rush | perennial rush | FACW | plug | 2 ft | 686 |
| **Planting List for Sides and Temporary Impacts (Zone 3)** | | | | | | |
| *Sisyrinchium californicum* | golden blue-eyed grass | perennial herb | FACW | plant band / plug | 2 ft | 686 |
| *Stachys chamissonis* | coastal hedge nettle | perennial herb | FACW | plant band / plug | 3 ft | 305 |
| *Danthonia californica* | California oatgrass | perennial grass | FAC | seed | -- | 10 lbs. |
| *Deschampsia caespitosa* | tufted hair grass | perennial grass | FACW | seed | | 6 lbs. |
| **Planting List for Wetland Edge (10-15 feet from edge of created wetland, Zone 4)** | | | | | | |
| ReGreen | sterile grass mixture | grass | NA | seed | -- | 40 lbs. |
| *Achillea millefolium* | yarrow | perennial herb | FACU | seed | -- | 1 lb. |
| Native grass seed—single species or mix<br>Recommended mix includes:<br>*-Bromus sitchensis* var. *carinatus,*<br>*-Elymus glaucus,*<br>*-Festuca rubra*, | Native grass seed—single species or mix<br>Recommended mix includes:<br>-California brome<br>-blue wildrye<br>-red fescue<br>-meadow barley | grass | variable status | seed | -- | 10 lb. |

| Scientific name | Common name | Lifeform | WMVC Indicator Status | Unit | Plant Spacing[1] | Number of plants / Lbs. per acre[3] |
|---|---|---|---|---|---|---|
| -*Hordeum brachyantherum* ssp. *californicum* | | | | | | |

1. Recommended spacing is measured on-center and is the recommended spacing for each individual plant, not each individual species, from each other, regardless of species.
2. Other Salix species may be mixed with Arroyo willow, like coast willow (*Salix hookeriana)* or Pacific willow (*Salix lasiandra*)
3. All quantities of plantings proposed are approximated based on the total mitigation area.

## 3.4 Riparian Enhancement Site Selection

The riparian enhancement site will be at the edge of the existing riparian dripline of Mill Creek in the eastern portion of the Project Area (**Appendix A, Figure 2.2**). The species list chosen for plantings is based primarily on those which already exist, to promote compatible expansion of the corridor using species that are known to thrive on-site (**Table 3.5-1**). Topography of this site has been referenced to maximize the success of plantings in relation to their access to groundwater.

***Table 3.5-1 Riparian enhance site planting mix***

| Scientific name | Common name | Lifeform | WMVC Indicator Status | Unit | Spacing[1] | # per acre |
|---|---|---|---|---|---|---|
| **Tree Stratum** | | | | | | |
| *Abies grandis* | grand fir | Tree | FACU | 1-gal | 30 ft | 6 |
| *Alnus rubra* | Red alder | Tree | FAC | 1-gal | 15 ft | 20 |
| *Morella californica* | Wax myrtle | Tree | FACW | 1-gal | 15 ft | 20 |
| *Picea sitchensis* | Sitka spruce | Tree | FAC | 1-gal | 30 ft | 6 |
| *Thuja plicata* | Western red cedar | Tree | FAC | 1-gal | 20 ft | 10 |
| *Salix lasiolepis* | Arroyo willow | Tree | FACW | Cutting | 20 ft | 10 |
| **Shrub Stratum** | | | | | | |
| *Physocarpus capitatus* | Ninebark | Shrub | FACW | 1-gal | 20 ft | 14 |
| *Ribes sanguineum* | Flowering currant | Shrub | FACU | 1-gal | 20 ft | 14 |
| *Rubus ursinus* | California blackberry | Shrub | FACU | 1-gal | 10 ft | 14 |

1. Recommended spacing is measured on-center and is the recommended spacing for each individual plant from each other, regardless of species.

# 4. Mitigation Maintenance Plan

## 4.1 Revegetation and Post-planting Maintenance

All implementation of mitigation site planting and monitoring will be the responsibility of the Applicant.

Construction is anticipated to occur within one or two construction seasons, commencing in 2026. Wetlands creation and riparian planting will happen concurrently with construction of the Project.

Revegetation will occur in fall and winter months following earth work and will be timed with hydrologic conditions to maximize plant survival. Irrigation is not planned but may occur based on the installer (contractor) procedures. Each planting will be watered the day of planting, regardless of soil moisture at the time of planting.

The Applicant shall inspect all deliveries of the container plantings prior to installation to ensure (1) accurate quantities, (2) correct species, (3) vigor (root growth and overall health), and (4) that all plant material is visibly free of pests and diseases.

Following initial construction, the wetlands and riparian enhancement areas are expected to be self-maintaining and dynamic into the long-term future. No watering or maintenance activities such as mowing or pruning would be needed to maintain these areas. The planting lists do not include any particularly aggressive species and were chosen based on the predominant vegetation in the adjacent similar habitat types (GHD 2024).

## Soil Preparation

The following specifications should be implemented by the grading/earthwork contractor:

- all earthwork and grading of the site shall be complete prior to beginning soil preparation
- soil preparation shall occur in all areas to be seeded or planted as shown on the Plans and any additional areas disturbed by construction (including non-paved access, staging, stockpiling, and haul routes necessary to access sediment application areas) to be seeded or planted as specified herein
- contractor shall coordinate with the Construction Manager to confirm the limits of soil preparation
- contractor shall review soil preparation areas for presence of rock, debris, chemicals, or other harmful substances and notify the Construction Manager if such conditions are observed
- contractor shall prepare the soil as follows in areas to be seeded or planted and upon completion of grading:
  - scarify mechanically to a depth of two (2) inches using a spike harrow, lightweight ring-roller/cultipacker or by hand methods, and as approved by the Construction Manager
  - in areas where excessive compaction has occurred such as haul routes and construction access associated with wetlands temporary impacts, at the discretion of the Construction Manager, the Contractor shall disk or rototill a minimum twelve (12) inches deep using conventional farming implements and then smooth with a ring-roller/cultipacker or harrow prior to seeding. Finished ground elevations should be restored back to pre-project or design elevations

## Riparian Planting Design

Planting holes will be no deeper than the container and twice as wide. Each tree and shrub planted should receive one to two packets of mycorrhizae.

Trees and shrubs planted in the riparian enhancement area will be protected from deer browsing with anti-browse cages, excluding California blackberry, and will be mulched around the base post-planting.

Weeds will be removed at the base of each plant while plants are becoming established. Weeding will occur in the spring of each year after the first year of establishment (beginning the second spring). Weeds within a 3x3 foot area around the base of each planted tree and shrub will be pulled by hand, collected, and disposed of at an acceptable off-site location or composted, which can only be used in the designated garden footprint and cannot be applied to or adjacent to wetlands.

## Avoidance and Minimization Measures to Protect Juxtaposed Wetlands

Avoidance and minimization measures have been developed to protect juxtaposed wetlands during Project construction, including equipment exclusion zones being clearly delineated and marked, and suitable perimeter control

measures (silt fences or straw wattles) being implemented to reduce sedimentation from clearing or grading. All measures will be implemented or installed prior to any clearing or grading activities.

## 4.2 Invasive Species Controls

Non-native and invasive plant competition will be considered throughout the mitigation timeframe. Highly invasive non-native plants can inhibit successful establishment of native species and therefore reduce the value of the created and enhanced habitats. To allow native species to grow and persist, invasive species management and weed control are required. Species observed in the mitigation area that are currently rated Limited-High in the California Invasive Species Council (Cal-IPC) Inventory will be targeted as a priority for removal at the mitigation site. **Table 4.2-1** provides the Cal-IPC definitions for their ratings.

Weed management such as with a mower, weed whacker, weed wrench, or hand pulling will be conducted. Removal methods will primarily include hand removal with brush cutters and removal of the entire root mass. Additional invasive species management may be implemented on an as-needed basis.

***Table 4.2-1 Cal-IPC Rating Definitions***

| Cal-IPC Rating | Definition |
|---|---|
| High | These species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically. |
| Medium | These species have substantial and apparent-but generally not severe-ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbance. Ecological amplitude and distribution may range from limited to widespread. |
| Limited | These species are invasive, but their ecological impacts are minor on a state-wide level or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic. |

# 5. Mitigation Monitoring Plan

## 5.1 Monitoring Plan

We Are Up or its qualified designee will maintain the Project mitigation sites over the course of the five-year monitoring period and will maintain them in such a way to meet success criteria, including the treatment of invasive plant species by hand or handheld equipment such as weed whackers. Maintenance in the riparian enhancement area is not proposed for the Project. However, documentation of the riparian plantings will be required in the first year's monitoring report.

All maintenance activities within the four designated wetland mitigation monitoring areas will be documented and included in the annual monitoring report. If monitoring and/or observations yield a deficiency or adverse conditions among planted vegetation, then supplemental planting would occur. Similarly, if a particular species is not doing well at the sites, a species of similar ecological function can be supplemented for original plant species.

Monitoring will occur annually to document overall site conditions, and should include an assessment of:

- mitigation site plantings overall vigor and health, and recommendations for corrective action if a site is observed to be failing
- photo documentation at each established photo point
- notable encroachment of non-native species into a mitigation area
- removal of non-native species from mitigation areas
- disturbance around or within the mitigation sites (i.e., browsing of plants, trampling, or other disturbance)
- signs of permanently ponding water within wetland mitigation sites
- any other pertinent information regarding the overall success of the mitigation areas

An annual monitoring report will be submitted to the Regional Board and USACE summarizing each monitoring event, to be submitted at the end of the calendar year in the year following mitigation site planting.

Some flexibility to account for annual variation in weather conditions is acceptable but vegetative monitoring should be conducted in June, July, or August.

Monitoring in Year-1, Year-3, and Year-5 will include additional environmental data collection that will support the analysis of performance criteria set forth for each mitigation site, as described in **Section 7**. The additional environmental data collection will include:

- vegetation sampling according to methods outlined in this document for all wetland mitigation sites
- hydrology monitoring according to methods outlined in this document for all wetland mitigation sites

All data collection from these monitoring years will be analyzed and compared to the performance criteria set forth for that habitat type in that year. Following monitoring, We Are Up will submit to the Regional Board and USACE one report summarizing (1) vegetation and hydrology monitoring methods, (2) results, and (3) and any necessary adaptive management such as targeted replanting, removal of invasive species, or future considerations for design adjustment, to better achieve Project objectives.

Reporting will include captioned photographs (including those taken at established photo points) and mapping results, where appropriate. Reporting will also highlight how the Project Area has changed since as-built construction, including all information outlined to be included in each annual monitoring report. The monitoring report will be submitted to the Regional Board and USACE by the end of year. The monitoring schedule and details for each monitoring year are summarized in **Table 5.1-1**.

In Year-5, a wetland delineation will confirm the area of wetlands created. The report should make a thorough analysis of whether the mitigation is successful and if on-going monitoring is required. A separate wetland delineation report will be prepared to document the results of the wetland delineation effort and submitted to the Regional Board and USACE for a jurisdictional determination.

Annual reports will be prepared and submitted to the Regional Board and USACE no later than December 31 of each year, for a total of five reports over the monitoring period. Reports will include observations made during site monitoring including descriptions of conditions on-site, identified issues, outlined remedial measures implemented or needed, and photographs of the mitigation area(s).

***Table 5.1-1 Annual Monitoring and Reporting Schedule***

| Monitoring Year | Summary of Conditions On-site | Vegetation Sampling | Hydrology Sampling | Report |
|---|---|---|---|---|
| Year-1 | X | X | X | Baseline summary of conditions on-site in each mitigation area.<br>Results from vegetation monitoring. |
| Year-2 | X | -- | -- | Baseline summary of conditions on-site in each mitigation area. |

| Monitoring Year | Summary of Conditions On-site | Vegetation Sampling | Hydrology Sampling | Report |
|---|---|---|---|---|
| Year-3 | X | X | X | Baseline summary of conditions on-site in each mitigation area.<br>Results from hydrology and vegetation monitoring. |
| Year-4 | X | -- | -- | Baseline summary of conditions on-site in each mitigation area. |
| Year-5 | X | X | X | Baseline summary of conditions on-site in each mitigation area.<br>Results from hydrology and vegetation monitoring and analysis of success of mitigation sites. |
| Year-5 Wetland Delineation | | | | Perform wetland delineation per USACE protocols in Year-5 and submit separate wetland delineation report documenting findings, to be verified with a jurisdictional determination by the USACE. |

## 5.2 Monitoring Methodology

### Vegetation Monitoring Methodology

Transects will be located randomly within the created wetland areas. The location of the first quadrat will be randomized relative to the beginning of the baseline, with quadrats at set distances thereafter. Percent absolute vegetative cover of each species present in the quadrat will be recorded and separated by categories post-field visit to compare to success criteria. All plant species present within each quadrat will be identified and noted. The number of quadrats sampled will be sufficient to achieve an adequate sample size.

Post-field visit, data collected will be separated out in the following categories by plot:

(1) absolute cover of native vegetation,

(2) absolute cover of native wetland vegetation (FAC, FACW, OBL species),

(3) absolute cover of non-native vegetation with assigned Cal-IPC rank, and

(4) absolute cover of Cal-IPC Moderate to High rated species (target invasive species).

The absolute cover of native vegetation and non-native vegetation will be used to analyze data for comparison to success criteria for relative native cover. The absolute cover of Cal-IPC Moderate to High rated species will be analyzed for comparison to success criteria regarding target invasive species.

Cal-IPC Limited species will not be considered in the analysis for success criteria of target invasive species; however, they will still be monitored and targeted for removal. Cal-IPC Limited species are those that are “invasive, but their ecological impacts are minor on a state-wide level…their reproductive biology and other attributes result in low to moderate rates of invasiveness” (Cal-IPC 2023).

Data sheets with results from each quadrat sampled during each site visit will be included as an appendix submitted with each annual report.

To determine wetland indicator status, the most current wetland indicator plant list will be used to determine the ranking of species present in the mitigation area during monitoring. Wetland species are defined as those rated with

the indicator status FAC, FACW, or OBL by the most current wetland indicator plant list: *National USACE 2020 Wetland Plant List* (USACE 2020).

The progress of the mitigation site will be monitored and documented in an annual report and with accompanying photographs.

### Soil Monitoring Methodology

Hydric soil indicators may take more time develop than what is within the anticipated timeframe for monitoring activities. Hydric soils will be assumed if wetland hydrology and hydrophytic vegetation are present.

### Hydrology/Groundwater Monitoring Methodology

Wetland mitigation site elevations shall be within ranges that maintain suitable groundwater wetland hydrology, as defined by the USACE. The U.S. Army Corps of Engineers (2005) provides a technical standard for monitoring hydrology. This standard requires 14 or more consecutive days of flooding or ponding, or a water table within 12 inches of the soil surface, during the growing season at a minimum frequency of five years in ten (50 percent or higher probability) (National Research Council 1995).

Piezometers (wells) will be installed post-construction to monitor groundwater elevations. Groundwater will be monitored once 50 percent of the average annual rainfall has been met, for four (4) consecutive weeks (Day 0, 7, 14, and 21), or until success criteria has been met (a minimum of three monitoring events or two weeks), after the 50 percent of average annual rainfall. A WETs table for the Arcata Airport Station in McKinleyville, CA will be referenced to determine if rainfall averages are normal for the given year.

Post-construction hydrology monitoring at the site will be implemented to monitor groundwater levels. Hydrology will be monitored in Year-3 and Year-5.

### Photo Monitoring Stations

Permanent photo-documentation points will be established within the Project site in the wetland creation areas. A minimum of one photo point is required for each monitored created wetland unit, and the riparian enhancement area will receive a one-time photo point documentation of as-built conditions to include in the Year-1 monitoring report. Photo point locations will be included on a map that will accompany monitoring reports, along with their GPS coordinates to maintain consistency through the duration of monitoring.

Photographs will be taken of wetland creation areas annually during the monitoring period. Long-term photo monitoring will not be employed for the riparian enhancement area. Photographs will be taken from each monitoring point and cardinal directions recorded for repeatability. Photos will be taken with a digital camera with a moderate wide-angle lens. The make and model of camera and type will be noted in monitoring documentation. Photographs will be taken from about five feet in height, consistent from year to year.

# 6. Adaptive Management Plan

Adaptive management is a tool used to cope with the inherent changes and instability fundamental to natural resources and the ecological processes that encompass them. It is a process derived from a collection of practical methods based in research and monitoring. As a philosophy, it holds that conservation and restoration programs should be designed in ways that accumulate knowledge as quickly and accurately as possible so that the management plan can be adapted promptly to better management efforts. This approach allows managers to learn by experience within site specific environments and apply lessons learned to remedy deficiencies using a controlled and scientific approach.



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Adaptive management procedures will be recommended on a case-by-case basis, to address any issues identified at the sites during monitoring or maintenance activities. Adaptive management actions could include one or more of the following activities (not exclusive) if success criteria are not met:

- adjusted weeding method to reduce weeds around the planted wetland or upland to decrease competition from non-native grasses and forbs;
- supplemental planting for areas that have deficiencies in the seeding or planted material stock (may be in-kind, or if a particular species is not doing well at the site, a suitable replacement species can be supplemented for original plant species);
- supplemental replacement (may be in-kind, or if a particular species is not doing well at the site, a suitable replacement species can be supplemented for original plant species);
- supplemental watering (for non-performing plants that required supplemental planting);
- additional erosion control; and/or
- hydrologic modification or minor regrading.

Unpredictable natural changes could alter the mitigation area and consequently necessitate changing the goals, objectives, strategies, and actions set forth in this plan. These changed conditions include but are not limited to:

- unusual weather patterns, such as extended drought or excessive rainfall;
- change in species composition, such as through invasion of a new invasive plant or wildlife species to the site, increase in spread of existing non-native plants rated as Cal-IPC Limited which exhibit similar adverse characteristics of a plant ranked Moderate or High in this particular habitat setting, or a change in the ranking of invasive plants;
- change in the listing of species status species that could occur or have potential to occur in the habitat mitigation area; or;
- erosion or deposition of sediments.

Adaptive management may be implemented if the mitigation ratios are not achieved after a period of five years, as detailed in submitted monitoring reports. If adaptive management is determined to be necessary, appropriate regulatory agencies will be consulted to propose any necessary remedial action. A meeting will then be scheduled with the appropriate resource agencies, depending on the specific issue(s), to discuss the best method(s) to address the issue.

# 7. Final Success Criteria/Performance Standards

## 7.1 Ecological Performance Standards

Monitoring of the wetlands will be conducted to evaluate achievement of vegetation success criteria. The wetland mitigation site post-planting shall meet the following criteria described in **Section 7.2**, and in **Table 7.2-1.**

If at the end of Year-5 the performance standards have not been met, then additional monitoring and/or adaptive management will continue until performance criteria have been met. The prior year monitoring report will state whether the Project is on track to meet the success criteria or whether corrective actions will be necessary in order to meet the Year-5 success criteria. If success criteria are met in earlier years, this will be demonstrated in the report, and monitoring will cease.



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## 7.2 Wetland Success Criteria

The wetland area that will be monitored for performance includes the bottom of the created wetlands to the outer toe of the excavated slope and will coincide with Zone 1 and Zone 2 (**Section 3.3**).

The wetland mitigation will be considered successful when:

- the three-parameter wetland creation site hosts at least 70 percent relative cover of native wetland species (and no more than 15 percent absolute cover of target invasive species) in Year-5, supports wetland hydrology, and 8,069 square feet of three-parameter palustrine emergent wetlands are created to compensate for USACE jurisdictional wetlands and 15,834 square feet of palustrine emergent / palustrine scrub-shrub wetlands are created to compensate for NCRWQCB jurisdictional wetlands (to be assessed with a wetland delineation in Year-5 and verified by agencies).

If the success criteria for vegetation and hydrology are met by Year-5, and a wetland delineation proves successful establishment of 15,834 square feet of wetlands (inclusive of the 8,069 square feet of USACE wetlands created), then the mitigation project will be considered successful and monitoring will be complete at Year-5.

### Vegetation Success Criteria

The mitigation site will be considered successful if at least 70 percent relative cover of native wetland species and no more than 15 percent absolute cover of target invasive species are present at the conclusion of the five-year monitoring period.

Monitoring of the wetlands will be conducted to evaluate achievement of vegetation success criteria. The mitigation site post-planting shall meet the following criteria described in **Table 7.2-1.**

### Soils Success Criteria

Hydric soil indicators may take more time develop than what is within the anticipated timeframe for monitoring activities. Hydric soils will be assumed if wetland hydrology and hydrophytic vegetation are present.

### Hydrology Success Criteria

The mitigation site will be considered successful if one out of two winter hydrology events meet wetland hydrology standards (**Section 5.2**).

***Table 7.2-1 Performance standards for wetland creation sites***

| Year | Success Criteria Description |
|---|---|
| Year-1 | 50 percent (≥) relative cover[1] of native wetland species.<br><br>No more than 25 percent absolute cover[2] of target invasive[3] plants. |
| Year-3 | 65 percent (≥) relative cover[1] of native wetland species.<br><br>No more than 20 percent absolute cover[2] of target invasive[3] plants. |
| Year-5 | 70 percent (≥) relative cover[1] of native wetland species.<br><br>No more than 15 percent absolute cover[2] of target invasive[3] plants.<br><br>Wetland hydrology is met for two out of three monitoring events. |
| Year-1, -3, and -5 | Native wetland species consist of OBL/FACW/FAC species. |

| Year | Success Criteria Description |
|---|---|
| | No large non-vegetated bare spots (greater than 25 percent) or erosional area and no permanent inundation during five-year monitoring period. |

1 Relative cover refers to a proportion of absolute cover of intended vegetation category (i.e., native cover) to total vegetative cover present.

2 Absolute cover is the proportion of ground surface covered by a particular category of vegetation.

3 Target invasive species are those rated Moderate-High in the Cal-IPC inventory.

# 8. Site Protection Instrument

A site protection instrument (e.g., deed restriction) is required to protect the wetland mitigation site in perpetuity, per section 230.97(a) (Site protection) of the SWRCB Procedures (2019), which states:

> (*4) Site protection instrument. A description of the legal arrangements and instrument, including site ownership, that will be used to ensure the long-term protection of the compensatory mitigation project site (see § 230.97(a)).*

The applicant shall comply with the Project Deed Restriction through the following pathway:

> -once the wetlands are constructed (anticipated in 2026 along with site grading) their location will be surveyed and a deed restriction will be filed with the County of Humboldt for those locations. Evidence of this filing will be submitted to the Regional Board by December 31 of 2026 (or within the year the wetlands are created if site grading/wetland creation is delayed due to funding or other construction constraints).

The site protection instrument will address the wetland mitigation sites in the Project Area.

# 9. Responsible Parties

It will be the responsibility of We Are Up to implement all mitigation outlined in the document and subsequent actions as outlined in the 401 Certification and Army Corps NWP 29 conditions of approval.

# 10. Scope and Limitations

*This report: has been prepared by GHD for We Are Up and may only be used and relied on by We Are Up for the purpose agreed between GHD and We Are Up.*

*GHD otherwise disclaims responsibility to any person other than We Are Up arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.*

*The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.*

*The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.*

*The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.*

***Accessibility of documents***

*If this report is required to be accessible in any other format, this can be provided by GHD upon request and at an additional cost if necessary.*

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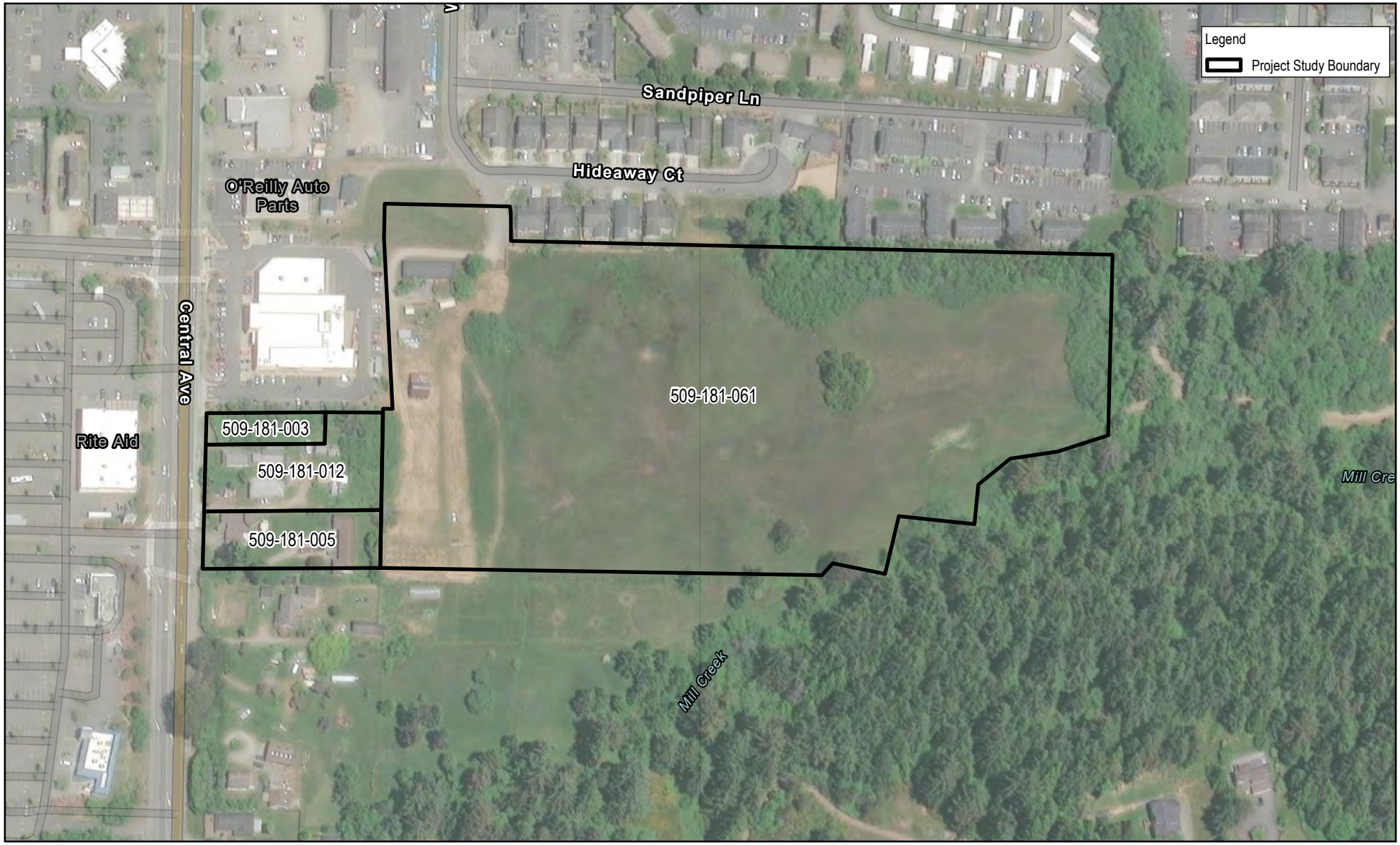
.

# Appendix A

## Figures

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Map Projection: Lambert Conformal Conic
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N

GHD

**Mary Keehn Property Development**
**Keehn Development**

Project No. **12560473**
Revision No. **-**
Date **2024-11-19**

## Project Study Boundary

# FIGURE 1

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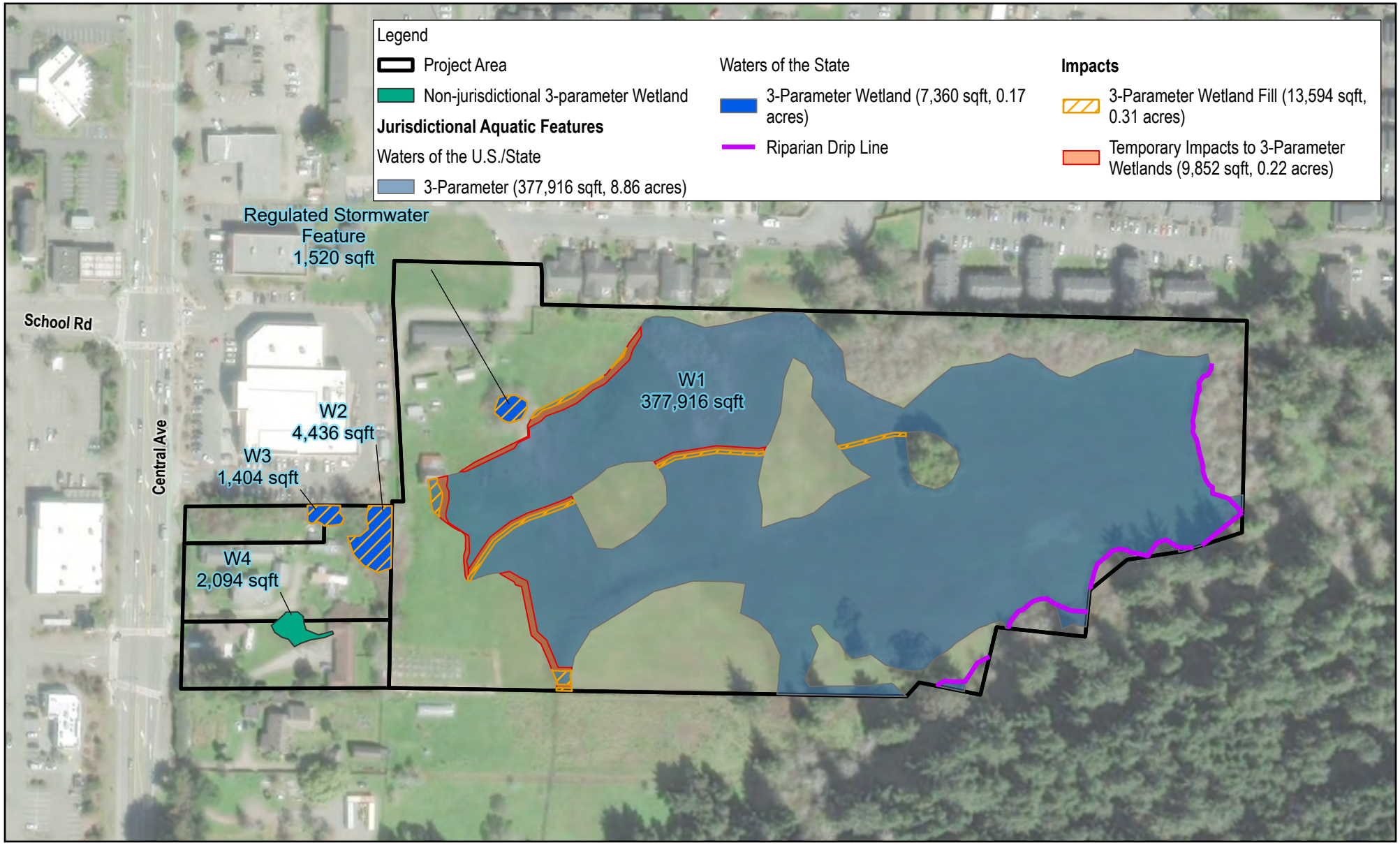
Hybrid Reference Layer (WGS84): Esri Community Maps Contributors, California State Parks, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS. Created by: jlopez4

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N

GHD

**Mary Keehn Property Development**
**Keehn Development**

# Updated Project Wetland Impacts to Waters of the State

Project No. **12560473**
Revision No. **-**
Date **2025-03-19**

**FIGURE 2.1**

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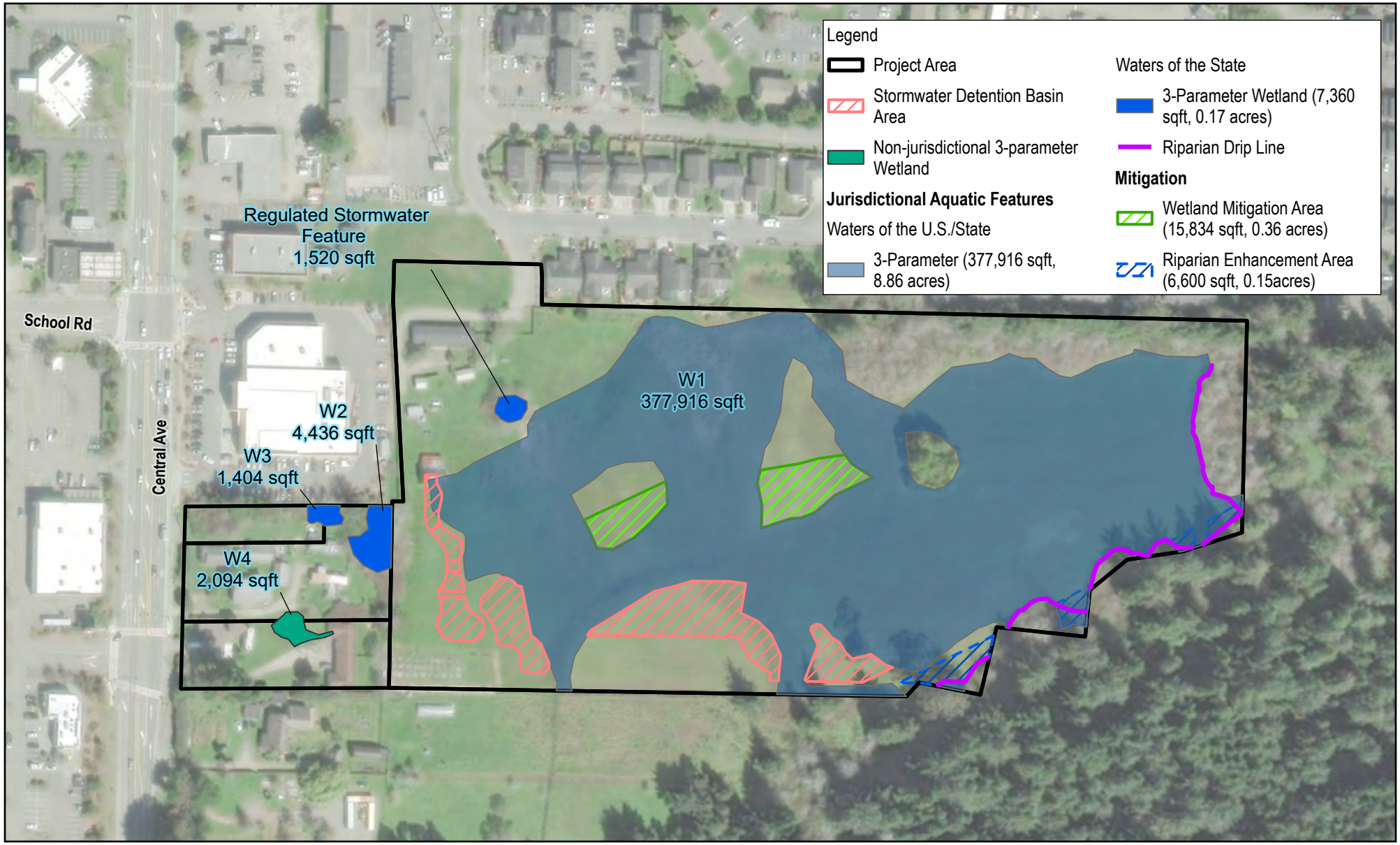


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Map Projection: Lambert Conformal Conic
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N

GHD

**Mary Keehn Property Development**
**Keehn Development**

**Updated Site Plan and Mitigation for Waters of the U.S./State**

Project No. **12560473**
Revision No. **-**
Date **2025-03-14**

**FIGURE 2.2**

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# Appendix B

## Project Components

13 ATTACHED COTTAGES ( 7 ONE BEDROOM, 6 TWO BEDROOMS)
17 COURTYARD APPARTMENTS ( 8 ONE BEDROOM, 9 TWO BEDROOMS)
40 APARTMENTS ( 7 STUDIOS, 16 ONE BEDROOM, 11 TWO BEDROOMS, 6 THREE BEDROOMS)

TOTAL : 70 UNITS = 35 (50% OF UNITS) TO 42 (35% OF RESIDENTS) RESIDENT PARKING SPACES

142 PAVED PARKING
8 GARAGE PARKING
28 min. LAWN PARKING

TOTAL: 178 SPACES - (35 TO 42) +10 = (133 TO 126) x 3 = 378 TO 400 EVENT ATTENDEES

USCAE WETLANDS IMPACTED: 6,207 S.F.

NCRWQCB WETLANDS IMPACTED : 13,594 S.F.

McKINLEYVILLE COMMUNITY PLAN WETLANDS IMPACTED : 13,364 S.F.

PARCEL C
74,950 s.f.
1.72 acres

PARCEL B
55,445 s.f.
(6,445 s.f. easement)

PARCEL A
86,534 s.f.
(17,818 s.f. easement)

PARCEL D
540,172 s.f.
12.4 acres

WEIRUP LANE

GATE

HIDEAWAY COURT

17 COURTYARD APARTMENTS

THREE STORY TYP.

ONE STORY

13 ATTACHED COTTAGES

4 CAR GARAGE

TWO STORY TYP. U.N.O.

40 APARTMENTS AT THE MAIN BUILDING

UPPER ENTRY

OUTDOOR ASSEMBLY AREAS

DROPP-OFF AREA

APPLE ORCHARD

Wetland Fill Area (typ.)

BUS STOP

CENTRAL AVE.

UPLANDS (E)

FLOOD LINE

WETLAND MITIGATION AREAS

STORMWATER BASIN

STORMWATER BASIN

FENCED AREA

BARN
920 S.F.

GREEN HOUSE
2550 S.F.

LAWN PARKING TYP. 8'x18'

RIPERIAN PLANTING AREAS

STORM DRAIN PIPING

EXISTING SEWER EASEMENT

NON-JURRISDICTIONAL 3-PARAMETER WETLAND (W4-2,094 s.f.)

# OVERALL SITE PLAN
# 25/3/17

N

0 100 150 200 FT

# Appendix C

## Aquatic Resource Delineation and Sensitive Habitat Report (2024)

# Aquatic Resources Delineation and Sensitive Habitat Report

We Are Up Housing Project

May 21, 2024

# Aquatic Resources Delineation and Sensitive Habitat Report

## We Are Up Housing Project

**This document has been prepared for:**

We Are Up
4636 Fieldbrook Rd #109
McKinleyville, CA 95519

**By:**

GHD

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Eureka, CA  95501, United States
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**May 21, 2024**

# Table of Contents

# Table Index



# Figure Index

# 1. Summary

GHD prepared this Aquatic Resources Delineation and Sensitive Habitat Report and accompanying appendices on behalf of We Are Up (Client), in support of the proposed We Are Up Housing Project (Project) within the community of McKinleyville, California (**Appendix A Figure 1**). GHD conducted aquatic resource delineation fieldwork, hydrological monitoring, and sensitive habitat surveys within the original Project Study Boundary (PSB) on APN 509-181-061 from September 2021 to February 2023 (**Appendix A, Figure 2**). The PSB was subsequently expanded in 2024 to include APNs 509-181-03, 509-181-12, and 509-181-05. This updated document reflects the results of the subsequent aquatic resource delineation and surveys on APNs 509-181-03, 509-181-12, and 509-181-05. United States Army Corps of Engineers (USACE) three-parameter wetlands were mapped based on wetland indicative vegetation, hydric soils, and wetland hydrology. GHD mapped the riparian drip-line (as required by the 2017 Humboldt General Plan), three-parameter wetlands, and one-parameter wetlands as shown in **Appendix A, Figure 3**. The Project is within the plan area of the McKinleyville Community Plan which requires mapping of one-parameter wetlands as well as three-parameter wetlands (McKinleyville Community Plan, 2002).

Four three-parameter wetlands and one one-parameter wetland were identified and mapped as shown in **Figure 3.** There were two Sensitive Natural Communities (SNCs) observed within the PSB. The total area of three-parameter wetlands mapped within the PSB is 8.86 acres, the total area of one-parameter wetlands mapped within the PSB is 0.03 acres, and the total area of SNCs mapped within the PSB is 1.6 acres (**Appendix A, Figure 3**).

Wetland 1, Wetland 2, and Wetland 3 are three-parameter wetlands hydrologically connected to each other and Mill Creek, a tributary of Mad River (a navigable water) and is likely USACE and Regional Water Quality Control Board (RWQCB) jurisdictional. Wetland 4 is an artificially induced three-parameter wetland isolated from other waters and is assumed not to be under USACE or RWQCB jurisdiction. Wetland 5 is a one-parameter wetland regulated only under the McKinleyville Community Plan.

# 2. Introduction

The updated PSB encompasses approximately 17.38 acres (**Appendix A Figure 3**). Field work was originally conducted on APN 509-181-061 on September 17th, 22nd, November 19th, December 2nd, 2021, January 25th, 2022. A USACE Nationwide Permit (SPN-2023-00205) and RWQCB Water Quality Certification (WDID 1B23047WNHU) were issued permitting the placement of fill within 0.28 acres of seasonal wetlands on APN 509-181-061.

Three parcels (APNs 509-181-003, 509-181-012, and 509-181-005) were subsequently added to the PSB in 2024 after the USACE Nationwide Permit and RWQCB Water Quality Certification were issued for APN 509-181-061. Field work for the additional parcels was conducted on April 16th, 2024.

This report supports the Project's environmental documentation, permitting, and construction planning as deemed appropriate. This report is subject to, and must be read in conjunction with, the limitations set out in Section 6, Special Terms and Conditions, and the assumptions and qualifications contained throughout the report.

## 2.1 Site Location and Project Description

The PSB consists of developed, partially developed, and grassy, vegetated open space, on four parcels (APNs 509-181-061, 509-181-003, 509-181-012, and 509-181-005) just west and south of Grocery Outlet in McKinleyville, California (**Appendix A, Figure 1**). The PSB is bordered by residential areas to the north and west, and by Mill Creek to the south, and a forested lot to the east. The property is a generally flat to mildly sloped grassland field, with several small clumps of trees within, and bordered by trees to the south and west of the property. The study of this Project is an investigation of uplands, wetlands, and SNCs on the four parcels to inform future proposed development.

## 2.2 Regulatory Background

### 2.2.1 Federal

The Code of Federal Regulations (CFR), 40 CFR § 120.2 states the following:

a) Waters of the United States means:

1) Waters which are:

i) Currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

ii) The territorial seas; or

iii) Interstate waters, including interstate wetlands;

2) Impoundments of waters otherwise defined as Waters of the United States under this definition, other than impoundments of waters identified under paragraph (a)(5) of this section.

3) Tributaries of waters identified in paragraph (a)(1) or (2) of this section:

i) That are relatively permanent, standing or continuously flowing bodies of water;

4) Wetlands adjacent to the following waters:

i) Waters identified in paragraph (a)(1) of this section; or

ii) Relatively permanent, standing or continuously flowing bodies of water identified in paragraph (a)(2) or (a)(3) of this section and with a continuous surface connection[1] to those waters

[1] The duration of the surface connection is undefined and considered on a case by case basis; however, the wetland does not have to hydrologically connected every day of the year to be considered waters of the United States, just continuous seasonal flow…wetlands within the floodplain of Waters of the United States will likely be considered jurisdictional (sourced from pers. comm. with W. Connor, USACE North Branch Chief).

5) Intrastate lakes and ponds, streams, or wetlands not identified in paragraphs (a)(1) through (4) of this section that are relatively permanent, standing or continuously flowing bodies of water with a continuous surface connection to the waters identified in paragraph (a)(1) or (a)(3) of this section.

b) The following are not “waters of the United States” even where they otherwise meet the terms of paragraphs (a)(2) through (5) of this section:

1) Waste treatment systems, including treatment ponds or lagoons, designed to meet the requirements of the Clean Water Act;

2) Prior converted cropland designated by the Secretary of Agriculture. The exclusion would cease upon a change of use, which means that the area is no longer available for the production of agricultural commodities. Notwithstanding the determination of an area's status as prior converted cropland by any other Federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA;

3) Ditches (including roadside ditches) excavated wholly in and draining only dry land and that do not carry a relatively permanent flow of water;

4) Artificially irrigated areas that would revert to dry land if the irrigation ceased;

5) Artificial lakes or ponds created by excavating or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing;

6) Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating or diking dry land to retain water for primarily aesthetic reasons;

7) Waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States; and

8) Swales and erosional features (e.g., gullies, small washes) characterized by low volume, infrequent, or short duration flow.

*(c) In this section, the following definitions apply:*

*(1) Wetlands means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.*

*(2) Adjacent means bordering, contiguous, or neighboring. Wetlands separated from other waters of the United States by man-made dikes or barriers, natural river berms, beach dunes, and the like are "adjacent wetlands."*

*(3) High tide line means the line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.*

*(4) Ordinary high water mark means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.*

*(5) Tidal waters means those waters that rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of*

*the water surface can no longer be practically measured in a predictable rhythm due to masking by hydrologic, wind, or other effects.*

### Wetlands Definition

40 CFR § 230.3 continues and defines, "(t) The term wetlands are defined as those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas" (40 CFR § 230.3).

### Wetland Delineation Manual

The 1987 USACE Wetland Delineation Manual provides guidelines and methods to determine whether an area is a wetland subject to federal regulation under Section 404 of the Clean Water Act. The manual specifies that wetland hydrology, soil, and vegetation indicators must be present to identify a wetland (USACE 1987, p. 10). In addition, the Wetlands Delineation Manual states, "If hydrophytic vegetation is being maintained only because of man-induced wetland hydrology that would no longer exist if the activity (e.g., irrigation) were to be terminated, the area should not be considered a wetland," (USACE, 1987).

### Federal Geographic Data Committee (FGDC) Wetland Classification Standard

The Classification of Wetlands and Deepwater Habitats of the United States (FGDC, 2013) provides a nationally standardized hierarchical system for classifying wetland and deepwater habitats based on Cowardin et al. (1979). The National Wetland Inventory (NWI), a publicly available resource that provides information on the distribution of wetlands in the U.S., classifies wetlands according to the FDGC standard. The FDGC classification is based on a definition of wetlands with at least one of the three wetland attributes: predominantly hydrophytic vegetation, predominantly hydric soil, and hydrology. However, they state that all available information should be used, and all three attributes should be considered if they are present (FGDC, 2013).

## 2.2.2 State

### Wetlands

The State Water Resources Control Board's (SWRCB) April 2019 Procedures for Discharges of Dredged or Fill Material to Waters of the State says the following:

*An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes, or the area lacks vegetation.*

*The Water Code defines "waters of the state" broadly to include "any surface water or groundwater, including saline waters, within the boundaries of the state." "Waters of the state" includes all "waters of the U.S." The following wetlands are waters of the state:*

1. *Natural wetlands,*
2. *Wetlands created by modification of a surface water of the state, and*
3. *Artificial wetlands that meet any of the following criteria:*

*a. Approved by an agency as compensatory mitigation for impacts to other waters of the state, except where the approving agency explicitly identifies the mitigation as being of limited duration;*

*b. Specifically identified in a water quality control plan as a wetland or other water of the state;*

*c. Resulted from historic human activity, is not subject to ongoing operation and maintenance, and has become a relatively permanent part of the natural landscape; or*

*d. Greater than or equal to one acre in size, unless the artificial wetland was constructed, and is currently used and maintained, primarily for one or more of the following purposes (i.e., the following artificial wetlands are not waters of the state unless they also satisfy the criteria set forth in 2, 3a, or 3b):*

*i. Industrial or municipal wastewater treatment or disposal,*

*ii. Settling of sediment,*

*iii. Detention, retention, infiltration, or treatment of stormwater runoff and other pollutants or runoff subject to regulation under a municipal, construction, or industrial stormwater permitting program,*

*iv. Treatment of surface waters,*

*v. Agricultural crop irrigation or stock watering,*

*vi. Fire suppression,*

*vii. Industrial processing or cooling,*

*viii. Active surface mining – even if the site is managed for interim wetlands functions and values,*

*ix. Log storage,*

*x. Treatment, storage, or distribution of recycled water, or*

*xi. Maximizing groundwater recharge (this does not include wetlands that have incidental groundwater recharge benefits); or*

*xii. Fields flooded for rice growing.*

*All artificial wetlands that are less than an acre in size and do not satisfy the criteria set forth in 2, 3.a, 3.b, or 3.c are not waters of the state. If an aquatic feature meets the wetland definition, the burden is on the applicant to demonstrate that the wetland is not a water of the state*" (SWRCB, 2019).

The February 2020 Draft Guidance State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State further clarifies as follows:

*Human activity can cause changes to the surrounding landscape (e.g., grading activities, road construction, direct hydromodification) such that wetlands form where wetlands did not previously exist. Where such artificial wetlands are now a relatively permanent part of the natural landscape, and are not subject to ongoing operation and maintenance, they are waters of the state. By requiring that the wetlands are relatively permanent, the framework excludes wetlands that are temporary or transitory. That they are part of the natural landscape also indicates the relative permanence of the wetlands and suggests that the wetland is self-sustaining without*

*ongoing operation and maintenance activities and provides similar ecosystem services as natural wetlands. By way of example, this category of wetlands includes situations where water flow is permanently redirected as the result of human activity, such as grading in another area, such that new wetlands form in areas that were previously dry. These wetlands may not be natural wetlands because they result from human activity and they were not formed by modifying a water of the state (rather they were an indirect result), but nevertheless they take on the function of natural wetlands such that they should be considered waters of the state. This category would not include artificial wetlands constructed for specific purposes listed in section II.3.d because the construction of the artificial wetlands would be too recent to be deemed "historic" and the artificial wetland would likely require ongoing maintenance such that they would not be deemed "relatively permanent," and/or the artificial wetland is not part of the "natural landscape"* (SWRCB, 2020).

The RWQCB carry out and regionally regulate the SWRCB's definition of Waters of the State.

### Sensitive Natural Communities

Natural vegetation communities listed as Sensitive in the California Natural Diversity Database (CNDDB) and on the California Sensitive Natural Communities List are to be addressed within the CEQA review process (CDFW 2023b). Sensitive Natural Communities (SNCs) are primarily classified at the Alliance level according to A Manual of California Vegetation (Sawyer et al. 2009). Legacy SNCs are listed in CNDDB according to the Holland classification system (1986), and Holland types may be used when a current Alliance-level classification does not exist (CDFW 2023b). CDFW considers alliances with a NatureServe State Rank of S1 to S3 to be Sensitive Natural Communities, and therefore these alliances are considered during the CEQA process (CDFW 2023b). Vegetation alliances are further classified into smaller associations which are finer-scale groupings characterized by different species compositions and environmental conditions. Some associations are considered sensitive even though the alliance in which they nest are not and therefore included for project-level environmental review (CDFW 2023b).

## 2.2.3 Local

### McKinleyville Community Plan

The McKinleyville Community Plan (2002, updated 2017) defines wetland areas using a 1-parameter definition as follows (p. 49):

> *Wetland Areas shall be defined according to the criteria utilized by the CA Dept. of Fish and Game (also included in the County's Open Space Implementation Standards). In summary, the definition requires that a given area satisfy at least one of the following three criteria:*
>
> 1. *The presence of at least periodic predominance of hydrophytic vegetation; or,*
> 2. *predominately hydric soils; or,*
> 3. *periodic inundation for seven (7) consecutive days.*

For this study, "hydrophytic vegetation" is deemed to be plants that have their roots in saturated soil (reduced conditions) during the growing season (i.e., water table at the surface). Hydrophytic plants are FACW or wetter (OBL) per the wetlands indicator status as defined by the *2020 National Wetland Plant List* (USACE 2020) and are the dominant plant species in any given plot.

# 3. Methodology

## 3.1 Aquatic Resources Delineation Approach

GHD scientists conducted the aquatic resource delineation on September 17th, 22nd, November 19th, December 2nd, 2021, January 25th, 2022, and April 16th, 2024. GHD scientists visited this site to assess the presence or absence of aquatic resources. Groundwater monitoring occurred in the winter of 2022-2023 to further investigate hydrology on-site and aided in determining wetland boundaries.

To define a wetland, the USACE requires that vegetation, soil, and hydrology (three-parameters) all show wetland attributes (USACE 1987; USACE 2010). The wetland delineation used USACE criteria from the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region (Version 2.0)* (USACE 2010). The current standard field forms provided by the USACE (2010) were used to collect vegetation, soils, and hydrology data (**Appendix B**).

In potential three-parameter wetland areas, vegetation, soil, and hydrology data were collected in a transect across the upland/wetland boundary with two plots (upland/wetland) per transect. The naming convention used on datasheets to designate upland or wetland plots associated with a transect is -U or -W, respectively.

Three-parameter wetland/upland boundaries and plots were mapped in the field with an Eos Arrow 100 Submeter Global Positioning System (GPS) Receiver with Global Navigation Satellite System (GNSS) and an iPad running ArcGIS Collector software. The wetland/upland boundary was recorded with the GPS unit as needed to map the wetland's spatial extent. The points were then connected in the office using ArcMap software for figure creation and the boundaries were clipped to the extent of the PSB.

Each one-parameter and three-parameter wetland area was designated with a number (e.g., W1). The wetland points were also labeled with their respective wetland number. In addition to the wetland sampling points, upland sampling points were described. These were labeled beginning with a "U" and numbered in sequence (e.g., U1, U2). The upland sampling points were completed to confirm and document the absence of any wetland indicators (soils, hydrology, and vegetation). **Appendix B** contains all datasheets recorded during the delineation.

## 3.2 Hydrophytic Vegetation Assessment

Vegetation data collection consisted of listing the dominant species in the herbaceous, shrub, and tree layer within a standard-sized plot determined by the strata layer. Nomenclature follows *The Jepson Manual* (Baldwin et al. 2012), which was cross-checked to federal standard nomenclature to identify the indicator status. The species' wetland indicator status for the Western Mountains, Valleys, and Coast Region was denoted in the respective column, using the standard reference: *2020 National Wetland Plant List* (USACE 2020). This list classifies species based on the probability that they are found in wetlands (USACE 1987) as follows:

- Obligate (OBL): almost always in wetlands (99% probability)
- Facultative Wetland (FACW): usually occurring in wetlands (67% to 99% probability)
- Facultative (FAC): commonly occurring in wetlands and uplands (34% to 66% probability of occurring in wetlands)
- Facultative Upland (FACU): usually occurring in uplands (1% to 33% probability of occurring in wetlands)

– Upland (UPL): upland obligate, rarely in wetlands (1% in wetlands)

Species that do not appear on the list are considered to be in the upland category (Lichvar et al. 2018). Standard procedures for documenting hydrophytic vegetation indicators were used per the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (USACE 2010). Site photographs have been included as **Appendix C**. A separate Botanical Memo contains the locations and extents of mapped vegetation alliances and Sensitive Natural Communities within the PSB (GHD 2021). Wetland vegetation is considered an assembly of plants that are FAC or wetter.

## 3.3 Soil Assessment

Hydric soils were defined based on the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (USACE 2010) procedures in combination with the Natural Resources Conservation Service's (NRCS) definitions presented in *Field Indicators of Hydric Soils in the United States* (USDA/NRCS 2018 version 8.2). Soil pits were dug to an approximate depth of 14 to 18 inches. Data on soil color, texture, and redoximorphic features were recorded. Any observed redoximorphic features (iron concentrations) were noted along with their percentage within the soil matrix, and care was taken to distinguish chromas of 1 and 2 are indicative of an iron-depleted soil within 12 inches of the soil surface (USACE 2010; USDA/NRCS 2018).

The *Munsell Soil Color Book* (COLOR, M. 2000) was used to describe the soil colors for the entire depth of the test pit. Moist, natural soil aggregate (ped) surfaces, which had not been crushed, were used to determine the soil's color. Soils with low chroma were verified as being hydric or upland with *Field Indicators of Hydric Soils in the United States* (Version 8.2, 2018).

### 3.3.1 Existing Soils Information

The NRCS identifies three main soil units within the PSB (**Appendix A, Figure 4; and Appendix E**). A brief map unit description, as generated by the NRCS, is provided for each soil unit below (NRCS 2022). Although NRCS soil mapping is informative, the scale is generally too broad to definitively characterize potential wetlands. Please see the full report included as **Appendix E** for complete details.

#### Worswick-Arlynda complex 0 to 2 percent slopes

The Worswick-Arlynda complex 0 to 2 percent slopes map unit composition contains: 55% Worswick and similar soils, 15% Arlynda and similar soils, and 10% minor components. Worswick-Arlynda soils can be found in river valleys, backslopes and mountain bases; the parent material is alluvium derived from mixed sources rock. Worswick-Arlynda complex soils consist of silty loam in the top and lower horizons, with loamy and gravelly sand in the middle horizons. Worswick-Arlynda soils would be considered prime farmland if irrigated and drained. These soils are very poorly drained, and the depth to water table is 0 to 4 inches. Worswick-Arlynda complex is considered a hydric soil. This soil type is in the southeastern corner of the PSB and comprises 9.7% of the PSB.

#### Arcata and Candymountain, 0 to 9 percent slopes

The Arcata and Candymountain 0 to 9 percent slopes map unit composition contains: 50% Arcata and similar soils, 35% Candymountain and similar soils, and 15% minor components. Arcata and Candymountain soils can be found on marine terraces, backslopes and tread; the parent material is marine deposits derived from mixed sources. Arcata and Candymountain soils 0 to 9 percent consist of very fine to fine sandy loam.

These soils are considered Prime farmland if irrigated. These soils are well drained, and the depth to water table is more than 80 inches. Arcata and Candymountain are not considered hydric soil. This soil type is in a very thin linear line that separates the Worsick-Arlynda complex 0 to 2% slopes from the Arcata and Candymountain soils 2 to 9% slopes, thus comprises a very small portion of the project area.

### Arcata and Candymountain, 2 to 9 percent slopes

The Arcata and Candymountain 2 to 9 percent slopes map unit composition contains: 50% Arcata and similar soils, 35% Candymountain and similar soils, and 15% minor components. Arcata and Candymountain soils can be found on marine terraces, backslopes and tread; the parent material is marine deposits derived from sedimentary sock. Arcata and Candymountain soils consist of loam, sandy loam, and fine sandy loam. Arcata and Candymountain soils are considered farmland of statewide importance. These soils are well drained, and the depth to water table is more than 80 inches. Arcata and Candymountain are not considered hydric soils. This soil type is in the main portion of the PSB and comprises 90.3% of the PSB.

## 3.4 Precipitation and Hydrology Assessment

GHD performed the investigation within the PSB during September 17th, 22nd, November 19th, December 2nd, 2021, January 25th, 2022, and April 16th, 2024, starting at the end of the dry season and continuing through the winter wet season. APNs 509-181-003, 509-181-012, and 509-181-005 were investigated in early spring 2024 after a particularly wet and above normal period of rainfall. Additionally, groundwater was monitored in the 2022-2023 water year. A WETS table showing climate data for the Arcata Eureka Airport, CA, Station is provided in **Appendix F** (NOAA 2024). The Mill Creek Wetlands overlay as defined can is shown in Figure 4 (**Appendix A, Figure 5**). The FEMA flood hazard map is included in **Appendix A, Figure 6** (FEMA 2022). Aerial photography and the National Wetland Inventory Mapper were referenced before conducting fieldwork (**Appendix A, Figure 7**) (NWI 2024). Wetland hydrology indicators, such as drainage patterns, material deposits, soil saturation, high water table, or surface water presence, were recorded in the field.

Field investigations included visual observations, test pits, and soil characterization at seven hydrology pits, and monitoring of ten groundwater monitoring wells (piezometers) after 50 percent average annual rainfall was recorded for the nearest appropriate climate station (**Appendix A, Figure 8**). Each monitoring well (“MW”) was designated with a number (e.g., MW-1), and each hydrology pit (“HP”) was also designated with a number (e.g., HP-1). Precipitation data and rainfall measurements to aid in groundwater monitoring were taken from the NOAA rain gage at the Eureka Weather Forecast Office (WFO) on Woodley Island. The Eureka NOAA rain gauge is the station nearest to the project site with sufficient historical data (at least 20 years) required to analyze the average annual rainfall. **Appendix F** presents the NRCS WETS table data applicable to the Project site for the 2023 and 2024 water year.

### 3.4.1 Groundwater Monitoring Well Installation

Ten monitoring wells (piezometers) were installed onsite on January 11, 2022 (MW-1 through MW-10) (**Appendix A, Figure 8**). The wells were installed in potential wetlands and mapped uplands. Wells installed in potential wetlands were installed to determine if wetlands hydrology exists or does not exist (groundwater with 12 inches of the surface for 14 consecutive days) and were used to inform this wetlands delineation (MW-2 and MW-3, located on the western portion of the property). Other wells were installed in uplands to inform wetlands creation (to be incorporated into the Wetlands Mitigation and Monitoring Plan) and stormwater infiltration (to inform the stormwater engineering design).

Wells were installed by hand auguring to a depth of four to five feet. One-inch PVC piping was used, with the bottom approximate one half of the wells being slots (and was wrapped with geofabric and had a slot size of 0.010 inches), and the top approximate one half being solid. The well was placed in the augured hole and back filled with clean, dry sand to approximately one foot from the ground surface. The remainder of the hole was filled with Bentonite hole plug, which was mounded around each well. Each well was then labelled, and prior to monitoring in 2023, the top of casing was measured (distance from the ground surface to the top of PCV pipe).

Once half of the annual average rainfall occurred monitoring of the wells commenced. Monitoring started on January 7, 2023, and was completed on February 21, 2023. Depth to groundwater was measured with an electronic groundwater measurement device that “beeped” when water was encountered. Depth to groundwater was measured in a tenth of a foot.

The U.S. Army Corps of Engineers (2005) provides a technical standard for monitoring hydrology. This standard requires 14 or more consecutive days of flooding or ponding, or a water table within 12 inches of the soil surface, during the growing season at a minimum frequency of five years in ten (50 percent or higher probability) (National Research Council 1995). Groundwater was monitored once 50 percent of the average annual rainfall had been met and was monitored for five consecutive weeks (Day 0, 7, 14, 21, 28, and 35), after the 50 percent of average annual rainfall (**Appendix F**), starting on January 7, 2023, and completed on February 21, 2023.

Depth to groundwater was measured with an electronic groundwater measurement device that “beeped” when water was encountered (Heron Instruments Little Dipper water level data logger). Weekly measurements included the water depth for each well and depth to groundwater was measured in tenths of a foot. Groundwater elevations generally correlate to rainfall data, with groundwater elevations rising following precipitation events, and falling after and between events.

### 3.4.2 Hydrology Soil Pits

In addition to MW-2 and MW-3 installed in the western portion of the property, “hydro-soil” pits (HPs) where excavated to determine groundwater condition surrounding MW-2 and MW-3 (**Appendix A, Figure 8).** Seven HPs were dug (HP-1 through HP-7) by hand, commencing on January 24, 2023, and terminating on February 21, 2023. During each visit each HP was hand dug with a sharpshooter to approximately 14-18 inches and remained open for 20-30 minutes prior to any measurement. For each visit, a new hole was excavated. Once the HP was left open for the time previously mentioned, depth to groundwater was measured from the surface. Measurement was in inches.

#### Soil Profile at Hydrology Soil Pits

At each HP location, soils data was collected on February 25, 2023, which was a sunny day. Soil pits were excavated to approximately 14 inches and data was collected regarding horizon depth, soil color, and redoximorphic features. Special attention was given to soil chroma color.

## 3.5 Vegetation Community Mapping

The vegetation community onsite was initially assessed in the field and classified at the alliance level according to the Manual of California Vegetation (Sawyer et al. 2009) using the Rapid Assessment method. Kelsey McDonald assessed potential SNCs according to protocol (CDFW 2018) and mapped Mill Creek’s riparian drip-line on September 14, 2021, in accordance with the Humboldt County General Plan as directed by the county (2021, Trevor Estlow, pers. comm.).

Botanist Jane Cipra assessed potential SNCs on the additional eastern parcels using the same methodology on April 16th, 2024. Vegetation Rapid Assessment forms (**Appendix D**) were used to characterize the dominant vegetation and evaluate habitat quality, and this assessment provided the basis for designating vegetation as SNCs per CDFW should it qualify.

In general, CDFW considers alliances with a NatureServe State Rank of S1 to S3 to be SNCs; however, associations, may be considered sensitive by CDFW even if State ranks have not yet been determined. Some alliances that are not considered sensitive may have sensitive associations within them. Associations considered sensitive by CDFW are indicated with a "Y" in the Sensitive column of the state Natural Communities List (CDFW 2024).

Photo documentation of the habitat observed onsite can be found in **Appendix C**. The Rapid Assessment location was mapped using a point collected in the field with an Eos Arrow 100 Submeter Global Navigation Satellite System (GNSS) Receiver and an iPad running ArcGIS Collector software in the WGS84 datum. The location of the Vegetation Rapid Assessments is shown in **Appendix A Figure 3**. A Natural Resources Conservation Service (NRCS) soils map was consulted prior to conducting surveys (**Appendix A Figure 4**), as is required by CDFW's protocols for surveying and evaluating impacts to special status native plant populations and sensitive natural communities (CDFW 2018). The full NRCS Custom Soil Resource report for the PSB is available in **Appendix E**. Mapping of sensitive plant species will occur in the spring/summer of 2022 and the results will be transmitted in a separate report.

# 4. Results

The PSB contains three three-parameter wetlands that are likely USACE and RWQCB jurisdictional, one isolated three-parameter wetland that is likely not USACE or RWQCB jurisdictional, one one-parameter wetland regulated under the McKinleyville Community Plan, and two Sensitive Natural Communities (SNCs) as well as a riparian drip-line as defined by the Humboldt County General Plan. Upland sampling pits (plot locations) are also described to confirm and document the absence of wetland hydrology, hydric soils and hydrophytic plants in these uplands sampling areas. **Appendix A, Figure 3** shows the results of the three-parameter wetland delineation, and SNC determination based upon dominant vegetation. The riparian drip-line was mapped per guidance from the Humboldt County General Plan and county staff.

## 4.1 Wetlands

### 4.1.1 Wetland 1 (W1). Three-Parameter Wetland

Wetland 1 is a three-parameter wetland totaling 8.68 acres within the PSB and was assessed on September 17th, 22nd, November 19th, December 2nd, 2021, January 25th, 2022. Please see the USACE Data Forms in **Appendix B** for more details and see **Appendix A, Figure 3** for the associated map. Soil pits and vegetation plots were conducted for W1 throughout the PSB totaling twelve transect points (**Table 4.1**). An additional 143 soil pits (**Table 4.3**) were dug, of which 101 ended up being hydric and 42 were non hydric soils. The determination of hydric and non-hydric soil on these 143 soil pits was solely based on soil features and morphology.

Groundwater monitoring also occurred after 50 percent average annual rainfall was observed for the 2022-2023 water year to further investigate hydrologic patterns on-site. Monitoring occurred every seven days for 35 consecutive days beginning 1/17/2023 and extending to 2/21/2023. Results from this monitoring are summarized in **Section 4.3**.

Wetland 1 is open and mostly free of rooted woody vegetation and is classified according to the Cowardin system as a Palustrine Emergent wetland (PEM) (FGDC 2013). The vegetation was primarily characterized by redtop (*Agrostis stolonifera*, FAC), reed fescue (*Festuca arundinacea,* FAC), common velvetgrass (*Holcus lanatus*, FAC), Italian rye grass (*Festuca perennis*, FAC), slough sedge (*Carex obnupta*, OBL), and mountain bod sedge (*Scirpus microcarpus*, OBL). Wetland 1 mostly passed the dominance test for hydrophytic vegetation (wetlands plots).

Soil in Wetland 1 consists mostly of loams with a 10YR 3/2 upper horizon (0 to 4 or 6 inches) with 0% to 20% of 7.5YR 4/6 redoximorphic features and a 10YR 3/2 lower horizon (4 or 6 to14 inches) with distinct 10% to 30% of 7.5YR 4/6 redoximorphic features. The hydric soil indicator is Redox Dark Surface (F6). Wetland 1 was drier in some locations and wetter in others with standing water in the swales, appearing to drain south to Mill Creek. Primary indicators of wetland hydrology were a High Water Table (A2), Saturation (A3), and secondary indicators of wetland hydrology included geomorphic position (D2) and passing the vegetation FAC-neutral test (D5). Wetland 1 is hydrologically connected to a Mill Creek which is connected to the Mad River, a navigable waterway and is therefore assumed to be under USACE and RWQCB jurisdiction. Please see attached data forms for sample points W1T1-W and W1T1-U in **Appendix B** and **Table 4.1** for additional details.

### 4.1.2 Wetland 2 (W2). Three-Parameter Wetland

Wetland 2 is a three-parameter wetland totaling 0.10 acres within the PSB and was assessed on April 16th, 2024, after a particularly wet and above normal water year. Please see the USACE Data Forms in **Appendix B** for more details and see **Appendix A, Figure 3** for the associated map. One transect across the wetland boundary consisting of two soil pits and vegetation plots were conducted for W2 (**Table 4.1**).

Wetland 2 is dominated by woody vegetation classified according to the Cowardin system as a Palustrine Scrub-Shrub wetland (PSS) (FGDC 2013). The vegetation was primarily characterized by arroyo willow (*Salix lasiolepis*, FACW), slough sedge (OBL), and creping buttercup (*Ranunculus repens*, FAC). Wetland 2 passed the dominance test for hydrophytic vegetation.

Soil in Wetland 2 consists of loams with a 10YR 3/2 upper horizon (0 to 5 inches) with no redoximorphic features, a 10YR 3/2 middle horizon (5 to 10 inches) with prominent 8% 2.5YR 4/6 redoximorphic features, and a 10YR 5/1 lower horizon (10 to 15 inches) with prominent 25% 5YR 5/8 redoximorphic features in the matrix. Wetland 2 satisfied criteria for hydric soil indicators Redox Dark Surface (F6) and Depleted Matrix (F3).

A water table was observed at Wetland 2 at a depth of 10 inches and saturation was observed at a depth of 8 inches. Positive reactions of alpha-alpha-dipyridyl were observed at a depth of ten inches indicating the presence of reduced iron at that location within the soil profile. Wetland 2 satisfied primary indicators of wetland hydrology High Water Table (A2), Saturation (A3), and Presence of Reduced Iron (C4).

Wetland 2 may become temporarily hydrologically connected to Wetland 1 during or immediately after rain events and is therefore assumed to be under both USACE and RWQCB jurisdiction. Please see attached data forms for sample points W2T1-W and W2T1-U in **Appendix B** and **Table 4.1** for additional details.

### 4.1.3 Wetland 3 (W3). Three-Parameter Wetland

Wetland 3 is a three-parameter wetland totaling 0.03 acres within the PSB and was assessed on April 16th, 2024, after a particularly wet and above normal water year. Please see the USACE Data Forms in **Appendix B** for more details and see **Appendix A, Figure 3** for the associated map. One transect across the wetland boundary consisting of two soil pits and vegetation plots were conducted for W3 (**Table 4.1**).

Wetland 3 is dominated by woody vegetation classified according to the Cowardin system as a Palustrine Scrub-Shrub wetland (PSS) (FGDC 2013). The vegetation was primarily characterized by arroyo willow (FACW). Wetland 2 passed the dominance test for hydrophytic vegetation.

Soil in Wetland 3 consists of loams with a 10YR 3/2 upper horizon (0 to 4 inches) with no redoximorphic features, a 10YR 3/1 middle horizon (4 to 8 inches) with prominent 4% 2.5YR 4/6 redoximorphic features, and a 10YR 4/1and 2.5Y 7/6 mixed lower horizon (8 to 15 inches) with prominent 25% 7.5YR 5/8 redoximorphic features in the matrix. Wetland 2 satisfied criteria for hydric soil indicator Redox Dark Surface (F6).

A water table was observed at Wetland 3 at a depth of 13.5 inches and saturation was observed at a depth of 8 inches. Positive reactions of alpha-alpha-dipyridyl were observed at a depth of 8 inches indicating the presence of reduced iron at that location within the soil profile. Wetland 3 satisfied primary indicators of wetland hydrology Saturation (A3), and Presence of Reduced Iron (C4).

Wetland 3 may become temporarily hydrologically connected to Wetland 2 and Wetland 1 during or immediately after rain events and is therefore assumed to be under both USACE and RWQCB jurisdiction. Please see attached data forms for sample points W3T1-W and W3T1-U in **Appendix B** and **Table 4.1** for additional details.

### 4.1.4 Wetland 4 (W4). Three-Parameter Wetland

Wetland 4 is three-parameter wetland totaling 0.05 acres within the PSB and was assessed on April 16th, 2024, after a particularly wet and above normal water year. Please see the USACE Data Forms in **Appendix B** for more details and see **Appendix A, Figure 3** for the associated map. One transect across the wetland boundary consisting of two soil pits and vegetation plots were conducted for W4 (**Table 4.1**).

Wetland 4 is dominated by herbaceous emergent vegetation classified according to the Cowardin system as a Palustrine Emergent wetland (PEM) (FGDC 2013). The vegetation was primarily characterized by redtop (FAC). Wetland 4 passed the dominance test for hydrophytic vegetation.

Soil in Wetland 4 consists of loams with a 10YR 3/2 upper horizon (0 to 4 inches) with no redoximorphic features, and a 10YR 3/1 lower horizon (4 to 11 inches) with prominent 15% 2.5YR 4/8 redoximorphic features in the matrix. Wetland 4 satisfied criteria for hydric soil indicator Redox Dark Surface (F6).

A water table was observed at Wetland 4 at a depth of 4 inches and saturation was observed at the soil surface. Positive reactions of alpha-alpha-dipyridyl were observed at a depth of 2 inches indicating the presence of reduced iron at that location within the soil profile. Wetland 4 satisfied primary indicators of wetland hydrology High Water Table (A2), Saturation (A3), and Presence of Reduced Iron (C4).

Wetland 4 is an isolated wetland in a residentially developed, regularly mowed, and maintained yard and is likely an exposed seep associated with earthwork and the existing residential development. Wetland 4 is an artificially induced wetland less than an acre in size, does not have a surface hydrological connection to any other water of the state or water of the U.S., and does not otherwise satisfy the criteria for waters of the state set forth in sections 2, 3.a, 3.b, or 3.c of the SWRCB Procedures for Discharges of Dredged or Fill Material into Waters of The State (SWRCB 2019). Wetland 4 is therefore assumed not to be under USACE or RWQCB jurisdiction. Please see attached data forms for sample points W4T1-W and W4T1-U in **Appendix B** and **Table 4.1** for additional details.

### 4.1.5 Wetland 5 (W5). One-Parameter Wetland

Wetland 5 is a one-parameter wetland totaling 0.03 acres within the PSB and was assessed on April 16th, 2024, after a particularly wet and above normal water year. Please see the USACE Data Forms in **Appendix B** for more details and see **Appendix A, Figure 3** for the associated map. One soil pit and vegetation plot was sampled for W5.

Wetland 5 is dominated by herbaceous facultative vegetation consisting of Kentucky blue grass (*Poa pratensis*, FAC). Wetland 5 passed the dominance test for hydrophytic vegetation.

Soil in Wetland 5 consists of loams with a 10YR 3/2 upper horizon (0 to 8 inches) with no redoximorphic features, a 10YR 3/1 middle horizon (8 to 13 inches) with prominent 8% 7.5YR 4/6 redoximorphic features, and a 10YR 4/1and 2.5Y 6/6 mixed lower horizon (8 to 16 inches) with prominent 15% 5YR 5/8 redoximorphic features in the matrix. Wetland 5 satisfied criteria for hydric soil indicator Redox Dark Surface (F6) but may have retained remnant hydric features from before surrounding development and altered hydrology.

A water table was observed at Wetland 5 at a depth of 16 inches and saturation was observed at a depth of 13 inches. Negative reactions of alpha-alpha-dipyridyl were observed at a depth of 12 inches indicating the lack of reduced iron at that location within the soil profile. Wetland 5 did not satisfy any indicators of wetland hydrology. The observed water table at 16 inches in a particularly wet year indicates this point usually does not satisfy wetland hydrology. Hydrology on site may have been affected by surrounding development diverting sheet flow away from site and into adjacent stormwater conveyance systems.

Wetland 5 is a one-parameter wetland regulated under the McKinleyville Community Plan. It does not satisfy all three parameters for wetland determination and is not a wetland as defined by the USACE or RWQCB. Please see attached data forms for sample points W3T1-U in **Appendix B** for additional details.

### 4.1.6 Wetland Transect Sampling Locations

**Table 4.1** below details the wetland transect location at each transect's wetland boundary.

***Table 4.1 Wetland transect location at each transect's wetland boundary.***

| Sample Point | Location (lat/long)<br>Center of Transect (wetland/upland boundary) |
|---|---|
| W1T1 / U1T1 | (40.932710409, -124.098692428) |
| W1T2 / U1T2 | (40.932734608, -124.098625034) |
| W1T3 / U1T3 | (40.932764517, -124.097496859) |
| W1T4 / U1T4 | (40.933062453, -124.099412379) |
| W1T5 / U1T5 | (40.933518773, -124.099463200) |
| W1T6 / U1T6 | (40.934214987, -124.098043217) |
| W1T7 / U1T7 | (40.933722303, -124.097575092) |
| W1T8 / U1T8 | (40.932748433, -124.097355161) |
| W1T9 / U1T9 | (40.933377525, -124.098205482) |
| W2T1 / U2T1 | (40.93317347, -124.09975578) |

| | |
|---|---|
| W3T1 / U3T1 | (40.93334743, -12410000935) |
| W4T1 / U4T1 | (40.93291795, -124.10024619) |

## 4.2 Uplands

Upland sampling points were also collected to characterize areas that are likely to be affected by the Project. The upland sample points were located throughout the PSB, wherever the ground appeared to be slightly drier and higher than the surrounding areas. Upland areas were primarily dominated by annual bluegrass (*Poa annua*, FAC) redtop (FAC), sweet vernal grass (*Anthoxanthum odoratum*, FACU), ribwort (*Plantago lanceolata*, FACU), and hawkbit (*Leontodon saxatillis*, FACU). Soils generally did not show hydric soil characteristics and contained mostly loam textures with upper horizons of 10YR 3/3 to 10YR 3/2 with no redoximorphic features, and a lower horizon of 10YR ¾ to 10YR 4/3 with no redoximorphic features. Upland points generally did not show primary or secondary indicators of wetland hydrology and vegetation plots did not pass the FAC Neutral Test (D5).

Facultative plants can equally occur in both upland and wetland environments. While many upland plots were dominated by facultative vegetation, these plots did not contain hydric soils or wetland hydrology indicating that the facultative plants observed were occurring in upland conditions and were thus not acting as hydrophytes. Uplands were determined using a three-parameter approach, FAC Neutral Test, and Prevalence Index (weighted metric of total coverage of all dominant and nondominant species present) when hydric soils and wetland hydrology were not present (**Table 4.2**). Additionally, a total of 42 upland pits were dug to determine upland boundaries (**Table 4.3**).

***Table 4.2 Upland Transect Plot Wetland Vegetation Determination***

| Upland Vegetation Plot ID | % Dominant Facultative or Wetter Vegetation | Pass Fac Neutral Test? | Prevalence Index | Hydric Soils? | Wetland Hydrology? | Wetland Vegetation Present? |
|---|---|---|---|---|---|---|
| U1T1 | 50% | No | - | No | No | No |
| U1T2 | 50% | No | - | No | No | No |
| U1T3 | 50% | No | - | No | No | No |
| U1T4 | 50% | No | - | No | No | No |
| U1T5 | 100% | No | 3.67 | No | No | No |
| U1T6 | 100% | No | 3.02 | No | No | No |
| U1T7 | 50% | No | - | No | No | No |
| U1T8 | 100% | No | 3.11 | No | No | No |
| U1T9 | 50% | No | - | No | No | No |
| U2T1 | 75% | No | 3.00 | No | No | No |
| U3T1 | 100% | No | 3.00 | Yes | No | Yes (1Par-W5) |
| U4T1 | 100% | No | 3.10 | No | No | No |

*Table 4.3 Total Number of Hydric and Non-Hydric and Soil Pits*

| Wetland | Upland |
|---|---|
| 101 | 42 |

## 4.3 Hydrology Monitoring

### 4.3.1 Groundwater Monitoring

Groundwater monitoring occurred every seven days from January 17 to February 21, 2023, by GHD soil scientist Misha Schwarz and technician Alex Crowe. Results are summarized in **Table 4.4 and 4.5.** Only MW-2 and MW-3 are analyzed in this report because they were installed specifically to investigate the wetland boundary in the western portion of the PSB (results bolded and shaded blue in Table 4). Over the course of monitoring, several notable precipitation events occurred where measured rainfall was over 100 percent of average for that time of the month (January 17, 24, and 31, and February 2; **Appendix F**). Results demonstrated that groundwater levels (i.e., the water table) were not within 12 inches of the soil surface for 14 consecutive days, and thus wetland hydrology is not present at the site of MW-2 and MW-3. Hydrology monitoring from soil pits dug around these piezometers further informed the location of the wetland boundary in the western portion of the PSB, described in **Section 4.3.2**.

*Table 4.4 Results from Monitoring Wells*

| DATE: | | 1/17/2023 | 1/24/2023 | 1/31/2023 | 2/7/2023 | 2/14/2023 | 2/21/2023 |
|---|---|---|---|---|---|---|---|
| Rainfall YTD: | | 20.97 | 21.80 | 21.93 | 23.34 | 23.69 | 23.89 |
| Normal YTD: | | 18.93 | 20.39 | 21.77 | 23.15 | 24.52 | 25.96 |
| Current % Norm: | | 110.8% | 106.9% | 100.7% | 100.8% | 96.6% | 92.0% |
| Name(s) of Data Recorders: | | M.Schwarz | M.Schwarz | M.Schwarz | M.Schwarz | A. Crowe | M.Schwarz |
| Monitoring Well Number | TOC (feet ags) | Water Depth (feet bgs) (DTW - TOC) | Water Depth (feet bgs) (DTW - TOC) | Water Depth (feet bgs) (DTW - TOC) | Water Depth (feet bgs) (DTW - TOC) | Water Depth (feet bgs) (DTW - TOC) | Water Depth (feet bgs) (DTW - TOC) |
| MW-1 | 0.90 | 1.00 | 1.55 | 2.08 | 1.60 | 1.27 | 2.08 |
| **MW-2** | 0.85 | **1.36** | **1.90** | **2.40** | **1.60** | **0.76** | **2.30** |
| **MW-3** | 1.04 | **0.61** | **1.06** | **1.71** | **0.71** | **0.50** | **1.58** |
| MW-4 | 0.69 | 0.91 | 1.36 | 1.94 | 1.36 | 1.06 | 1.96 |
| MW-5 | 0.90 | 1.00 | 1.50 | 2.55 | 1.55 | 1.86 | 2.74 |
| MW-6 | 1.04 | 0.76 | 0.97 | 1.22 | 0.76 | 0.50 | 1.11 |
| MW-7 | 1.02 | 0.68 | 0.78 | 1.01 | 0.73 | 0.17 | 0.73 |
| MW-8 | 0.98 | 0.82 | 2.12 | 2.64 | 1.92 | 3.03 | 3.64 |
| MW-9 | 1.08 | 1.32 | 2.22 | 3.52 | 1.54 | 1.12 | 3.07 |
| MW-10 | 1.06 | 0.84 | 1.44 | 2.17 | 0.99 | 0.56 | 1.87 |

| DATE: | 1/17/2023 | 1/24/2023 | 1/31/2023 | 2/7/2023 | 2/14/2023 | 2/21/2023 |
|---|---|---|---|---|---|---|
| **NOTES:**<br>TOC = Top of Casing (measured in inches and converted to decimal-feet)<br>DTW = Depth to Water (measured at TOC)<br>Bgs = below ground surface<br>Ags = above ground surface | | | | | | |

### 4.3.2 Hydrology Soil Pits

Seven hydrology soil pits were excavated around MW-2 and MW-3 to investigate the groundwater level in finer detail between and around the monitoring wells, concurrent with the dates that piezometers were monitored. Groundwater monitoring occurred every seven days from January 24 to February 21, 2023, by GHD soil scientist Misha Schwarz and Alex Crowe. Results are summarized in **Table 4.5.** Groundwater levels were not within 12 inches of the soil surface for 14 consecutive days for any of the hydrology pits. The wetland boundary was mapped in contour with HP-1, HP-3, HP-5, HP-7, and MW-3, as they appear to be at a transitional line where the water table becomes shallower. Three-parameter wetlands are delineated to the east of this line (**Appendix A, Figure 3**).

***Table 4.5 Water Table Results from Hydrology Soil Pits***

| Hydro Pit | 1/24/2023 | 1/31/2023 | 2/7/2023 | 2/14/2023 | 2/21/2023 |
|---|---|---|---|---|---|
| | DTW (inches bgs) | DTW (inches bgs) | DTW (inches bgs) | DTW (inches bgs) | DTW (inches bgs) |
| HP-1 | 14.50 | 16 (DRY) | 14.50 | 5.25 | 18 (DRY) |
| HP-2 | 14 (DRY) | 17 (DRY) | 14.25 | 13.50 | 19 (DRY) |
| HP-3 | 15 (DRY) | 17 (DRY) | 16.00 | 11.75 | 21 (DRY) |
| HP-4 | 15 (DRY) | 15 (DRY) | 13.50 | 9.00 | 18 (DRY) |
| HP-5 | 15.25 | 15 (DRY) | 10.00 | 7.50 | 18 (DRY) |
| HP-6 | 14 (DRY) | 16 (DRY) | 16.75 | 12.75 | 17 (DRY) |
| HP-7 | 14.25 | 15 (DRY) | 10.00 | 4.50 | 18.00 |
| NOTES: DTW (inches below ground surface) – Unless noted as "DRY" | | | | | |

## 4.4 Soil Monitoring

### 4.4.1 Soil Profile at Monitoring Wells 2 and 3

The soil profile was characterized for monitoring wells installation, summarized in **Table 4.6.** Soils throughout the profile were generally loam. Results demonstrated that the soils for MW-2 and MW-3 do not meet hydric soil indicators. While redoximorphic features were present in the soil profile, they were at a depth that does not qualify as a hydric soil indicator (in combination with matrix value and chroma). Soil matrix chromas were often too high (greater than 2) to qualify for hydric soils indicators associated with redox concentrations.

*Table 4.6 Soil Profiles from Monitoring Wells*

| Hydro Pit | Soil Depth | Matrix | Redoximorphic Features[1] |
|---|---|---|---|
| MW-2 | 0-9” | 10YR 2/2 | None |
| | 9-20” | 10YR 3/3 | None |
| | 20-39” | 2.5Y 4/3 | 15% FeC |
| | 39-48” | 2.5Y 5/3 | 10% FeC |
| MW-3 | 0-13” | 10YR 3/2 | None |
| | 13-26” | 10YR 4/3 | 15% FeC |
| | 26-36” | 10YR 4/4 | 5% FeC |
| | 36-48” | 10YR 5/4 | 5% FeC |

1. FeC = iron concentrations (e.g., redoximorphic features).

### 4.4.2 Soil Profile at Hydrology Pits

The soil profile was characterized for hydrology pits on January 25, 2023, summarized in **Table 4.7**. Soils throughout the profile were generally loam. Results demonstrate that the soils for each hydrology pit do not meet hydric soil indicators. While redoximorphic features were present in some of the soil profiles, they were at a depth that does not qualify as a hydric soil indicator (in combination with matrix value and chroma). Soil matrix chromas were often too high (greater than 2) to qualify for hydric soils indicators associated with redox concentrations. At four of the soil pits, no redoximorphic features were observed.

*Table 4. 7 Soil Profiles from Hydrology Soil Pits*

| Hydro Pit | Soil Depth | Matrix | Redoximorphic Features[1] |
|---|---|---|---|
| HP-1 | 0-14” | 10YR 3/2+ | None |
| HP-2 | 0-9” | 10YR 3/2+ | None |
| | 9-14” | 10YR 3/2+ | 15% FeC |
| HP-3 | 0-14” | 10YR 3/3 | None |
| HP-4 | 0-10” | 10YR 3/3 | None |
| HP-4 | 10-14” | 10YR 3/2+ | 5% FeC |
| HP-5 | 0-10” | 10YR 3/3 | None |
| | 10-14” | 10YR 3/2+ | 5% FeC |
| HP-6 | 0-10” | 10YR 3/3 | None |
| | 10-14” | 10YR 3/2+ | 5% FeC |
| HP-7 | 0-14” | 10YR 3/2+ | None |

1. FeC = iron concentrations (e.g., redoximorphic features).

## 4.5 Sensitive Natural Communities

The original PSB contains two SNCs, totaling 1.6 acres outside of delineated wetlands. Please see attached Rapid Assessment datasheets in **Appendix D** for additional details and see **Appendix A, Figure 3** for the associated map. No additional upland SNCs were observed in the new parcels added to the PSB. **Table 4.8** contains additional details.

***Table 4. 8 Sensitive Natural Communities***

| Sensitive Natural Community | Lat/Long | Area |
|---|---|---|
| Sitka Spruce Alliance (S2) | (40.9341790, -124.0968654) | 0.75 acres |
| Coastal Willow Alliance (S3) | (40.9339933, -124.0968717) | 0.85 acres |
| Total Area | | 1.60 |

### 4.5.1 Sitka Spruce Alliance

The Sitka Spruce Alliance corresponds to the Rapid Assessment datasheet WEIR001 in **Appendix D**. The Sitka Spruce Alliance was observed in the north, northwest, and southwest edges of the PSB and covers 0.75 acres of the PSB. This SNC contained a tree canopy cover of 40% Stika spruce (*Picea sitchensis*), 35% red alder (*Alnus rubra*), and 20% incense cedar (*Thuja plicata*), and is associated with California blackberry (*Rubus ursinus*). The Sitka Spruce Alliance has a State ranking of S2, therefore qualifying it as an SNC.

### 4.5.2 Coastal Willow Alliance

The Coastal Willow Alliance corresponds to the Rapid Assessment datasheet WEIR002 in **Appendix D**. The Coastal Willow Alliance was observed in the north, northwest, and southwest edges of the PSB and covers 0.85 acres of the PSB. This SNC contained a tree canopy cover of 2% red alder (*Alnus rubra*), a shrub layer of 85% coastal willow (*Salix hookeriana*), and 20% California blackberry. The Coastal Willow Alliance has a State ranking of S3, therefore qualifying it as an SNC.

## 4.6 Riparian Corridor

The riparian corridor of Mill Creek was mapped to the drip-line, and no wetlands were assessed underneath the canopy. The riparian drip-line can be found in **Appendix A, Figure 3**. Most of the SNCs present are within the Mill Creek riparian corridor.

# 5. Conclusions

The aquatic resources delineation for the We Are Up Housing Project, completed on September 17th, 22nd, November 19th, December 2nd, 2021, January 25th, 2022, and April 16th, 2024 determined the extent of one-parameter wetlands and three-parameter wetlands within the PSB based on hydrophytic vegetation, hydric soils, and wetland hydrology using methods and indicators outlined in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region (Version 2.0)* (USACE 2010). Groundwater monitoring was conducted in January and February of 2023 to better understand hydrologic patterns on-site. The total area of three-parameter wetlands mapped within the PSB

is 8.86 acres. Due to the hydrological connection with Mill Creek, W1, W2, and W3 are likely considered USACE and RWQCB jurisdictional. Wetland 4 is an artificially induced three-parameter wetland isolated from other waters and is assumed not to be under USACE or RWQCB jurisdiction. Wetland 5 is a one-parameter wetland regulated only under the McKinleyville Community Plan. Wetlands were not mapped within the riparian drip-line or underneath the majority of SNC canopy.

The area of SNCs outside of wetlands totals 1.6 acres. Wetland data forms are attached showing sample plot data collected in transects across wetland boundaries and additional upland sampling points (**Appendix B**) and Rapid Assessment data forms determining the SNCs are attached (**Appendix D**).

# 6. Special Terms and Conditions

## 6.1 Purpose of this Report

GHD prepared this report for the Client, and the Client may only use and rely on this report for the purpose agreed upon between GHD and the Client, as set out in the scope and contract for work effort reported herein. GHD Inc. is not liable for any action arising out of the reliance of any third party on the information contained within this report. GHD otherwise disclaims responsibility to any entity other than the Client arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

## 6.2 Scope and Limitations

This report does not authorize any individuals to develop, fill, or alter the delineated wetlands. Verification of the delineation by jurisdictional agencies is necessary prior to the use of this report for planning and development purposes. A USACE jurisdictional approval letter is required to signify confirmation of delineation results. In situations where a field investigation determines that no jurisdictional wetlands occur, jurisdictional concurrence with these findings is recommended.

The delineation conclusions were based on the information available during the period of the investigation, which took place in late 2021 to early 2022, with groundwater monitoring extending into early 2023 and 2024. The opinions, conclusions, and any recommendations in this report are based on conditions encountered and information reviewed by the date of preparation of the report. Site conditions may change after the date of this report. GHD does not accept responsibility arising from, or in connection with, any change to the site conditions. GHD is also not responsible for updating this report if the site conditions change unless contracted to do so.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions, and any recommendations in this report are based on the information obtained from and testing undertaken at or in connection with specific sample points. Conditions at other locations of the site may be different from the conditions found at the specific sample points.

# 7. References


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Natural Resources Conservation Service (NRCS) in cooperation with the National Technical Committee for Hydric Soils.

# 8. Report Preparers

## 8.1 Client

We Are Up, 4535 Fieldbrook Road, McKinleyville, CA 95519 USA

## 8.2 GHD

This report and associated fieldwork was prepared and/or conducted by the following GHD staff:

Misha Schwarz, Senior Wetland Scientist

Kolby Lundgren, Botanist/Wetland Scientist

Miles Hartnett, Wildlife Biologist/Wetland Scientist

Jane Cipra, Senior Botanist

Kelsey McDonald, Botanist

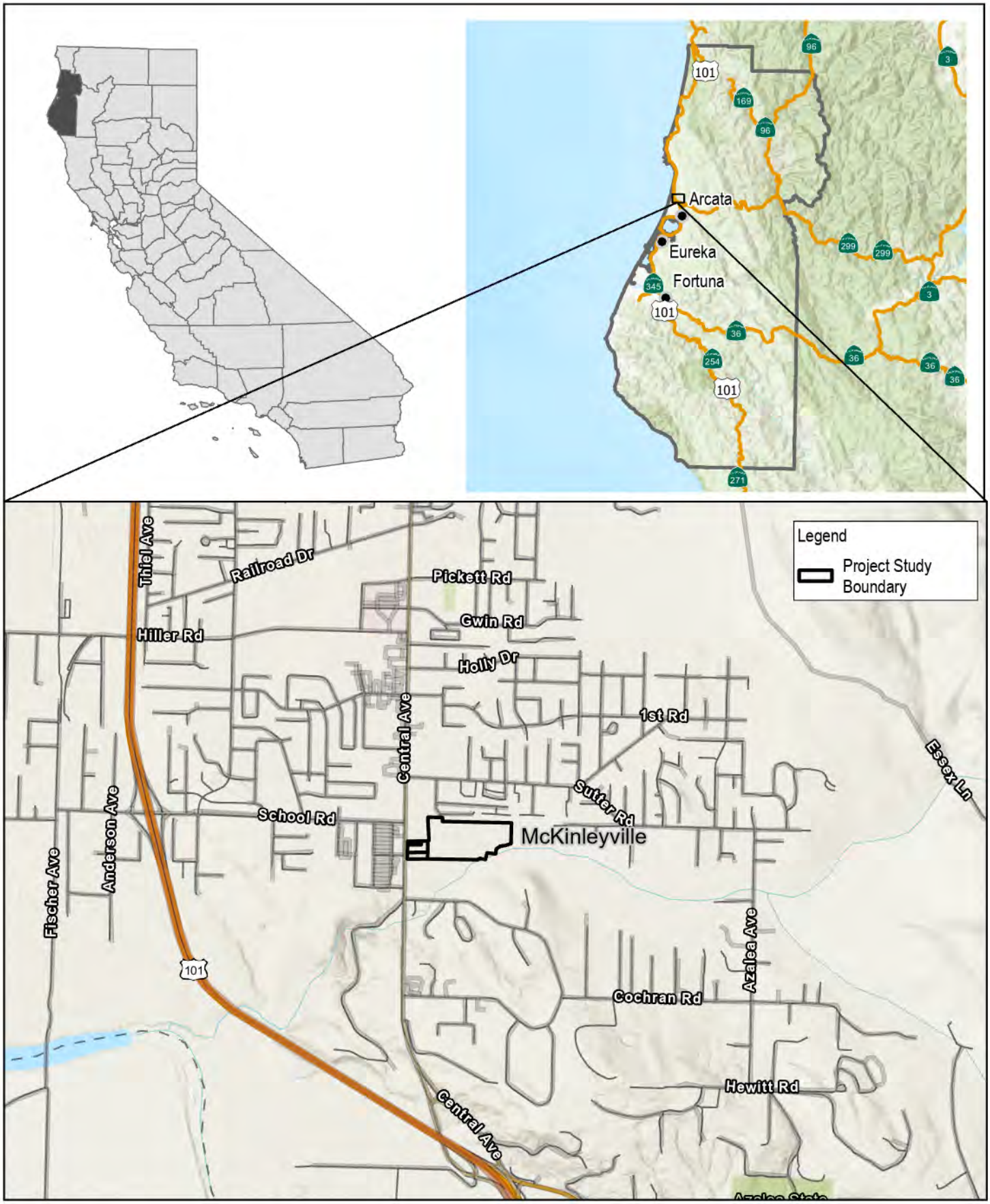
Alex Crowe, Field Technician

Zach Porteous, Figures and GIS Support

Jesse Lopez. Figures and GIS Support

# Appendix A

## Figures

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N

GHD

**Mary Keehn Property Development**
**Keehn Development**

Project No. **12560473**
Revision No. **-**
Date **2/05/2024**

## Vicinity Map

# FIGURE 1

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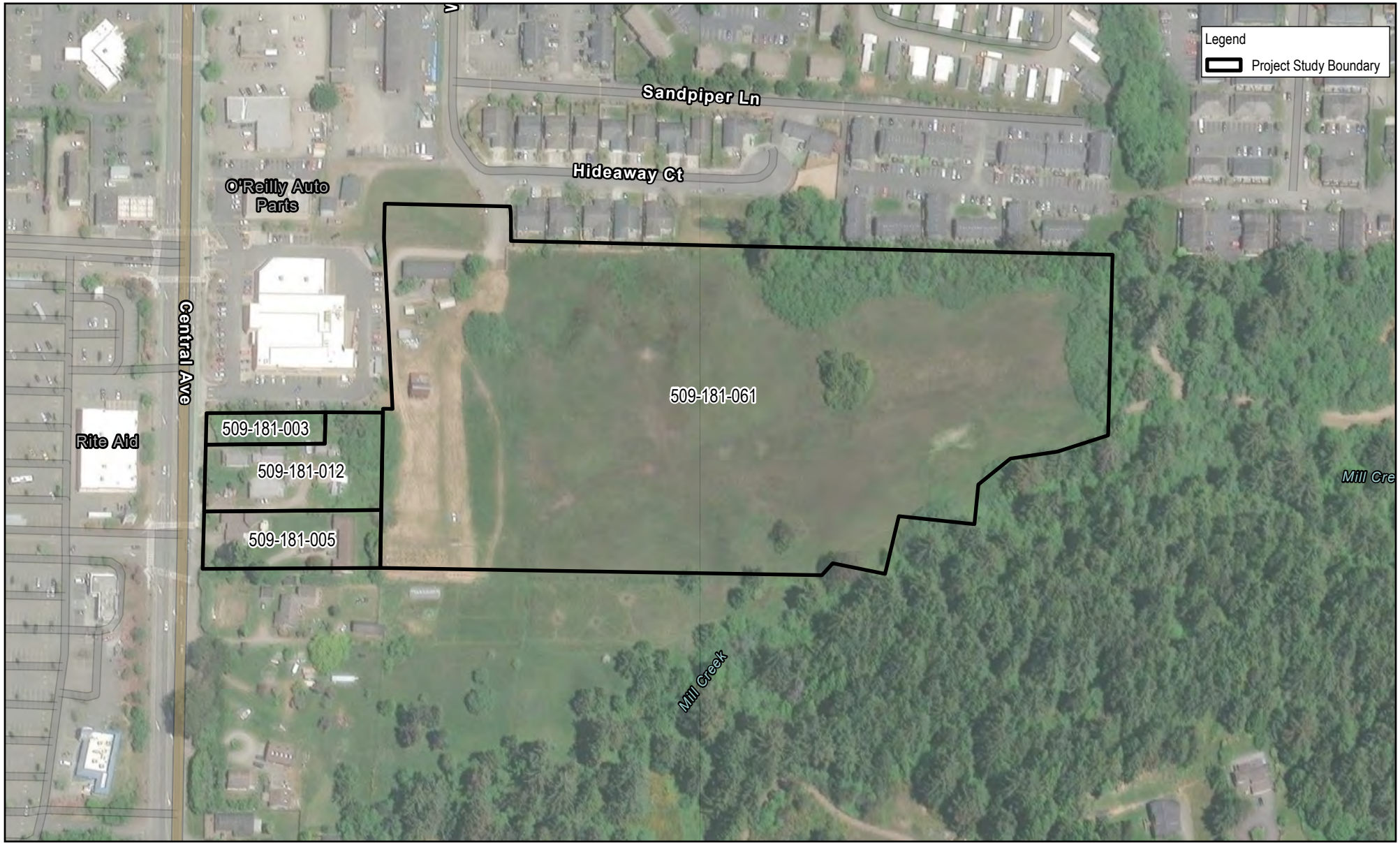


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**Keehn Development**

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Date **2024-11-19**

## Project Study Boundary

# FIGURE 2

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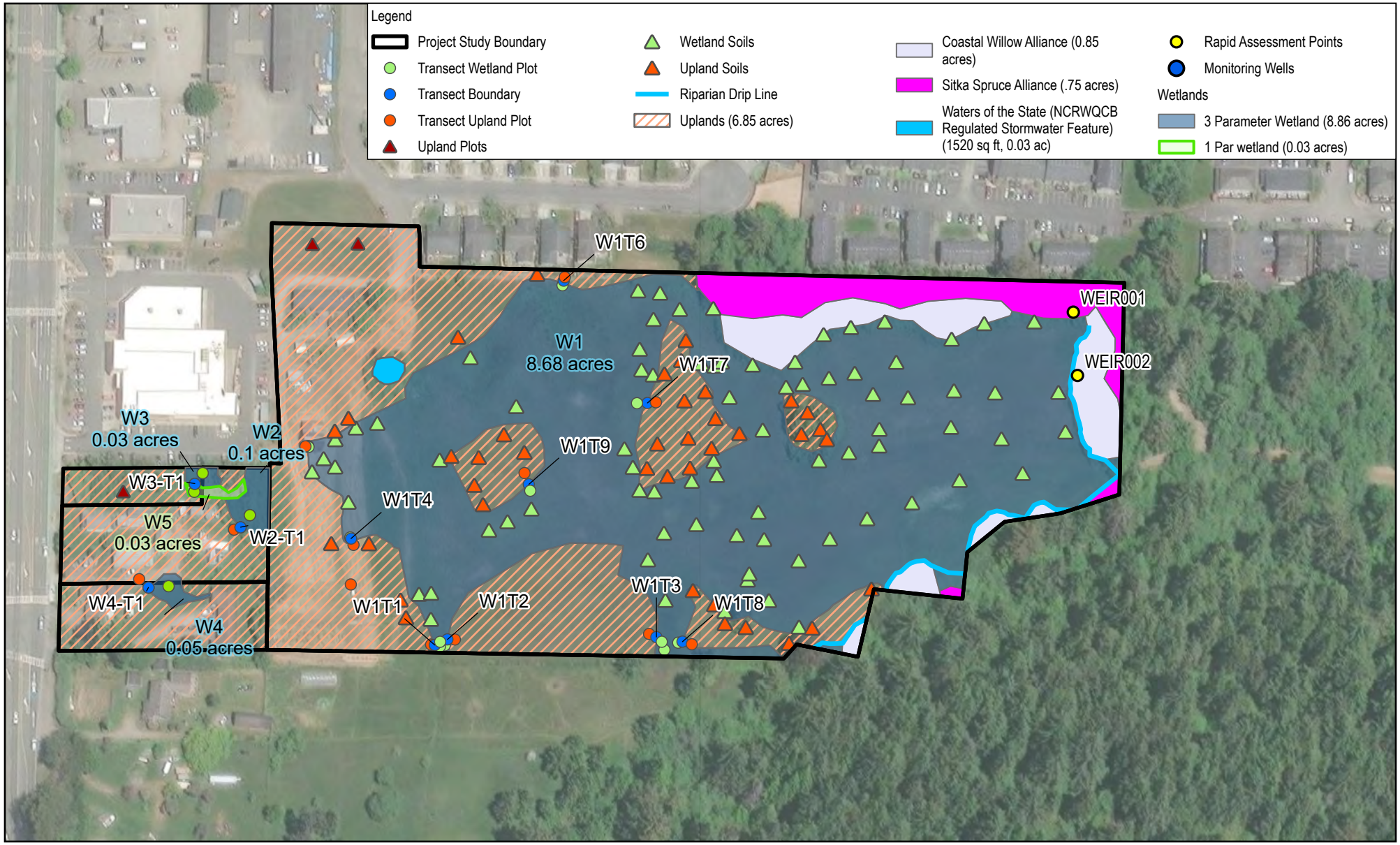
Data source: Hybrid Reference Layer (WGS84): Esri Community Maps Contributors, California State Parks, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS
World Imagery: Maxar. Created by: jlopez4

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**Wetland Delineation and Sensitive Habitats**

Project No. **12560473**
Revision No. **-**
Date **2024-11-19**

**FIGURE 3**

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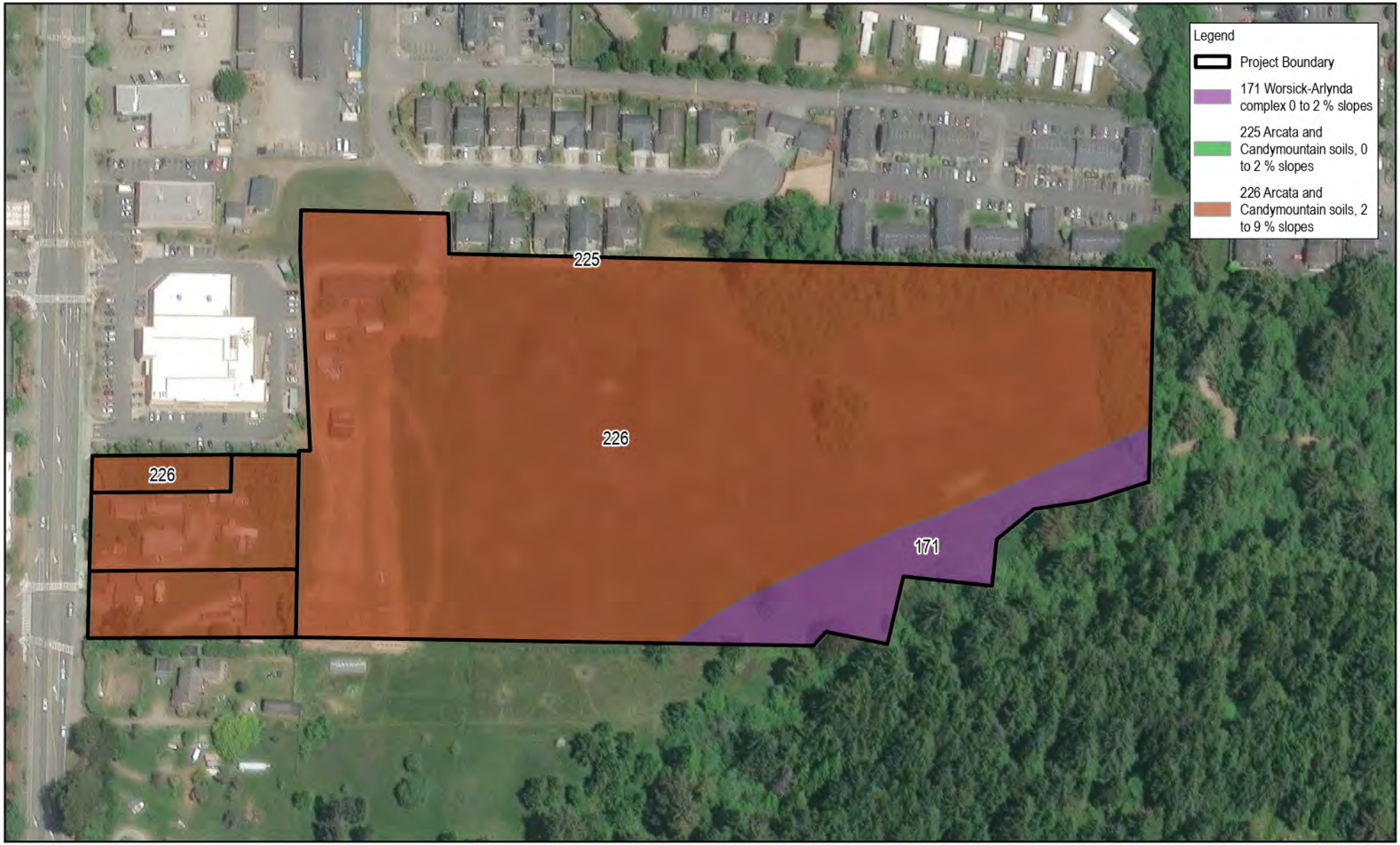


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Horizontal Datum: North American 1983
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**NRCS Soil Survey**

Project No. **12560473**
Revision No. **-**
Date **2/05/2024**

**FIGURE 4**

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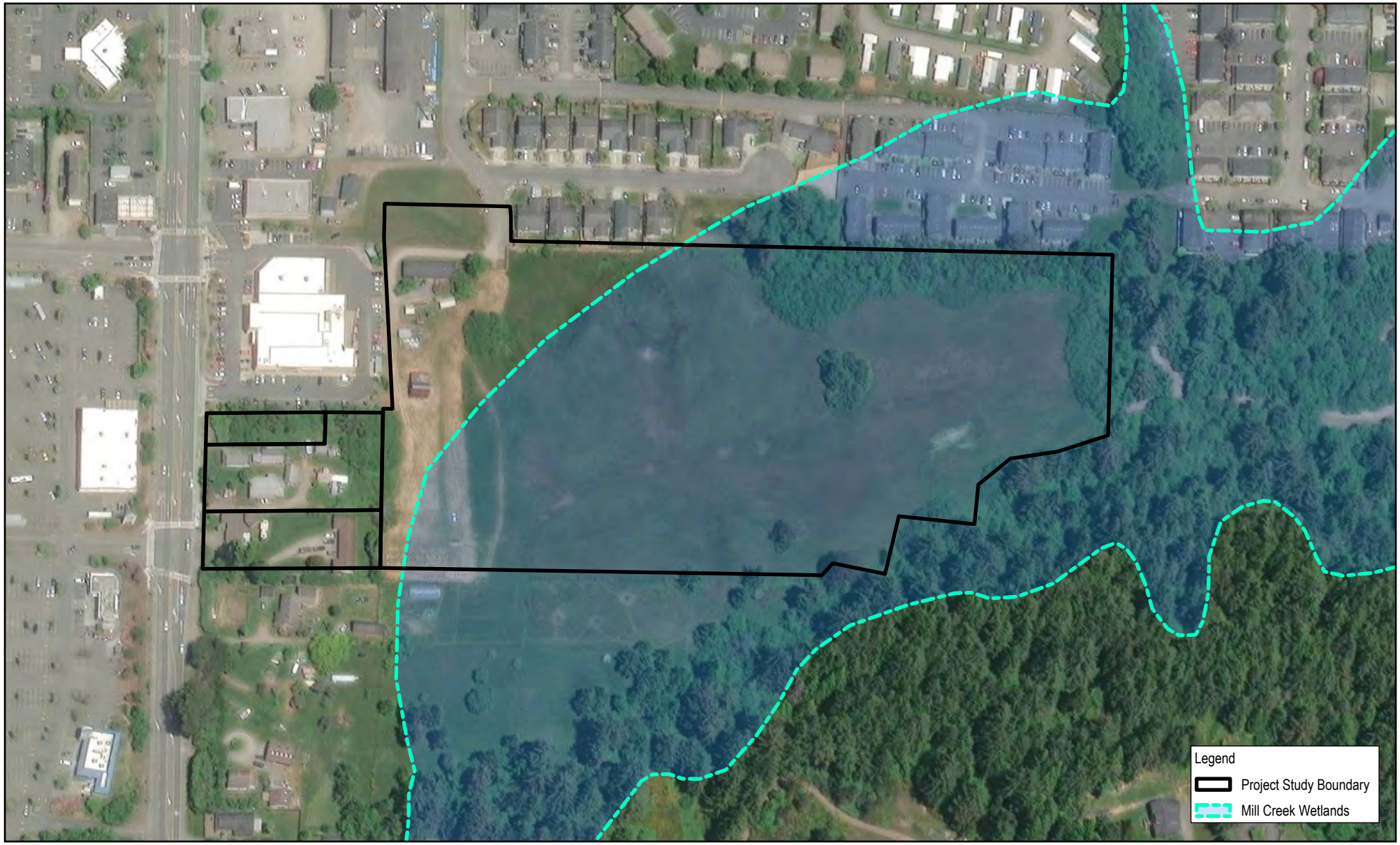


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Map Projection: Lambert Conformal Conic
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**Keehn Development**

Project No. **12560473**
Revision No. **-**
Date **2024-05-20**

## Mill Creek Wetland Overlay

## FIGURE 5

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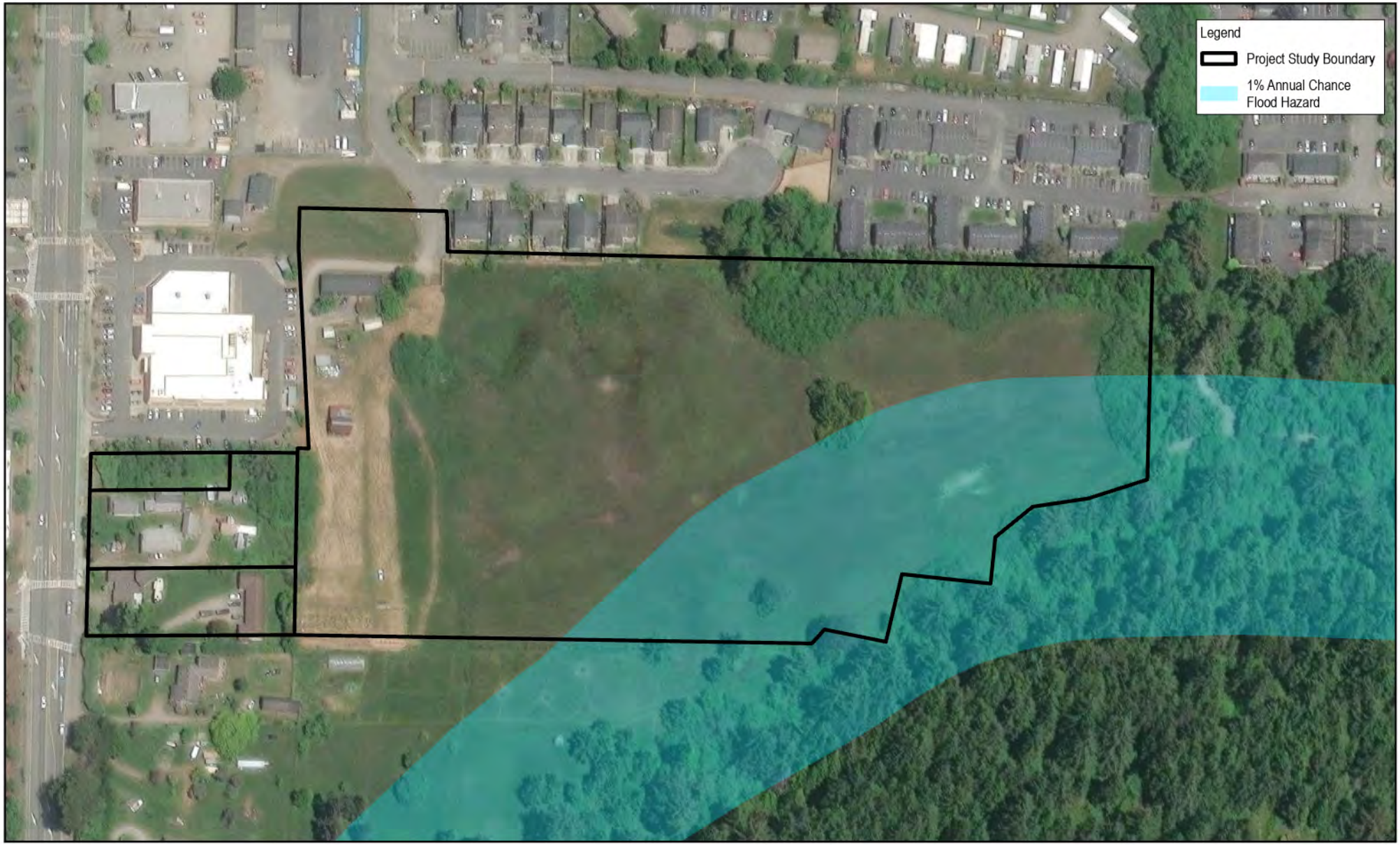


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Date **2/05/2024**

**FEMA Floodplain**

**FIGURE 6**

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Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
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**Keehn Development**

Project No. **12560473**
Revision No. **-**
Date **2/05/2024**

## National Wetlands Inventory

**FIGURE 7**

\\ghdnet\ghd\US\Eureka\Projects\56\12560473\GIS\Maps\Deliverables\12560473_Wetlands_2024\12560473_Wetlands_2024.aprx
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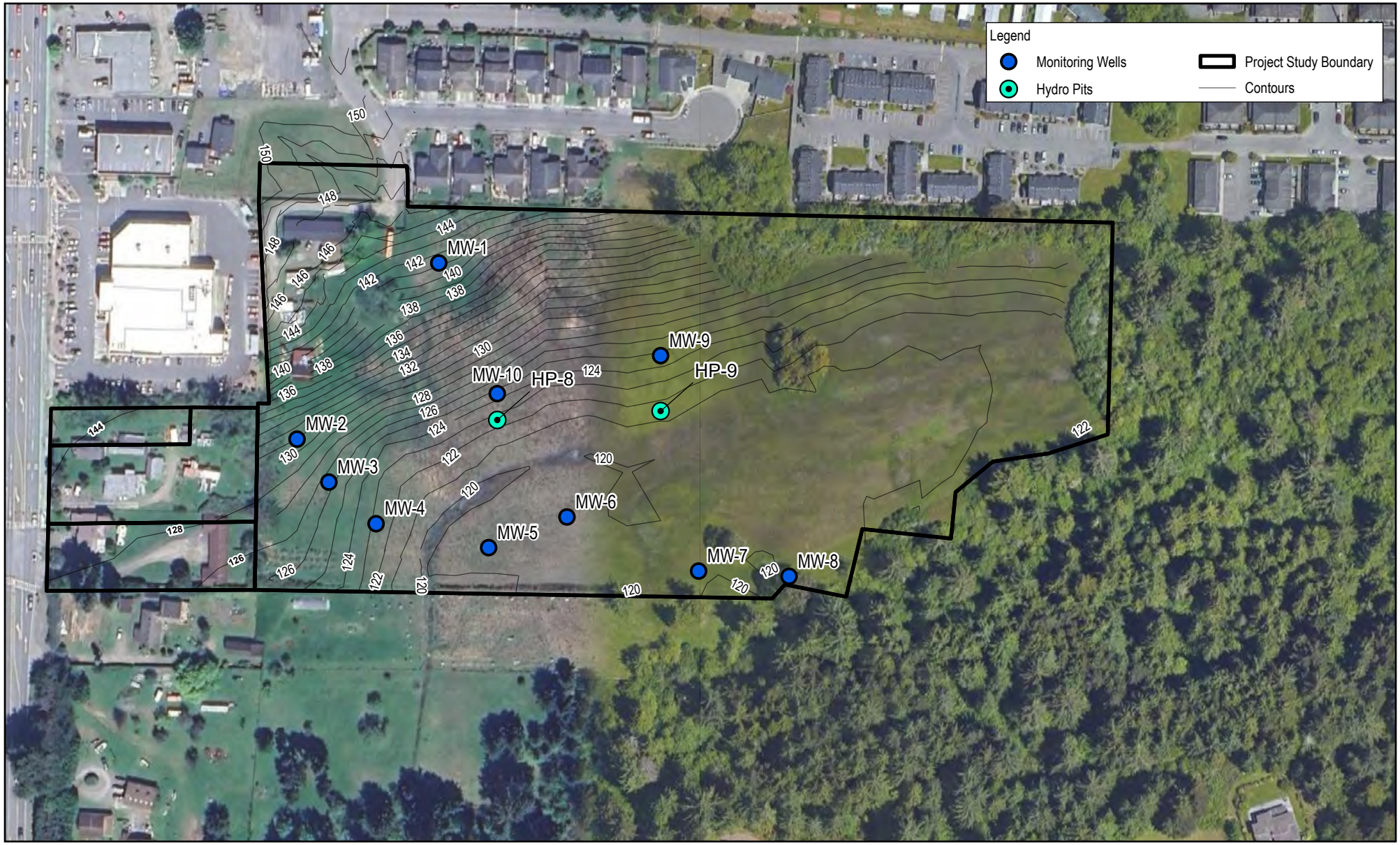


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Revision No. **-**
Date **5/6/2024**

## Monitoring Wells and Hydro Pits

## FIGURE 8

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# Appendix B

## Wetland Delineation Datasheets

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

Project/Site: Keehn City/County: McKinleyville / Humboldt Sampling Date: 9/17/21
Applicant/Owner: GHD for Mary Keehn Development State: CA Sampling Point: WTT1-U
Investigator(s): K. McDonald, M Schwarz Section, Township, Range: 55, T6N, R1E
Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): concave Slope (%): 3
Subregion (LRR): A Lat: 40.93271041 Long: -124.09869241 Datum: WGS84
Soil Map Unit Name: Arcata and Candymountain, 2-9% slopes NWI classification: NA / PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ____) | 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: 1m) | | | |
| 1. Holcus lanatus | 35 | Y | FAC |
| 2. Agrostis stolonifera | 36 | Y | FAC |
| 3. Ranunculus repens | 6 | | FAC |
| 4. Mentha pulegium | 5 | | OBL |
| 5. Hypochaeris radicata | 3 | | FACU |
| 6. Anthoxanthum odoratum | 2 | | FACU |
| 7. Juncus hesperus | 5 | | FACW |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 97 = Total Cover | | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | ____ = Total Cover | | |

% Bare Ground in Herb Stratum 3

**Dominance Test worksheet:**
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | Multiply by: |
|---|---|
| OBL species ____ | x 1 = ____ |
| FACW species ____ | x 2 = ____ |
| FAC species ____ | x 3 = ____ |
| FACU species ____ | x 4 = ____ |
| UPL species ____ | x 5 = ____ |
| Column Totals: ____ (A) | ____ (B) |

Prevalence Index = B/A = ____

**Hydrophytic Vegetation Indicators:**
___ 1 - Rapid Test for Hydrophytic Vegetation
✓ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes ✓ No ____

Remarks:

## SOIL

MBS Uerlan 7/27/21 Sampling Point: WTT-W

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

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-6 | 10YR 3/2 | 80 | 7.5YR 4/6 | 20 | C | M | loam | |
| 6-14 | 10YR 3/2 | 90 | 7.5YR 4/6 | 10 | C | m | Silt 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)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** Yes X No ___

Remarks:

## 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)**
- X Drainage Patterns (B10) Swale
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2) Swale
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

**Field Observations:**

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

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

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

**Wetland Hydrology Present?** Yes X No ___

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

Remarks: Based on Topographic position & Soils

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

Project/Site: Keehn City/County: McKinleyville/Humboldt Sampling Date: 9/17/21
Applicant/Owner: SHN for Mary Keehn Development State: CA Sampling Point: WTT1-U
Investigator(s): K. McDonald, M. Schwarz Section, Township, Range: S5, T6N, R1E
Landform (hillslope, terrace, etc.): none Local relief (concave, convex, none): none Slope (%): 3
Subregion (LRR): A Lat: 40.93271041 Long: -124.0986924 Datum: WGS84
Soil Map Unit Name: Arcata and Candymountain, 2-9% slopes 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 ✓ | **Is the Sampled Area within a Wetland?** Yes ____ No ✓ |
| Hydric Soil Present? | Yes ____ | No ✓ | |
| Wetland Hydrology Present? | Yes ____ | No ✓ | |

Remarks:

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | ____ = Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | ____ = Total Cover | | |
| **Herb Stratum** (Plot size: 1m) | | | |
| 1. Holcus lanatus | 18 | N | FAC |
| 2. Agrostis stolonifera | 30 | Y | FAC |
| 3. Anthoxanthum odoratum | 25 | Y | FACU |
| 4. Hypochaeris radicata | 2 | N | FACU |
| 5. Daucus carota | 2 | N | FACU |
| 6. Festuca perennis | 15 | N | FAC |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 92 = Total Cover | | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | ____ = Total Cover | | |

% Bare Ground in Herb Stratum 8

**Dominance Test worksheet:**
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | ____ | x 1 = | ____ |
| FACW species | ____ | x 2 = | ____ |
| FAC species | 63 | x 3 = | 189 |
| FACU species | 29 | x 4 = | 116 |
| UPL species | ____ | x 5 = | ____ |
| Column Totals: | 92 (A) | | 305 (B) |

Prevalence Index = B/A = 3.32

**Hydrophytic Vegetation Indicators:**
____ 1 - Rapid Test for Hydrophytic Vegetation
N 2 - Dominance Test is >50%
N 3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
____ 5 - Wetland Non-Vascular Plants[1]
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes ____ No ✓

Remarks:

## SOIL

MBS Kechn 9/17/21 Sampling Point: WITI-U

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

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-6 | 10YR2/2 | 100 | — | — | — | — | Loam | |
| 6-14 | 10YR2/2 | 100 | — | — | — | — | Silt 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: Keehn City/County: McKinleyville/Humboldt Sampling Date: 9/17/21
Applicant/Owner: GHD for Mary Keehn Dowl. State: CA Sampling Point: WLT2-W
Investigator(s): K. McDonald, M. Schwarz Section, Township, Range: S5, T6N, R1E
Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): concave Slope (%): 5
Subregion (LRR): A Lat: 40.93273461 Long: -124.098625 Datum: WGS84
Soil Map Unit Name: Arcata and Candymont, 2-9% slopes NWI classification: PEM
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 X, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:
Does not pass PI, but has hydrology and soils.

### 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: 1m²) | | | |
| 1. Agrostis stolonifera | 60 | Y | FAC |
| 2. Festuca perennis | 10 | Y | FAC |
| 3. Lotus corniculatus | 8 | ____ | FAC |
| 4. Holcus lanatus | 10 | ____ | FAC |
| 5. Bromus hordaceus | 5 | ____ | FACU |
| 6. Hypochaeris radicata | 5 | ____ | FACU |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 98 = Total Cover | | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | ____ = Total Cover | | |

% Bare Ground in Herb Stratum 2

**Dominance Test worksheet:**
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

**Prevalence Index worksheet:**

| Total % Cover of | | Multiply by: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 0 | x 2 = | 0 |
| FAC species | 88 | x 3 = | 264 |
| FACU species | 10 | x 4 = | 40 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 98 (A) | | 304 (B) |

Prevalence Index = B/A = 3.10

**Hydrophytic Vegetation Indicators:**
__ 1 - Rapid Test for Hydrophytic Vegetation
✓ 2 - Dominance Test is >50%
N 3 - Prevalence Index is ≤3.0[1]
__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ 5 - Wetland Non-Vascular Plants[1]
__ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes ____ No ✓

Remarks:
Does not pass FAC-neutral

## SOIL

MBS Mechm 9/17/21 Sampling Point: W/T2-W

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

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-6 | 10YR 2/2 | 90 | 7.5YR 4/4 | 10 | C | M | Loam | |
| 6-14 | 10YR 3/2 | 80 | 7.5YR 4/6 | 20 | C | M | 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)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: ___

Depth (inches): ___

**Hydric Soil Present?** Yes ___ 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)**
- X Drainage Patterns (B10) Swale
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2) Swale
- ___ 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 X No ___

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: Keehn City/County: McKinleyville/Humboldt Sampling Date: 9/17/21
Applicant/Owner: GHD for Mary Keehn Development State: CA Sampling Point: WT1U
Investigator(s): K McDonald, M. Schwarz Section, Township, Range: 35, T6N, R1E
Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): convex Slope (%): 5
Subregion (LRR): A Lat: 40.9327346 Long: -124.098625 Datum: WGS84
Soil Map Unit Name: Arcata and Candymountain, 2-9% slopes 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 ✓ | **Is the Sampled Area within a Wetland?** Yes ____ No ✓ |
| Hydric Soil Present? | Yes ____ | No ✓ | |
| Wetland Hydrology Present? | Yes ____ | No ✓ | |

Remarks:
(

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | ____ = Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | ____ = Total Cover | | |
| **Herb Stratum** (Plot size: 1 m²) | | | |
| 1. Agrostis stolonifera | 50 | Y | FAC |
| 2. Anthoxanthum odoratum | 25 | Y | FACU |
| 3. Festuca arundinacea | 5 | | FAC |
| 4. Holcus lanatus | 6 | | FAC |
| 5. Daucus carota | 4 | | FACU |
| 6. Plantago lanceolata | 2 | | FACU |
| 7. Lotus corniculatus | 2 | | FAC |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 94 = Total Cover | | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | ____ = Total Cover | | |

% Bare Ground in Herb Stratum 6

**Dominance Test worksheet:**
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | Multiply by: | |
|---|---|---|
| OBL species | x 1 = | |
| FACW species | x 2 = | |
| FAC species | x 3 = | |
| FACU species | x 4 = | |
| UPL species | x 5 = | |
| Column Totals: | (A) | (B) |

Prevalence Index = B/A = ____

**Hydrophytic Vegetation Indicators:**
__ 1 - Rapid Test for Hydrophytic Vegetation
N 2 - Dominance Test is >50%
__ 3 - Prevalence Index is ≤3.0[1]
__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ 5 - Wetland Non-Vascular Plants[1]
__ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes ____ No ✓

Remarks:

## SOIL

MBS Kpelan 9/17/21 Sampling Point: W1 T2-U

**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 |
|---|---|---|---|---|---|---|---|---|
| 0-9 | 10YR3/2 | 100 | — | — | — | — | Loam | |
| 9-14 | 10YR3/3 | 90 | 7.5YR4/6 | 10 | C | M | Silt 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: Keehn City/County: McKinleyville/Humboldt Sampling Date: 9/17/21
Applicant/Owner: GHD for Mary Keehn State: CA Sampling Point: W1T3U
Investigator(s): K McDonald, M. Schwarz Section, Township, Range: S5, T6N, R1E
Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 10
Subregion (LRR): A Lat: 40.3276452 Long: -124.0974969 Datum: WGS84
Soil Map Unit Name: Arcata and Candy Mnt 2-9% slopes NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ____) | 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: 1m²) | | | |
| 1. Carex obnupta | 20 | Y | OBL |
| 2. Festuca arundinacea | 40 | Y | FAC |
| 3. Agrostis stolonifera | 35 | Y | FAC |
| 4. Ranunculus repens | 3 | | |
| 5. Lotus corniculatus | 1 | | |
| 6. Holcus lanatus | 1 | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 100 = Total Cover | | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | ____ = Total Cover | | |

% Bare Ground in Herb Stratum 0

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

**Prevalence Index worksheet:**

| Total % Cover of: | Multiply by: | |
|---|---|---|
| OBL species | x 1 = | |
| FACW species | x 2 = | |
| FAC species | x 3 = | |
| FACU species | x 4 = | |
| UPL species | x 5 = | |
| Column Totals: | (A) | (B) |

Prevalence Index = B/A = ____

**Hydrophytic Vegetation Indicators:**
__ 1 - Rapid Test for Hydrophytic Vegetation
✓ 2 - Dominance Test is >50%
__ 3 - Prevalence Index is ≤3.0[1]
__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ 5 - Wetland Non-Vascular Plants[1]
__ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes ✓ No ____

Remarks: Passes FAC-neutral

## SOIL

MBS Keehn 9/17/21 Sampling Point: WIT3-W

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

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-5 | 10YR 3/2 | 90 | 7.5YR 4/6 | 10 | C | M | Loam | |
| 5-14 | 10YR 3/2 | 85 | 7.5YR 4/6 | 15 | C | M | Silt 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)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: ___

Depth (inches): ___

**Hydric Soil Present?** Yes X No ___

Remarks:

## 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)**
- X Drainage Patterns (B10) Swale
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2) Swale
- ___ Shallow Aquitard (D3)
- X 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 X No ___

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: Keehn City/County: McKinleyville / Humboldt Sampling Date: 9/17/21
Applicant/Owner: GHO for Mary Keehn State: CA Sampling Point: WTB-U
Investigator(s): K. McDonald, M. Schwarz Section, Township, Range: S5, T6N, R1E
Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): none Slope (%): 3
Subregion (LRR): A Lat: 40.93276452 Long: -124.0974969 Datum: WGS84
Soil Map Unit Name: Arcata and Candy mountain, 2-9% slopes 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 ✓ | **Is the Sampled Area within a Wetland?** Yes ____ No ✓ |
| Hydric Soil Present? | Yes ____ | No ✓ | |
| Wetland Hydrology Present? | Yes ____ | No ✓ | |

Remarks:

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | ____ = Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | ____ = Total Cover | | |
| **Herb Stratum** (Plot size: 1m²) | | | |
| 1. Agrostis stolonifera | 50 | Y | FAC |
| 2. Anthoxanthum odoratum | 25 | Y | FACU |
| 3. Festuca arundinacea | 12 | | FAC |
| 4. Hypochaeris radicata | 4 | | |
| 5. Lotus corniculatus | 3 | | |
| 6. Daucus carota | 3 | | |
| 7. Plantago lanceolata | 3 | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 99 = Total Cover | | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | ____ = Total Cover | | |

% Bare Ground in Herb Stratum 1

**Dominance Test worksheet:**
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | Multiply by: |
|---|---|
| OBL species ____ | x 1 = ____ |
| FACW species ____ | x 2 = ____ |
| FAC species ____ | x 3 = ____ |
| FACU species ____ | x 4 = ____ |
| UPL species ____ | x 5 = ____ |
| Column Totals: ____ (A) | ____ (B) |

Prevalence Index = B/A = ____

**Hydrophytic Vegetation Indicators:**
__ 1 - Rapid Test for Hydrophytic Vegetation
✓ 2 - Dominance Test is >50%
__ 3 - Prevalence Index is ≤3.0[1]
__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ 5 - Wetland Non-Vascular Plants[1]
__ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes ✓ No ____

Remarks:

## SOIL

MBS Keehn 9/17/21 Sampling Point: W/T3-U

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

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-6 | 10YR3/2 | 100 | - | - | - | - | Silt Loam | |
| 6-14 | 10YR3/3 | 100 | - | - | - | - | Silt 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: Keehn City/County: McKinleyville / Humboldt Sampling Date: 9/22/21
Applicant/Owner: GHD for Mary Keehn Revel State: CA Sampling Point: WT4W
Investigator(s): K. McDonald, M. Schwarz Section, Township, Range: S5, T6N, R1E
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 5
Subregion (LRR): A Lat: 40.93306245 Long: -124.099124 Datum: WGS 84
Soil Map Unit Name: Arcata & Candymt, 2-9% Slopes 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 ____ | **Is the Sampled Area within a Wetland?** Yes ✓ No ____ |
| Hydric Soil Present? | Yes ✓ | No ____ | |
| Wetland Hydrology Present? | Yes ✓ | No ____ | |

Remarks:

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | ____ = Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | ____ = Total Cover | | |
| **Herb Stratum** (Plot size: 1m²) | | | |
| 1. Holcus lanatus | 35 | Y | FAC |
| 2. Agrostis stolonifera | 45 | Y | FAC |
| 3. Anthoxanthum odoratum | 10 | | FACU |
| 4. Lotus corniculatus | 4 | | FAC |
| 5. Festuca arundinacea | 3 | | FAC |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 97 = Total Cover | | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | ____ = Total Cover | | |

% Bare Ground in Herb Stratum 3

**Dominance Test worksheet:**
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | Multiply by: | |
|---|---|---|
| OBL species ____ | x 1 = | ____ |
| FACW species ____ | x 2 = | ____ |
| FAC species ____ | x 3 = | ____ |
| FACU species ____ | x 4 = | ____ |
| UPL species ____ | x 5 = | ____ |
| Column Totals ____ (A) | | ____ (B) |

Prevalence Index = B/A = ____

**Hydrophytic Vegetation Indicators:**
___ 1 - Rapid Test for Hydrophytic Vegetation
✓ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes ✓ No ____

Remarks:

## SOIL

MBS Krehn 9/22/21 Sampling Point: WITA-W

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

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-7 | 10YR 2/2 | 100 | — | — | — | — | Loam | |
| 7-13 | 10YR 2/2 | 70 | 7.5YR 4/4 | 30 | C | M | 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)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: ___

Depth (inches): ___

**Hydric Soil Present?** Yes X No ___

Remarks:

## 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)
- X Geomorphic Position (D2) Low Swale
- ___ 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 X No ___

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

Remarks:

Based on hydric soils & Topographic position.

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

Project/Site: Keehn City/County: McKinleyville / Humboldt Sampling Date: 9/22/21
Applicant/Owner: Gile for Mary Keehn State: CA Sampling Point: WIT4-U
Investigator(s): M. Schwarz, K McDonald Section, Township, Range: 55, T6N, R1E
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 10
Subregion (LRR): A Lat: 40.93306245 Long: -124.0994124 Datum: WGS84
Soil Map Unit Name: Arcata and Candy Mountain, 2-9% slopes 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 ✓ | **Is the Sampled Area within a Wetland?** Yes ____ No ✓ |
| Hydric Soil Present? | Yes ____ | No ✓ | |
| Wetland Hydrology Present? | Yes ____ | No ✓ | |

Remarks:

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | ____ = Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | ____ = Total Cover | | |
| **Herb Stratum** (Plot size: 1m²) | | | |
| 1. Agrostis stolonifera | 45 | Y | FAC |
| 2. Holcus lanatus | 15 | | FAC |
| 3. Anthoxanthum odoratum | 13 | Y | FACU |
| 4. Hypochaeris radicata | 3 | | FACU |
| 5. Leontodon saxatilis | 2 | | FACU |
| 6. Plantago lanceolata | 2 | | FACU |
| 7. Lotus corniculatus | 3 | | FAC |
| 8. Daucus carota | 2 | | FACU |
| 9. Rumex acetosella | 1 | | FACU |
| 10. | | | |
| 11. | | | |
| | 91 = Total Cover | | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | ____ = Total Cover | | |

% Bare Ground in Herb Stratum 9

**Dominance Test worksheet:**
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | Multiply by: | |
|---|---|---|
| OBL species ____ | x 1 = | ____ |
| FACW species ____ | x 2 = | ____ |
| FAC species ____ | x 3 = | ____ |
| FACU species ____ | x 4 = | ____ |
| UPL species ____ | x 5 = | ____ |
| Column Totals: ____ (A) | | ____ (B) |

Prevalence Index = B/A = ____

**Hydrophytic Vegetation Indicators:**
__ 1 - Rapid Test for Hydrophytic Vegetation
N 2 - Dominance Test is >50%
__ 3 - Prevalence Index is ≤3.0[1]
__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ 5 - Wetland Non-Vascular Plants[1]
__ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes ____ No ✓

Remarks:

## SOIL

MBS Keehn 9/22/21 Sampling Point: WI T4-U

**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 |
|---|---|---|---|---|---|---|---|---|
| 0-9 | 10YR3/2 | 100 | — | — | — | — | Loam | |
| 9-14 | 10YR3/3 | 80 | 7.5YR9/4 | 20 | C | M | Loam/Silt 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 Y 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: Keehn City/County: McKinleyville/Humboldt Sampling Date: 9/22/21
Applicant/Owner: GHD for Mary Keehn Revel. State: CA Sampling Point: W1T5-W
Investigator(s): K. McDonald, M. Schwarz Section, Township, Range: 35, T6N, R1E
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 25
Subregion (LRR): A Lat: 40.93351877 Long: -124.09954632 Datum: WGS 84
Soil Map Unit Name: Arcata & Candymat, 2-9% slopes 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 ____ | **Is the Sampled Area within a Wetland?** Yes ✓ No ____ |
| Hydric Soil Present? | Yes ✓ | No ____ | |
| Wetland Hydrology Present? | Yes ✓ | No ____ | |

Remarks: To SW of barn

### 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: 1m²) | | | |
| 1. Holcus lanatus | 28 | Y | FAC |
| 2. Lotus corniculatus | 20 | | FAC |
| 3. Festuca perennis | 15 | Y | FAC |
| 4. Agrostis stolonifera | 25 | Y | FAC |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | ____ = Total Cover | | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | 98 = Total Cover | | |

% Bare Ground in Herb Stratum 2

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

**Prevalence Index worksheet:**

| Total % Cover of: | Multiply by: |
|---|---|
| OBL species ____ | x 1 = ____ |
| FACW species ____ | x 2 = ____ |
| FAC species ____ | x 3 = ____ |
| FACU species ____ | x 4 = ____ |
| UPL species ____ | x 5 = ____ |
| Column Totals: ____ (A) | ____ (B) |

Prevalence Index = B/A = ____

**Hydrophytic Vegetation Indicators:**
__ 1 - Rapid Test for Hydrophytic Vegetation
✓ 2 - Dominance Test is >50%
__ 3 - Prevalence Index is ≤3.0[1]
__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ 5 - Wetland Non-Vascular Plants[1]
__ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes ✓ No ____

Remarks:

## SOIL

MBS Mech 9/22/21

Sampling Point: W1TS-W

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

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox Features % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-6 | 10YR3/2 | 100 | - | - | - | - | Loam | |
| 6-13 | 10YR3/2 | 80 | 7.5YR4/6 | 20 | C | M | 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)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: ___

Depth (inches): ___

**Hydric Soil Present?** Yes X No ___

Remarks:

## 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)
- X Geomorphic Position (D2) Low Slope
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

**Field Observations:**

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

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

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

**Wetland Hydrology Present?** Yes X No ___

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

Remarks: Based on hydric soils + Topographic position

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

Project/Site: Keeha City/County: McKinleyville/Humboldt Sampling Date: 9/22/21
Applicant/Owner: GHD for Mary Keeha Dowd State: CA Sampling Point: WTS-U
Investigator(s): K. McDonald, M. Schwarz Section, Township, Range: S5, T6N, R1E
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): Convex Slope (%): 35
Subregion (LRR): A Lat: 40.93351877 Long: -124.0994632 Datum: WGS84
Soil Map Unit Name: Arcata and Cardy Mountain, 2-9% slopes NWI classification: non
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ____) | 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: 1m²) | | | |
| 1. Lotus corniculatus | 25 | Y | FAC |
| 2. Agrostis stolonifera | 35 | Y | FAC |
| 3. Holcus lanatus | 15 | | FAC |
| 4. Festuca perennis | 10 | | FAC |
| 5. Rumex acetosella | 8 | | FACU |
| 6. Trifolium repens | 5 | | FAC |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 98 = Total Cover | | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | ____ = Total Cover | | |

% Bare Ground in Herb Stratum 3

**Dominance Test worksheet:**
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | ____ | x 1 = | ____ |
| FACW species | ____ | x 2 = | ____ |
| FAC species | 90 | x 3 = | 270 |
| FACU species | 8 | x 4 = | 32 |
| UPL species | ____ | x 5 = | ____ |
| Column Totals: | 98 (A) | | 360 (B) |

Prevalence Index = B/A = 3.67

**Hydrophytic Vegetation Indicators:**
__ 1 - Rapid Test for Hydrophytic Vegetation
✓ 2 - Dominance Test is >50%
N 3 - Prevalence Index is ≤3.0[1]
__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ 5 - Wetland Non-Vascular Plants[1]
__ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes ____ No ✓

Remarks: All facultative plants on convex steepslope with well-drained soil. Do not appear to be growing as hydrophytes.

## SOIL

MBS Keehn 9/22/21 Sampling Point: WITS-U

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

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-6 | 10YR 3/3 | 100 | - | - | - | - | Loam/Sandy Loam | |
| 6-14 | 10YR 3/3 | 100 | - | - | - | - | Gravelly Sand Loam (Fill?) | |

[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: Keehn City/County: McKinleyville / Humboldt Sampling Date: 11/19/21

Applicant/Owner: GHD for Mary Keehn Trust State: CA Sampling Point: WTTG-W

Investigator(s): K. McDonald, M. Schwarz Section, Township, Range: S5, T

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): slightly concave Slope (%): 15

Subregion (LRR): A Lat: 40.9342149 Long: -124.0980432 Datum: WGS84

Soil Map Unit Name: Arcata & Candymt, 2-9% slopes 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 ____ | **Is the Sampled Area within a Wetland?** Yes ✓ No ____ |
| Hydric Soil Present? | Yes ✓ | No ____ | |
| Wetland Hydrology Present? | Yes ✓ | No ____ | |

Remarks: seep

### 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: 1m²) | | | |
| 1. Scirpus microcarpus | 50 | Y | OBL |
| 2. Lotus corniculatus | 5 | | FAC |
| 3. Festuca arundinacea | 30 | Y | FAC |
| 4. Juncus hesperus | 15 | | FACW |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 100 = Total Cover | | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | ____ = Total Cover | | |

% Bare Ground in Herb Stratum: 0

**Dominance Test worksheet:**

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

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

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

**Prevalence Index worksheet:**

| Total % Cover of: | Multiply by |
|---|---|
| OBL species ____ | x 1 = ____ |
| FACW species ____ | x 2 = ____ |
| FAC species ____ | x 3 = ____ |
| FACU species ____ | x 4 = ____ |
| UPL species ____ | x 5 = ____ |
| Column Totals: ____ (A) | ____ (B) |

Prevalence Index = B/A = ____

**Hydrophytic Vegetation Indicators:**

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes ✓ No ____

Remarks:

## SOIL

Kechn 11/19/21 Sampling Point: WIT6-W

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

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-6 | 10YR3/2 | 90 | 7.5YR4/4 | 10 | C | M | Loam | |
| 6-14 | 10YR3/2 | 80 | 7.5YR4/6 | 20 | C | M | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: ___

Depth (inches): ___

**Hydric Soil Present?** Yes X No ___

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X 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)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

**Field Observations:**

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

Water Table Present? Yes X No ___ Depth (inches): 12

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 11

**Wetland Hydrology Present?** Yes X No ___

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: Keehn City/County: McKinleyville / Humboldt Sampling Date: 11/19/21
Applicant/Owner: GHD for Mary Keehn Develop State: CA Sampling Point: WL T6U
Investigator(s): K McDonald, M. Schwarz Section, Township, Range: S5, T6N, R1E
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 20
Subregion (LRR): A Lat: 40.93421499 Long: -124.0980432 Datum: WGS84
Soil Map Unit Name: Arcata and Cody mountain, 2-9% slopes 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 ✓ | **Is the Sampled Area within a Wetland?** Yes ____ No ✓ |
| Hydric Soil Present? | Yes ____ | No ✓ | |
| Wetland Hydrology Present? | Yes ____ | No ✓ | |

Remarks: Top of slope

### 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: 1m²) | | | |
| 1. Agrostis stolonifera | 52 | Y | FAC |
| 2. Holcus lanatus | 30 | Y | FAC |
| 3. Trifolium repens | 15 | | FAC |
| 4. Lotus corniculatus | 2 | | FAC |
| 5. Leucanthemum vulgare | 1 | | UPL |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 100 = Total Cover | | |
| **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: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | Multiply by: |
|---|---|
| OBL species ____ | x 1 = ____ |
| FACW species ____ | x 2 = ____ |
| FAC species 99 | x 3 = 297 |
| FACU species ____ | x 4 = ____ |
| UPL species 1 | x 5 = 5 |
| Column Totals: 100 (A) | 302 (B) |

Prevalence Index = B/A = 3.02

**Hydrophytic Vegetation Indicators:**
____ 1 - Rapid Test for Hydrophytic Vegetation
✓ 2 - Dominance Test is >50%
N 3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
____ 5 - Wetland Non-Vascular Plants[1]
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes ____ No ✓

Remarks:

## SOIL

Keehn 11/16/21 Sampling Point: WIT6-U

**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 |
|---|---|---|---|---|---|---|---|---|
| 0-8 | 10YR3/4 | 100 | — | — | — | — | Loam | |
| 8-14 | 10YR3/4 | 100 | — | — | — | — | Sandy Loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** Yes ____ No X

Remarks:

## 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: Keehn City/County: McKinleyville / Humboldt Sampling Date: 11/19/21
Applicant/Owner: GHD for Mary Keehn Revel State: CA Sampling Point: WTT-W
Investigator(s): K. McDonald, M. Schwarz Section, Township, Range: S5, T6N, R1E
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 15
Subregion (LRR): A Lat: 40.3372230 Long: -124.095751 Datum: WGS84
Soil Map Unit Name: Arcata & Candymnt, 2-9% slopes 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 ____ | **Is the Sampled Area within a Wetland?** Yes ✓ No ____ |
| Hydric Soil Present? | Yes ✓ No ____ | |
| Wetland Hydrology Present? | Yes ✓ No ____ | |

Remarks: North side east of Sarpus swale

### 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: 1m²) | | | |
| 1. Juncus hesperus | 15 | | FACW |
| 2. Ranunculus repens | 15 | | FAC |
| 3. Carex obnupta | 2 | | OBL |
| 4. Festuca arundinacea | 18 | Y | FAC |
| 5. Hypochaeris radicata | 12 | | FACU |
| 6. Trifolium repens | 1 | | FAC |
| 7. Agrostis stolonifera | 30 | Y | FAC |
| 8. Plantago lanceolata | 2 | | FACU |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 95 = Total Cover | | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | ____ = Total Cover | | |

% Bare Ground in Herb Stratum 5

**Dominance Test worksheet:**
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

**Prevalence Index worksheet:**

| Total % Cover of | Multiply by: | |
|---|---|---|
| OBL species | x 1 = | |
| FACW species | x 2 = | |
| FAC species | x 3 = | |
| FACU species | x 4 = | |
| UPL species | x 5 = | |
| Column Totals (A) | | (B) |

Prevalence Index = B/A = ____

**Hydrophytic Vegetation Indicators:**
__ 1 - Rapid Test for Hydrophytic Vegetation
__ 2 - Dominance Test is >50%
__ 3 - Prevalence Index is ≤3.0[1]
__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ 5 - Wetland Non-Vascular Plants[1]
__ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes ✓ No ____

Remarks:

## SOIL

Kechn 11/19/21 Sampling Point: WIT7-W

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

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-4 | 10YR3/2 | 100 | – | – | – | – | Loam | |
| 4-14 | 10YR3/2 | 90 | 7.5YR 4/6 | 10 | C | M | 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)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: ___

Depth (inches): ___

**Hydric Soil Present?** Yes X No ___

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X 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)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

**Field Observations:**

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

Water Table Present? Yes X No ___ Depth (inches): 11"

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 9"

**Wetland Hydrology Present?** Yes X No ___

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: Keehn City/County: McKinleyville / Humboldt Sampling Date: 11/19/21
Applicant/Owner: GHD for Mary Keehn State: CA Sampling Point: WTT-U
Investigator(s): K. McDonald, M. Schwarz Section, Township, Range: S5, T6N, R1E
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 15
Subregion (LRR): A Lat: 40.3377230 Long: -124.0975751 Datum: WGS 84
Soil Map Unit Name: Arcata and Candy mnt, 2-9% soils 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 ✓ | Is the Sampled Area within a Wetland? Yes ____ No ✓ |
| Hydric Soil Present? | Yes ____ | No ✓ | |
| Wetland Hydrology Present? | Yes ____ | No ✓ | |

Remarks: Tongue of upland along convex slope

## VEGETATION – Use scientific names of plants.

| | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| **Tree Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | ____ = Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | ____ = Total Cover | | |
| **Herb Stratum** (Plot size: 1 m²) | | | |
| 1. Agrostis stolonifera | 35 | Y | FAC |
| 2. Hypochaeris radicata | 15 | ____ | FACU |
| 3. Plantago lanceolata | 20 | Y | FACU |
| 4. Lotus corniculatus | 2 | ____ | ____ |
| 5. Ranunculus repens | 2 | ____ | ____ |
| 6. Festuca arundinacea | 5 | ____ | ____ |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 80 = Total Cover | | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | ____ = Total Cover | | |

% Bare Ground in Herb Stratum 20

**Dominance Test worksheet:**
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

**Prevalence Index worksheet:**

| Total % Cover of | Multiply by |
|---|---|
| OBL species ____ | x 1 = ____ |
| FACW species ____ | x 2 = ____ |
| FAC species ____ | x 3 = ____ |
| FACU species ____ | x 4 = ____ |
| UPL species ____ | x 5 = ____ |
| Column Totals: ____ (A) | ____ (B) |

Prevalence Index = B/A = ____

**Hydrophytic Vegetation Indicators:**
__ 1 - Rapid Test for Hydrophytic Vegetation
__ 2 - Dominance Test is >50%
__ 3 - Prevalence Index is ≤3.0[1]
__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ 5 - Wetland Non-Vascular Plants[1]
__ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes ____ No ✓

Remarks:

## SOIL

Hechm 11/19/21 Sampling Point: W1T7-U

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

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-5 | 10YR3/3 | 100 | — | — | — | — | Loam | |
| 5-14 | 10YR3/4 | 100 | — | — | — | — | 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: Kheeh City/County: McKinleyville/Humboldt Sampling Date: 11/19/21
Applicant/Owner: GHD for Mary Kocher Revel. State: CA Sampling Point: WIT8-W
Investigator(s): K. McDonald, M. Schwarz Section, Township, Range: S5, T6N, R1E
Landform (hillslope, terrace, etc.): plain Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): A Lat: 40.9327843 Long: -124.6973552 Datum: WGS 84
Soil Map Unit Name: Wersik – Arlynda complex, 0-2% slopes 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 ____ | **Is the Sampled Area within a Wetland?** Yes ✓ No ____ |
| Hydric Soil Present? | Yes ✓ No ____ | |
| Wetland Hydrology Present? | Yes ✓ No ____ | |

Remarks:

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | ____ = Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | ____ = Total Cover | | |
| **Herb Stratum** (Plot size: 1 m²) | | | |
| 1. Festuca arundinacea | 30 | Y | FAC |
| 2. Agrostis stolonifera | 60 | Y | FAC |
| 3. Lotus corniculatus | 5 | | FAC |
| 4. Plantago lanceolata | 1 | | FACU |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 96 = Total Cover | | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | ____ = Total Cover | | |

% Bare Ground in Herb Stratum 4

**Dominance Test worksheet:**
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | Multiply by: |
|---|---|
| OBL species ____ | x 1 = ____ |
| FACW species ____ | x 2 = ____ |
| FAC species ____ | x 3 = ____ |
| FACU species ____ | x 4 = ____ |
| UPL species ____ | x 5 = ____ |
| Column Totals: ____ (A) | ____ (B) |

Prevalence Index = B/A = ____

**Hydrophytic Vegetation Indicators:**
___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes ✓ No ____

Remarks:

## SOIL

Keehn 11/19/21 Sampling Point: WIT8-W

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

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-6 | 10YR3/2 | 100 | - | - | - | - | Silt loam | |
| 6-14 | 10YR3/2 | 90 | 7.5YR 4/4 | 10 | C | M | Silt 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)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** Yes X No ___

Remarks:

## 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)
- X Geomorphic Position (D2) Swale
- ___ 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 X No ___

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

Remarks:

Base on hydric Soil & Geomorphic position

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

Project/Site: Keehn City/County: McKinleyville/Humboldt Sampling Date: 11/19/21
Applicant/Owner: GHD for Mary Keeh Devel State: CA Sampling Point: WT TB-U
Investigator(s): K McDonald, M. Schwarz Section, Township, Range: S 5, T6N, R1E
Landform (hillslope, terrace, etc.): plain Local relief (concave, convex, none): Convex Slope (%): 3
Subregion (LRR): A Lat: 40.932748 43 Long: -124.0973552 Datum: WGS84
Soil Map Unit Name: Worsick - Arlynda complex 0-2% slopes 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 ✓ | **Is the Sampled Area within a Wetland?** Yes ____ No ✓ |
| Hydric Soil Present? | Yes ____ | No ✓ | |
| Wetland Hydrology Present? | Yes ____ | No ✓ | |

Remarks: Small convex upland within larger wetland

### 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: 1m²) | | | |
| 1. Agrostis stolonifera | 80 | Y | FAC |
| 2. Plantago lanceolata | 10 | | FACU |
| 3. Festuca arundinacea | 3 | | FAC |
| 4. Lotus corniculatus | 2 | | FAC |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 95 = Total Cover | | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | ____ = Total Cover | | |

% Bare Ground in Herb Stratum: 5

**Dominance Test worksheet:**
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | Multiply by: | |
|---|---|---|
| OBL species | x 1 = | |
| FACW species | x 2 = | |
| FAC species 85 | x 3 = | 255 |
| FACU species 10 | x 4 = | 40 |
| UPL species | x 5 = | |
| Column Totals: 95 (A) | | 295 (B) |

Prevalence Index = B/A = 3.11

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes ____ No ✓

Remarks: Dominated by FAC species

## SOIL

Keehn 11/19/21 Sampling Point: WLT8-U

**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 |
|---|---|---|---|---|---|---|---|---|
| 0-9 | 10YR3/3 | 100 | — | — | — | — | Silt Loam | |
| 9-13 | 10YR3/3 | 90 | 7.5YR5/6 | 10 | C | M | Loam/Silt 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** (1)

Remarks: Chroma Too High / Redox Too Deep

## 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: Keehn City/County: McKinleyville, CA Sampling Date: 12/2/21
Applicant/Owner: GHD for Mary Kaeha Revel. State: CA Sampling Point: WTT9-W
Investigator(s): K.McDonald, M Schwarz Section, Township, Range: S5, T6, R1E
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): A Lat: 40.93337753 Long: -124.09820CT Datum: WGS84
Soil Map Unit Name: Arcata & Candy mnt, 2-9% slopes 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 ____ | **Is the Sampled Area within a Wetland?** Yes ✓ No ____ |
| Hydric Soil Present? | Yes ✓ | No ____ | |
| Wetland Hydrology Present? | Yes ✓ | No ____ | |

Remarks:

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | ____ = Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | ____ = Total Cover | | |
| **Herb Stratum** (Plot size: 1m²) | | | |
| 1. Lotus corniculatus | 10 | | |
| 2. Festuca arundinacea | 20 | Y | FAC |
| 3. Agrostis stolonifera | 55 | Y | FAC |
| 4. Plantago lanceolata | 10 | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 95 = Total Cover | | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | ____ = Total Cover | | |

% Bare Ground in Herb Stratum 5

**Dominance Test worksheet:**
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | ____ | x 1 = | ____ |
| FACW species | ____ | x 2 = | ____ |
| FAC species | ____ | x 3 = | ____ |
| FACU species | ____ | x 4 = | ____ |
| UPL species | ____ | x 5 = | ____ |
| Column Totals: | ____ (A) | | ____ (B) |

Prevalence Index = B/A = ____

**Hydrophytic Vegetation Indicators:**
___ 1 - Rapid Test for Hydrophytic Vegetation
✓ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes ✓ No ____

Remarks:

## SOIL

Klecka 12/2/21 Schwarz Sampling Point: WITG-W

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

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-6 | 10YR 2/1 | 100 | — | — | — | — | Loam | |
| 6-14 | 10YR 2/1 | 90 | 7.5YR 4/6 | C | M | PL | 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)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: ___

Depth (inches): ___

**Hydric Soil Present?** Yes X No ___

Remarks:

## 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)
- X Geomorphic Position (D2) Low Area
- ___ 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 X (1) No ___

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

Remarks: (1) Based on hydric soil / Topographic Position

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

Project/Site: Keehn City/County: McKinleyville/Humboldt Sampling Date: 12/22/21
Applicant/Owner: SHO for Mary Keehn Devel. State: CA Sampling Point: WTT9-U
Investigator(s): K McDonald, M. Schwarz Section, Township, Range: S5, T6N, R1E
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 5
Subregion (LRR): A Lat: 40.93337753 Long: -124.0982055 Datum: WGS84
Soil Map Unit Name: Arcata and Candy Mountain, 2-9% slopes 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 ✓ | **Is the Sampled Area within a Wetland?** Yes ____ No ✓ |
| Hydric Soil Present? | Yes ____ No ✓ | |
| Wetland Hydrology Present? | Yes ____ No ✓ | |

Remarks:

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | ____ = Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | ____ = Total Cover | | |
| **Herb Stratum** (Plot size: 1m²) | | | |
| 1. Plantago lanceolata | 10 | | FACU |
| 2. Leontodon saxatilis | 15 | Y | FACU |
| 3. Hypochaeris radicata | 8 | | FACU |
| 4. Agrostis stolonifera | 45 | Y | FAC |
| 5. Ranunculus repens | 10 | | FAC |
| 6. Symphyotrichum chilense | 1 | | FAC |
| 7. Festuca arundinacea | 2 | | FAC |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 83 = Total Cover | | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | ____ = Total Cover | | |

% Bare Ground in Herb Stratum 7

**Dominance Test worksheet:**
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | Multiply by: | |
|---|---|---|
| OBL species | x 1 = | |
| FACW species | x 2 = | |
| FAC species | x 3 = | |
| FACU species | x 4 = | |
| UPL species | x 5 = | |
| Column Totals | (A) | (B) |

Prevalence Index = B/A = ____

**Hydrophytic Vegetation Indicators:**
__ 1 - Rapid Test for Hydrophytic Vegetation
__ 2 - Dominance Test is >50%
__ 3 - Prevalence Index is ≤3.0[1]
__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ 5 - Wetland Non-Vascular Plants[1]
__ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes ____ No ✓

Remarks:

## SOIL

Uechn 12/2/21 Schwarz Sampling Point: WITq-U

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

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-7 | 10YR 3/2 | 100 | — | — | — | — | Loam | |
| 7-15 | 10YR 3/2+ | 100 | — | — | — | — | 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: We Are Up City/County: Mckinleyville/HumCo Sampling Date: 9/15/22

Applicant/Owner: Mary Kahn Development State: CA Sampling Point: UP-10

Investigator(s): M. Schwarz, K Lundgren Section, Township, Range: S5, T6N, R1E

Landform (hillslope, terrace, etc.): none Local relief (concave, convex, none): none Slope (%): 0-3

Subregion (LRR): A Lat: 40.9343 Long: -124.09915 Datum:

Soil Map Unit Name: Arcata & Candymountain soils, 0-2% slopes NWI classification: NA

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

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

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

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

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

Remarks:

## VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ____) | 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. Agrostis stolonifera | 15 | Y | FAC |
| 2. Prunella vulgaris | 20 | Y | FACU |
| 3. Hypochaeris radicata | 15 | Y | FACU |
| 4. Lotus corniculatus | 5 | | FAC |
| 5. Plantago lanceolata | 10 | Y | FACU |
| 6. Festuca perennis | 30 | Y | FAC |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 90 = Total Cover 45 18 | | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | ____ = Total Cover | | |

% Bare Ground in Herb Stratum 10

**Dominance Test worksheet:**

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

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 2/5 = 40% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | Multiply by: |
|---|---|
| OBL species ____ | x 1 = ____ |
| FACW species ____ | x 2 = ____ |
| FAC species ____ | x 3 = ____ |
| FACU species ____ | x 4 = ____ |
| UPL species ____ | x 5 = ____ |
| Column Totals: ____ (A) | ____ (B) |

Prevalence Index = B/A = ____

**Hydrophytic Vegetation Indicators:**

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes ____ No ✓

Remarks:

## SOIL

9/15/22 We Are Up MS Sampling Point: UP-10

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

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-6 | 10YR 3/3 | 100 | — | — | — | — | Silt Loam | |
| 6-13 | 10YR 5/6 | 100 | — | — | — | — | Sandy Loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** Yes ____ No X

Remarks:

Dug in drainage Swale

## 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: We Are Up City/County: McKinleyville/Humco Sampling Date: 9/15/22

Applicant/Owner: Mary Kuehn Development State: CA Sampling Point: VP-11

Investigator(s): M. Schwarz, K Lundgren Section, Township, Range: 35, T6N, R1E

Landform (hillslope, terrace, etc.): none Local relief (concave, convex, none): none Slope (%): 0-3

Subregion (LRR): A Lat: 40.93434 Long: -124.0994 Datum: _____

Soil Map Unit Name: Arcata & Candymountain soils, 0-2% slopes NWI classification: NA

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

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

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

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

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

Remarks:

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: _____) | 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. Rumex acetosella | 15 | Y | FACU |
| 2. Leucanthemum vulgare | 25 | Y | UPL |
| 3. Hypochaeris radicata | 5 | | FACU |
| 4. Agrostis stolonifera | 15 | Y | FAC |
| 5. Trifolium repens | 7 | Y | FACU |
| 6. Poa annua | 30 | Y | FAC |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 97 = Total Cover | | 43.5 / 14.4 |
| **Woody Vine Stratum** (Plot size: _____) | | | |
| 1. | | | |
| 2. | | | |
| | _____ = Total Cover | | |

% Bare Ground in Herb Stratum 3

**Dominance Test worksheet:**

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

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 2/5 = 40% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | Multiply by: |
|---|---|
| OBL species _____ | x 1 = _____ |
| FACW species _____ | x 2 = _____ |
| FAC species _____ | x 3 = _____ |
| FACU species _____ | x 4 = _____ |
| UPL species _____ | x 5 = _____ |
| Column Totals: _____ (A) | _____ (B) |

Prevalence Index = B/A = _____

**Hydrophytic Vegetation Indicators:**

__ 1 - Rapid Test for Hydrophytic Vegetation

__ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ 5 - Wetland Non-Vascular Plants[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes _____ No ✓

Remarks:

## SOIL

9/15/22 We Are Up MS

Sampling Point: UP-11

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

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-6 | 10YR3/3 | 100 | — | — | — | — | Silt Loam | |
| 6-14 | 10YR3/3 | 100 | — | — | — | — | Silt 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:

**U.S. Army Corps of Engineers**
**WETLAND DETERMINATION DATA SHEET – Western Mountains, Valleys, and Coast Region**
See ERDC/EL TR-10-3; the proponent agency is CECW-COR

*OMB Control #: 0710-0024, Exp:4/30/2024*
*Requirement Control Symbol EXEMPT:*
*(Authority: AR 335-15, paragraph 5-2a)*

Project/Site: We Are Up | City/County: McKinleyville | Sampling Date: 04/16/2024
Applicant/Owner: Keehn Development | State: California | Sampling Point: Up12
Investigator(S): Hartnett and Cipra | Section, Township, Range: 05 6N 1E
Landform (Hillside, Terrace, Etc.): Slope | Local Relief (Concave, Convex, None): None | Slope (%): 5
Subregion (LRR): A | Lat: 40.93331201 | Long: -124.10039819 | Datum: WGS84
Soil Map Unit Name: 226 - Arcata and Candymountain soils, 2-9% slopes | 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 | |
| Hydric Soil Present? | ☐ Yes | ☑ No | |
| Wetland Hydrology Present? | ☐ Yes | ☑ No | **Is the Sampled Area within a Wetland?** ☐ **Yes** ☑ **No** |

Remarks: Precipitation is well above normal..

**VEGETATION** – Use scientific names of plants. Sampling Point: Up12

| Tree Stratum (Plot Size: 30 ft) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix lasiolepis (Arroyo Willow)* | 25 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| | 25 | =Total Cover | |

| Sapling/Shrub Stratum (Plot Size: 15 ft) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| | 0 | =Total Cover | |

| Herb Stratum (Plot Size: 5 ft) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Poa annua (Annual Blue Grass)* | 25 | Yes | FAC |
| 2. *Prunella vulgaris (Common Selfheal)* | 10 | Yes | FACU |
| 3. *Holcus lanatus (Common Velvet Grass)* | 2 | No | FAC |
| 4. *Hypochaeris radicata (Hairy Cat's-Ear)* | 2 | No | FACU |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| | 39 | =Total Cover | |

| Woody Vine Stratum (Plot Size: 15 ft) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Rubus ursinus (California Dewberry)* | 25 | Yes | FACU |
| 2. *Rubus armeniacus (Himalayan Blackberry)* | 3 | No | FAC |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| | 28 | =Total Cover | |

% Bare Ground in Herb Stratum: 50

**Dominance Test worksheet:**

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

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

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

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: |
|---|---|---|
| OBL species | 0 | x 1 = 0 |
| FACW species | 25 | x 2 = 50 |
| FAC species | 30 | x 3 = 90 |
| FACU species | 37 | x 4 = 148 |
| UPL species | 0 | x 5 = 0 |
| Column Totals: | 92 (A) | 288 (B) |

Prevalence Index = B/A = 3.13043478

**Hydrophytic Vegetation Indicators:**

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present** ☐ **Yes** ☑ **No**

Remarks:
Problematic Hydrophytic Vegetation Explanation:

## SOIL

SAMPLING POINT: Up12

**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 |
|---|---|---|---|---|---|---|---|---|
| 0-4 | 10YR3/2 | 100 | | | | | Loam (class unknown) | |
| 4-14 | 10YR 4/3 | 100 | | | | | Loam (class unknown) | |

[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)
- ☐ 1 cm Muck (A9) **(LRR D, G)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) **(LRR G)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Indicators of hydrophytic vegetation and 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) **(LRR A, E)**
- ☐ Iron-Manganese Masses (F12) **(LRR D)**
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (F22)
- ☐ Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type:

Depth (inches):

**Hydric Soil Present?** ☐ **Yes** ☑ **No**

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is 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 Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on 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-Heaved Hummocks (D7)

**Field Observations:**

Surface Water Present? ☐ Yes ☑ No Depth (inches):

Water Table Present? ☐ Yes ☑ No Depth (inches):

Saturation Present? ☐ Yes ☑ No Depth (inches):

(includes capillary fringe)

**Wetland Hydrology Present?** ☐ **Yes** ☑ **No**

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

Remarks: Above normal rain year

**U.S. Army Corps of Engineers**
**WETLAND DETERMINATION DATA SHEET – Western Mountains, Valleys, and Coast Region**
See ERDC/EL TR-10-3; the proponent agency is CECW-COR

*OMB Control #: 0710-0024, Exp:4/30/2024*
*Requirement Control Symbol EXEMPT:*
*(Authority: AR 335-15, paragraph 5-2a)*

Project/Site: We Are Up | City/County: McKinleyville | Sampling Date: 04/16/2024
Applicant/Owner: Keehn Development | State: California | Sampling Point: W2-T1-U
Investigator(S): Hartnett and Cipra | Section, Township, Range: 05 6N 1E
Landform (Hillside, Terrace, Etc.): Slope | Local Relief (Concave, Convex, None): None | Slope (%): 5
Subregion (LRR): A | Lat: 40.9331644 | Long: -124.09979169 | Datum: WGS84
Soil Map Unit Name: 226 - Arcata and Candymountain soils, 2-9% slopes | 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 | |
| Hydric Soil Present? | ☐ Yes | ☑ No | |
| Wetland Hydrology Present? | ☐ Yes | ☑ No | **Is the Sampled Area within a Wetland?** ☐ **Yes** ☑ **No** |

Remarks: 125% of normal precip for the year.

**VEGETATION** – Use scientific names of plants. Sampling Point: W2-T1-U

| Tree Stratum (Plot Size: 30 ft) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix lasiolepis (Arroyo Willow)* | 5 | Yes | FACW |
| 2. *Prunus serotina (Black Cherry)* | 2 | Yes | FACU |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| | 7 | =Total Cover | |

| Sapling/Shrub Stratum (Plot Size: 15 ft) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| | 0 | =Total Cover | |

| Herb Stratum (Plot Size: 5 ft) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Agrostis stolonifera (Spreading Bent)* | 50 | Yes | FAC |
| 2. *Holcus lanatus (Common Velvet Grass)* | 40 | Yes | FAC |
| 3. *Ranunculus repens (Creeping Buttercup)* | 3 | No | FAC |
| 4. *Prunella vulgaris (Common Selfheal)* | 1 | No | FACU |
| 5. *Trifolium dubium (Suckling Clover)* | 1 | No | FACU |
| 6. *Trifolium dubium (Suckling Clover)* | | | |
| 7. | | | |
| 8. | | | |
| | 95 | =Total Cover | |

| Woody Vine Stratum (Plot Size: 15 ft) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| | 0 | =Total Cover | |

% Bare Ground in Herb Stratum: 5

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | |
| FACW species | 5 | x 2 = | 10 |
| FAC species | 93 | x 3 = | 279 |
| FACU species | 5 | x 4 = | 20 |
| UPL species | | x 5 = | |
| Column Totals: | (A) 103 | | B) 309 |

Prevalence Index = B/A = 3.00

**Hydrophytic Vegetation Indicators:**

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present** ☐ **Yes** ☑ **No**

Remarks: Passed dominance test with facultative vegetation. Lack of hydric soil and wetland hydrology indicate facultative plants not acting as hydrophytes.
Problematic Hydrophytic Vegetation Explanation:

## SOIL

SAMPLING POINT: W2-T1-U

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

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-11 | 10YR 3/3 | 100 | _ | _ | _ | _ | Loam (class unknown) | _ |
| 11-14 | 10YR 3/3 | 96 | 5YR 5/8 | 4 | _ | _ | Loam (class unknown) | _ |
| 14-16 | 10YR 3/2 | 60 | 5YR 5/8 | 10 | C | _ | Loam (class unknown) | _ |
| 14-16 | 10YR 4/2 | 30 | | | | | | |

[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)
- ☐ 1 cm Muck (A9) **(LRR D, G)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) **(LRR G)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Indicators of hydrophytic vegetation and 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) **(LRR A, E)**
- ☐ Iron-Manganese Masses (F12) **(LRR D)**
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (F22)
- ☐ Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type:

Depth (inches):

**Hydric Soil Present?** ☐ **Yes** ☑ **No**

Remarks: Chroma too high for F6. Depletion to low in profile for F3

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is 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 Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on 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-Heaved Hummocks (D7)

**Field Observations:**

| | | |
|---|---|---|
| Surface Water Present? | ☐ Yes ☑ No | Depth (inches): |
| Water Table Present? | ☐ Yes ☑ No | Depth (inches): |
| Saturation Present? (includes capillary fringe) | ☑ Yes ☐ No | Depth (inches): **13** |

**Wetland Hydrology Present?** ☐ **Yes** ☑ **No**

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

Remarks: Above normal rain year

**U.S. Army Corps of Engineers**
**WETLAND DETERMINATION DATA SHEET – Western Mountains, Valleys, and Coast Region**
See ERDC/EL TR-10-3; the proponent agency is CECW-COR

*OMB Control #: 0710-0024, Exp:4/30/2024*
*Requirement Control Symbol EXEMPT:*
*(Authority: AR 335-15, paragraph 5-2a)*

Project/Site: We Are Up | City/County: McKinleyville | Sampling Date: 04/16/2024
Applicant/Owner: Keehn Development | State: California | Sampling Point: W2-T1-W
Investigator(S): Miles Hartnet & Jane Cipra | Section, Township, Range: 05 6N 1E
Landform (Hillside, Terrace, Etc.): Slope | Local Relief (Concave, Convex, None): None | Slope (%): 5
Subregion (LRR): A | Lat: 40.93322338 | Long: -124.09970485 | Datum: WGS84
Soil Map Unit Name: 226 - Arcata and Candymountain soils, 2-9% slopes | NWI Classification: PSS

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

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

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

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

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | ☑ Yes | ☐ No | |
| Hydric Soil Present? | ☑ Yes | ☐ No | |
| Wetland Hydrology Present? | ☑ Yes | ☐ No | **Is the Sampled Area within a Wetland?** ☑ **Yes** ☐ **No** |

Remarks: . Above normal precipitation Jan-Mar 2024.

**VEGETATION** – Use scientific names of plants. Sampling Point: W100-T1

| Tree Stratum (Plot Size: 30 ft) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix lasiolepis (Arroyo Willow)* | 30 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| | 30 | =Total Cover | |

| Sapling/Shrub Stratum (Plot Size: 15 ft) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| | 0 | =Total Cover | |

| Herb Stratum (Plot Size: 5 ft) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Carex obnupta (Slough Sedge)* | 35 | Yes | OBL |
| 2. *Ranunculus repens (Creeping Buttercup)* | 15 | Yes | FAC |
| 3. *Agrostis stolonifera (Spreading Bent)* | 5 | No | FAC |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| | 55 | =Total Cover | |

| Woody Vine Stratum (Plot Size: 15 ft) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Rubus armeniacus (Himalayan Blackberry)* | 3 | No | FAC |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| | 3 | =Total Cover | |

% Bare Ground in Herb Stratum: 0

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

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

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

**Prevalence Index worksheet:**

| Total % Cover of: | Multiply by: |
|---|---|
| OBL species | x 1 = |
| FACW species | x 2 = |
| FAC species | x 3 = |
| FACU species | x 4 = |
| UPL species | x 5 = |
| Column Totals: (A) | (B) |

Prevalence Index = B/A =

**Hydrophytic Vegetation Indicators:**

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present** ☑ **Yes** ☐ **No**

Remarks:
Problematic Hydrophytic Vegetation Explanation:

## SOIL

SAMPLING POINT: W2-T1-W

**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 |
|---|---|---|---|---|---|---|---|---|
| 0-5 | 10YR 3/2 | 100 | | | | | Loam | |
| 5-10 | 10YR 3/2 | 92 | 2.5YR 4/6 | 8 | C | PL/M | Loam | |
| 10-15 | 10YR 5/1 | 75 | 5 YR 5/8 | 25 | C | M | silt 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)
- ☐ 1 cm Muck (A9) **(LRR D, G)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) **(LRR G)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Indicators of hydrophytic vegetation and 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) **(LRR A, E)**
- ☐ Iron-Manganese Masses (F12) **(LRR D)**
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (F22)
- ☐ Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type:

Depth (inches):

**Hydric Soil Present?** ☑ **Yes** ☐ **No**

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is 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 Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on 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-Heaved Hummocks (D7)

**Field Observations:**

| | | |
|---|---|---|
| Surface Water Present? | ☐ Yes ☑ No | Depth (inches): |
| Water Table Present? | ☑ Yes ☐ No | Depth (inches): **10** |
| Saturation Present? (includes capillary fringe) | ☑ Yes ☐ No | Depth (inches): 8 |

**Wetland Hydrology Present?** ☑ **Yes** ☐ **No**

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

Remarks: Positive alpha alpha dip at 10 inches

**U.S. Army Corps of Engineers**
**WETLAND DETERMINATION DATA SHEET – Western Mountains, Valleys, and Coast Region**
See ERDC/EL TR-10-3; the proponent agency is CECW-COR

*OMB Control #: 0710-0024, Exp:4/30/2024*
*Requirement Control Symbol EXEMPT:*
*(Authority: AR 335-15, paragraph 5-2a)*

Project/Site: We Are Up | City/County: McKinleyville | Sampling Date: 04/16/2024
Applicant/Owner: Keehn Development | State: California | Sampling Point: W3-T1-U
Investigator(S): Hartnett and Cipra | Section, Township, Range: 05 6N 1E
Landform (Hillside, Terrace, Etc.): Slope | Local Relief (Concave, Convex, None): None | Slope (%): 5
Subregion (LRR): A | Lat: 40.93331323 | Long: -124.10000938 | Datum: WGS84
Soil Map Unit Name: 226 - Arcata and Candymountain soils, 2-9% slopes | 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 | Wetland 5 (W5) -1-Parameter Wetland |
| Hydric Soil Present? | ☑ Yes | ☐ No | |
| Wetland Hydrology Present? | ☐ Yes | ☑ No | **Is the Sampled Area within a Wetland?** ☐ **Yes** ☑ **No** |

Remarks: This is a 1-Parameter Wetland under the Mckinnleyville Community Plan. Above normal rain year.

**VEGETATION** – Use scientific names of plants. Sampling Point: W3-T1-U

| Tree Stratum (Plot Size: 30 ft) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| | 0 | =Total Cover | |

| Sapling/Shrub Stratum (Plot Size: 15 ft) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| | 0 | =Total Cover | |

| Herb Stratum (Plot Size: 5 ft) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Poa pratensis (Kentucky Blue Grass)* | 60 | Yes | FAC |
| 2. *Ranunculus repens (Creeping Buttercup)* | 10 | No | FAC |
| 3. *Holcus lanatus (Common Velvet Grass)* | 15 | No | FAC |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| | 85 | =Total Cover | |

| Woody Vine Stratum (Plot Size: 15 ft) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| | 0 | =Total Cover | |

% Bare Ground in Herb Stratum: 0

**Dominance Test worksheet:**

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

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

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

**Prevalence Index worksheet:**

| Total % Cover of: | Multiply by: |
|---|---|
| OBL species | x 1 = |
| FACW species | x 2 = |
| FAC species 85 | x 3 = 255 |
| FACU species | x 4 = |
| UPL species | x 5 = |
| Column Totals: (A) 85 | (B)255 |

Prevalence Index = B/A = 3.00

**Hydrophytic Vegetation Indicators:**

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present** ☑ **Yes** ☐ **No**

Remarks: Passed dominance test with facultative only vegetation.
Problematic Hydrophytic Vegetation Explanation:

## SOIL

SAMPLING POINT: W3-T1-U

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

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox Features % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-8 | 10YR 3/2 | 100 | | | | | | |
| 8-13 | 10YR 3/1 | 92 | 7.5YR 4/8 | 8 | C | PL | Loam (class unknown) | |
| 13-16 | 10YR 3/1 | 60 | 5YR 5/8 and | 15 | | | Medium silt loam | Horizon at 13-16 had a mixed matrix (dark grey – yellow) with red redox |
| 13-16 | 2.5Y 6/6 | 25 | | | | | | |

[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)
- ☐ 1 cm Muck (A9) **(LRR D, G)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) **(LRR G)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Indicators of hydrophytic vegetation and 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) **(LRR A, E)**
- ☐ Iron-Manganese Masses (F12) **(LRR D)**
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (F22)
- ☐ Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type:

Depth (inches):

**Hydric Soil Present?** ☑ **Yes** ☐ **No**

Remarks: Evidence of soil mixing. Brick pieces and mixed horizons. F6 at 8 inches may be remnant from before surrounding development altered hydrology.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is 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 Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on 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-Heaved Hummocks (D7)

**Field Observations:**

| | | |
|---|---|---|
| Surface Water Present? | ☐ Yes ☐ No | Depth (inches): |
| Water Table Present? | ☑ Yes ☐ No | Depth (inches): 16 |
| Saturation Present? (includes capillary fringe) | ☑ Yes ☐ No | Depth (inches): 13 |

**Wetland Hydrology Present?** ☐ **Yes** ☑ **No**

Remarks: Positive Alpha Alpha Dip at 13", negative at 12". Water table at 16 inches in a particularly wet year indicates this point usually does not satisfy wetland hydrology. Hydrology on site may have been affected by surrounding development diverting sheet flow away from site.

**U.S. Army Corps of Engineers**
**WETLAND DETERMINATION DATA SHEET – Western Mountains, Valleys, and Coast Region**
See ERDC/EL TR-10-3; the proponent agency is CECW-COR

*OMB Control #: 0710-0024, Exp:4/30/2024*
*Requirement Control Symbol EXEMPT:*
*(Authority: AR 335-15, paragraph 5-2a)*

Project/Site: We Are Up | City/County: McKinleyville | Sampling Date: 04/16/2024
Applicant/Owner: Keehn Development | State: California | Sampling Point: W3-T1-W
Investigator(S): Hartnett and Cipra | Section, Township, Range: 05 6N 1E
Landform (Hillside, Terrace, Etc.): Terrace | Local Relief (Concave, Convex, None): None | Slope (%): 3
Subregion (LRR): A | Lat: 40.93339349 | Long: -124.09996578 | Datum: WGS84
Soil Map Unit Name: 226 - Arcata and Candymountain soils, 2-9% slopes | 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 | |
| Hydric Soil Present? | ☑ Yes | ☐ No | |
| Wetland Hydrology Present? | ☑ Yes | ☐ No | **Is the Sampled Area within a Wetland?** ☑ **Yes** ☐ **No** |

Remarks: Willow trees recently cut and resprouting as sapling/shrubs. Minimal herbaceous veg and a lot of slash present.. Above normal rain year.

**VEGETATION** – Use scientific names of plants. Sampling Point:

| Tree Stratum (Plot Size: 30 ft) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix lasiolepis (Arroyo Willow)* | 15 | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| | 15 | =Total Cover | |

| Sapling/Shrub Stratum (Plot Size: 15 ft) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix lasiolepis (Arroyo Willow)* | 20 | Yes | FACW |
| 2. *Ilex aquifolium (English Holly)* | 3 | No | FACU |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| | 23 | =Total Cover | |

| Herb Stratum (Plot Size: 5 ft) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Crocosmia X crocosmiiflora ( ? )* | 3 | Yes | FAC |
| 2. *Equisetum telmateia (Giant Horsetail)* | 2 | Yes | FACW |
| 3. *Epilobium ciliatum (Fringed Willowherb)* | 1 | No | FACW |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| | 6 | =Total Cover | |

| Woody Vine Stratum (Plot Size: 15 ft) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Rubus armeniacus (Himalayan Blackberry)* | 3 | Yes | FAC |
| 2. *Rubus ursinus (California Dewberry)* | 3 | Yes | FACU |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| | 6 | =Total Cover | |

% Bare Ground in Herb Stratum: 0

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83 (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | Multiply by: |
|---|---|
| OBL species | x 1 = |
| FACW species | x 2 = |
| FAC species | x 3 = |
| FACU species | x 4 = |
| UPL species | x 5 = |
| Column Totals: (A) | (B) |

Prevalence Index = B/A =

**Hydrophytic Vegetation Indicators:**

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present** ☑ **Yes** ☐ **No**

Remarks:
Problematic Hydrophytic Vegetation Explanation:

## SOIL

SAMPLING POINT: W3-T1-W

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

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox Features % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-4 | 10YR 3/2 | 100 | | 0 | | | Loam (class unknown) | |
| 4-8 | 10YR 3/1 | 96 | 2.5YR 4/6 | 4 | | PL | Loam (class unknown) | |
| 8-15 | 10YR 4/1 | 35 | 7.5YR 5/8 and | 25 | | M | silt loam | 8-14 horizon has a mixed matrix (dark grey and yellow) with red redox |
| 8-15 | 2.5Y 7/6 | 45 | | | | | | |

[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)
- ☐ 1 cm Muck (A9) **(LRR D, G)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) **(LRR G)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Indicators of hydrophytic vegetation and 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) **(LRR A, E)**
- ☐ Iron-Manganese Masses (F12) **(LRR D)**
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (F22)
- ☐ Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type:

Depth (inches):

**Hydric Soil Present?** ☑ **Yes** ☐ **No**

Remarks: soil mixing at 8 inches

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is 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 Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on 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-Heaved Hummocks (D7)

**Field Observations:**

| | | |
|---|---|---|
| Surface Water Present? | ☐ Yes ☑ No | Depth (inches): |
| Water Table Present? | ☑ Yes ☐ No | Depth (inches): 13.5 |
| Saturation Present? (includes capillary fringe) | ☑ Yes ☐ No | Depth (inches): **8** |

**Wetland Hydrology Present?** ☑ **Yes** ☐ **No**

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

Remarks: Positive AADP at 8". Iron sheen present.

**U.S. Army Corps of Engineers**
**WETLAND DETERMINATION DATA SHEET – Western Mountains, Valleys, and Coast Region**
See ERDC/EL TR-10-3; the proponent agency is CECW-COR

*OMB Control #: 0710-0024, Exp:4/30/2024*
*Requirement Control Symbol EXEMPT:*
*(Authority: AR 335-15, paragraph 5-2a)*

Project/Site: We Are Up | City/County: McKinleyville | Sampling Date: 04/16/2024
Applicant/Owner: Keehn Development | State: California | Sampling Point: W4-T1-U
Investigator(S): Hartnett and Cipra | Section, Township, Range: 05 6N 1E
Landform (Hillside, Terrace, Etc.): Slope | Local Relief (Concave, Convex, None): None | Slope (%): 8
Subregion (LRR): A | Lat: 40.93294921 | Long: -124.1002839 | Datum: WGS84
Soil Map Unit Name: 226 - Arcata and Candymountain soils, 2-9% slopes | 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 | |
| Hydric Soil Present? | ☐ Yes | ☑ No | |
| Wetland Hydrology Present? | ☐ Yes | ☑ No | **Is the Sampled Area within a Wetland?** ☐ **Yes** ☑ **No** |

Remarks: Mowed lawn; precipitation above normal. Fac dominant veg not hydrophytes.

**VEGETATION** – Use scientific names of plants. Sampling Point: W4-T1-U

| Tree Stratum (Plot Size: 30 ft) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| | 0 | =Total Cover | |

| Sapling/Shrub Stratum (Plot Size: 15 ft) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| | 0 | =Total Cover | |

| Herb Stratum (Plot Size: 5 ft) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Poa pratensis (Kentucky Blue Grass)* | 60 | Yes | FAC |
| 2. *Schedonorus arundinaceus (Tall False Rye Grass)* | 10 | No | FAC |
| 3. *Ranunculus repens (Creeping Buttercup)* | 10 | No | FAC |
| 4. *Trifolium dubium (Suckling Clover)* | 5 | No | FACU |
| 5. *Rumex crispus (Curly Dock)* | 1 | No | FAC |
| 6. *Rumex crispus (Curly Dock) : Bellis perennis* | 1 | No | UPL |
| 7. *Hypochaeris radicata (Hairy Cat's-Ear)* | 1 | No | FACU |
| 8. *Sonchus asper (Spiny-Leaf Sow-Thistle)* | 1 | No | FACU |
| | 89 | =Total Cover | |

| Woody Vine Stratum (Plot Size: 15 ft) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| | 0 | =Total Cover | |

% Bare Ground in Herb Stratum: 11

**Dominance Test worksheet:**

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

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

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

**Prevalence Index worksheet:**

| Total % Cover of: | Multiply by: |
|---|---|
| OBL species | x 1 = |
| FACW species | x 2 = |
| FAC species 81 | x 3 = 243 |
| FACU species 7 | x 4 = 28 |
| UPL species 1 | x 5 = 5 |
| Column Totals: (A)89 | (B)276 |

Prevalence Index = B/A = 3.10

**Hydrophytic Vegetation Indicators:**

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present** ☐ **Yes** ☑ **No**

Remarks: Passed dominance test only with facultative vegetation. Lack of hydric soil and wetland hydrology indicate facultative plants not acting as hydrophytes.
Problematic Hydrophytic Vegetation Explanation: Mowed lawn

## SOIL

SAMPLING POINT: W4-T1-U

**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 |
|---|---|---|---|---|---|---|---|---|
| 0-12 | 10YR 3/3 | 100 | | | | | | |
| 12-15 | 10YR 3/2 | 100 | | | | | | |

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ 1 cm Muck (A9) **(LRR D, G)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) **(LRR G)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Indicators of hydrophytic vegetation and 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) **(LRR A, E)**
- ☐ Iron-Manganese Masses (F12) **(LRR D)**
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (F22)
- ☐ Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type:

Depth (inches):

**Hydric Soil Present?** ☐ **Yes** ☑ **No**

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is 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 Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on 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-Heaved Hummocks (D7)

**Field Observations:**

Surface Water Present? ☐ Yes ☑ No Depth (inches):

Water Table Present? ☐ Yes ☑ No Depth (inches):

Saturation Present? ☐ Yes ☑ No Depth (inches):

(includes capillary fringe)

**Wetland Hydrology Present?** ☐ **Yes** ☑ **No**

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

Remarks: Above normal rain year

**U.S. Army Corps of Engineers**
**WETLAND DETERMINATION DATA SHEET – Western Mountains, Valleys, and Coast Region**
See ERDC/EL TR-10-3; the proponent agency is CECW-COR

*OMB Control #: 0710-0024, Exp:4/30/2024*
*Requirement Control Symbol EXEMPT:*
*(Authority: AR 335-15, paragraph 5-2a)*

Project/Site: We Are Up | City/County: McKinleyville | Sampling Date: 04/16/2024
Applicant/Owner: Keehn Development | State: California | Sampling Point: W4-T1-W
Investigator(S): Hartnett and Cipra | Section, Township, Range: 05 6N 1E
Landform (Hillside, Terrace, Etc.): Slope | Local Relief (Concave, Convex, None): None | Slope (%): 8
Subregion (LRR): A | Lat: 40.93292758 | Long: -124.10013421 | Datum: WGS84
Soil Map Unit Name: 226 - Arcata and Candymountain soils, 2-9% slopes | 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 | |
| Hydric Soil Present? | ☑ Yes | ☐ No | |
| Wetland Hydrology Present? | ☑ Yes | ☐ No | **Is the Sampled Area within a Wetland?** ☑ **Yes** ☐ **No** |

Remarks: Seep. Mowed lawn with saturated soils and water seeping out onto the surface. Precipitation is above normal for the year.

**VEGETATION** – Use scientific names of plants. Sampling Point: W4-T1-W

| Tree Stratum (Plot Size: 30 ft) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| | 0 | =Total Cover | |

| Sapling/Shrub Stratum (Plot Size: 15 ft) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| | 0 | =Total Cover | |

| Herb Stratum (Plot Size: 5 ft) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Agrostis stolonifera (Spreading Bent)* | 80 | Yes | FAC |
| 2. *Ranunculus repens (Creeping Buttercup)* | 5 | No | FAC |
| 3. *Cyperus eragrostis (Tall Flat Sedge)* | 3 | No | FACW |
| 4. *Holcus lanatus (Common Velvet Grass)* | 3 | No | FAC |
| 5. | | | - |
| 6. | | | - |
| 7. | | | - |
| 8. | | | - |
| | 91 | =Total Cover | |

| Woody Vine Stratum (Plot Size: 15 ft) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | - |
| 2. | | | - |
| 3. | | | - |
| 4. | | | - |
| 5. | | | - |
| 6. | | | - |
| 7. | | | - |
| 8. | | | - |
| | 0 | =Total Cover | |

% Bare Ground in Herb Stratum: 9

**Dominance Test worksheet:**

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

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

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

**Prevalence Index worksheet:**

| Total % Cover of: | Multiply by: |
|---|---|
| OBL species | x 1 = |
| FACW species | x 2 = |
| FAC species | x 3 = |
| FACU species | x 4 = |
| UPL species | x 5 = |
| Column Totals: (A) | (B) |

Prevalence Index = B/A =

**Hydrophytic Vegetation Indicators:**

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present** ☑ **Yes** ☐ **No**

Remarks:
Problematic Hydrophytic Vegetation Explanation:

## SOIL

SAMPLING POINT: W4-T1-W

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

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox Features % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-4 | 10YR 3/2 | 100 | | | | | Loam (class unknown) | |
| 4-11 | 10YR 3/1 | 85 | 2.5YR 4/8 | 15 | | | Loam (class unknown) | |

[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)
- ☐ 1 cm Muck (A9) **(LRR D, G)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) **(LRR G)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Indicators of hydrophytic vegetation and 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) **(LRR A, E)**
- ☐ Iron-Manganese Masses (F12) **(LRR D)**
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (F22)
- ☐ Other (Explain in Remarks)

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

**Restrictive Layer (if observed):**

Type:

Depth (inches):

**Hydric Soil Present?** ☑ **Yes** ☐ **No**

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is 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 Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on 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-Heaved Hummocks (D7)

**Field Observations:**

Surface Water Present? ☐ Yes ☐ X No Depth (inches):

Water Table Present? ☑ Yes ☐ No Depth (inches): 4

Saturation Present? ☑ Yes ☐ No Depth (inches): 0

(includes capillary fringe)

**Wetland Hydrology Present?** ☑ **Yes** ☐ **No**

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

Remarks: Presence of reduced iron at 2" positive Alpha Alpha Dip. Above normal Precipitation.

# Appendix C

## Site Photographs


Photo 1. Looking north from the southern edge of the PSB.


Photo 2. The northeastern edge of the PSB, showing the Coastal Willow Alliance backed by the Sitka Spruce Alliance behind it.


Photo 3. Viewing the southern edge of the PSB near Mill Creek.


Photo 4. Facing west in the center of the PSB.


Photo 5. Viewing a swale in the center of the PSB facing north.


Photo 6. Viewing more hydrophytic vegetation within Wetland 1, present on the upper slope.


Photo 7. Viewing a swale at the base of the slope within Wetland 1.


Photo 8. Dormant Coastal Willow Alliance SNC within the riparian corridor of Mill Creek.


Photo 9. SNCs Coastal Willow Alliance backed by Sitka Spruce Alliance within the riparian corridor of Mill Creek.


Photo 10. Mill Creek in late January 2022.

# Appendix D

## Rapid Assessment Datasheets

# Combined Vegetation Rapid Assessment and Relevé Field Form

(Revised March 27, 2018)

| For Office Use: | Final database #: | Final vegetation type: | Alliance<br>Association |
|---|---|---|---|

**I. LOCATIONAL/ENVIRONMENTAL DESCRIPTION** — circle: Relevé or (RA)

| Database #: | Date: | Name of recorder: Kelsey McDonald |
|---|---|---|
| WEIRCOM | 9/14/21 | Other surveyors: |
| | UID: | Location Name: Weirup / Keehn Development |

GPS name: Arcav 8 — For Relevé only: Bearing°, left axis at ID point ____ of Long / Short side

UTME _____ UTMN _____ Zone: 11 NAD83 GPS error: ft./ m./ PDOP ____

Decimal degrees: LAT ____ . _____ LONG ____ . _____

GPS within stand? Yes / No If No, cite from GPS to stand: distance (m) ____ bearing ° ____ inclination ° ____

and record: Base point ID _____ Projected UTMs: UTME _____ UTMN _____

Camera Name: iPhone Cardinal photos at ID point: NESW 12:29pm

Other photos:

Stand Size (acres): <1, 1-5, (>5) (including off property) | Plot Area (m²): 100 / ____ | Plot Dimensions ____ x ____ m | RA Radius (30) m

Exposure, Actual °: ____ NE NW SE (SW) Flat Variable | Steepness, Actual °: ____ 0° (1-5°) >5-25° >25

Topography: Macro: top upper (mid) lower bottom | Micro: convex flat concave (undulating)

Geology code: _____ Soil Texture code: _____ | Upland or Wetland/(Riparian) (circle one)

% Surface cover: (Incl. outcrops) (>60cm diam) (25-60cm) (7.5-25cm) (2mm-7.5cm) (Incl sand, mud)

$H_20$: | BA Stems: 25 Litter: 30 Bedrock: Boulder: Stone: Cobble: 1 Gravel: 5 Fines: 38 =100%

% Current year bioturbation ____ Past bioturbation present? Yes / No | % Hoof punch ____

Fire evidence: Yes / No (circle one) If yes, describe in Site history section, including date of fire, if known.

Site history, stand age, comments: Characterizing forested area on outer edges of property. Separated out areas of strong coastal willow dominance without taller spruce/alder canopy. Similar tree species composition along Mill Creek. RA point at NE corner.

Disturbance code / Intensity (L,M,H): ____/____ ____/____ ____/____ ____/____ ____/____ "Other" _____/____

**II. HABITAT DESCRIPTION**

Tree DBH : T1 (<1" dbh), T2 (1-6" dbh), T3 (6-11" dbh), T4 (11-24" dbh), T5 (>24" dbh), T6 multi-layered (T3 or T4 layer under T5, >60% cover)

Shrub: S1 seedling (<3 yr. old), S2 young (<1% dead), S3 mature (1-25% dead), S4 decadent (>25% dead)

Herbaceous: H1 (<12" plant ht.), H2 (>12" ht.)

Desert Riparian Tree/Shrub: 1 (<2ft. stem ht.), 2 (2-10ft. ht.), 3 (10-20ft. ht.), 4 (>20ft. ht.)

Desert Palm/Joshua Tree: 1 (<1.5" base diameter), 2 (1.5-6" diam.), 3 (>6" diam.)

**III. INTERPRETATION OF STAND**

Field-assessed vegetation Alliance name: Sitka Spruce forest Alliance

Field-assessed Association name (optional): Picea sitchensis-Alnus rubra

Adjacent Alliances/direction: Salix hookeriana / S, Agrostis stolonifera / SW

Confidence in Alliance identification: L (M) H Explain: patchy distribution

Phenology (E,P,L): Herb P Shrub P Tree P Other identification or mapping information:

## Combined Vegetation Rapid Assessment and Relevé Field Form

(Revised March 27, 2018)

**Database #:** WEIR001 SPECIES SHEET

### IV. VEGETATION DESCRIPTION

**% NonVasc cover:** ___ **Total % Vasc Veg cover:** 160

**% Cover -** **Conifer tree / Hardwood tree:** 60 / 40 **Regenerating Tree:** 1 **Shrub:** 15 **Herbaceous:** 5

**Height Class - Conifer tree / Hardwood tree:** 6 / 6 **Regenerating Tree:** 4 **Shrub:** 3 **Herbaceous:** 2

*Height classes:* 1=<1/2m, 2=1/2-1m, 3=1-2m, 4=2-5m, 5=5-10m, 6=10-15m, 7=15-20m, 8=20-35m, 9=35-50m, 10=>50m

**Stratum categories:** T=Tree, A = SApling, E = SEedling, S = Shrub, H= Herb, N= Non-vascular

**% Cover Intervals for reference:** r = trace, + = <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, >75%

| Stratum | Species | % cover | C | Final species determination |
|---|---|---|---|---|
| T | Picea sitchensis | 40 | | |
| T | Thuja plicata | 20 | | |
| T | Alnus rubra | 35 | | |
| T/S | Frangula purshiana | 5 | | |
| T | Eucalyptus globulus | 5 | | |
| S | Salix hookeriana | 5 | | |
| S | Rubus armeniacus | 6 | | |
| S | Rubus ursinus | 3 | | |
| S | Erica luscitania | 1 | | |
| S | Morella californica | 1 | | |
| S | Cotoneaster | .5 | | |
| H | Equisetum telmateia | 1 | | |
| H | Carex obnupta | .5 | | |
| H | Holcus lanatus | 1 | | |
| H | Agrostis stolonifera | 1 | | |
| H | Lotus corniculatus | .5 | | |
| H | Ranunculus repens | .5 | | |
| H | Anthoxanthum odoratum | .2 | | |
| | | | | |
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**Unusual species:** _____

# Combined Vegetation Rapid Assessment and Relevé Field Form

(Revised March 27, 2018)

| For Office Use: | Final database #: | Final vegetation type: | Alliance<br>Association |
|---|---|---|---|

**I. LOCATIONAL/ENVIRONMENTAL DESCRIPTION** — circle: Relevé or (RA)

| Database #: | Date: | Name of recorder: Kelsey McDonald |
|---|---|---|
| WEIRCOL | 9/14/21 | Other surveyors: |
| | UID: | Location Name: weirup |

GPS name: Arrow E — For Relevé only: Bearing°, left axis at ID point____ of Long / Short side

UTME _____ UTMN _____ Zone: 11 NAD83 GPS error: ft./ m./ PDOP ____

Decimal degrees: LAT ___ . _____ LONG ___ . _____

GPS within stand? (Yes) / No If No, cite from GPS to stand: distance (m) ____ bearing ° ____ inclination ° ____

and record: Base point ID _____ Projected UTMs: UTME _____ UTMN _____

Camera Name: iphone Cardinal photos at ID point: NESW 12:56

Other photos:

Stand Size (acres): (<1) 1-5, >5 | Plot Area (m²): 100 / _____ | Plot Dimensions ___ x ___ m | RA Radius (30) m

Exposure, Actual °: _____ NE NW SE (SW) Flat Variable | Steepness, Actual °: _____ 0° (1-5°) >5-25° >25

Topography: Macro: top upper mid (lower) bottom | Micro: convex flat concave (undulating)

Geology code: _____ Soil Texture code: _____ | Upland or (Wetland/Riparian (circle one)

| % Surface cover: | (Incl. outcrops) | (>60cm diam) | (25-60cm) | (7.5-25cm) | (2mm-7.5cm) | (Incl sand, mud) | |
|---|---|---|---|---|---|---|---|
| H20: ◯ BA Stems: 50 | Litter: 30 | Bedrock: | Boulder: | Stone: | Cobble: | Gravel: | Fines: 20 =100% |

% Current year bioturbation _____ Past bioturbation present? Yes / No | % Hoof punch _____

Fire evidence: Yes / No (circle one) If yes, describe in Site history section, including date of fire, if known.

Site history, stand age, comments: Characterizing coastal willow thickets on edge of Sitka spruce dominance and mowed non-native pasture grasses.

Disturbance code / Intensity (L,M,H): ___/___ ___/___ ___/___ ___/___ ___/___ "Other" _____/___

**II. HABITAT DESCRIPTION**

Tree DBH : T1 (<1" dbh), T2 (1-6" dbh), T3 (6-11" dbh), T4 (11-24" dbh), T5 (>24" dbh), T6 multi-layered (T3 or T4 layer under T5, >60% cover)

Shrub: S1 seedling (<3 yr. old), S2 young (<1% dead), S3 mature (1-25% dead), S4 decadent (>25% dead)

Herbaceous: H1 (<12" plant ht.), H2 (>12" ht.)

Desert Riparian Tree/Shrub: 1 (<2ft. stem ht.), 2 (2-10ft. ht.), 3 (10-20ft. ht.), 4 (>20ft. ht.)

Desert Palm/Joshua Tree: 1 (<1.5" base diameter), 2 (1.5-6" diam.), 3 (>6" diam.)

**III. INTERPRETATION OF STAND**

Field-assessed vegetation Alliance name: Coastal Willow Thicket Alliance

Field-assessed Association name (optional): _____

Adjacent Alliances/direction: Picea sitchensis / N, E, S. Agrostis stolonifera / W

Confidence in Alliance identification: L (M) H Explain: Patches on edge of Sitka spruce forest

Phenology (E,P,L): Herb P Shrub P Tree P Other identification or mapping information:

## Combined Vegetation Rapid Assessment and Relevé Field Form

(Revised March 27, 2018)

**Database #:** WEIR002 SPECIES SHEET

### IV. VEGETATION DESCRIPTION

**% NonVasc cover:** - **Total % Vasc Veg cover:** 100

**% Cover -** **Conifer tree / Hardwood tree:** 0/2 **Regenerating Tree:** 41 **Shrub:** 100 **Herbaceous:** 5

**Height Class - Conifer tree / Hardwood tree:** /5 **Regenerating Tree:** 3 **Shrub:** 5 **Herbaceous:** 1

*Height classes:* 1=<1/2m, 2=1/2-1m, 3=1-2m, 4=2-5m, 5=5-10m, 6=10-15m, 7=15-20m, 8=20-35m, 9=35-50m, 10=>50m

**Stratum categories:** T=Tree, A = SApling, E = SEedling, S = Shrub, H= Herb, N= Non-vascular

**% Cover Intervals for reference:** r = trace, + = <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, >75%

| Stratum | Species | % cover | C | Final species determination |
|---|---|---|---|---|
| T | Alnus rubra | 2 | | |
| S | Salix hookeriana | 85 | | |
| S | Rubus ursinus | 20 | | |
| S | Rubus armeniacus | 5 | | |
| H | Ranunculus repens | 1 | | |
| H | Hdcus lanatus | 1 | | |
| H | Juncus hesperius | 1 | | |
| H | Lotus corniculatus | .5 | | |
| H | Agrostis stolonifera | .5 | | |
| H | Anthoxanthum odoratum | .5 | | |
| H | Carex obnupta | .5 | | |

**Unusual species:** _____

# Appendix E

## NRCS Custom Soil Resources Report

# Map Unit Description

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

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

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

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

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

Soils that have profiles that are almost alike make up a *soil series*. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. Soils of a given series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

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

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

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

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

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

Additional information about the map units described in this report is available in other soil reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the soil reports define some of the properties included in the map unit descriptions.

# Report—Map Unit Description

# Humboldt County, Central Part, California

## 171—Worswick-Arlynda complex 0 to 2 percent slopes

**Map Unit Setting**

*National map unit symbol:* 2ll1w
*Elevation:* 0 to 810 feet

*Mean annual precipitation:* 60 to 75 inches
*Mean annual air temperature:* 50 to 55 degrees F
*Frost-free period:* 275 to 330 days
*Farmland classification:* Prime farmland if irrigated and drained

**Map Unit Composition**

*Worswick and similar soils:* 55 percent
*Arlynda and similar soils:* 35 percent
*Minor components:* 10 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Worswick**

**Setting**

*Landform:* River valleys
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Mountainbase
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Alluvium derived from mixed sources

**Typical profile**

*Oi - 0 to 1 inches:* slightly decomposed plant material
*A1 - 1 to 2 inches:* silt loam
*A2 - 2 to 4 inches:* silt loam
*Bwg - 4 to 9 inches:* silt loam
*Cg1 - 9 to 15 inches:* loamy sand
*Cg2 - 15 to 30 inches:* gravelly loam
*Cg3 - 30 to 36 inches:* silt loam
*Cg4 - 36 to 60 inches:* silt loam

**Properties and qualities**

*Slope:* 0 to 2 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Very poorly drained
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.60 to 2.00 in/hr)
*Depth to water table:* About 0 to 4 inches
*Frequency of flooding:* NoneOccasional
*Frequency of ponding:* Occasional
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
*Available water supply, 0 to 60 inches:* High (about 9.7 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 5w
*Hydrologic Soil Group:* B/D
*Ecological site:* F004BX111CA - Redwood/western swordfern-redwood sorrel, floodplains and terraces, loam
*Other vegetative classification:* Forest Type IV, coastal (RNPF004CA)

*Hydric soil rating:* Yes

### Description of Arlynda

#### Setting

*Landform:* River valleys
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Mountainbase
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Alluvium derived from mixed sources

#### Typical profile

*Oi - 0 to 1 inches:* slightly decomposed plant material
*A - 1 to 2 inches:* silt loam
*Bwg - 2 to 15 inches:* loam
*Cg - 15 to 35 inches:* loam
*2CAgb - 35 to 60 inches:* loam

#### Properties and qualities

*Slope:* 0 to 2 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Very poorly drained
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.20 to 2.00 in/hr)
*Depth to water table:* About 2 to 20 inches
*Frequency of flooding:* NoneOccasional
*Frequency of ponding:* Frequent
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
*Available water supply, 0 to 60 inches:* High (about 11.0 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 5w
*Hydrologic Soil Group:* B/D
*Ecological site:* F004BX111CA - Redwood/western swordfern-redwood sorrel, floodplains and terraces, loam
*Other vegetative classification:* Forest Type IV, coastal (RNPF004CA)
*Hydric soil rating:* Yes

### Minor Components

#### Bigtree

*Percent of map unit:* 5 percent
*Landform:* Alluvial fans, terraces, fan remnants
*Landform position (two-dimensional):* Backslope, toeslope
*Landform position (three-dimensional):* Mountainbase
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Ecological site:* F004BX111CA - Redwood/western swordfern-redwood sorrel, floodplains and terraces, loam

*Other vegetative classification:* Forest Type IV, coastal (RNPF004CA)
*Hydric soil rating:* No

**Fluventic dystrudepts, loamy-skeletal**
*Percent of map unit:* 5 percent
*Landform:* Alluvial fans
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Mountainbase
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Ecological site:* F004BX111CA - Redwood/western swordfern-redwood sorrel, floodplains and terraces, loam
*Other vegetative classification:* Forest Type IV, coastal (RNPF004CA)
*Hydric soil rating:* No

## 225—Arcata and Candymountain soils, 0 to 2 percent slopes

### Map Unit Setting
*National map unit symbol:* 2lmt0
*Elevation:* 10 to 290 feet
*Mean annual precipitation:* 35 to 90 inches
*Mean annual air temperature:* 52 to 55 degrees F
*Frost-free period:* 275 to 325 days
*Farmland classification:* Prime farmland if irrigated

### Map Unit Composition
*Arcata and similar soils:* 50 percent
*Candymountain and similar soils:* 35 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Arcata

#### Setting
*Landform:* Marine terraces
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Tread
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Marine deposits derived from mixed

#### Typical profile
*A - 0 to 23 inches:* fine sandy loam
*AB - 23 to 37 inches:* very fine sandy loam
*Bw - 37 to 51 inches:* fine sandy loam
*C - 51 to 67 inches:* fine sandy loam

#### Properties and qualities
*Slope:* 0 to 2 percent
*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Well drained
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.60 to 2.00 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
*Available water supply, 0 to 60 inches:* Moderate (about 8.9 inches)

**Interpretive groups**

*Land capability classification (irrigated):* 1
*Land capability classification (nonirrigated):* 2s
*Hydrologic Soil Group:* B
*Ecological site:* F004BX121CA - Redwood-Sitka spruce/salal-California huckleberry/western swordfern, marine terraces, marine deposits, sandy loam and loam
*Hydric soil rating:* No

## Description of Candymountain

**Setting**

*Landform:* Marine terraces
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Tread
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Marine deposits derived from mixed

**Typical profile**

*A1 - 0 to 11 inches:* fine sandy loam
*A2 - 11 to 19 inches:* fine sandy loam
*Bt1 - 19 to 38 inches:* fine sandy loam
*Bt2 - 38 to 48 inches:* fine sandy loam
*BCt - 48 to 55 inches:* sandy loam
*C - 55 to 63 inches:* loamy fine sand

**Properties and qualities**

*Slope:* 0 to 2 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Well drained
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.60 to 2.00 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
*Available water supply, 0 to 60 inches:* Moderate (about 8.9 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2s
*Hydrologic Soil Group:* B
*Ecological site:* F004BX121CA - Redwood-Sitka spruce/salal-California huckleberry/western swordfern, marine terraces, marine deposits, sandy loam and loam
*Hydric soil rating:* No

**Minor Components**

**Urban land, residential**
*Percent of map unit:* 4 percent
*Landform:* Marine terraces
*Hydric soil rating:* No

**Timmons**
*Percent of map unit:* 3 percent
*Landform:* Marine terraces
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Tread
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Ecological site:* F004BX121CA - Redwood-Sitka spruce/salal-California huckleberry/western swordfern, marine terraces, marine deposits, sandy loam and loam
*Hydric soil rating:* No

**Halfbluff**
*Percent of map unit:* 3 percent
*Landform:* Marine terraces
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Tread
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Ecological site:* F004BX118CA - Sitka spruce-redwood/salal/western brackenfern, marine terraces, marine deposits, fine sandy loam
*Hydric soil rating:* No

**Megwil,**
*Percent of map unit:* 3 percent
*Landform:* Marine terraces
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Tread
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Ecological site:* F004BX120CA - Redwood-Sitka spruce/California huckleberry-salmonberry/western swordfern-deer fern, marine terraces, loam
*Hydric soil rating:* No

**Talawa**
*Percent of map unit:* 2 percent
*Landform:* Marine terraces
*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Tread
*Down-slope shape:* Concave
*Across-slope shape:* Concave
*Hydric soil rating:* Yes

## 226—Arcata and Candymountain soils, 2 to 9 percent slopes

### Map Unit Setting

*National map unit symbol:* 2lmt1
*Elevation:* 10 to 310 feet
*Mean annual precipitation:* 35 to 90 inches
*Mean annual air temperature:* 52 to 55 degrees F
*Frost-free period:* 275 to 325 days
*Farmland classification:* Farmland of statewide importance

### Map Unit Composition

*Arcata and similar soils:* 50 percent
*Candymountain and similar soils:* 35 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Arcata

#### Setting

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

#### Typical profile

*A - 0 to 27 inches:* loam
*AB - 27 to 36 inches:* loam
*Bw - 36 to 63 inches:* sandy loam

#### Properties and qualities

*Slope:* 2 to 9 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Well drained
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.60 to 2.00 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
*Available water supply, 0 to 60 inches:* High (about 9.6 inches)

#### Interpretive groups

*Land capability classification (irrigated):* 2e
*Land capability classification (nonirrigated):* 2e

*Hydrologic Soil Group:* B
*Ecological site:* F004BX121CA - Redwood-Sitka spruce/salal-California huckleberry/western swordfern, marine terraces, marine deposits, sandy loam and loam
*Hydric soil rating:* No

### Description of Candymountain

#### Setting

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

#### Typical profile

*A - 0 to 17 inches:* fine sandy loam
*Bw - 17 to 55 inches:* fine sandy loam
*C - 55 to 79 inches:* loamy very fine sand

#### Properties and qualities

*Slope:* 2 to 9 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Well drained
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.60 to 2.00 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
*Available water supply, 0 to 60 inches:* Moderate (about 8.6 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 3e
*Hydrologic Soil Group:* B
*Ecological site:* F004BX121CA - Redwood-Sitka spruce/salal-California huckleberry/western swordfern, marine terraces, marine deposits, sandy loam and loam
*Hydric soil rating:* No

### Minor Components

#### Urban land, residential

*Percent of map unit:* 4 percent
*Landform:* Marine terraces
*Hydric soil rating:* No

#### Halfbluff

*Percent of map unit:* 4 percent
*Landform:* Marine terraces

*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Tread
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Ecological site:* F004BX118CA - Sitka spruce-redwood/salal/ western brackenfern, marine terraces, marine deposits, fine sandy loam
*Other vegetative classification:* Forest Type IV, coastal (RNPF004CA)
*Hydric soil rating:* No

**Megwil,**

*Percent of map unit:* 3 percent
*Landform:* Marine terraces
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Tread
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Ecological site:* F004BX120CA - Redwood-Sitka spruce/California huckleberry-salmonberry/western swordfern-deer fern, marine terraces, loam
*Hydric soil rating:* No

**Timmons**

*Percent of map unit:* 2 percent
*Landform:* Marine terraces
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Tread
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Ecological site:* F004BX121CA - Redwood-Sitka spruce/salal-California huckleberry/western swordfern, marine terraces, marine deposits, sandy loam and loam
*Hydric soil rating:* No

**Talawa**

*Percent of map unit:* 2 percent
*Landform:* Marine terraces
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Tread
*Down-slope shape:* Concave
*Across-slope shape:* Concave
*Hydric soil rating:* Yes

## Data Source Information

Soil Survey Area: Humboldt County, Central Part, California
Survey Area Data: Version 7, Sep 6, 2021

# Appendix F

## Record of Climatological Observations and WETS Table

WETS Table

| WETS Station: ARCATA EUREKA AP, CA | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Requested years: 1994 - 2024 | | | | | | | | |
| Month | Avg Max Temp | Avg Min Temp | Avg Mean Temp | Avg Precip | 30% chance precip less than | 30% chance precip more than | Avg number days precip 0.10 or more | Avg Snowfall |
| Jan | 56.1 | 40.5 | 48.3 | 7.16 | 4.66 | 8.61 | 12 | - |
| Feb | 55.6 | 39.6 | 47.6 | 6.60 | 3.64 | 8.05 | 11 | - |
| Mar | 56.0 | 40.3 | 48.2 | 6.64 | 4.56 | 7.92 | 12 | - |
| Apr | 56.9 | 42.1 | 49.5 | 3.95 | 2.54 | 4.75 | 9 | - |
| May | 59.2 | 45.7 | 52.4 | 1.93 | 0.91 | 2.36 | 5 | - |
| Jun | 62.2 | 48.3 | 55.2 | 0.95 | 0.31 | 1.09 | 2 | - |
| Jul | 63.2 | 51.4 | 57.3 | 0.17 | 0.04 | 0.17 | 0 | - |
| Aug | 64.3 | 51.3 | 57.8 | 0.18 | 0.05 | 0.19 | 0 | - |
| Sep | 64.8 | 48.5 | 56.7 | 0.99 | 0.31 | 1.13 | 2 | - |
| Oct | 62.8 | 44.9 | 53.8 | 2.98 | 1.07 | 3.59 | 5 | - |
| Nov | 58.5 | 42.1 | 50.3 | 5.83 | 3.93 | 6.97 | 10 | - |
| Dec | 55.5 | 39.8 | 47.7 | 8.82 | 5.47 | 10.67 | 13 | - |
| Annual: | | | | | 38.92 | 49.89 | | |
| Average | 59.6 | 44.5 | 52.1 | - | - | - | - | - |
| Total | - | - | - | 46.21 | | | 81 | - |

GROWING SEASON DATES

| Years with missing data: | 24 deg = 1 | 28 deg = 2 | 32 deg = 2 |
|---|---|---|---|
| Years with no occurrence: | 24 deg = 29 | 28 deg = 10 | 32 deg = 0 |
| Data years used: | 24 deg = 30 | 28 deg = 29 | 32 deg = 29 |
| Probability | 24 F or higher | 28 F or higher | 32 F or higher |
| 50 percent * | No occurrence | 1/9 to 1/19: 375 days | 3/29 to 11/26: 242 days |
| 70 percent * | No occurrence | No occurrence | 3/20 to 12/5: 260 days |
| * Percent chance of the growing season occurring between the Beginning and Ending dates. | | | |

STATS TABLE - total precipitation (inches)

| Yr | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Annl |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1945 | | | | | M4.07 | MT | 0.01 | M0.00 | M0.37 | 4.60 | 13.01 | 12.89 | 34.95 |
| 1946 | 5.01 | 6.44 | 5.31 | M0.50 | | | | | | | | | 17.26 |
| 1947 | | | | | | | | | | | | | |
| 1948 | | | | | | | | | | | | | |
| 1949 | | | | | | | | | | | | | |
| 1950 | | | | | | | | | | | | | |
| 1951 | | | | | | | | | | | | | |
| 1952 | | | | | | | | | | | | | |
| 1953 | | | | | | | | | | | | | |
| 1954 | | | | | | | | | | | | | |
| 1955 | | | | | | | | | | | | | |
| 1956 | | | | | | | | | | | | | |
| 1957 | | | | | | | | | | | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1958 | | | | | | | | | | | | | |
| 1959 | | | | | | | | | | | | | |
| 1960 | | | | | | | | | | | | | |
| 1961 | | | | | | | | | | | | | |
| 1962 | | | | | | | | | | | | | |
| 1963 | | | | | | | | | | | | | |
| 1964 | | | | | | | | | | | | | |
| 1965 | | | | | | | | | | | | | |
| 1966 | | | | | | | | | | | | | |
| 1967 | | | | | | | | | | | | | |
| 1968 | | | | | | | | | | | | | |
| 1969 | | | | | | | | | | | | | |
| 1970 | | | | | | | | | | | | | |
| 1971 | | | | | | | | | | | | | |
| 1972 | | | | | | | | | | | | | |
| 1973 | | | | | | | | | | | | | |
| 1974 | | | | | | | | | | | | | |
| 1975 | | | | | | | | | | | | | |
| 1976 | | | | | | | | | | | | | |
| 1977 | | | | | | | | | | | | | |
| 1978 | | | | | | | | | | | | | |
| 1979 | | | | | | | | | | | | | |
| 1980 | | | | | | | | | | | | | |
| 1981 | | | | | | | | | | | | | |
| 1982 | | | | | | | | | | | | | |
| 1983 | | | | | | | | | | | | | |
| 1984 | | | | | | | | | | | | | |
| 1985 | | | | | | | | | | | | | |
| 1986 | | | | | | | | | | | | | |
| 1987 | | | | | | | | | | | | | |
| 1988 | | | | | | | | | | | | | |
| 1989 | | | | | | | | | | | | | |
| 1990 | | | | | | | | | | | | | |
| 1991 | | | | | | | | | | | | | |
| 1992 | | | | | | | | | | | | | |
| 1993 | | | | | | | | | | | | | |
| 1994 | | | | | | | | | | | | | |
| 1995 | | | | | | | | | | | | | |
| 1996 | | | | | | | | | | | | | |
| 1997 | | | | | | | | | | | | | |
| 1998 | | 14.12 | 8.13 | 2.33 | 4.51 | 0.24 | 0.06 | 0.02 | 0.28 | 4.65 | 16.57 | | 50.91 |
| 1999 | 5.80 | 12.28 | 9.94 | 2.42 | 2.31 | 0.06 | 0.01 | 0.25 | 0.01 | 1.53 | 8.32 | 3.66 | 46.59 |
| 2000 | 12.80 | 8.67 | 3.09 | 3.78 | 2.77 | 1.08 | 0.02 | 0.02 | 0.44 | 3.37 | 4.26 | 2.76 | 43.06 |
| 2001 | 3.92 | 4.53 | 2.21 | 3.07 | 0.99 | 1.00 | 0.17 | 0.23 | 0.41 | 1.78 | 9.54 | 11.41 | 39.26 |
| 2002 | 7.56 | 6.95 | 4.75 | 3.06 | 0.70 | 0.83 | 0.07 | 0.04 | 0.19 | 0.06 | 2.36 | 22.96 | 49.53 |
| 2003 | 7.81 | 3.78 | 5.63 | 12.92 | 1.45 | 0.11 | 0.04 | 0.58 | 0.55 | 0.56 | 6.08 | 12.97 | 52.48 |
| 2004 | 6.71 | 9.07 | 2.59 | 2.07 | 1.14 | 0.07 | 0.11 | 0.70 | 0.63 | 4.98 | 1.71 | 9.11 | 38.89 |
| 2005 | 5.54 | 2.16 | 6.13 | 6.55 | 4.86 | 4.10 | 0.10 | 0.14 | 0.17 | 3.42 | 9.38 | 13.99 | 56.54 |
| 2006 | 11.94 | 5.97 | 10.63 | 4.50 | 1.48 | 0.56 | 0.08 | 0.10 | 0.17 | 0.70 | 9.50 | 9.68 | 55.31 |
| 2007 | 2.63 | 13.11 | 3.66 | 3.71 | 0.95 | 0.67 | 0.86 | 0.12 | 1.03 | 5.73 | 3.23 | 7.78 | 43.48 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2008 | 10.26 | 3.65 | 4.79 | 2.40 | 0.10 | 0.40 | 0.09 | 0.82 | 0.18 | 1.13 | 5.08 | 10.01 | 38.91 |
| 2009 | 2.06 | 6.78 | 6.78 | 1.38 | 3.86 | 0.31 | 0.19 | 0.14 | 0.63 | 2.45 | 4.34 | 5.08 | 34.00 |
| 2010 | 10.49 | 5.38 | 6.76 | 8.36 | 3.58 | 3.46 | 0.10 | 0.21 | 2.00 | 5.29 | 6.35 | 12.38 | 64.36 |
| 2011 | 2.69 | 4.66 | 12.57 | 5.07 | 1.72 | 1.31 | 0.25 | M0.05 | M0.37 | 5.16 | 4.64 | 3.31 | 41.80 |
| 2012 | 9.11 | M2.12 | 12.65 | 5.66 | 1.08 | 2.41 | 0.76 | 0.08 | 0.10 | 3.55 | 6.93 | 11.06 | 55.51 |
| 2013 | 2.94 | 2.00 | 3.47 | 2.24 | 1.88 | 0.78 | 0.00 | 0.10 | 4.37 | 0.05 | 1.70 | 0.98 | 20.51 |
| 2014 | 2.16 | 7.90 | 8.85 | 1.84 | 1.05 | 0.73 | T | 0.00 | 3.23 | 5.74 | 5.11 | 9.96 | 46.57 |
| 2015 | 2.07 | 5.59 | 3.78 | 2.39 | 0.10 | 0.07 | 0.13 | 0.51 | 0.59 | 1.10 | 5.30 | 18.77 | 40.40 |
| 2016 | 12.30 | 2.93 | 10.48 | 3.27 | 0.64 | 0.11 | 0.59 | 0.02 | T | 12.03 | 7.20 | 8.22 | 57.79 |
| 2017 | 11.03 | 14.24 | 10.09 | 5.32 | 1.26 | 0.72 | 0.01 | 0.01 | 0.73 | 1.81 | 8.55 | 2.31 | 56.08 |
| 2018 | 9.19 | 2.97 | 8.35 | 5.34 | 0.97 | 0.48 | 0.02 | 0.02 | 0.32 | 0.89 | 5.68 | 5.40 | 39.63 |
| 2019 | 8.39 | 16.09 | 5.39 | 3.64 | 3.11 | T | 0.02 | 0.46 | 3.21 | 2.08 | 2.05 | 7.88 | 52.32 |
| 2020 | 9.26 | 1.01 | 2.80 | 2.11 | 5.66 | 0.53 | MT | 0.02 | 0.77 | 0.60 | 3.27 | 5.14 | 31.17 |
| 2021 | 6.81 | 6.15 | 4.29 | 0.67 | 0.33 | 1.93 | 0.11 | 0.01 | 1.68 | 5.40 | 3.79 | 6.73 | 37.90 |
| 2022 | 2.92 | 0.41 | 2.18 | 5.08 | 2.64 | 2.73 | 0.60 | T | 0.52 | 0.21 | 6.47 | 10.49 | 34.25 |
| 2023 | 6.39 | 6.47 | 9.56 | 3.42 | 1.15 | 0.09 | 0.01 | 0.07 | 2.63 | 3.16 | 4.08 | 8.47 | 45.50 |
| 2024 | 13.36 | 9.33 | 9.78 | M0.81 | | | | | | | | | 33.28 |

Notes: Data missing in any month have an "M" flag. A "T" indicates a trace of precipitation.

Data missing for all days in a month or year is blank.

Creation date: 2024-04-17

# Precipitation Data for Groundwater Monitoring

Precipitation data and rainfall measurements for the project site were taken from the National Oceanic Atmospheric Administration (NOAA) rain gage at the Eureka Weather Forecast Office (WFO) on Woodley Island. The Eureka NOAA rain gauge is the station nearest to the project site with sufficient historical data (at least 20 years) required to create an NRCS WETS table.

**Table 1** presents NRCS WETS table data applicable to the project site for the 2023 water year. The NRCS WETS data includes the mean monthly below normal, normal, and above normal precipitation values for the period of 1972 to 2022 (AgACIS 2023).

*Table 1 Eureka, California WETS table (1972-2022)*

| Precipitation (inches) | | | |
|---|---|---|---|
| **Month** | **Below Normal** | **Normal** | **Above Normal** |
| January | 3.59 | 5.98 | 7.25 |
| February | 3.21 | 5.35 | 6.49 |
| March | 3.74 | 5.53 | 6.61 |
| April | 1.94 | 3.2 | 3.88 |
| May | 0.73 | 1.57 | 1.91 |
| June | 0.25 | 0.66 | 0.79 |
| July | 0.05 | 0.17 | 0.18 |
| August | 0.06 | 0.28 | 0.27 |
| September | 0.19 | 0.8 | 0.88 |
| October | 0.96 | 2.45 | 2.96 |
| November | 3.25 | 5.26 | 6.36 |
| December | 4.02 | 7.22 | 8.8 |

Rainfall data (as of February 24, 2023) for Eureka for the 2023 water year (October 1, 2022, to September 30, 2023) is shown in **Figure 1**. Below normal, normal, and above normal rainfall data from the WETS Table for Eureka are shown for comparison.

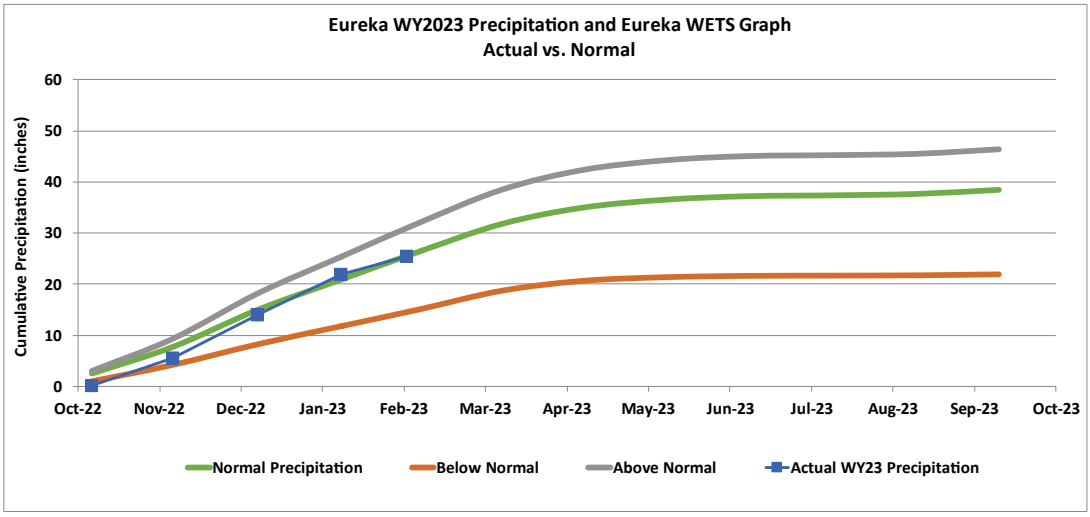


*Figure 1 Eureka, California WY 2023 Precipitation and WETS graph*