Notice of Preparation and Comments

A
APPENDIX

Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, P.O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

SCH #

Project Title: McKinleyville Town Center Rezone

Lead Agency: County of Humboldt
Contact Person: Jacob Dunn, Associate Planner of Planning and Building
Mailing Address: 3015 H Street
Phone: 707-445-7541
City: Eureka Zip: 95501
County: Humboldt

Project Location: County: Humboldt City/Nearest Community: McKinleyville
Cross Streets: Railroad Drive (north); Heartwood Drive (south); Central Avenue (east); McKinleyville Avenue (west) Zip Code: 95519
Longitude/Latitude (degrees, minutes and seconds): 40 ° 56 ′ 35.74 ″ N / 124 ° 6 ′ 21.49 ″ W Total Acres: 134
Assessor's Parcel No.: Multiple Section: ____ Twp.: ____ Range: ____ Base: ____
Within 2 Miles: State Hwy #: 101, 200 Waterways: Mad River, Mill Creek, Norton Creek, Widow White Creek
Airports: California Redwood Coast-Humboldt County Airport Railways: Northwestern Pacific Schools: Morris Elementary, McKinleyville Middle, Northern Humb

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Document Type:

CEQA: ■ NOP ☐ Early Cons ☐ Neg Dec ☐ Mit Neg Dec ☐ Draft EIR ☐ Supplement/Subsequent EIR (Prior SCH No.) ____ Other: ____
NEPA: ☐ NOI ☐ EA ☐ Draft EIS ☐ FONSI
Other: ☐ Joint Document ☐ Final Document ☐ Other: ____

Local Action Type:

☐ General Plan Update ■ Specific Plan ■ Rezone ☐ Annexation
☐ General Plan Amendment ☐ Master Plan ☐ Prezone ☐ Redevelopment
☐ General Plan Element ☐ Planned Unit Development ☐ Use Permit ☐ Coastal Permit
☐ Community Plan ☐ Site Plan ☐ Land Division (Subdivision, etc.) ☐ Other: ____

Development Type:

■ Residential: Units 2,655 Acres ____
☐ Office: Sq.ft. ____ Acres ____ Employees ____
■ Commercial: Sq.ft. 1,387,822 Acres ____ Employees ____
☐ Industrial: Sq.ft. ____ Acres ____ Employees ____
☐ Educational: ____
☐ Recreational: ____
☐ Water Facilities: Type ____ MGD ____
☐ Transportation: Type ____
☐ Mining: Mineral ____
☐ Power: Type ____ MW ____
☐ Waste Treatment: Type ____ MGD ____
☐ Hazardous Waste: Type ____
☐ Other: ____

Project Issues Discussed in Document:

■ Aesthetic/Visual ☐ Fiscal ■ Recreation/Parks ■ Vegetation
■ Agricultural Land ■ Flood Plain/Flooding ■ Schools/Universities ■ Water Quality
■ Air Quality ■ Forest Land/Fire Hazard ☐ Septic Systems ■ Water Supply/Groundwater
■ Archeological/Historical ■ Geologic/Seismic ■ Sewer Capacity ■ Wetland/Riparian
■ Biological Resources ■ Minerals ■ Soil Erosion/Compaction/Grading ■ Growth Inducement
☐ Coastal Zone ■ Noise ■ Solid Waste ■ Land Use
■ Drainage/Absorption ■ Population/Housing Balance ■ Toxic/Hazardous ■ Cumulative Effects
☐ Economic/Jobs ■ Public Services/Facilities ■ Traffic/Circulation ☐ Other: ____

Present Land Use/Zoning/General Plan Designation:

116 residential units and 481,800 SF of commercial/Community Commercial (C-2) and Residential Multiple Family (R-3)

Project Description: *(please use a separate page if necessary)*

The McKinleyville Community Plan calls creating a unique identity for McKinleyville by developing the area know as Town Center into a viable town center that serves as a community focal point, contains a mixture of land uses, and functions as a center for social/community interaction that encourages bicycle and pedestrian travel and allows for convenient and safe automobile access. The County of Humboldt will evaluate the potential, reasonably foreseeable environmental impacts that could occur from rezoning the Town Center site to Q-Zone, a set of zoning regulations whose implementation is intended to facilitate development that achieves the Town Center community plan vision. The Town Center site is currently zoned Community Commercial (C-2) and Residential Multiple Family (R-3). The Q-Zone would establish Mixed-Use (MU) as the underlying zoning district across the site. Existing areas developed with public facilities and a mobile home part would be consistent with the Q-Zone regulations, as these use types are permitted. A separate portion of the site is being reserved to support wetland mitigation, as several acres of the site have been delineated as wetland, whose conversion to developed uses would require mitigation. The Q-Zone regulations would also expand the range of uses allowed in the MU zone to include: winery/distillery, restaurants, multi-family residential (minimum density 16 units per acre), churches, and private and public schools. The Q-Zone regulations would enable new development capacity of up to about 2,655 new multi-family residential units and 1,387,822 square feet of new commercial development. The EIR will focus on evaluating the environmental impacts of this growth. The Q-Zone regulations would also modify how wetlands within the Town Center site are delineated. Rather than wetlands being defined based on the presence of one of three commonly used parameters (e.g., vegetation, soil and/or hydrology), all three parameters must be present per the Q-Zone regulations. Additional project description details are included in the attachment to this NOC.

Note: The State Clearinghouse will assign identification numbers for all new projects. If a SCH number already exists for a project (e.g. Notice of Preparation or previous draft document) please fill in.

Reviewing Agencies Checklist

Lead Agencies may recommend State Clearinghouse distribution by marking agencies below with and "**X**".
If you have already sent your document to the agency please denote that with an "**S**".

X Air Resources Board
___ Boating & Waterways, Department of
___ California Emergency Management Agency
X California Highway Patrol
X Caltrans District # 1
___ Caltrans Division of Aeronautics
___ Caltrans Planning
___ Central Valley Flood Protection Board
___ Coachella Valley Mtns. Conservancy
___ Coastal Commission
___ Colorado River Board
___ Conservation, Department of
___ Corrections, Department of
___ Delta Protection Commission
___ Education, Department of
___ Energy Commission
X Fish & Game Region # 1
___ Food & Agriculture, Department of
___ Forestry and Fire Protection, Department of
___ General Services, Department of
___ Health Services, Department of
___ Housing & Community Development
X Native American Heritage Commission
___ Office of Historic Preservation
___ Office of Public School Construction
___ Parks & Recreation, Department of
___ Pesticide Regulation, Department of
___ Public Utilities Commission
X Regional WQCB # 1
___ Resources Agency
___ Resources Recycling and Recovery, Department of
___ S.F. Bay Conservation & Development Comm.
___ San Gabriel & Lower L.A. Rivers & Mtns. Conservancy
___ San Joaquin River Conservancy
___ Santa Monica Mtns. Conservancy
___ State Lands Commission
___ SWRCB: Clean Water Grants
___ SWRCB: Water Quality
___ SWRCB: Water Rights
___ Tahoe Regional Planning Agency
___ Toxic Substances Control, Department of
X Water Resources, Department of

___ Other: __________
___ Other: __________

Local Public Review Period (to be filled in by lead agency)

Starting Date 3.28.2024 Ending Date 4.27.2024

Lead Agency (Complete if applicable):

Consulting Firm: __________
Address: __________
City/State/Zip: __________
Contact: __________
Phone: __________

Applicant: __________
Address: __________
City/State/Zip: __________
Phone: __________

Signature of Lead Agency Representative: Dunn, Jacob Digitally signed by Dunn, Jacob Date: 2024.03.28 09:28:25 -07'00' **Date:** 3.28.2024

Authority cited: Section 21083, Public Resources Code. Reference: Section 21161, Public Resources Code.

Notice of Preparation

To: Interested Parties

Date: 3.28.2024

Subject: Notice of Preparation of Draft Environmental Impact Report for the McKinleyville Town Center Rezone Project

Lead Agency: County of Humboldt

NOTICE IS HEREBY GIVEN THAT the County of Humboldt will be the Lead Agency under the California Environmental Quality Act (CEQA) and will prepare a Draft Environmental Impact Report (DEIR) for the proposed project. This NOP includes a project description and an overview of the potential impacts that will be addressed in the DEIR.

Project Title: McKinleyville Town Center Rezone

Project Applicant: County of Humboldt

Project Location: Between Heartwood Drive on the south, Railroad Drive on the north, and extending from McKinleyville Avenue to the west to the eastern edge of Pierson Park, in the unincorporated community of McKinleyville.

The project description, location map, and the potential environmental effects are included in the attached document.

The purpose of this notice is: (1) to serve as the Notice of Preparation to potential Responsible Agencies, agencies involved in funding or approving the project, and Trustee Agencies responsible for natural resources affected by the project, pursuant to Section 15082 of the CEQA Guidelines; and (2) to advise and solicit comments and suggestions regarding the preparation of the DEIR, environmental issues to be addressed in the DEIR, and any related issues, from interested parties in addition to those noted above, including interested or affected members of the public. The County of Humboldt requests that any potential Responsible or Trustee Agency responding to this notice do so in a manner consistent with CEQA Guidelines Section 15082(b).

All interested parties that have submitted their names and mailing addresses to the County will be notified as part of the project CEQA review process. If you wish to be placed on the mailing list or have any questions or need additional information, please contact the person identified below. A copy of the NOP is posted on the County's website at: https://humboldtgov.org/2564/McKinleyville-Town-Center-Master-Plan, and on file at the County Planning and Building Department office, located at the address provided below.

Scoping Meeting:

Date: 4.16.2024
Time: 6pm – 8pm
Location: McKinleyville Family Resource Center
1615 Heartwood Drive
McKinleyville, CA 95519

Via telephonic/electronic meeting. Link will be posted on the County website at: https://humboldtgov.org/2564/McKinleyville-Town-Center-Master-Plan no later than time and date of the meeting.

30-Day NOP Review Period: In accordance with CEQA, should your agency have any comments, it is requested to provide a written response to this NOP within the 30-day NOP review period between 3.28.2024 and 4.26.2024. Written comments must be received at the address below no later than 5:00 p.m. on 4.26.2024.

Please indicate a contact person in your response and send it to the following contact:

Jacob Dunn
Associate Planner of Planning and Building
County of Humboldt
3015 H Street
Eureka, CA 95501

3.28.24

Date | Jacob Dunn, Associate Planner of Planning and Building

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McKinleyville Town Center Rezone
Notice of Preparation

Project Overview

The McKinleyville Town Center Rezone Project (proposed project) is intended to establish a unique identity for McKinleyville by promoting the Town Center area of McKinleyville as a community focal point for social/community interaction. Guidance for developing the Town Center site would be established by rezoning the Town Center area to a Mixed Use base zoning and adopting a "Q-Zone" overlay zoning district. The Q-Zone will apply specific regulations to the Town Center site. The Q-Zone will support a mix of commercial, civic, and residential uses while emphasizing bicycle and pedestrian connectivity, public gathering spaces, open space, and wetland preservation. One of the primary goals for the Town Center to promote mixed land uses that are supported by pedestrian, bicycle, transit improvements, as well as vehicular circulation improvements that enhance connectivity in the area. The Q-Zone includes form-based building design standards.

Setting/Project Location

The approximately 134-acre Town Center site is located in the unincorporated community of McKinleyville in Humboldt County, California. It is generally situated between Heartwood Drive on the south and Railroad Drive on the north, and extends from McKinleyville Avenue on the west to the eastern end of Pierson Park. The project site is primarily accessed via Central Avenue, which provides access north and southbound through McKinleyville. The Central Avenue corridor is developed with and zoned for commercial uses. The project site and its relationship to the surrounding McKinleyville community is illustrated in Figure 1, Location Map.

Existing development within the site includes 116 residential units and about 481,800 square feet of commercial use. Several acres of the site have been defined as wetland.

Project Description

The *McKinleyville Community Plan* calls for creating a unique identity for McKinleyville by developing a viable town center that serves as a community focal point and which contains a mixture of land uses with a center for social/community interaction that encourages bicycle and pedestrian travel and allows for convenient and safe automobile access. The County of Humboldt ("County") will evaluate the potential, reasonably foreseeable environmental impacts that could occur based on developing the site consistent with the proposed Q-Zone development standards.

In addition to building and other standards, the Q-Zone standards include language that would change how wetlands are defined. Wetlands are typically delineated as features based on the following parameters:

- Vegetation: The dominant vegetation must consist of species that are typically adapted to grow, effectively compete, reproduce, and/or persist in anaerobic (low/no oxygen) soil conditions.
- Soil: Soils present are classified as hydric, or they possess characteristics that are associated with reducing soil conditions (saturated soils).
- Hydrology: The area is inundated either permanently or periodically, or the soil is saturated to the surface at some time during the growing season of the prevalent vegetation.

Historically in McKinleyville, only one of these parameters would need to be exhibited to define an area as wetland. The Q-Zone standards would modify this approach by requiring that all three parameters be met to define an area as wetland.

The Town Center site is currently zoned a combination of Community Commercial (C-2) and Residential Multiple Family (R-3), with portions zoned with a wetland overlay. The Town Center would apply Mixed-Use (MU) as the new underlying zoning district for the entire site. The Q zone allows modifications to the underlying uses to address unique circumstances associated with the site. Among other uses, public facilities, higher density residential uses and resource sites to be preserved/maintained are permitted. A Q zone will allow uses in the Town Center that would be found under the designation for Public Facility (PF1) to reflect existing public facility uses. The Q zone would also allow uses found in the designation for Residential Multiple Family (R-3) to reflect an existing residential uses. A portion of the area to the west would be designated with a combining zone for Streamside Management Areas and Wetlands based on its planned function as a wetland mitigation area. Figure 2, Proposed Town Center Zoning Map, shows these respective areas of the site.

The Town Center is drafted and will be evaluated in the EIR to allow subsequent development to occur without further environmental review except in circumstances which are not foreseen in the ordinance or in the environmental review. This includes a known senior living campus project titled Life Plan Humboldt that will include 144 one and two bedroom units, a 22,000 square foot common area, 12 Assisted living suites, 12 memory care studios and 60 affordable units on the south side of Hiller Avenue.

The Q-Zone regulations would also expand the range of uses allowed in the MU zone to include winery/distillery, restaurants, multi-family residential (minimum density 16 units per acre), churches, and private and public schools.

Project Objectives

Project objectives for developing the Town Center ordinance are as follows:

1. Establish a unique identity for McKinleyville through developing a viable town center, serving as a community focal point and providing a center for social/community interaction.
2. Develop an area of mixed land uses which encourages bicycle and pedestrian travel, yet allows for convenient and safe automobile access.
3. Permit mixed-use categories of zoning, including higher density housing in concert with retail commercial uses and shopfronts, and an abundance and variety of open spaces.
4. Offer opportunities for developing a full range of commercial uses including a grocery store, shops, department store, hardware home supply, movie complex, laundromat, and restaurants; office space and medical and dental clinic; town green for athletic and civic events, civic buildings and a library; high density residential and mixed use residential above commercial uses; farmers market; child care facilities; and art galleries.
5. Focus on community scale needs without drive-thru restaurants and no large "big-box" department stores, with store design that avoids the look of giant retail department stores.
6. Identify design alternatives for Central Avenue which ease pedestrian and bicycle traffic, including traffic calming measures.
7. Promote safe, accessible and human scale residential and commercial areas where people of all ages can work and play.
8. Promote development of pedestrian-oriented neighborhoods and commercial areas.
9. Develop appropriate design review standards consistent and compatible with the overall principles, objectives and policies of the entire Humboldt County General Plan.
10. Include mixed-use categories of zoning, including higher density housing above retail commercial uses and shopfronts designed to include an abundance and variety of open spaces, such as urban parks, courtyards and gardens, with a connected system of pedestrian walkways, alleys and streets.
11. Design intersections and streets within the Town Center to facilitate pedestrian movement, provide bicycle connections to commercial areas and transit stops, and provide transit stops with shelter for pedestrians and provisions for secure bicycle storage.
12. Protect natural land forms by minimizing alteration caused by cutting, filling, grading or clearing.
13. Screen or soften the visual impact of new development through the use of landscaping and promote use of species common to the area and known fire resistant plants.

New Development Capacity

The proposed Q-Zone regulations would modify the type and amount of new development that could occur within the project site relative to existing zoning. New development capacity for the 113-acre area shown as Mixed Use in Figure 2 is summarized in Table 1, Expected New Town Center Development Capacity. No new development capacity is assumed for areas of the site shown in Figure 2 as Public Facility, Residential (R-3) or Wetlands, which total a combined approximately

31 acres of the 134-acre site. Under existing residential and commercial zoning regulations that apply to the site, new development capacity is assumed to be 2,195 new residential units and 1,372,000 square feet of new commercial development. Consequently, the proposed project would result in approximately 640 more residential units and 109,771 square feet of commercial development relative to existing zoning.

It is possible that some of the existing residential and/or commercial uses within the area planned for mixed use development could be demolished as part of one or more future individual development projects that implement the Q-Zone. That determination will be made at the time individual development project applications are submitted to the County.

Table 1 Expected New Mixed Use Town Center Development Capacity

Land Use	Acreage	Multi-Family Residential Units	Commercial Building Square Footage
Mixed Use	106	2,655 (25 units/acre)	1,387,822

SOURCE: County of Humboldt 2024

EIR Approach and Probable Environmental Effects

The EIR will focus on evaluating the reasonably foreseeable potential impacts of developing the project site with the uses shown in Table 1. The environmental resource implications of changing the wetland definition approach from one to three parameters will also be addressed. Potential environmental effects of the project and the scope of analysis that will be undertaken to assess each are briefly discussed below.

Aesthetics and Visual Resources

The proposed Q-Zone regulations require that lighting only be used for a clear public safety purpose and shall be directed at the area which requires illumination; otherwise, lighting is not allowed. The project also proposes a decrease in the maximum building height allowed within the MU zone; the proposed zoning would allow for a building height of four stories whereas the original zoning allowed 75 feet (which is taller than a four-story building).

U.S. Highway 101 is located approximately 0.3 miles west of the project site (specifically, the wetland designated area and not the area planned for future development) and is considered an eligible state-designated scenic highway according to Caltrans. The Town Center site is not visible from Highway 101 due to existing development and the elevation of Highway 101 is lower than the property between the site and Highway 101.

This section of the EIR will address the potential for new development to substantially impair the visible character of project area scenic resources and include a discussion of proximity to scenic roadways and scenic vistas, existing lighting standards, and recommendations for mitigating any potentially significant impacts.

Agriculture and Forestry Resources

None of project site is designed for agricultural use and none of the site is under Williamson Act contract. None of the project site is zoned Timberland. The County has partially mapped the project area as containing soils designated as "Prime AG Soil – Ar5," "Prime AG Soil – Ar6," and "Prime AG Soil – Hk4" (Humboldt County Web GIS 2024).

According to the 2017 County general plan EIR:

> "Humboldt County does not participate in the statewide Farmland Mapping and Monitoring Program, and is therefore unable to analyze the impacts to these lands. Humboldt County is currently in the process of updating the soils maps so that ultimately the County could qualify to participate, but as of the preparation of this DEIR, the soils survey is not complete. However, the County addresses the loss of farmlands, both prime and non-prime, as described in the following sections and provides mitigation measures to address this loss as a result of the General Plan Update." (Humboldt County 2017, page 3.2-19)

As of February 2024, the Farmland Mapping and Monitoring Program of the California Department of Conservation had not yet mapped farmland in Humboldt County. The EIR will utilize the County general plan and general plan EIR policies and mitigations as the basis of determining the significance of converting prime agricultural soils to non-agricultural use.

Air Quality

The project site is located in the North Coast Air Basin (air basin). The North Coast Unified Air Quality Management District (air district) has jurisdictional authority within the air basin. The proposed project would generate criteria air pollutant emissions during its construction and operation. This section of the EIR will address whether the project would conflict with or obstruct implementation of the applicable air quality standards, result in a cumulatively considerable net increase of any criteria pollutant, and/or create air pollutant concentrations that could create risk for public health. The potential for the proposed project to generate criteria air pollutants and toxic air contaminants with potential to cause significant impacts will be the focus of this analysis. Air emissions will be modeled and compared to thresholds of significance.

Biological Resources

Based on a preliminary review of aerial photographs, the project site may contain areas of annual grassland, wetlands, and scattered spruce and fir trees.

The preliminary results of the *McKinleyville Town Center Wetlands Mapping Project* (GHD 2023) show approximately 5.4 acres of wetlands delineated within the project boundary. These wetlands likely fall under the jurisdiction of the U.S. Army Corps of Engineers, Regional Water Quality Control Board, and/or the California Department of Fish and Wildlife.

As noted previously, wetlands are typically delineated as features exhibiting one or more of with the following key parameters:

- Vegetation: The dominant vegetation must consist of species that are typically adapted to grow, effectively compete, reproduce, and/or persist in anaerobic (low/no oxygen) soil conditions.
- Soil: Soils present are classified as hydric, or they possess characteristics that are associated with reducing soil conditions (saturated soils).
- Hydrology: The area is inundated either permanently or periodically, or the soil is saturated to the surface at some time during the growing season of the prevalent vegetation.

Some jurisdictions, such as the California Coastal Commission, use a "one-parameter" approach to defining wetlands, meaning only one of the above three criteria would define the presence of wetlands. Other jurisdictions, such as the U.S. Army Corps of Engineers, require all three criteria ("three-parameter") to be present to define the extent of wetlands. In McKinleyville, wetlands have been previously defined using the one-parameter definition. The Q-Zone regulations would modify this prior practice by requiring use of the three-parameter approach. The results of the *McKinleyville Town Center Wetlands Mapping Project* (GHD 2023) include both the extents of one-parameter and three-parameter wetlands within the project boundary and the difference in extents will be analyzed in the biological resources section of the EIR, as will requirements for wetland mitigation as described in the Q-Zone regulations.

The potential for habitat for special-status species in the area to be present on the site and recommend mitigation measures for the protection of biological resources will be addressed. If suitable habitat is identified, recommendations may also include the need for additional specific or protocol-level surveys to be conducted when development is proposed.

Cultural Resources

The project site includes four structures that are considered by the County to be historic site and cultural resources. The project site is also located less than one mile east of the ocean and less than one-half mile south of Widow White Creek, which could influence the potential that cultural resources are present. The potential for the project to impact historic and unique archaeological resources will be assessed and mitigation measures proposed as necessary.

Energy

The project will increase demand for energy resources, primarily in the form of electricity and transportation fuels. Projected energy demand will be quantified based on the CalEEMod results. Future development within the site will be required to comply with uniformly applied regulations for energy efficiency and conservation. If air quality and/or GHG impacts are found to be significant, associated mitigations could include actions that also reduce energy demand. Applicable regulations will be discussed to identify how energy demand will be moderated, as will any air quality and/or GHG mitigation measures that reduce energy demand.

The impact evaluation will assess whether the energy needs of the project would be wasteful, inefficient, or unnecessary, or if it would conflict with a state or local plan for renewable energy or energy efficiency. This evaluation will be qualitative in that there are no quantified thresholds of significance against which project demand can be compared.

Geology and Soils

Geologic and soils resources and potential hazards/development constraints at the site will be reviewed using existing information. Future individual development projects will be required to prepare site specific geotechnical reports to identify these issues for their specific sites. Existing state and local uniformly applied development standards that serve to reduce related hazards and impacts will be reviewed based on their function to reduce the significance of potential impacts.

Greenhouse Gas Emissions

The proposed project will be a source of GHG emissions whose impact must be evaluated. The predominant sources of emissions are likely to be vehicle travel, with electricity and potentially natural gas use also being notable sources. The draft *Humbolt County Climate Action* plan will be used to streamline the review of GHG emissions impacts if the plan is adopted prior to the draft EIR being released for public review. If not, the plan will be used as reference, but with guidance for evaluating GHG impact significance provided by the Bay Area Air Quality Management District in its *CEQA Thresholds for Evaluating the Significance of Climate Impacts from Land Use Projects and Plans* used as the basis for determining impact significance. Projected GHG emissions will be quantified using CalEEMod. Emissions reductions accruing to legislative actions and specific actions identified in the Q-Zone regulations will be evaluated. Mitigation measures will be identified as needed.

Hazards and Hazardous Materials

The types of new development anticipated in Town Center are not anticipated to be notable sources of hazardous materials risks. The existence of known hazardous materials conditions within the site will be evaluated based on review of hazardous materials conditions databases. Uniformly applied state and County regulations designed to reduce the risk of hazardous materials release will be identified as serving the function of mitigating potential environmental impacts.

Hydrology and Water Quality

Conversion of vacant areas of the site to urban development would create new impervious surfaces that change existing drainage patterns. The site is not located within a flood hazard zone.

The proposed project is not likely to be the source of unique impacts on water quality. Nevertheless, potential sources of water quality degradation will be identified. Its potential water quality effects will be evaluated in light of uniform regulations promulgated by the County to implement State Water Quality Control Board mandates for protecting ground and surface water quality that function to reduce the significance of potential water quality impacts.

The McKinleyville Community Services District provide municipal water supply in McKinleyville primarily from surface water sources. The McKinleyville Community Services District will be consulted about water supply available and projected demand from the project. The *McKinleyville Community Services District FINAL 2020 Urban Water Management Plan* will be reviewed as a basis for determining the adequacy of existing and projected water supply availability to meet project demand. Potential impacts on groundwater supply conditions are expected to be nominal given that surface water supply would be utilized to serve the project.

Noise

This section will address the noise sources from the proposed project and whether noise level increases could adversely affect noise sensitive receptors. The proposed uses are not expected to be sources of significant point source noise generation. Traffic noise effects will be evaluated based on changes in traffic volumes that would be generated by new development. Analysis of noise impacts will be conducted in the context of related County general plan policies and analysis conducted in the general plan EIR.

Public Services and Recreation

This section of the EIR will assess the need for new public facilities (police, fire schools, parks) and address, to the extent possible, whether constructing and operating such facilities could result in significant impacts. Various agencies will be consulted including, but not limited to, Humboldt County Sheriff's Office, Humboldt County Office of Emergency Services, Arcata Fire Protection District, Humboldt County Parks and Trails, Pacific Union School District, and Northern Humboldt Union High School District.

Solid Waste

This section will address the potential impacts of physical changes associated with expanded solid waste facilities/local landfills should the proposed project trigger the need for such expansions. The Humboldt Waste Management Authority, Recology Humboldt County, and the California Department of Resources Recycling and Recovery (CalRecycle) will be primary sources of information to assess potential solid waste impacts.

Transportation

The proposed project has the potential to result in an increase in vehicle miles travelled (VMT). W-Trans will prepare a traffic study to assess VMT impacts for reporting in the EIR. For County informational purposes, W-Trans will also address the non-CEQA issues of project effects on traffic operations and parking. Proposed modifications to adjacent roadways as identified in the Q-Zone regulations will be reviewed for their feasibility and effect on traffic operations and bicycle and pedestrian safety and connectivity, as will the proposed road network identified in the Q-Zone regulations.

Tribal Cultural Resources

The County's SB 18 and AB 52 tribal consultation process will be reviewed. If consultation is requested and conducted, the results will be identified along with conclusions about whether the proposed project cause an adverse change on the significance of a tribal cultural resource.

Water and Sewer Systems

The McKinleyville Community Services District purchases wholesale treated drinking water from Humboldt Bay Municipal Water District, the regional supplier. Humboldt Bay Municipal Water District operates the Ruth Reservoir and approximately 11 million gallons of water per day from this reservoir is delivered to municipal/district customers. Of this total, a peak flow rate of 2.6 million gallons per day is committed to serve the McKinleyville Community Services District customers. No groundwater is pumped. The McKinleyville Community Services District also provides sewer services to the area and operates its own wastewater management facility.

The EIR will address the capability of the water and sewer facilities of the McKinleyville Community Services District to serve the projected new development whether future development within the project site requires the construction of new or expansion of existing facilities to adequately support the development.

Effects Found Not to Be Significant

This section of the EIR will include brief analysis of environmental effects whose impacts are determined to be less than significant based on review of readily-available information. At this time, it is anticipated that mineral resources impacts and wildfire impacts will be less than significant. One or more environmental topics discussed above may be included in this section based on the outcome of their respective impact analyses. Data sufficient to support a determination of less than significant impact will be provided.

Cumulative Impacts

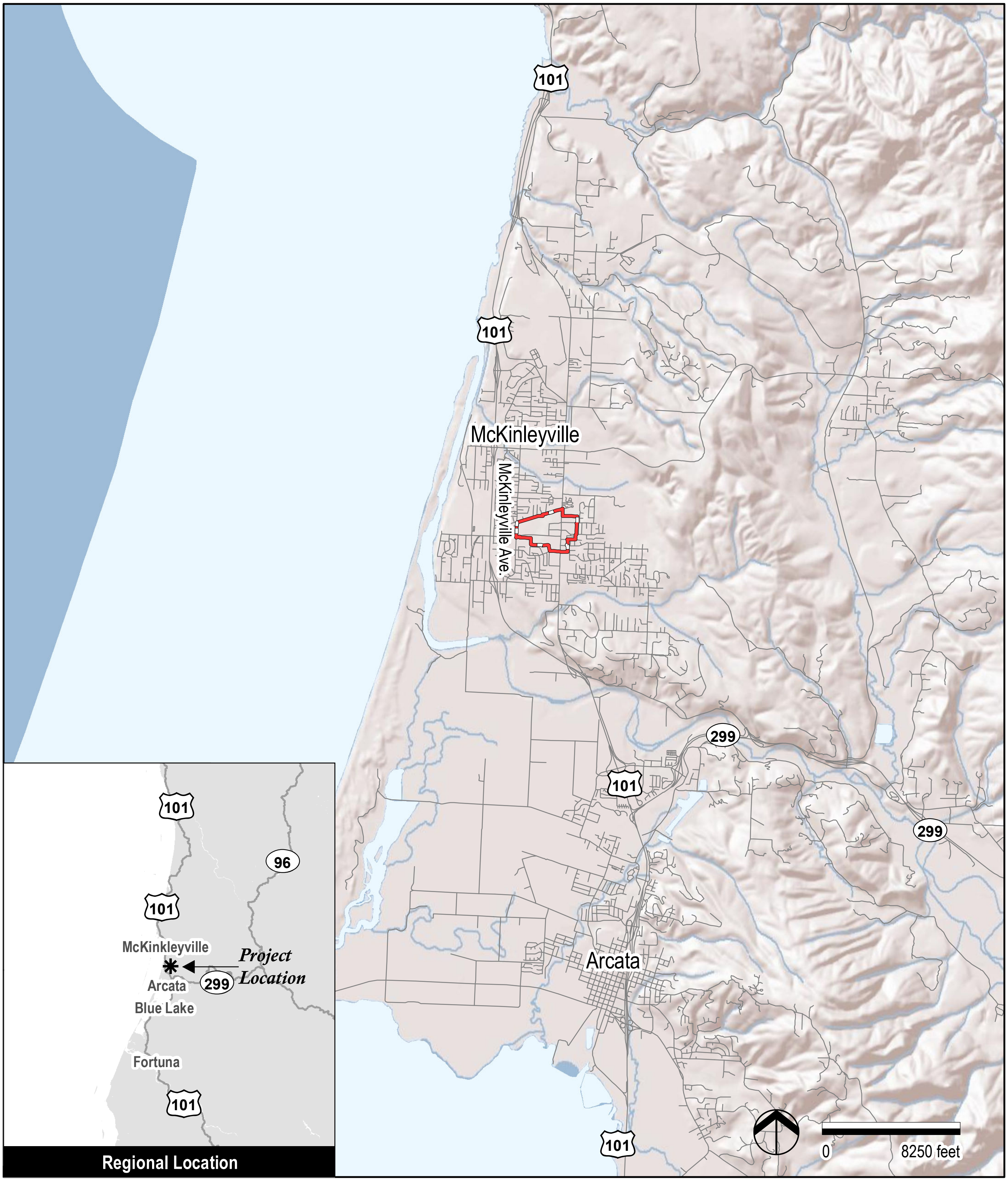
The cumulative effects of buildout of the Town Center, combined with other relevant plans and programs, will be analyzed in this section of the EIR.

Growth Inducement

In accordance with CEQA Guidelines section 15126.2(d) the EIR will include a discussion of the growth-inducing impacts of the project.

Alternatives

In accordance with CEQA Guidelines section 15126.6 the EIR will include analysis of a reasonable range of project alternatives, and/or to the project location, which could feasibly attain most of the basic project objectives, but would avoid or substantially lessen any of the significant project effects. An evaluation of the comparative merits of the alternatives will be presented.



Source: ESRI 2024

Project Boundary

Figure 1

Location Map

Notice of Preparation

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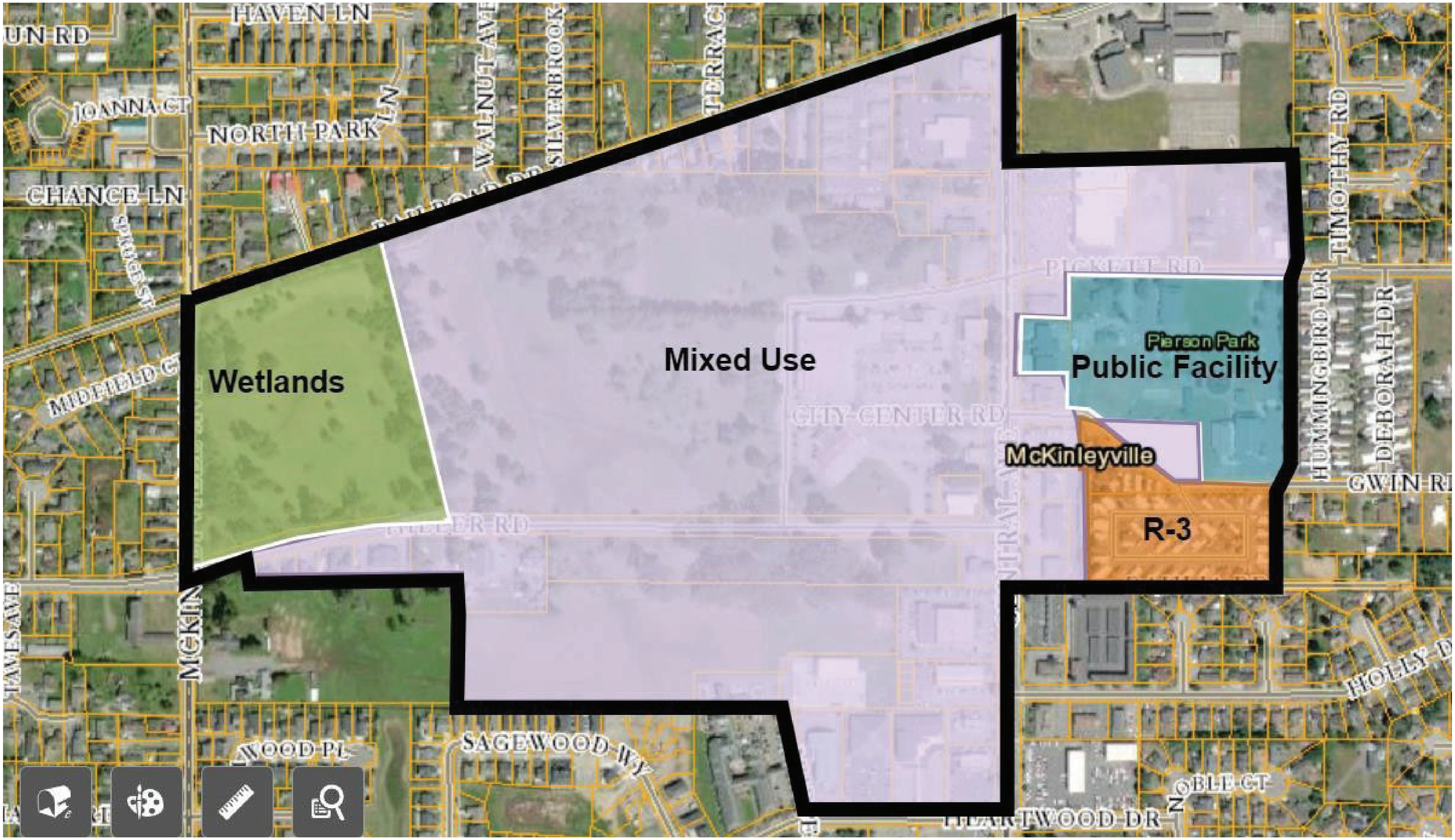

0 430 feet

Project Boundary

Source: Humboldt County 2023

Figure 2

Proposed Town Center Zoning Map

Notice of Preparation

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From:	Dunn, Jacob
To:	Ron Sissem
Subject:	FW: McKinleyville Town Center EIR Scoping Comments
Date:	Monday, April 15, 2024 8:50:09 AM
Attachments:	image001.png

Jacob Dunn
Associate Planner
Planning and Building Department
3015 H Street | Eureka, CA 95501
Phone: 707-267-9390 | Fax: 707-445-7446
Email: jdunn@co.humboldt.ca.us

From: Colin Fiske <colin.fiske@gmail.com>
Sent: Monday, April 8, 2024 1:00 PM
To: Dunn, Jacob <jdunn@co.humboldt.ca.us>
Subject: McKinleyville Town Center EIR Scoping Comments

Hi Jacob,

Please accept the following scoping comments from CRTP on the McKinleyville Town Center Rezone Project EIR:

1. The NOP states that the project "has the potential to result in an increase in vehicle miles traveled (VMT)." We remind the county that, while transportation impacts for commercial development may be evaluated in term of total VMT, the appropriate metric for the transportation impacts of residential development is VMT per capita.
2. We ask that the county, in assessing the significance of transportation impacts, compare project VMT to the existing VMT in the developed Humboldt Bay region - not the countywide average, which is heavily skewed by remote rural areas.
3. The NOP states that the "non-CEQA issues of project effects on traffic operations and parking" will also be assessed. We agree that these are clearly non-CEQA issues. They should therefore be excluded from the EIR and any other related environmental documentation; in fact, we question the mention of these analyses in the NOP. However, since these issues are mentioned in the NOP, we reiterate our cautions about the limitations of traffic studies, which we submitted via email to the McKinleyville Municipal Advisory Committee on September 29, 2023. You can find these comments copied below, and we incorporate them here by reference.
4. In contrast to the issues of traffic operations, congestion/level of service (LOS) and parking - which as mentioned are all non-CEQA issues - transportation safety

issues are cognizable under CEQA. In fact, safety hazards due to design features and incompatible uses must be considered under CEQA. Therefore, to the extent that the traffic study mentioned in the NOP assesses "bicycle and pedestrian safety and connectivity," this part of the assessment could in fact be relevant to the project's transportation impacts.

Thanks,

Colin

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Email submitted to the McKinleyville Municipal Advisory Committee on 9/29/2023 and now incorporated into these scoping comments:

McKinleyville Municipal Advisory Committee Members,

I have seen a lot of traffic studies, and it strikes me that some of the expectations for the promised study of Central Avenue are probably unrealistic. You won't be seeing that study for a while yet, but I wanted to send this email to clarify a few important points and provide some context for thinking about the information you'll eventually receive. The main point is this: the information provided by a traffic study will be extremely limited in scope and has no guarantee of accuracy.

1. **The only question a traffic study will attempt to answer is where and how quickly traffic will flow.** This may be obvious, but it's critically important. A traffic study will not tell you anything about how proposed changes to Central Ave might change the number of people who walk or bike on the street, the likelihood of those people being hit by a car, or the effect on local businesses. I believe and hope that all of you prioritize safety and successful place-making over the possibility of traffic slow-downs. And if you do, you already have abundant evidence that a "road diet" would produce greater safety, benefit businesses, and create a more pleasant place to walk or bike (I could hyperlink an example for that last point, but I think it's pretty self-evident). The traffic study won't give you any additional information on those topics.
2. **Most traffic models are not very good at predicting behavioral responses to changes in vehicular capacity.** Traffic engineers have been studying the effect of road capacity increases on "induced [increased] travel" and predicting changes in travel times for decades, but standard traffic models still dramatically underestimate induced driving and dramatically overestimate travel time savings from increased capacity. The inverse of this, so-called "traffic evaporation" in the case of reduced capacity (e.g., a road diet), is even less well reflected in standard traffic studies, and consequently models of these cases are even less reliable. Put another way, "people react to a change in road conditions in much more complex ways than has traditionally been assumed in traffic models." (Here's a more recent

study that confirms this ongoing model bias.) The lesson is clear: it is quite difficult to predict how people (and therefore traffic) will react to something like a road diet, and traffic models are highly likely to overestimate the extent of traffic impacts.

3. **Even using standard traffic models and assuming conservatively that a road diet will cause delays, these impacts pale in comparison to the benefits.** Unfortunately, apples-to-apples comparisons of costs and benefits are not often done, and will certainly not be part of the traffic study results which are eventually presented to you. But when such analysis are done, the results are clear.
4. **Concerns about diversion can be easily addressed.** Most real-world case studies show extremely limited traffic diversion to alternate routes following a road diet. However, as noted, traffic models are notoriously bad at predicting the kinds of complex behavior changes related to diversion, so it's possible that the Central Ave traffic study will predict some (likely imaginary) diversion. If this is a concern, there is a simple solution: traffic calming on the only real alternate route (McKinleyville Ave) will make it unappealing as an alternate route for any driver concerned only about travel time.
5. **Traffic delay and congestion are no longer considered impacts under CEQA.** The county has requested a traffic study in conjunction with the development of the Town Center Environmental Impact Report. However, even if the study predicts traffic congestion, this will not be considered an impact in the EIR, and no mitigation will be required. (You can read about 2013's SB 743 for more information on this.) You (and the Board of Supervisors) can consider the results of a traffic study separately from CEQA, but under CEQA the "environmentally preferable alternative" will be the one that reduces vehicle miles traveled, not the one that reduces travel times.

I encourage you to review the hyperlinked sources, so you can see that I'm not making this stuff up.

Thanks,
Colin

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Colin Fiske (he/him)
Executive Director
Coalition for Responsible Transportation Priorities
www.transportationpriorities.org

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Northern Region
601 Locust Street
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www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

April 26, 2024

Jacob Dunn
Associate Planner
Humboldt County Planning and Building Department
3015 H Street
Eureka, CA 95501
jdunn@co.humboldt.ca.us

SUBJECT: MCKINLEYVILLE TOWN CENTER REZONE (STATE CLEARINGHOUSE # 2024031111)

Dear Jacob Dunn:

On March 28, 2024, the California Department of Fish and Wildlife (CDFW) received a Notice of Preparation (NOP) for a Draft Environmental Impact Report (DEIR) from the Humboldt County Planning and Building Department (County; Lead Agency) for the McKinleyville Town Center Rezone (Project). CDFW appreciates the opportunity to provide feedback and understands the Lead Agency will accept comments through April 26, 2024.

As the Trustee Agency for the State's fish and wildlife resources, CDFW has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and the habitat necessary to sustain their populations (Fish & G. Code, §§ 1801 & 1802). As a Responsible Agency, CDFW administers the California Endangered Species Act (CESA) and other provisions of the Fish and Game Code that conserve the State's fish and wildlife public trust resources. CDFW offers the following comments and recommendations in our role as Trustee and Responsible Agency pursuant to the California Environmental Quality Act (CEQA; Pub. Resources Code, §21000 et seq.). These comments are intended to minimize Project impacts on public trust resources.

Project Description

The Project is located in the unincorporated community of McKinleyville in Humboldt County, California. The 134-acre Project site includes existing residential and commercial development, concentrated primarily along Central Avenue, as well as more extensive undeveloped lands to the west, including several acres of wetland. The McKinleyville Town Center is intended to serve as a community focal point supporting social interaction and a mixture of land uses.

The Project will provide guidance for developing the Town Center site by rezoning the area to a Mixed Use (MU) base zoning and adopting a Q-Zone overlay zoning district. The Q-Zone will expand the range of uses allowed in the underlying zone to support a mix of commercial, office, civic, and high-density residential uses, as well as multi-modal connectivity, public gathering, and open space and wetland preservation. In addition to establishing development standards, Q-Zone regulations will also modify how wetlands are defined in the Town Center site. The McKinleyville Community Plan currently defines wetlands as areas satisfying at least one of three criteria (hydrology, soil, or vegetation); the new definition would require all three wetland parameters to be present.

Biological Significance

The Project site contains functional wildlife habitat in an urban landscape, offering refuge, foraging opportunities, and breeding habitat to a variety of native wildlife. Extensive wetlands also provide ecosystem services, such as groundwater recharge and sediment filtration. The site's wetlands, grassland, and scattered trees may support several special status species, including western bumble bee (*Bombus occidentalis*; state candidate endangered), northern red-legged frog (*Rana aurora*; CDFW Species of Special Concern [SSC]) and Siskiyou checkerbloom (*Sidalcea malviflora* ssp. *patula*; California Rare Plant Rank [CRPR] 1B.2), among others. In addition to wetlands, the Project site may also contain Sensitive Natural Communities (SNCs).

Comments and Recommendations

CDFW would like to offer the following comments and recommendations on this Project in our role as a Trustee and Responsible Agency pursuant to CEQA (Pub. Resources Code, §21000 et seq.).

<u>Biological Surveys</u>

A thorough biological assessment of sensitive wildlife, plants, and habitats should be conducted prior to circulation of the DEIR to adequately disclose direct, indirect, and cumulative impacts and identify feasible mitigation measures. Given historical occurrences of western bumble bee in McKinleyville (CDFW 2024) and the presence of suitable foraging and nesting habitat in the Town Center site, CDFW recommends conducting several appropriately timed protocol-level surveys for special status bumble bees. Rare plants and Sensitive Natural Communities should be assessed following CDFW's March 2018 *Protocols* *for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities*.

<u>Wetland Mitigation</u>

Although CDFW understands the impetus behind changing the definition of wetlands within the Town Center site, it cautions against adopting a set of measures that would collectively undermine wetland protections in McKinleyville. Changing the definition of wetlands to include only three-parameter features could reduce development constraints but may inadvertently discount valuable habitat. Without well-designed, enforceable mitigation and long-term plans for the maintenance and preservation of these areas, the Project risks degradation and loss of wetland habitat values.

According to a compilation of wetland delineations, the Project site contains approximately 5.4 acres of three-parameter wetlands and 0.6 acres of one-parameter wetlands, some of which may qualify as SNCs. Although a portion of the property is intended for wetland mitigation and conservation, development of the Town Center site will inevitably result in wetland fill. The DEIR should disclose the whole of the action for public review (CEQA § 15378(a)), quantifying the nature and extent of Project-related impacts and identifying feasible mitigation measures. CDFW encourages the County to develop a concrete framework for wetland mitigation as part of the environmental review process rather than deferring to the permitting phase (CEQA § 1526.4(a)(1)(B)). A draft Mitigation and Monitoring Plan should be provided, specifying performance standards, and identifying the range of actions that may be taken to achieve those objectives.

Although the County's commitment to no net loss of wetlands is admirable, the proposed mitigation ratio of 1.5:1 may not be sufficient to account for temporal loss of wetland function and the inevitable underperformance or failure of mitigation projects. For these reasons, CDFW typically recommends a ratio of 3:1 or greater. To obtain the greatest ecological benefit, CDFW encourages the County to consider offsite mitigation in addition to the wetland conservation area. By expanding or enhancing wetland habitat in functional ecosystems, the Project could achieve greater ecological lift than it would by consolidating and protecting wetland remnants onsite. This would be particularly true for degraded land adjacent to contiguous riparian areas, such as Widow White Creek.

For wetlands retained or relocated onsite, CDFW recommends adopting clear standards to protect habitat values and ecosystem functions. The draft zoning regulations (dated March 28, 2024) include several provisions, including measures to minimize light pollution, prevent stormwater discharge, and preserve natural buffers. CDFW supports the idea of requiring permanent conservation easements and long-term maintenance plans to address invasive species, trespass, and other threats associated with adjacent land uses. Without such measures, areas set aside for conservation and mitigation will degrade in function and value. CDFW also encourages the County to specify adequate wetland buffers, which are an effective means of maintaining habitat connectivity, attenuating disturbance, minimizing encroachment, and protecting water quality. Well-defined buffers are particularly relevant considering the proposal to omit one-parameter wetlands from consideration. Although some of these features are isolated or provide little habitat value, others (e.g., willow thickets) abut contiguous three-parameter wetlands, extending valuable wildlife habitat and reducing edge effects. Sufficient wetland buffers would encompass these features and preserve their function.

Stormwater Management

The conversion of forests, grassland, and other natural areas to impervious surface tends to intensify stormwater runoff and increase non-point source pollution. The DEIR should thoroughly evaluate the potential direct, indirect, and cumulative impacts of increased stormwater runoff and explore feasible mitigation measures to protect adjacent wetlands. CDFW recommends developing a comprehensive stormwater management plan incorporating low-impact development standards that rely primarily on bioretention rather than underground facilities or basins. Vegetated bioswales and other passive forms of treatment retain some of the benefits associated with wetlands, particularly when landscaped with locally appropriate native plants.

Landscaping and Open Areas

The draft zoning regulations include standards for establishing and maintaining landscaped areas, including a provision (5.4.4) that planting palettes incorporate drought resistant species native to coastal northern California or non-invasive species adapted to the local climate. CDFW is supportive of this concept and therefore recommends revisiting the permitted plant list (Exhibit A), which currently conflicts with this stated goal; most of the approved species are non-native ornamentals, and some (e.g., *Leptospermum*, *Maytenus boaria*) are considered invasive. Locally appropriate native species should be prioritized over ornamentals. Native trees, shrubs, and ground covers will provide greater habitat benefits, partially offsetting the loss of natural habitat. Wetland buffers and other retained natural areas should be planted exclusively with native plant species appropriate to the McKinleyville area. Finally, CDFW suggests refining the development standard to expressly prohibit invasive plant species listed in the Cal-IPC Inventory. Although the plant list does prohibit several of the most problematic genera (e.g., brooms, heathers), the Cal-IPC Inventory is more comprehensive and is regularly updated.

Submittal of Biological Data to CNDDB

CEQA requires that information developed in Environmental Impact Reports and Negative Declarations be incorporated into a database, which may be used to make subsequent or supplemental environmental determinations (Pub. Resources Code § 21003(e)). Accordingly, please report any special status species and Sensitive Natural Communities detected during Project surveys to the California Natural Diversity Database (CNDDB). Additional information and instructions for data submission can be found on the CNDDB website.

Thank you for the opportunity to comment on this NOP. CDFW staff are happy to consult with the County and provide technical expertise. Please contact Kathryn Rian, Environmental Scientist, at kathryn.rian@wildlife.ca.gov with any questions or comments.

Sincerely,

DocuSigned by:
Rebecca Garwood
B5D12ECE94324AF...

Rebecca Garwood, Coastal Habitat Conservation Program Manager
Northern Region

References: Page 6

ec: State Clearinghouse, Office of Planning and Research
State.Clearinghouse@opr.ca.gov

Rebecca Garwood, Michael van Hattem, Kathryn Rian
California Department of Fish and Wildlife

References

CDFW. 2024. California Natural Diversity Database. Biogeographic Data Branch, California Department of Fish and Wildlife. Retrieved March 11, 2024, from https://wildlife.ca.gov/Data/CNDDB.

California Department of Transportation

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April 26, 2024

1-HUM-101-McKinleyville
Town Center Re-Zone
SCH# 2024031111

Jacob Dunn
Planning and Building Department
County of Humboldt
3015 H Street
Eureka, CA 95501

Dear Mr. Dunn:

Thank you for giving Caltrans the opportunity to review the McKinleyville Town Center Re-Zone Notice of Preparation, which would establish mixed use zoning, relocate the town center, enable new development capacity of up to 2,655 new multi-family residential units and allow 1,387,822 square feet of new commercial development. The project is located between Heartwood Drive on the south, Railroad Drive on the north, and extending from McKinleyville Avenue on the west to the eastern edge of Pierson Park, in the unincorporated community of McKinleyville. We have reviewed the proposal and offer the following comments:

California's transportation sector accounts for more than half of all greenhouse gas (GHG) emissions produced statewide. In order to meet the State's ambitious goals to improve air quality and combat climate change, those entrusted with the planning, design and building of the State's transportation infrastructure must do more to tackle climate change. As land use establishes where trip origins and destinations will be created, new development affects both the number of trips made and the length of each trip. By assessing vehicle miles traveled for new development, the County can do its part to build an equitable and sustainable transportation system for residents and visitors.

One tool that is being used to estimate the Vehicle Miles Traveled (VMT) for site-specific development in some of the larger population centers in the State is the Green TRIP Connect tool (https://connect.greentrip.org/). Green TRIP Connect helps to instantly calculate how smart location, affordable homes and traffic reduction strategies can reduce driving and greenhouse gas emissions from residential development. It also calculates how much money and space can be saved from right-sized parking. We suggest that the County consider this among other tools to consider VMT generated from new housing development.

The McKinleyville Town Center Re-zone Notice of Preparation was missing a Location Map and a Proposed Town Center Zoning Map.

Project Objectives #1-13, p.3:

- We recommend that Bullet #6 be reworded to clarify what is meant by "*ease ped/bike traffic*" on Central Ave. We believe the plan/project objective should be re-written to promote the use of design alternatives capable of reducing the level of traffic stress (LTS) for bicycle/pedestrian users as a means to increase use by non-motorized modes of transportation.

- Bullet #11 identifies conceptual elements for inclusion that would improve ped and bike movement and connectivity to commercial uses and to transit stops. An additional recommendation to better incorporate transit service into the Town Center plan could include a McKinleyville Transit Center. A transit center would help to establish a Transit-Oriented Development and serve as a hub for transit network connectivity in the community.

- The project objectives do not identify commercial or public office space among the mixed use or (retail) commercial designations. Retaining commercial office space within the Town Center would allow for more living wage jobs to be established in the community, which would address the jobs/housing imbalance and support small, local businesses that cater to office workers.

Page 9, Transportation paragraph could identify a greater range of transportation types for review of the system network, circulation, and supporting infrastructure.

Town Center NOP could include policies and objectives related to planning for broadband and zero emission charging infrastructure for transit and how this will be integrated in the Town Center rezone (transit, parking, goods unloading, access).

Rezone NOP design, codes/ standards. There is an opportunity for design codes and standards to integrate land uses with transit, motorized and active transportation, and to be consistent with regional and state transportation, mobility, and climate plans.

Mixed Use. This section could include the possibility of a Transit Oriented Development (TOD) in the mixed-use objectives and project description for the Town Center. Transit, the Transit Center hub and its link to land use, local bike/ped and regional connectivity could be stronger and made its own bullet objectives.

We recommend that more references to transit (and zero emission charging infrastructure) be integrated in the NOP objectives and relevant sections (elements) and more on a future TOD transit hub in the EIR.

Town Center Rezone EIR Transportation-Land Use Sections

1. Rezone EIR NOP (and codes) should be consistent with key grant projects:
   - 2023 McKinleyville Multimodal Connections Project.
     The McKinleyville Town Center Rezone Project and EIR should be consistent with the planning objectives, projects, policies, and recommendations in the 2023 McKinleyville Multimodal Connections Project, Humboldt County's 20/21 Sustainable Transportation Planning Grant project. In particular, the Rezone EIR should address the planning objectives and recommendations relating to: Project Area Focus Corridors, especially Central Avenue; Transit Access Improvements; connectivity; future planning and engineering design; underserved community benefits; and Next Steps.

   - Humboldt Multimodal & Vibrant Neighborhoods Planning.
     This planning effort proposes to develop multimodal, walk/bike friendly neighborhood planning (with transit). The Town Center Plan EIR could consider findings and principles that result from this planning grant effort.

   - HCAOG's Dan Burden Walkability Audits (July 2023) This audit should be reviewed for any standards that could be used for how to design ped friendly environments: https://www.hcaog.net/documents/dan-burden-walkability-audits-and-presentations.

2. Transit considerations:
   We recommend that the plan involve participation from local area transit agencies, particularly Humboldt Transit Authority and HCAOG, on the Rezone EIR to ensure consistency with Transit, Humboldt County regional transportation plans and policies. We recommend that the NOP and Rezone EIR consider:
   - McKinleyville Transit Study (2021)
   - Consistency with Transit and Humboldt region STP grant projects
   - First/last mile connectivity, mobility-on-demand, microtransit, Paratransit.
   - Future McKinleyville Transit Center hub, transit facilities.
   - Consistency with HTA transit service and plans. Consider how McKinleyville connects to region/interregional transit service and communities
   - Tribal Transit Service
   - Access, circulation, and facilities for transit, in design, codes

- ZE charging infrastructure needs and codes
- Review if the Rezone EIR and design codes will include transit, land use and bike/ped network needs and facilities to meet state transportation goals to increase transit ridership 4 to 6 times above current ridership levels

3. Design: NOP of EIR could benefit from a combined analysis of land use/housing, transit and active transportation facilities to assess how well the Town Center rezone (codes, standards) would meet regional and state goals for transportation (reduced GHG, VMT), increased transit ridership, safe bike/bike use(lower level of stress), connectivity and climate goals.

4. RTP, Regional Plans: Humboldt County's 2022-42 Regional Transportation Plan, *Variety in Rural Options of Mobility (VROOM)*. The NOP of Rezone EIR should review the RTP's transportation/circulation element goals, policies, and implementation measures for (and not limited to):
   - Land Use-Transportation; Tribal Transportation; Public Transportation; Goods Movement (parking, unloading)
   - Complete Streets, and Commuter Trails
   - Global Climate, and engagement and equity considerations (underserved communities)

   https://www.hcaog.net/documents/regional-transportation-plan-vroom-2022-2042.

5. Caltrans District Plans
   - Caltrans District Active Transportation Plan
   - Humboldt Regional Bicycle Plan
   - Humboldt County Regional Trails, and Pedestrian, Master Plans
   - HCAOG Transit Development Plan Update. TDA Unmet Transit Needs.

6. State Plans
   Design codes and standards should be consistent with goals and objectives of state transportation and climate plans and programs including:
   - CTP 2050
   - Smart Mobility Framework
   - Caltrans Strategic Plan
   - Modal Plans (CA State Bicycle & Pedestrian Plan, State Transit Plan)
   - CAPTI
   - Master Plan for Aging

We concur with the statement from the NOP, that complete streets will be considered: "Proposed modifications to adjacent roadways as identified in the Q-Zone regulations will be reviewed for their feasibility and effect on traffic operations and bicycle and pedestrian safety and connectivity, as will the proposed road network identified in the Q-Zone regulations." This switch to mixed-use zoning will be an overall benefit for the community and a move in the right direction for a more multimodal community.

Please consider impacts to water quality, stormwater, and impacts to existing stormwater conveyance facilities such as ditches and culverts. If runoff from new development will ultimately be conveyed through Caltrans systems, please provide water quality treatment plan, calculations for increase in runoff, and capacity analysis of the Caltrans systems that would be impacted. If Caltrans' existing facilities are not adequate to convey the increased flows, this project may be required to upsize Caltrans culverts to accommodate the impacts of the new development.

Please contact me with questions or for further assistance with the comments provided at (707) 684-6879 or by email: <jesse.robertson@dot.ca.gov>.

Sincerely,

Jesse G. Robertson

JESSE ROBERTSON
System Planning Branch Chief
Caltrans District 1

e-copy: Beth Burks, Executive Director, Humboldt County Association of Governments (HCAOG)
Greg Pratt, General Manager, Humboldt Transit Authority

LIFE PLAN HUMBOLDT

TRANSMITTAL

TO Humboldt County Planning Department Director John Ford May 2, 2024
Department Staff Elizabeth Schatz and Jacob Dunn

FROM Life Plan Humboldt Board President Ann Lindsay
Board Members Kirk Girard, Greg Orsini, George Williamson
Project Manager Laura Kadlecik

SUBJECT McKinleyville Town Center - Environmental Impact Report Scoping Comments

The County of Humboldt has contracted with EMC Planning Group to prepare the McKinleyville Town Center Program Environmental Impact Report (EIR) to analyze:

1. Modifications to the McKinleyville Town Center Q-Zone guiding development in McKinleyville Community Plan's Town Center; and
2. A wetland definition change from single to three parameters in the Town Center area.

The County issued a Program EIR Notice of Preparation (NOP) and Life Plan Humboldt (LPH) representatives attended a April 16 2024 meeting with County staff, prior to the Program EIR scoping meeting, to discuss the EIR process, schedule and LPH entitlements.

LPH has contribute financially to the EIR and seeks environmental compliance to secure all discretionary entitlements for our proposed aging in place senior living community campus on approximately 14.6 acres of the Town Center site South of Hiller Road.

At our meeting, County staff, informed LPH representatives that the McKinleyville Town Center Rezone Program EIR would provide sufficient California Environmental Quality Act (CEQA) analysis and compliance for all County discretionary entitlements and that upon PEIR Certification and rezoning, LPH could proceed with filing ministerial permits (building, grading, infrastructure improvements) without further discretionary review. Other entitlement process issues confirmed at the meeting:

- LPH will be filing wetland modification permit and a parcel map application with the County;
- LPH will be applying to regulatory agencies for wetland mitigation, concurrent with EIR;
- As an applicant LPH is entitled to review /comment on all administrative draft EIR documents prior to release for public review;
- The EIR will include multiple LPH project references, as indicated in *topics listed* below, to substantiate project level review and eliminate need for additional discretionary review;
- The importance of maintaining the schedule, with the EIR complete by end of 2024 and Planning Commission/Board of Supervisor hearings/ EIR certification by end of March 2025.

- In addition, LPH requested that reference the LPH project be incorporated into each element of the EIR, namely:

  Summary
  Add a LPH Campus Overview.

  Environmental Setting
  Reference LPH provided physical setting description for South of Hiller Road.

  Project Description and Objectives
  Reference LPH's consistent community plan and zoning ordinance mixed use objectives.

  Intended EIR Uses
  Review and consultation requirements required by regulatory agencies and/or funders.

  Aesthetics and Visual Resources
  Qualitative Aesthetics and Visual Resources descriptions of campus architecture.

  Air Quality, Greenhouse Gas Emissions, and Energy Analyses
  Air Quality & Emissions Modeling
  Qualitative description of emission sources for LPH campus.

  Energy
  Reference reduced fuel consumption due to electric vehicle use and reduced trips due to ridesharing, alternative modes including transit, bicycle, walking and LPH van use. In addition, the LPH population is expected to drive less and at least 24 of the residents in supportive housing will not be driving at all and planned onsite energy and storage.

  Greenhouse Gas Emissions
  Reference reduced GHG emissions due to limited vehicle fuel consumption, no natural gas use except for commercial cooking, and planned PV solar and energy storage system.

  Biological Resources
  Reference biological resource impacts to 23,940 sq. ft of three-parameter wetland, and 895 sq.ft. and one-parameter wetlands.

  Cultural Resources
  Reference William Rich Associates investigation, determining no historical resources (Title 14 CCR §15064.5(a)), unique archaeological resources (PRC §21083.2 (g)), or tribal cultural resources, as defined in PRC §21074, appear to be present at this proposed project location.

  Hydrology and Water Quality
  Reference impervious surfaces increase, noting LPH design will maximize pervious surfaces resulting in no net runoff features and onsite retention to maintain water quality; and how layout of LPH development is being designed to minimize the filling of wetlands as much as possible.

  Public Services and Recreation
  Reference recreational features, reduced effects on McKinleyville CSD due to onsite recreation amenities; reduced security effects due to onsite staffing on Humboldt County

Sheriff's Department, and minimal effects on local schools; connection of Midtown Trail form Central Estates to Hiller Road across the LPH project site.

Water and Sewer
Reference reduced water consumption and wastewater generation due to conservation measures beyond CSD requirements.

Transportation
Reference vehicle trip reduction strategies including ridesharing and promoting alternative modes such as transit, bicycling, walking and LPH vans. Reference reduced lane width for Hiller Road and traffic calming entry features on Nursery Way.

Tribal Cultural Resources
Reference William Rich Associates Cultural Resources study referenced above.

Noise
Reference acoustic features of campus architecture to minimize offsite noise, and low volume levels for onsite events.

Solid Waste
Reference proposed zero waste facility, to minimize effects of increased solid waste generation.

Wildfire
Reference Wildfire Fire Risk Analysis and Planning Efforts Memo to Kendal Corp.

Land Use
Reference Campus design consistency and compatibility with Q Zone Mixed Use guidelines

- To establish these comments in the public record LPH requests that the County prepare and submit a scoping report that includes these comments as part this EIR NOP process.

From:	Dunn, Jacob
To:	Schatz, Elizabeth; Ron Sissem; Ford, John
Cc:	McNamara, Cade
Subject:	FW: Comment Letter--McKinleyville Town Center Rezone Notice of Preparation
Date:	Friday, May 3, 2024 1:41:04 PM
Attachments:	image001.png

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From: Kelley Garrett <kelleybrookgarrett@gmail.com>
Sent: Friday, May 3, 2024 1:24 PM
To: Dunn, Jacob <jdunn@co.humboldt.ca.us>
Subject: Comment Letter--McKinleyville Town Center Rezone Notice of Preparation

Hello,

Thank you for the opportunity to comment on the upcoming McKinleyville Town Center EIR at this NOP stage.

My understanding of the CEQA process is that comments at this time can help determine the development course of the soon-to-be-produced EIR.

I support the primary goals of the Town Center. What follows are my comments to help clarify EIR direction.

Project Overview, sentence four "The Q-Zone will support... and wetland preservation." This description is misleading as wetland preservation is not a driving characteristic of the project, but rather proposed mitigation to offset impacts caused by the project development. A transparent project description would be "the Q-Zone will support ... and on-site wetland mitigation including wetland preservation."

Setting/Project Location, final sentence "Several acres for the site have been defined as wetland". As an adjective, several is equivalent to few, three etc., yet near to 5 and 1/2 acres are identified on page 6 (Biological Resources) of the NOP. For transparency the factual acreage would be better suited.

Project Description, page 2 "In addition to building and other standards, the Q-Zone includes language that would change how wetlands are defined." State planning law, and subsequent case law, make it clear that the ordinance process cannot be used to modify the General Plan. This idea of amending McKinleyville Community wetland standards, outside of a full general (community) plan updating, needs to be dropped from the project description.

“The Town Center is drafted and will be evaluated in the EIR to allow subsequent development to occur without further environmental review.” Life Plan Humboldt is a non-profit venture and it makes sense that public funding could be used to permit the project. However, in the case of “Pierson Mall” on the 40 plus acres north of Hiller Rd--is this not a gift of public funds (planning dollars) to a private development corporation? Why are public planning dollars being spent to permit such a private project?

Project Objectives, 9. “Develop appropriate design review standards consistent and compatible with the... entire Humboldt County General Plan”. A loud No. A community Plan is additive to the General Plan. The reason we have Community Plans, derived from community input, is to better serve the conditions and desires of the local community versus the general county.

Project Objectives,11. Protect natural land forms. Quite a large acreage of natural wetlands are proposed to be filled by Pierson Mall. How does this synch as a project objective?

Thank you for this opportunity to provide input.

Best Regards,

Kelley Garrett
McKinleyville
(707) 497-4376

McKinleyville Town Center Q-Zone Regulations

B

APPENDIX

MCKINLEYVILLE TOWN CENTER Q-ZONE

Draft

March 28, 2024

Final MMAC Review Draft

1 Purpose and Intent

The McKinleyville Town Center Q-Zone is intended to conform to the McKinleyville Community Plan which creates a unique community center characterized by development emphasizing multi-modal connectivity (pedestrian, bicycle, and public transit), public meeting and gathering spaces, open space and wetland preservation with a full range of mixed-use commercial, office, civic and high-density residential uses.

2. ZONING

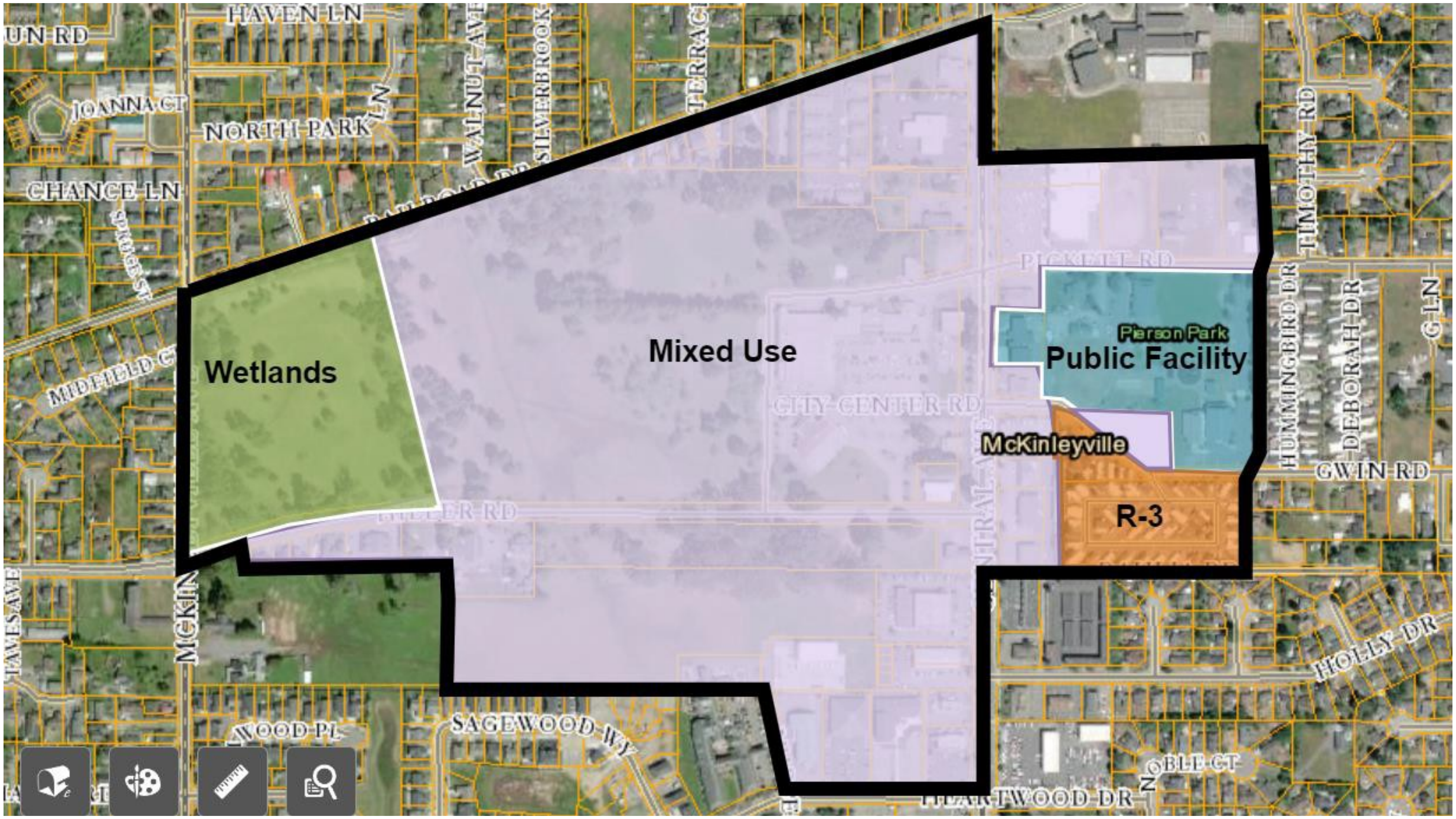
2.1 Classifications

The Q Zone is an overlay district modifying the underlying principal zone of Mixed Use. The Q zone incorporates the R-3 Residential Multiple Family, Public Facility districts and Streamside Management Areas and Wetlands provisions from the Zoning Ordinance to implement the vision for the McKinleyville Town Center. The different districts are shown on Map 1 – Zoning Map. The boundaries of these districts may be adjusted to allow better project design as part of a discretionary permit.

2.2. The following table specifies the allowable uses within the McKinleyville Town Center.

Allowed Land Uses and Permit Requirements
R-3: Residential Multiple Family
Uses and permit requirements as specified in Section 314-6.4 of Chapter 4 of the Zoning Regulations
PF1: Public Facility (Urban)
Uses and permit requirements as specified in Section 314-4.4 of Chapter 4 of the Zoning Regulations
STREAMSIDE MANAGEMENT AREAS AND WETLANDS
Uses and permit requirements as specified in Section 314-38 of Chapter 4 of the Zoning Regulations

Map 1 - Zoning Map



MU1: Mixed Use (Urban) The following table supersedes Section 314-9.1 of Chapter 4 of the Zoning Regulations	
Land Use Type	**Permit Requirements**
Public Gathering Use Types	
Public Recreation	P
Farmers/Seasonal Market	P
Multi-Use Plaza Areas	P
Amphitheaters	SP
Pocket Parks	P
Commercial Use Types[1,2]	
Retail sales and services	P
Artisan's workshop or handicraft manufacture[3]	P
Micro-brewery/Winery/Distillery	P
Restaurants	P
Pop-Up Businesses (At locations designed for such activity)	P
Bank, financial services	P
Office: Business, administrative, governmental, and medical	P
Residential	
Mixed Use (commercial/residential)	P
Multi-Family Residential (Minimum density 16 Units/acre)[4]	P
Family Day Care Home (12 or fewer in home)	P
Family Day Care Center	SP
Senior Housing Complex	P
Rooming and boarding houses	P
Emergency Shelters	P
Hotels and inns	P
Civic Use Types	
Post Office	P
Community Assembly	SP
Churches	SP
Civic buildings	P
Library	P
Private and Public Schools	SP
Art galleries	P
Transit Centers	P

Notes

1. Shall not include drive-thru operations or include "big-box" department stores.
2. Not including filling stations, automotive repair, or retail service requiring permanent outdoor storage, not including temporary or periodical sidewalk display of goods.
3. Must contain gallery or sales of crafts or products produced on site.
4. The parcel surrounded by Railroad Avenue, the wetland parcel and north of Hiller can have up to 25% devoted to multi-family residential without a commercial component

3.0 Mixed Use - Standards

3.1 Building Development Standards

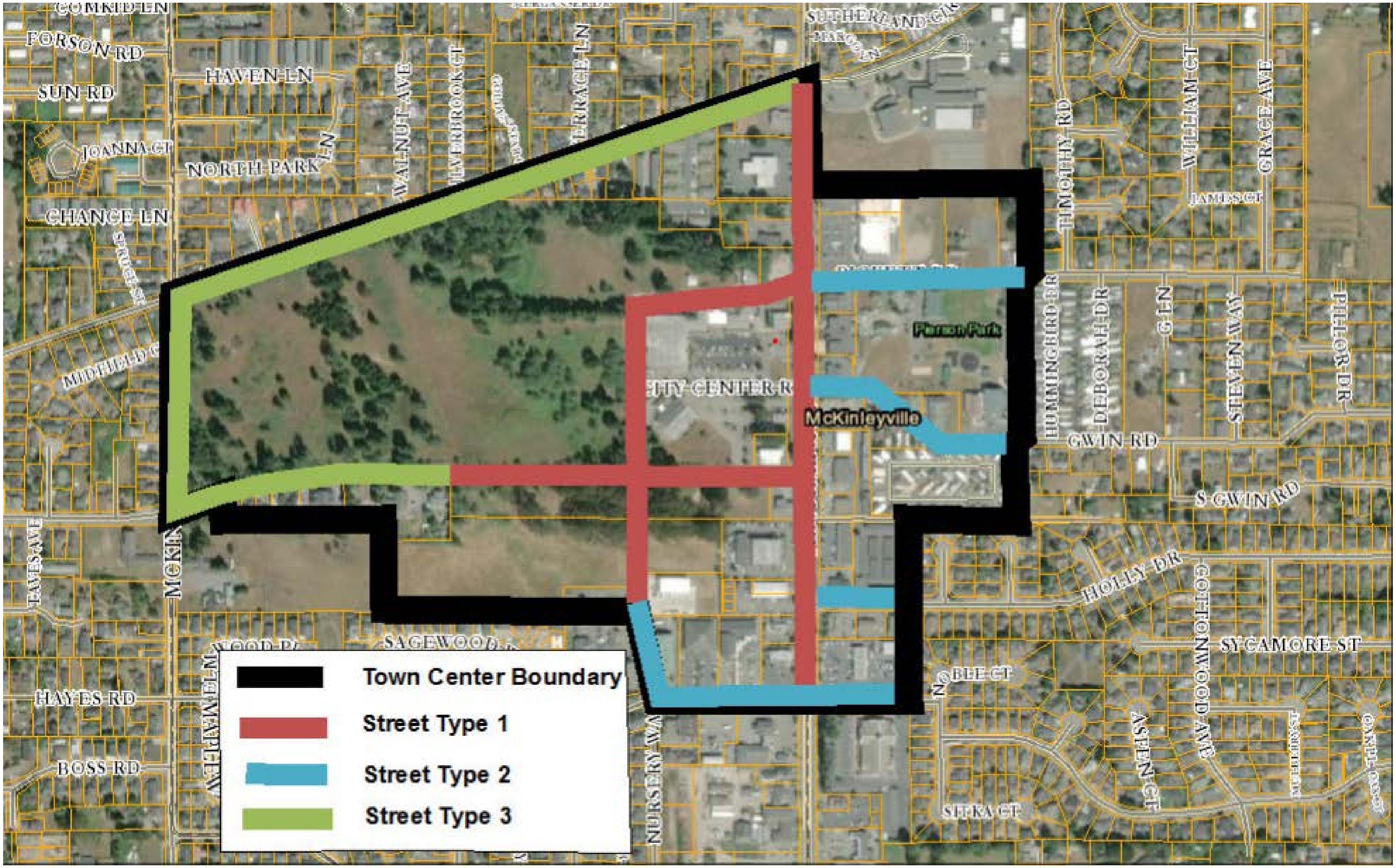
Lot Size Requirements	
Minimum Lot Size	2,000 square feet
Minimum Lot Width	25 feet
Maximum Lot Depth	None specified
Building Standards	
Minimum Front Yard Setbacks	0, except where frontage is in a block including a Residential Zone, where the front yard shall be the same as required in such Residential Zone
Minimum Rear Yard Setbacks	15 feet, except that where a rear yard abuts on an alley, such rear yard may be not less than five feet (5').
Minimum Side Yard Setbacks	0, except a side yard of an interior lot abuts a Residential Zone where the side yard shall be the same as that required in such Residential Zone
Maximum Ground Coverage	One hundred percent (100%)
Maximum Building Height	4-stories

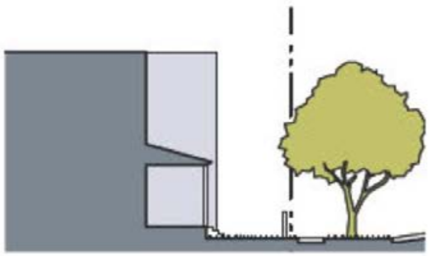
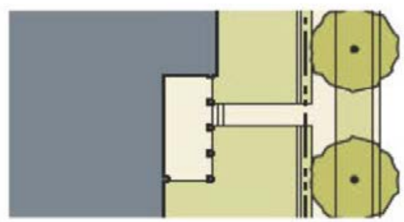
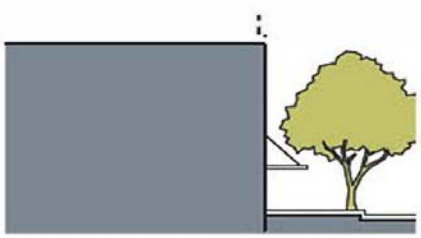
3.2 Building Form Standards

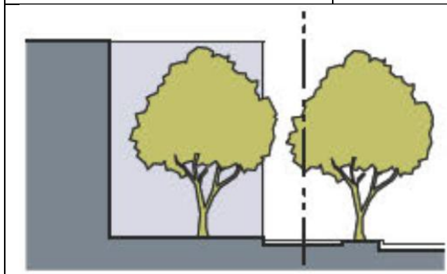
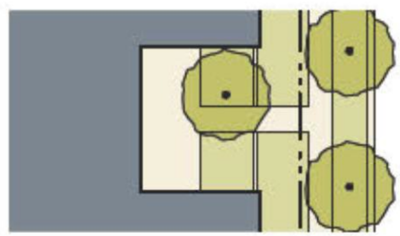
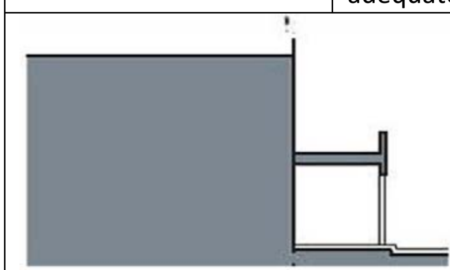
Building Form is a function of the street type. Street types are defined by the intended volume of traffic and focal points for the town center. Street Type is defined by Map 2 and the allowed building form is defined in the following table.

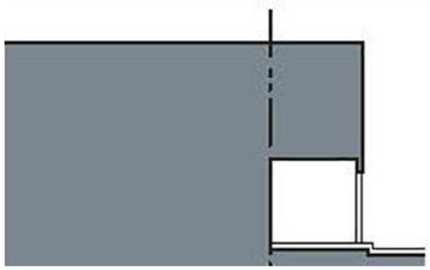
Exceptions to the building form standards may be made for senior housing and multifamily housing to develop a more residential development pattern. Exceptions may include deviation from minimum building height to allow single story structures, building design and form, frontage setbacks and on-site parking shall be allowed.

Map 2 – Frontage Types



Building Form Standards	Description	Street Type (see Map 2)		
		1	2	3
Allowable Frontage Types				
Note: Dashed vertical line on the images below is a representation of property line and shows the difference between the public and private frontages				
Porch, Projecting or Engaged	The main facade has a small setback from the street. The projecting porch is open on three sides and all habitable space is located behind the setback line.	Not allowed	Not allowed	Allowed
 Side view  Plan view				
Shopfront	The main facade is at or near the frontage line with an entrance along the public way. This type is intended for retail use. It has substantial glazing at the sidewalk level and may include an awning that may overlap the sidewalk. It may be used in conjunction with other frontage types.	Allowed	Allowed	Allowed only within corner lots
 Side view  Plan view				

Building Form Standards	Description	Street Type (see Map 2)		
		1	2	3
Forecourt	The main facade is at or near the frontage line and a percentage is set back, creating a small court space. The space could be used as an entry court or shared garden space for apartment buildings, or as an additional shopping or restaurant seating area within commercial areas.	Allowed	Allowed	Allowed only within corner lots
 Side view	 Plan view			
Gallery	The main facade is at the frontage line and the gallery element overlaps the sidewalk. This type is intended for buildings with ground-floor commercial uses and may be one or two stories. The gallery should be used to provide the primary circulation along a frontage and extend far enough from the building to provide adequate protection and circulation for pedestrians.	Allowed	Allowed	Not allowed
 Side view	 Plan view			

Building Form Standards	Description	Street Type (see Map 2)		
		1	2	3
Arcade	A covered walkway with habitable space above often encroaching into the ROW The arcade should be used to provide the primary circulation along a frontage and extend far enough from the building to provide adequate protection and circulation for pedestrians. This type is intended for buildings with ground floor commercial uses and is common along public courtyards and paseos.	Allowed	Allowed	Not allowed
 Side view	 Plan view			
Building Placement				
Build-to Line – Front	A build-to line (BTL) is a set building line on a lot, measured parallel from the front and/or corner side lot line, where the structure must be located. The BTL is intended to assist in shaping the public space of streets to enhance the comfort and convenience of the pedestrian experience	0 feet	0 feet	20 feet
Build-to Line – Side (Corner Lot)	The building facade must be located on the build-to line. Facade articulation, such as window or wall recesses and projections are not counted as the building façade line, which begins at the applicable façade wall	0 feet	0 feet	20 feet

Building Form Standards	Description	Street Type (see Map 2)		
		1	2	3
Proportion of building built to BTL – Front	A build-to percentage specifies the percentage of all building facades within a block that must be located within a build-to line. Facade articulation, such as window or wall recesses and projections, do not count against the required build-to percentage	80% minimum	50% minimum	0% minimum
Proportion of building built to BTL – Side (Corner Lot)		30% minimum	20% minimum	0% minimum

Additional Building Placement Requirements:

- For Street Types 1 and 2, building facades must be built to BTL within 30 feet of every corner.
- Rear-facing buildings, loading docks, overhead doors for garage access (not including overhead doors with windows that meet transparency requirements and that are used to provide the types open air access typically used by cafés, restaurants, or bars) and other service entries are prohibited on street-facing facades.
- All floors must have a primary ground-floor entrance that faces the primary or side street.
- Any building over 60 feet in width must be broken down to read as a series of buildings no wider than 40 feet each.

Frontage Criteria

Front Encroachment	Canopies and Awnings may encroach over the BTL on the street sides and into the setback on the rear, as shown in the shaded areas.	8 feet maximum	8 feet maximum	None specified
Side Street Encroachment	Canopies and awnings may project 8 feet maximum from façade to a distance of 1 foot from the curb line and must have 9 feet vertical clearance	6 feet maximum	6 feet maximum	None specified
Rear Encroachment	Only Balconies are allowed at the rear encroachment.	4 feet maximum	4 feet maximum	None specified

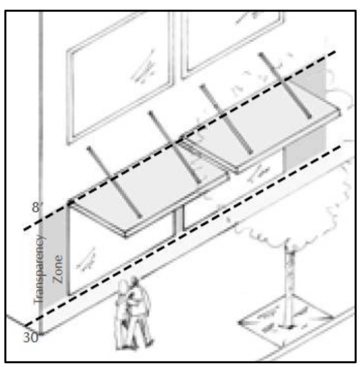
Building Form Standards	Description	Street Type (see Map 2)		
		1	2	3
Forecourt Depth		≤20 % of building depth	≤20 % of building depth	≤20 % of building depth
Forecourt Width		≤50 % of building width	≤50 % of building width	≤50 % of building width

Additional Forecourt Requirements:

- Buildings with forecourt facades shall not be located adjacent to other buildings with forecourt facades.
- Forecourt building frontages along public streets are required to provide pedestrian oriented spaces that provide opportunities for outdoor dining, the temporary display of retail goods or space for people to gather. Design criteria for pedestrian-oriented open space:
    - Surfaces shall be either concrete or decorative pavers.
    - Pedestrian-oriented lighting, no more than 14 feet in height, shall be provided and may be free standing or building-mounted.
    - Where the space is not created to provide outdoor café-style seating, at least one of the following shall be provided: pedestrian amenities such as a benches, water feature, drinking fountain, and/or distinctive paving or artwork.
    - Other methods that meet the intent of the standards, especially where materials are more permeable

Building Setbacks

Front Yard Setback		See build-to lines above		
Rear Yard Setback	A required specified distance between buildings or structures and a lot line or lines, measured perpendicularly in a horizontal plane extending across the complete length of said lot line or lines	5 feet	5 feet	15 feet
Side Yard Setback		0 feet	0 feet	15 feet
Building Height Maximum	Building height is intended to be regulated primarily through the number of stories within the building; however, maximum and minimum heights are provided and are to be measured from the sidewalk to the eve, cornice, or base of parapet wall in order to encourage a variety of building heights and roof forms.	4 stories	3 stories	35 feet

Building Form Standards	**Description**	**Street Type (see Map 2)**		
		1	**2**	**3**
Building Height Minimum		2 stories	2 story	None specified
Building Height Articulation Checklist	To ensure that building massing does not appear artificially uniform or monotonous, at least one of the following building height articulation methods shall be employed: • Upper floor ceiling height shall be varied in relation to adjacent buildings, where upper floor ceiling heights are at least 80 percent of required first floor ceiling height. • Use of different roof form from neighboring building(s). • Vary roof height by at least 5% from neighboring building(s). Step-back top floor from lower floors and include terraces and green roofs.	Applicable	Applicable	Not Applicable
Transparency Zone The transparency extends upward from 30 inches above ground to 8 feet above-ground. For Forecourt frontages, the ground-floor side walls are exempt from transparency requirements, but subject to Blank Wall standards (see below)  Transparent windows and doors are required along at least 60% of the Transparency Zone shown in the figure to the left. Tack-on display cases do not qualify as transparent areas.		Applicable	Applicable	Applicable to Storefront or Forecourt Frontages

Building Form Standards	Description	Street Type (see Map 2)		
		1	2	3
Blank Wall Standards	Untreated blank walls more than 10' in length adjacent to and visible from a street, parking lot, public park, common open space, or pedestrian pathway are prohibited. Where a wall is visible from any of the above areas at least two of the following wall treatments shall be installed: • Display windows; • Landscape planting beds at least 5 feet wide or a raised planter bed at least 16 inches high and 3 feet wide in front of the wall with planting materials that are sufficient to obscure or screen at least 50 percent of the wall's surface within three years; • A vertical trellis in front of the wall with climbing vines or plant materials; • Painted mural(s); or Sculpture(s)	Applicable	Applicable	Applicable

4. CONNECTIVITY

4.1 Objectives

Pedestrian, bicycle, transit, and vehicular improvements are required components of the Town Center. The connections below shall be designed and constructed as part of development. Improvements shall be designed and constructed at the earliest practical stage of development or as specified below.

4.1.1 Town Center Thoroughfares. There are two primary thoroughfares within the Town Center, Central Avenue and Hiller Road.

4.1.1.1 Central Avenue will transition into a core component of the Town Center subject to the Building Form requirements of 3.2 above and with a street cross section shown on Exhibit 1. Funding for the improvement of Central Avenue shall be from a source other than development along Central Avenue.

4.1.1.2 Hiller is intended to be the focal entry of the Town Center subject to the Building Form requirements of 3.2 above and with a street cross section shown on Exhibit 2. This cross section may be modified to account for Residential development, in which case all parking shall be located on one side of the street.

4.1.2 Local Streets The are several local streets as shown on Map 2 including two new connections:

4.1.2.1- Nursery Way Extension to Hiller Road.

4.1.2.2 Connection from either Railroad across the site to Hiller Road or to the extension of Nursery Way north of Hiller.

4.1.3 Bicycle and Pedestrian Connections. Map 3 shows on-street and off-street bicycle trails and pedestrian connections including:

4.1.3.1 East-West Trail linking Mckinleyville Avenue on the west with Pierson Park on the east, running though the existing shopping center and crossing Central at Gwin. This will connect the open space on the west with the park on the east.

4.1.3.2 North-South connector linking the Mid-Town trail.

4.1.3.3 Class I bicycle path along Hiller connecting McKinleyville Ave and Central.

These bicycle/pedestrian connections shall be constructed as part of subdivision improvements, site improvements associated with development or shall be completed prior to 25% of the currently undeveloped portion of the Town Center area is developed.

4.1.4 Transit Facilities. There shall be an enhanced transit facility located with convenient access to Central Avenue providing simultaneous loading space for multiple buses, bike lockers, and if grant or other funding is available space for park and ride. This shall be constructed and operational before 50% of the buildable town center area is developed.

Map 3: Bike and Pedestrian Connections

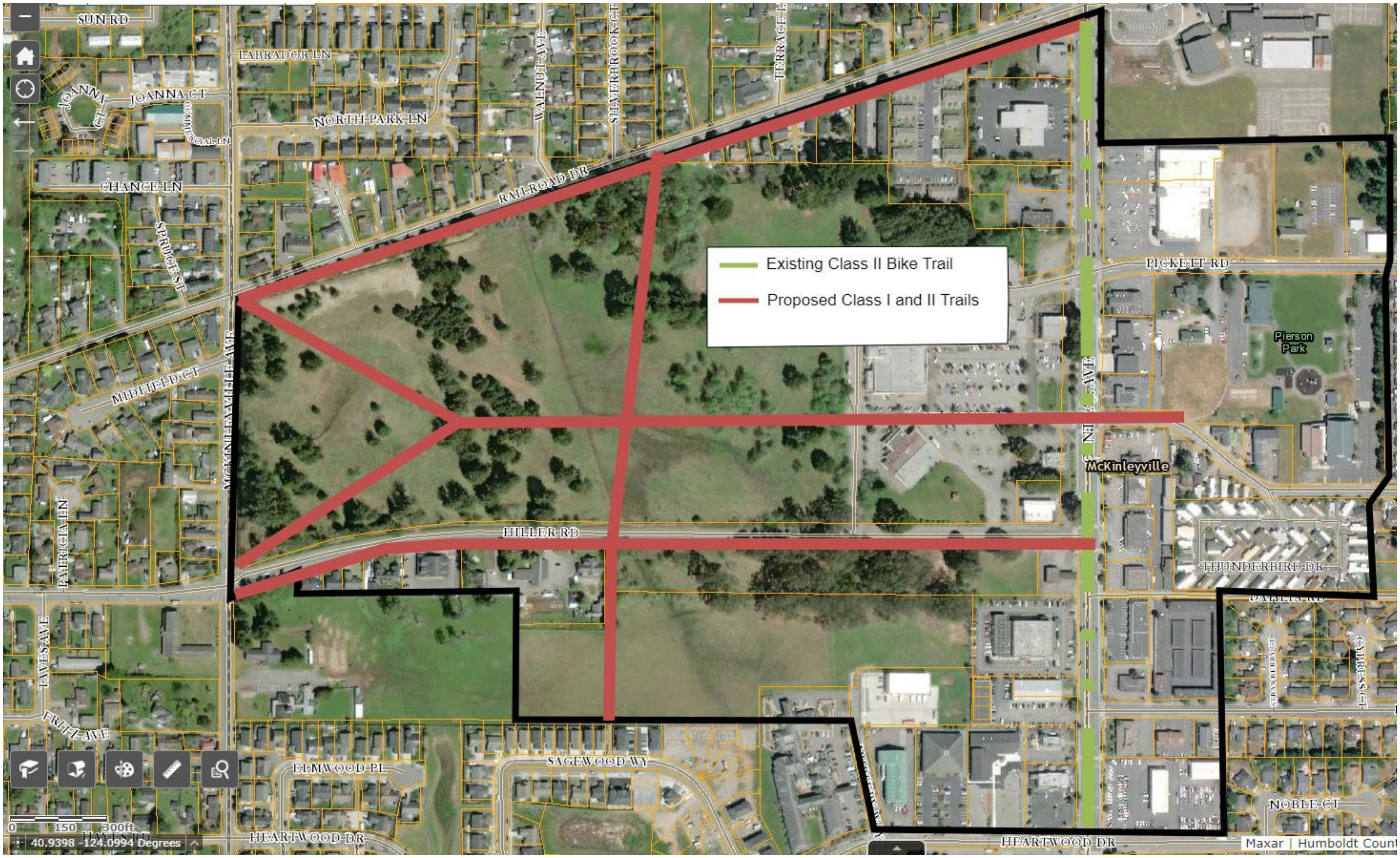


Exhibit 1 Central Cross Section

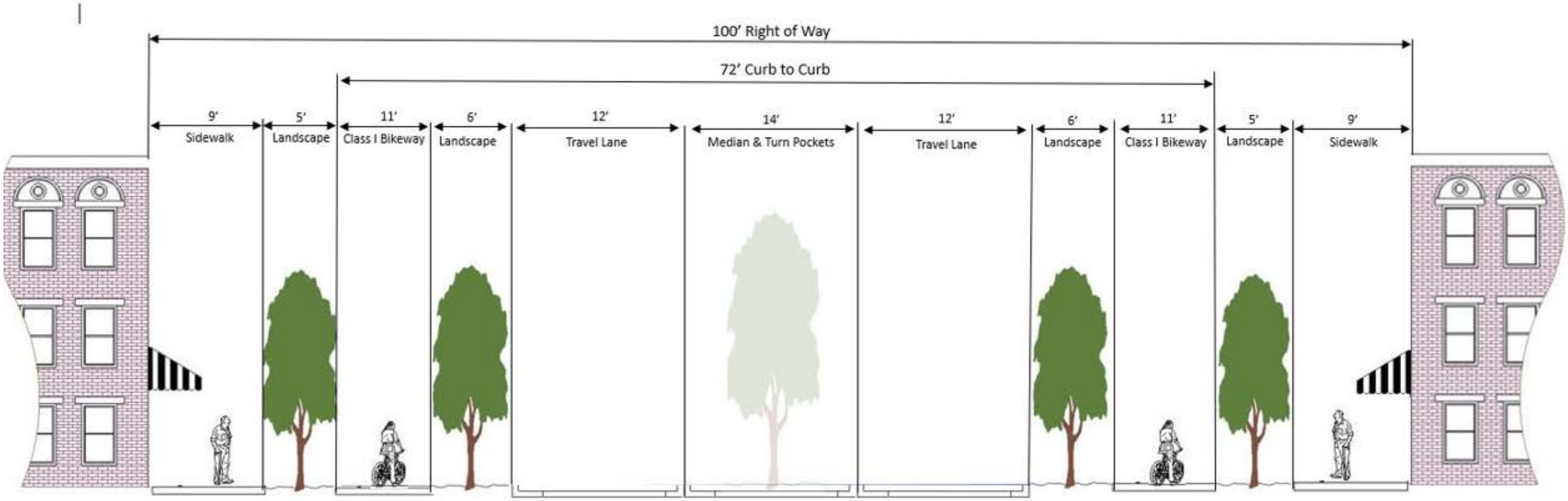
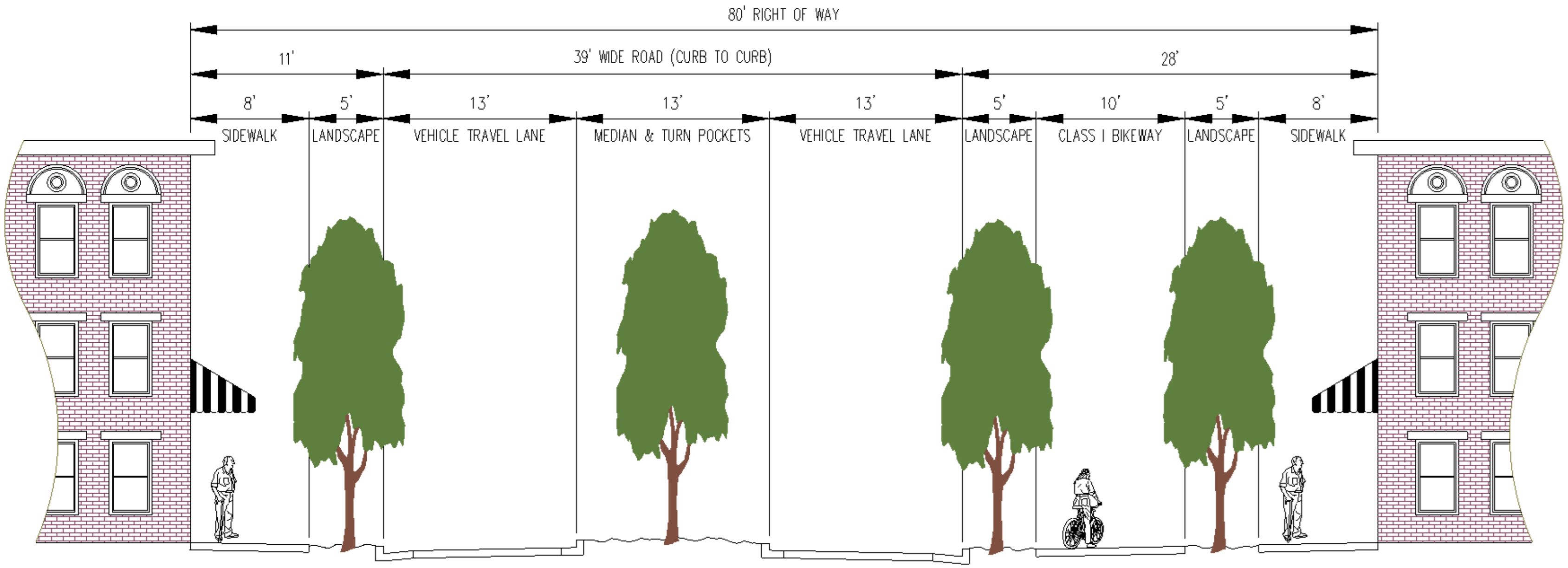


Exhibit 2 Hiller Road



HILLER ROAD PROPOSED TYPICAL SECTION

-NOT TO SCALE -

ON STREET PARKING (PARALLEL OR ANGLED) TO BE ADDED AS REQUIRED; ADDITIONAL RIGHT OF WAY REQIORED

LANDSCAPING IS DEPENDENT UPON A PERMANENT FUNDING SOURCE BEING PROVIDED TO FUND FOR ONGOING MAINTENANCE

4.2 Standards for Landscaping along Thoroughfares

4.2.1 Thoroughfare designs include areas for landscaping which shall include plants from the list in Exhibit A and achieve the following:

4.2.1.1 Street trees capable of reaching a height of 20 feet and planted approximately 25 feet apart.

4.2.1.2 Delineator trees and shrubs capable of producing color to demarcate intersections and driveways,

4.2.1.3 Landscape materials shall be spaced to maintain frontage visibility and safety.

5 Town Center Area Site Design and Development Standards

5.1 Design Review. Review for compliance with the provisions of this ordinance shall be through a Zoning Clearance Certificate issued by the Director of Planning and Building. The purpose of the design review is to ensure that structures are properly designed for the site and harmonized with surrounding sites and structures and to comply with the provisions of this Q Zone.

5.1.1 Architecture. Originality in architecture is encouraged. Architecture, which is inharmonious and monotonous, is barred consistent with the provisions of the Q-Zone.

5.1.2 Site Design. Site design shall include the required provisions of this Q-zone, including pedestrian connections, plazas and people spaces, appropriate landscaping, and location of the building on the property.

5.1.3 Submittal Requirements. The following items shall be submitted as part of the Building Permit/Zoning Clearance Certificate application:

5.1.3.1 Site Plan. A site plan, drawn to scale, showing the proposed layout of structures and other improvements, including, where appropriate, driveways, pedestrian walks, off-street loading areas, landscaped areas, fences, and walls.

5.1.3.2 Landscape Plan. A landscape plan, drawn to scale, showing the locations of existing trees proposed to be removed and proposed to be retained on the site, the location and design of landscaped areas, and the varieties of plant materials to be planted therein, and other landscape features.

5.1.3.3 Architectural Drawings. Architectural drawings or sketches, drawn to scale, showing all elevations of the proposed structures as they will appear upon completion. All exterior surfacing materials and colors shall be specified and scale drawings of all signs subject to architectural review showing the size, location, material, colors, and illumination.

5.1.3.4 Requests to Deviate. Requests to deviate from the provisions of this Q-Zone may be allowed subject to approval of a Conditional Use Permit by the Planning Commission.

5.2 Parking requirements. This section modifies the Off-Street Parking standards specified in Section 314-109.1 and Mixed Use (Urban) standards specified in Section 314-9.3

5.2.1 Parking Plan

There is no minimum off-street parking requirement for non-residential development within the Town Center. Where parking is desired, parking shall be in a common parking lot established and maintained through the formation of a parking district or private parking lot.

5.1.2 Residential Off-Street Parking

On-site, off-street parking may be provided for residential development at a rate not to exceed one parking space for each residential unit. Additional guest parking may be provided in a common off-site parking facility.

5.2.2 Bicycle Parking Requirement

5.2.3 Commercial or Mixed-Use Developments

5.2.3.1 A minimum of ~~three~~ five bicycle parking spaces shall be provided for any mixed use or commercial development project of more than 10,000 square feet.

5.2.3.2 Bicycle parking shall be located no further than 100 feet away from a building entrance and be visible from the uses they serve. Facilities shall not be in places that impede pedestrian flow or would cause damage to landscaping.

5.2.3.3 The Planning Director may reduce the required minimum number of off-street vehicle parking spaces for mixed use project by one (1) off-street vehicle space for every five (5) additional bicycle spaces provided, up to a maximum reduction of ten (10) percent.

5.2.4 Residential Development

5.2.4.1 A minimum of one (1) bicycle parking space shall be provided per residential unit.

5.2.4.2 Bicycle lockers shall be provided for each residential unit without a garage.

5.3 Parking Lot Design and Landscaping Requirements

5.3.1 Driveways shall be located away from intersections and designed to minimize conflicts with pedestrian traffic.

5.3.2 Parking areas shall include a minimum 10-foot-wide planter around the perimeter of the parking area and contain trees and other plant materials capable of creating a visual buffer from the street and surrounding properties.

5.3.3 Pedestrian walkways shall be provided from existing or proposed public sidewalks to the customer entrance of all buildings on the site. Walkways shall connect pedestrians to transit stops, street crossings, store entry points, central features and community spaces on or adjoining the site. Landscaped areas shall be provided along the length of the sidewalk or walkway that include trees, shrubs, ground covers, or other such materials without obstructing the path of travel or creating protruding objects.

5.3.4 Parking provided in open areas shall include the following:

a. A minimum of 1 tree for every 8 parking spaces

b. -Trees shall be placed evenly throughout the parking lot to provide visual variety in the parking lot.

5.3.5-Planters shall be placed at the end of parking rows and shall be at least 4-feet wide and include trees, shrubs and groundcover.

5.4 Site Landscaping

5.4.1 All lot areas not covered by structures, parking lots, curbs and gutters or walkways shall be permanently landscaped with decorative plazas, pools, or the planting of grass, shrubs or trees or other comparable surface covers. All planted landscaped areas shall be provided with an irrigation system to establish landscaping and maintain landscaping during abnormally dry periods.

5.4.2 Where buildings are not placed at the back of sidewalk, landscape treatment shall be designed and maintained to emphasize building entrances.

5.4.3 Landscaped areas may be designed to serve as stormwater management areas (e.g., bioswales).

5.4.4 New landscaping shall include drought resistant species native to the coastal region of Northern California or noninvasive naturalized species that have adapted to the climatic conditions of the coastal region of Northern California. Climate adapted plants, preferably native, that require occasional, little or no summer water (average WUCOLS plant factor 0.3) shall be used for one hundred (100) percent of the plant area excluding edibles and areas using recycled water.

5.4.5 Turf area shall not exceed twenty-five (25) percent of the landscape area.

5.4.6 Turf is not allowed in non-residential projects.

5.4.7 Landscaping shall include at least one tree installed per twenty-five feet of frontage on public or private streets.

5.4.8 Landscaping adjacent to Open Space areas shall consist of trees, shrubs, and ground covers native to Humboldt County and are appropriate to the conditions of the site. Non-invasive and naturalized or ornamental species may also be permitted as per recommendations from a licensed landscape architect.

5.5 Public Open Spaces. The development in the town center shall provide open space areas where the public can gather, vendors can display goods and provide opportunities for other public enjoyment. A minimum of three percent of the developable but undeveloped area of the Town Center shall be devoted to this open space. A minimum of 20,000 square feet of this shall be provided in a common open space area. This shall be outside of other required components of the site design and may be centralized at one location. Provisions shall be made to demonstrate how this provision will be addressed either at the time of subdivision or when the first new development is proposed.

5.6 Lighting

5.6.1. All areas shall be appropriately illuminated to protect public safety. Lighting without a clear public safety purpose is not allowed. Lighting shall be directed at the area which requires illumination.

5.6.2 Prior to issuance of permits, new development shall demonstrate exterior and site lighting meets the following criteria:

a) Minimum and maximum lighting levels.

i. Minimum (for low or non-pedestrian and vehicular traffic areas) of 0.5- foot candle.

ii. Moderate (for moderate or high-volume pedestrian areas) of 1-2-foot candles.

iii. Maximum (for high volume pedestrian areas and building entries) of 4-foot candles.

b) Fixture heights shall be the lowest possible to meet minimum lighting requirements but in no case taller than 20 feet. All lighting shall be shielded to prevent glare above the lighting fixture and to prevent light spillover- beyond the area to be illuminated.

c. Glare. No use shall create intense light or glare that causes a nuisance or hazard beyond the property line.

d) Lighting shall be minimized near Wetland Buffers or natural open space areas. Walkways and bicycle paths in open space areas shall be illuminated with bollard scale light fixtures illuminating the path while shielding the light from natural areas.

5.7 Other Design Standards

5.7.1 Outdoor trash location. Service areas shall be subject to the following requirements:

5.7.1.1 The service elements shall be paved with concrete.

5.7.1.2Enclosed and screened by a wall at least six feet high. Enclosures shall use materials and detailing consistent with primary structures on-site. The materials and design shall provide for a durable enclosure.

5.7.1.3The sides and rear of the enclosure must be abutting another structure or screened with landscaping at least 3 feet high or at least 5 feet wide.

5.7.1.4 Collection points shall be located and configured to minimize conflicts with pedestrian or vehicle traffic,

5.7.1.5 Recyclables shall be protected by using weatherproof containers or by providing a roof over the storage area.

5.7.2 Rooftop Mechanical Equipment shall be screened, with elements integral to the design of the building.

5.7.3 Odors. No use shall create objectionable odors readily detectable beyond the property line.

5.7.4 Dust and Smoke. No use shall create dust or smoke that is readily detectable beyond the property line (in addition to meeting all applicable air pollution requirements).

5.7.5 Vibration. No use shall create vibration detectable without instruments at the property line.

6.0 PROTECTION, AND CONSERVATION OF WETLAND AREAS

6.1 Wetlands are a valuable resource and shall be conserved through onsite protection of wetlands or through relocation and replacement of wetlands on a no net loss basis. Wetland Areas will continue to be an amenity of the Town Center through protection, enhancement, and relocation of wetlands.

6.2 The 14 acres of property south of Railroad, east of McKinleyville Avenue, north of Hiller Road and west of the spruce trees is envisioned as a wetland preservation and conservation area. Wetland areas within the Town Center may be filled and relocated to this area.

6.3 Prior to issuance of any permits or granting of any entitlements on property within the Town Center a wetland delineation shall be completed delineating all three parameter wetlands (HCC Section 314-61..1.7.6.5) which exist on the property. Previously developed property is exempt from this requirement. This exemption extends to storm drain ditches graded to transport storm water outside of a natural channel or wetland.

6.4 Prior to issuance of construction permits or as part of a subdivision approval, a plan must be reviewed and approved by the approving authority demonstrating that either the wetland areas will be protected in place in accordance with HCC section 61.1.7.6.6) or identifying how the wetland areas will be relocated and conserved.

6.5 Plans to relocate wetland areas shall include:

6.5.1A mapped delineation of the wetlands to be impacted,

6.5.2Wetlands to be filled shall be replaced on a 1.5:1 basis, where a minimum of 1.5 square feet of wetland shall be provided for each square foot of wetland impacted. This ratio is based upon equivalent wetland replacement. Credit may be given for wetland replacement which has a higher habitat value but in no case shall the replacement ratio be less than 1:1 and mitigation shall provide an equal value of wetland habitat impacted.

6.5.3. Grading plan showing how the site will be configured to ensure successful wetland creation,

6.5.4 Storm water shall not drain directly into retained or recreated wetlands but shall be subject to some passive treatment either through a bioswale or sheet flow across grassland.

6.5.5. The planting scheme and plant material proposed.

6.5.6. Success and Monitoring Criteria: Annual monitoring criteria to rate the success of the wetland creation or enhancement effort. The monitoring period shall be a minimum of 5 years but shall not be concluded until the success objectives have been achieved for three consecutive years. Each year a monitoring report shall be provided to the Planning and Building Department evaluating the success of the plan implementation and provide suggested remedial measures needed to achieve the success criteria.

6.5.7The plan shall describe the long-term plan for ownership and maintenance of the wetland conservation area. Retained and relocated wetlands shall be protected from future development through a permanent conservation easement or other instrument ensuring the biological resource values of the wetland areas will be maintained or enhanced in perpetuity.

6.5.8The Planning and Building department shall consult with the California Department of Fish and Wildlife prior to approval of the plan.

6.5.9Mitigation credit will be given for relocation of the drainage channel parallel to Mckinleyville Avenue if it is moved to the east and regraded to support a riparian stream cross section in such a manner as to allow bicycle and pedestrian connectivity along Mckinleyville Avenue.

6.6 Preservation of Important Trees

6.6.1 There are significant trees within the Town Center area, and some of them will be retained and incorporated into the Town Center design as follows:

6.6.1.1 The Spruce Grove north of Hiller and South of Railroad will be preserved as a buffer between the developed Town Center and the wetland preserve to the west. Prior to development around the trees an arborist shall provide a report on the health and viability of the trees. Any trees deemed hazardous or in declining health shall be removed. Trees approved for removal shall be replaced with like species. A minimum of 50% of the area containing the grove shall be retained for public open space and up to 50% may be incorporated into the developed environment.

6.6.1.2 There is a small clump of Redwood trees near the back of the existing shopping center, these trees shall be retained as part of a small pocket park.

EXHIBIT A

Permitted Plant List

McKinleyville Community Services District

PERMITTED PLANT LIST

TREES

Japanese Black Pine
Magnolia
Granda flora
Little Gem (Dwarf)
Dwarf Alberta Spruce
Liquid Amber
Gin1m
Leptospennum
(Treeformed)
Japanese Blueberry
(Treeformed)
The Prunus Family:
Kwanzan Flowering Cherry
Mt Fugi Flowering Cherry
Etc.
The Acer Family:
Red Maple
Etc.
Maytenus Boaria

SHRUBS

Bird nest Sprnce
MugoPine
Dwarf Globe Blue Spruce
Golden Globe Arborvitae
Heatherbun Chamaecyparis Thyoides
Boulevard Cypress Cham Pisifera
Rheingold Thuja Occidentalis
Japanese Barberry
Agapanthus
Leptospermum
Crimson Pygmy Berberis Thunbergi
Green Beauty Boxwood
Rosemary
Pittospornm Tenuifolium
Black stemmed
Majorie Channon
Nandina Gulfstream
Nandina Purpia
Pieris (dwarf species only)
Blue Star Juniper
Rhaphiolepis Harbinger of Spring Only

GROUNDCOVERS

Rosemary

STRICT APPROVAL REQUIRED FOR THE FOLLOWING:

(Due to temperature/placement sensitive or invasive characteristics)

Heaths
Heathers
Rhododendrons
Azaleas
Ground covers
Vines
Natural Grasses
Camelias

PROHIBITED PLANTS:

Berries
Poison Oak
Pampass Grass
All Broom Species
Pine trees
Firs
Cedar Trees
Spruce Trees
Eucalyptus
Acacia Trees

Air Quality Modeling Results

C

APPENDIX

McKinleyville Town Center Rezone Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	McKinleyville Town Center Rezone
Construction Start Date	1/5/2026
Operational Year	2045
Lead Agency	—
Land Use Scale	Plan/community
Analysis Level for Defaults	County
Windspeed (m/s)	2.90
Precipitation (days)	81.2
Location	40.94311154655935, -124.10697197369235
County	Humboldt
City	Unincorporated
Air District	North Coast Unified APCD
Air Basin	North Coast
TAZ	112
EDFZ	2
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.26

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Retirement Community	218	Dwelling Unit	15.0	231,080	0.00	0.00	491	—

Apartments Mid Rise	2,432	Dwelling Unit	70.3	2,334,720	0.00	0.00	5,472	—
Strip Mall	633	1000sqft	14.5	632,800	0.00	0.00	—	—
General Office Building	271	1000sqft	6.23	271,200	0.00	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Transportation	T-18	Provide Pedestrian Network Improvement
Transportation	T-34*	Provide Bike Parking

* Qualitative or supporting measure. Emission reductions not included in the mitigated emissions results.

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Unmit.	461	30.1	1.04	17.8	0.96	4.64	27,310
Daily, Winter (Max)	—	—	—	—	—	—	—
Unmit.	462	32.3	1.24	21.0	1.14	11.3	27,214
Average Daily (Max)	—	—	—	—	—	—	—
Unmit.	276	21.0	0.77	12.1	0.71	4.46	19,130
Annual (Max)	—	—	—	—	—	—	—
Unmit.	50.3	3.82	0.14	2.20	0.13	0.81	3,167
Exceeds (Daily Max)	—	—	—	—	—	—	—
Threshold	54.0	54.0	82.0	—	82.0	—	—
Unmit.	Yes	No	No	—	No	—	—

Exceeds (Average Daily)	—	—	—	—	—	—	—
Threshold	54.0	54.0	82.0	—	82.0	—	—
Unmit.	Yes	No	No	—	No	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—
2027	3.05	25.7	1.04	10.4	0.96	4.64	6,759
2028	12.3	30.1	0.99	17.8	0.91	4.60	27,310
2029	11.9	28.5	0.41	17.8	0.39	4.57	26,807
2030	11.0	27.1	0.40	17.8	0.38	4.56	26,269
2031	10.5	25.7	0.38	17.8	0.29	4.48	25,722
2032	10.0	24.5	0.29	17.7	0.27	4.46	25,224
2033	9.67	23.3	0.27	17.7	0.26	4.44	24,710
2034	9.27	22.2	0.26	17.6	0.25	4.43	24,244
2035	8.70	21.1	0.25	17.6	0.23	4.42	23,786
2036	8.49	20.5	0.24	17.6	0.22	4.41	23,379
2037	8.18	19.6	0.23	17.6	0.21	4.40	22,989
2038	7.94	19.2	0.22	17.6	0.21	4.39	22,511
2039	7.50	18.4	0.21	17.6	0.20	4.39	22,198
2040	7.11	18.1	0.21	17.6	0.20	4.38	21,892
2041	461	1.23	< 0.005	2.96	< 0.005	0.70	2,623
Daily - Winter (Max)	—	—	—	—	—	—	—
2026	3.24	29.3	1.24	21.0	1.14	11.3	5,439
2027	3.14	28.1	1.17	20.9	1.08	11.2	6,759
2028	12.4	32.3	0.99	17.8	0.91	4.60	27,214

2029	12.0	30.7	0.41	17.8	0.39	4.57	26,717
2030	11.2	28.9	0.40	17.8	0.38	4.56	26,186
2031	10.6	27.5	0.38	17.8	0.29	4.48	25,643
2032	10.2	25.7	0.29	17.7	0.27	4.46	25,149
2033	9.80	24.5	0.27	17.7	0.26	4.44	24,657
2034	8.99	23.3	0.26	17.6	0.25	4.43	24,197
2035	8.82	22.8	0.25	17.6	0.23	4.42	23,746
2036	8.57	21.7	0.24	17.6	0.22	4.41	23,343
2037	8.31	20.7	0.23	17.6	0.21	4.40	22,958
2038	8.01	20.3	0.22	17.6	0.21	4.39	22,603
2039	7.52	19.5	0.21	17.6	0.20	4.39	22,295
2040	7.18	19.1	0.21	17.6	0.20	4.38	21,854
2041	462	5.22	0.10	2.96	0.09	0.70	2,615
2042	461	1.35	< 0.005	2.96	< 0.005	0.70	2,594
Average Daily	—	—	—	—	—	—	—
2026	0.51	4.58	0.19	3.29	0.18	1.76	852
2027	2.19	18.7	0.77	9.25	0.71	4.46	4,598
2028	5.93	20.3	0.48	10.1	0.45	3.20	13,154
2029	8.50	21.0	0.29	12.1	0.28	3.11	19,130
2030	7.88	19.9	0.28	12.1	0.27	3.10	18,748
2031	7.54	18.9	0.27	12.1	0.21	3.04	18,360
2032	7.21	17.7	0.21	12.0	0.20	3.03	18,054
2033	6.97	16.9	0.19	12.0	0.18	3.01	17,651
2034	6.65	16.1	0.19	12.0	0.18	3.01	17,321
2035	6.21	15.6	0.18	12.0	0.17	3.00	16,995
2036	6.11	14.9	0.17	12.0	0.16	3.00	16,741
2037	5.87	14.5	0.16	11.9	0.15	2.98	16,418
2038	5.63	13.9	0.16	11.9	0.15	2.98	16,176

2039	5.35	13.3	0.15	11.9	0.14	2.97	15,856
2040	1.88	6.77	0.10	3.92	0.09	1.01	5,793
2041	276	1.42	0.01	1.70	0.01	0.41	1,754
2042	3.61	0.01	< 0.005	0.02	< 0.005	0.01	20.4
Annual	—	—	—	—	—	—	—
2026	0.09	0.84	0.04	0.60	0.03	0.32	141
2027	0.40	3.42	0.14	1.69	0.13	0.81	761
2028	1.08	3.70	0.09	1.84	0.08	0.58	2,178
2029	1.55	3.82	0.05	2.20	0.05	0.57	3,167
2030	1.44	3.63	0.05	2.20	0.05	0.57	3,104
2031	1.38	3.45	0.05	2.20	0.04	0.55	3,040
2032	1.32	3.23	0.04	2.20	0.04	0.55	2,989
2033	1.27	3.08	0.04	2.19	0.03	0.55	2,922
2034	1.21	2.93	0.03	2.18	0.03	0.55	2,868
2035	1.13	2.85	0.03	2.18	0.03	0.55	2,814
2036	1.11	2.71	0.03	2.19	0.03	0.55	2,772
2037	1.07	2.65	0.03	2.18	0.03	0.54	2,718
2038	1.03	2.54	0.03	2.18	0.03	0.54	2,678
2039	0.98	2.43	0.03	2.18	0.03	0.54	2,625
2040	0.34	1.24	0.02	0.72	0.02	0.18	959
2041	50.3	0.26	< 0.005	0.31	< 0.005	0.07	290
2042	0.66	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	3.37

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—
2027	3.05	25.7	1.04	10.4	0.96	4.64	6,759

2028	12.3	30.1	0.99	17.8	0.91	4.60	27,310
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2040	7.11	18.1	0.21	17.6	0.20	4.38	21,892
2041	461	1.23	< 0.005	2.96	< 0.005	0.70	2,623
Daily - Winter (Max)	—	—	—	—	—	—	—
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2027	3.14	28.1	1.17	20.9	1.08	11.2	6,759
2028	12.4	32.3	0.99	17.8	0.91	4.60	27,214
2029	12.0	30.7	0.41	17.8	0.39	4.57	26,717
2030	11.2	28.9	0.40	17.8	0.38	4.56	26,186
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2032	10.2	25.7	0.29	17.7	0.27	4.46	25,149
2033	9.80	24.5	0.27	17.7	0.26	4.44	24,657
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2035	8.82	22.8	0.25	17.6	0.23	4.42	23,746
2036	8.57	21.7	0.24	17.6	0.22	4.41	23,343
2037	8.31	20.7	0.23	17.6	0.21	4.40	22,958
2038	8.01	20.3	0.22	17.6	0.21	4.39	22,603

2039	7.52	19.5	0.21	17.6	0.20	4.39	22,295
2040	7.18	19.1	0.21	17.6	0.20	4.38	21,854
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Average Daily	—	—	—	—	—	—	—
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2030	7.88	19.9	0.28	12.1	0.27	3.10	18,748
2031	7.54	18.9	0.27	12.1	0.21	3.04	18,360
2032	7.21	17.7	0.21	12.0	0.20	3.03	18,054
2033	6.97	16.9	0.19	12.0	0.18	3.01	17,651
2034	6.65	16.1	0.19	12.0	0.18	3.01	17,321
2035	6.21	15.6	0.18	12.0	0.17	3.00	16,995
2036	6.11	14.9	0.17	12.0	0.16	3.00	16,741
2037	5.87	14.5	0.16	11.9	0.15	2.98	16,418
2038	5.63	13.9	0.16	11.9	0.15	2.98	16,176
2039	5.35	13.3	0.15	11.9	0.14	2.97	15,856
2040	1.88	6.77	0.10	3.92	0.09	1.01	5,793
2041	276	1.42	0.01	1.70	0.01	0.41	1,754
2042	3.61	0.01	< 0.005	0.02	< 0.005	0.01	20.4
Annual	—	—	—	—	—	—	—
2026	0.09	0.84	0.04	0.60	0.03	0.32	141
2027	0.40	3.42	0.14	1.69	0.13	0.81	761
2028	1.08	3.70	0.09	1.84	0.08	0.58	2,178
2029	1.55	3.82	0.05	2.20	0.05	0.57	3,167
2030	1.44	3.63	0.05	2.20	0.05	0.57	3,104

2031	1.38	3.45	0.05	2.20	0.04	0.55	3,040
2032	1.32	3.23	0.04	2.20	0.04	0.55	2,989
2033	1.27	3.08	0.04	2.19	0.03	0.55	2,922
2034	1.21	2.93	0.03	2.18	0.03	0.55	2,868
2035	1.13	2.85	0.03	2.18	0.03	0.55	2,814
2036	1.11	2.71	0.03	2.19	0.03	0.55	2,772
2037	1.07	2.65	0.03	2.18	0.03	0.54	2,718
2038	1.03	2.54	0.03	2.18	0.03	0.54	2,678
2039	0.98	2.43	0.03	2.18	0.03	0.54	2,625
2040	0.34	1.24	0.02	0.72	0.02	0.18	959
2041	50.3	0.26	< 0.005	0.31	< 0.005	0.07	290
2042	0.66	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	3.37

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Unmit.	4,288	153	691	842	688	726	280,294
Mit.	4,281	149	691	832	688	724	271,328
% Reduced	< 0.5%	3%	< 0.5%	1%	< 0.5%	< 0.5%	3%
Daily, Winter (Max)	—	—	—	—	—	—	—
Unmit.	4,270	159	691	841	688	726	279,671
Mit.	4,263	154	691	832	688	724	270,709
% Reduced	< 0.5%	3%	< 0.5%	1%	< 0.5%	< 0.5%	3%
Average Daily (Max)	—	—	—	—	—	—	—
Unmit.	1,126	88.4	157	287	156	189	185,040
Mit.	1,120	84.6	156	279	156	187	176,814
% Reduced	1%	4%	< 0.5%	3%	< 0.5%	1%	4%

Annual (Max)	—	—	—	—	—	—	—
Unmit.	206	16.1	28.6	52.4	28.4	34.5	30,635
Mit.	204	15.4	28.6	50.8	28.4	34.1	29,274
% Reduced	1%	4%	< 0.5%	3%	< 0.5%	1%	4%
Exceeds (Daily Max)	—	—	—	—	—	—	—
Threshold	54.0	54.0	—	82.0	—	54.0	—
Unmit.	Yes	Yes	Yes	Yes	Yes	Yes	—
Mit.	Yes	Yes	Yes	Yes	Yes	Yes	—
Exceeds (Average Daily)	—	—	—	—	—	—	—
Threshold	54.0	54.0	—	82.0	—	54.0	—
Unmit.	Yes	Yes	Yes	Yes	Yes	Yes	—
Mit.	Yes	Yes	Yes	Yes	Yes	Yes	—
Exceeds (Annual)	—	—	—	—	—	—	—
Threshold	10.0	10.0	—	15.0	—	9.00	—
Unmit.	Yes	Yes	Yes	Yes	Yes	Yes	—
Mit.	Yes	Yes	Yes	Yes	Yes	Yes	—

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Mobile	112	61.6	0.72	151	0.68	38.8	140,101
Area	4,176	80.9	690	690	687	687	108,121
Energy	0.61	10.6	0.84	0.84	0.84	0.84	24,258
Water	—	—	—	—	—	—	1,826
Waste	—	—	—	—	—	—	5,965
Refrig.	—	—	—	—	—	—	24.3

Total	4,288	153	691	842	688	726	280,294
Daily, Winter (Max)	—	—	—	—	—	—	—
Mobile	114	68.8	0.73	151	0.68	38.8	140,043
Area	4,156	79.2	690	690	687	687	107,555
Energy	0.61	10.6	0.84	0.84	0.84	0.84	24,258
Water	—	—	—	—	—	—	1,826
Waste	—	—	—	—	—	—	5,965
Refrig.	—	—	—	—	—	—	24.3
Total	4,270	159	691	841	688	726	279,671
Average Daily	—	—	—	—	—	—	—
Mobile	103	59.2	0.66	131	0.62	33.7	128,525
Area	1,022	18.6	155	155	154	154	24,442
Energy	0.61	10.6	0.84	0.84	0.84	0.84	24,258
Water	—	—	—	—	—	—	1,826
Waste	—	—	—	—	—	—	5,965
Refrig.	—	—	—	—	—	—	24.3
Total	1,126	88.4	157	287	156	189	185,040
Annual	—	—	—	—	—	—	—
Mobile	18.8	10.8	0.12	23.9	0.11	6.16	21,279
Area	187	3.40	28.3	28.3	28.2	28.2	4,047
Energy	0.11	1.93	0.15	0.15	0.15	0.15	4,016
Water	—	—	—	—	—	—	302
Waste	—	—	—	—	—	—	987
Refrig.	—	—	—	—	—	—	4.02
Total	206	16.1	28.6	52.4	28.4	34.5	30,635

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Mobile	105	57.6	0.68	141	0.64	36.3	131,134
Area	4,176	80.9	690	690	687	687	108,121
Energy	0.61	10.6	0.84	0.84	0.84	0.84	24,258
Water	—	—	—	—	—	—	1,826
Waste	—	—	—	—	—	—	5,965
Refrig.	—	—	—	—	—	—	24.3
Total	4,281	149	691	832	688	724	271,328
Daily, Winter (Max)	—	—	—	—	—	—	—
Mobile	106	64.4	0.68	141	0.64	36.3	131,081
Area	4,156	79.2	690	690	687	687	107,555
Energy	0.61	10.6	0.84	0.84	0.84	0.84	24,258
Water	—	—	—	—	—	—	1,826
Waste	—	—	—	—	—	—	5,965
Refrig.	—	—	—	—	—	—	24.3
Total	4,263	154	691	832	688	724	270,709
Average Daily	—	—	—	—	—	—	—
Mobile	96.5	55.4	0.62	123	0.58	31.6	120,299
Area	1,022	18.6	155	155	154	154	24,442
Energy	0.61	10.6	0.84	0.84	0.84	0.84	24,258
Water	—	—	—	—	—	—	1,826
Waste	—	—	—	—	—	—	5,965
Refrig.	—	—	—	—	—	—	24.3
Total	1,120	84.6	156	279	156	187	176,814
Annual	—	—	—	—	—	—	—
Mobile	17.6	10.1	0.11	22.4	0.11	5.76	19,917
Area	187	3.40	28.3	28.3	28.2	28.2	4,047

Energy	0.11	1.93	0.15	0.15	0.15	0.15	4,016
Water	—	—	—	—	—	—	302
Waste	—	—	—	—	—	—	987
Refrig.	—	—	—	—	—	—	4.02
Total	204	15.4	28.6	50.8	28.4	34.1	29,274

3. Construction Emissions Details

3.1. Site Preparation (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	3.14	29.2	1.24	1.24	1.14	1.14	5,316
Dust From Material Movement	—	—	—	19.7	—	10.1	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.49	4.57	0.19	0.19	0.18	0.18	832
Dust From Material Movement	—	—	—	3.08	—	1.58	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.83	0.04	0.04	0.03	0.03	138
Dust From Material Movement	—	—	—	0.56	—	0.29	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	0.09	0.09	0.00	0.12	0.00	0.03	123
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	0.01	0.01	0.00	0.02	0.00	< 0.005	19.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	0.00	< 0.005	3.20
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.2. Site Preparation (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	3.14	29.2	1.24	1.24	1.14	1.14	5,316
Dust From Material Movement	—	—	—	19.7	—	10.1	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.49	4.57	0.19	0.19	0.18	0.18	832
Dust From Material Movement	—	—	—	3.08	—	1.58	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.83	0.04	0.04	0.03	0.03	138
Dust From Material Movement	—	—	—	0.56	—	0.29	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	0.09	0.09	0.00	0.12	0.00	0.03	123
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	0.01	0.01	0.00	0.02	0.00	< 0.005	19.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	0.00	< 0.005	3.20
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Site Preparation (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	3.05	28.0	1.17	1.17	1.08	1.08	5,316
Dust From Material Movement	—	—	—	19.7	—	10.1	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.53	4.87	0.20	0.20	0.19	0.19	926
Dust From Material Movement	—	—	—	3.42	—	1.76	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.89	0.04	0.04	0.03	0.03	153
Dust From Material Movement	—	—	—	0.62	—	0.32	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	0.09	0.09	0.00	0.12	0.00	0.03	121
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	0.02	0.01	0.00	0.02	0.00	< 0.005	21.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	0.00	< 0.005	3.50
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.4. Site Preparation (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e

Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	3.05	28.0	1.17	1.17	1.08	1.08	5,316
Dust From Material Movement	—	—	—	19.7	—	10.1	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.53	4.87	0.20	0.20	0.19	0.19	926
Dust From Material Movement	—	—	—	3.42	—	1.76	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.89	0.04	0.04	0.03	0.03	153
Dust From Material Movement	—	—	—	0.62	—	0.32	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	0.09	0.09	0.00	0.12	0.00	0.03	121
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	0.02	0.01	0.00	0.02	0.00	< 0.005	21.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	0.00	< 0.005	3.50

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Grading (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	2.95	25.6	1.04	1.04	0.96	0.96	6,621
Dust From Material Movement	—	—	—	9.20	—	3.65	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	2.95	25.6	1.04	1.04	0.96	0.96	6,621
Dust From Material Movement	—	—	—	9.20	—	3.65	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	1.59	13.8	0.56	0.56	0.52	0.52	3,576
Dust From Material Movement	—	—	—	4.97	—	1.97	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.29	2.52	0.10	0.10	0.09	0.09	592
Dust From Material Movement	—	—	—	0.91	—	0.36	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—

Worker	0.10	0.08	0.00	0.13	0.00	0.03	139
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	0.11	0.10	0.00	0.13	0.00	0.03	138
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	0.06	0.05	0.00	0.07	0.00	0.02	74.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	0.01	0.01	0.00	0.01	0.00	< 0.005	12.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.6. Grading (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	2.95	25.6	1.04	1.04	0.96	0.96	6,621
Dust From Material Movement	—	—	—	9.20	—	3.65	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	2.95	25.6	1.04	1.04	0.96	0.96	6,621
Dust From Material Movement	—	—	—	9.20	—	3.65	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	1.59	13.8	0.56	0.56	0.52	0.52	3,576
Dust From Material Movement	—	—	—	4.97	—	1.97	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.29	2.52	0.10	0.10	0.09	0.09	592
Dust From Material Movement	—	—	—	0.91	—	0.36	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	0.10	0.08	0.00	0.13	0.00	0.03	139
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	0.11	0.10	0.00	0.13	0.00	0.03	138
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	0.06	0.05	0.00	0.07	0.00	0.02	74.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	0.01	0.01	0.00	0.01	0.00	< 0.005	12.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Grading (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	2.88	24.3	0.99	0.99	0.91	0.91	6,621
Dust From Material Movement	—	—	—	9.20	—	3.65	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	2.88	24.3	0.99	0.99	0.91	0.91	6,621
Dust From Material Movement	—	—	—	9.20	—	3.65	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.90	7.57	0.31	0.31	0.28	0.28	2,060
Dust From Material Movement	—	—	—	2.86	—	1.14	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.16	1.38	0.06	0.06	0.05	0.05	341
Dust From Material Movement	—	—	—	0.52	—	0.21	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	0.10	0.07	0.00	0.13	0.00	0.03	136
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	0.10	0.09	0.00	0.13	0.00	0.03	136
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	0.03	0.03	0.00	0.04	0.00	0.01	42.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	0.01	< 0.005	0.00	0.01	0.00	< 0.005	7.02
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.8. Grading (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	2.88	24.3	0.99	0.99	0.91	0.91	6,621
Dust From Material Movement	—	—	—	9.20	—	3.65	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	2.88	24.3	0.99	0.99	0.91	0.91	6,621
Dust From Material Movement	—	—	—	9.20	—	3.65	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.90	7.57	0.31	0.31	0.28	0.28	2,060

Dust From Material Movement	—	—	—	2.86	—	1.14	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.16	1.38	0.06	0.06	0.05	0.05	341
Dust From Material Movement	—	—	—	0.52	—	0.21	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	0.10	0.07	0.00	0.13	0.00	0.03	136
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	0.10	0.09	0.00	0.13	0.00	0.03	136
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	0.03	0.03	0.00	0.04	0.00	0.01	42.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	0.01	< 0.005	0.00	0.01	0.00	< 0.005	7.02
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Building Construction (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e

Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.99	8.92	0.30	0.30	0.28	0.28	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.99	8.92	0.30	0.30	0.28	0.28	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.40	3.62	0.12	0.12	0.11	0.11	975
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.66	0.02	0.02	0.02	0.02	161
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	11.0	7.99	0.00	14.8	0.00	3.47	14,991
Vendor	0.35	13.2	0.14	2.73	0.14	0.85	9,913
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	11.1	9.66	0.00	14.8	0.00	3.47	14,910
Vendor	0.34	13.7	0.14	2.73	0.14	0.85	9,899
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	4.47	3.67	0.00	5.68	0.00	1.33	6,066
Vendor	0.14	5.41	0.06	1.06	0.06	0.33	4,012
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	0.82	0.67	0.00	1.04	0.00	0.24	1,004

Vendor	0.03	0.99	0.01	0.19	0.01	0.06	664
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.10. Building Construction (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.99	8.92	0.30	0.30	0.28	0.28	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.99	8.92	0.30	0.30	0.28	0.28	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.40	3.62	0.12	0.12	0.11	0.11	975
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.66	0.02	0.02	0.02	0.02	161
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	11.0	7.99	0.00	14.8	0.00	3.47	14,991
Vendor	0.35	13.2	0.14	2.73	0.14	0.85	9,913
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	11.1	9.66	0.00	14.8	0.00	3.47	14,910
Vendor	0.34	13.7	0.14	2.73	0.14	0.85	9,899
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—
Worker	4.47	3.67	0.00	5.68	0.00	1.33	6,066
Vendor	0.14	5.41	0.06	1.06	0.06	0.33	4,012
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	0.82	0.67	0.00	1.04	0.00	0.24	1,004
Vendor	0.03	0.99	0.01	0.19	0.01	0.06	664
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Building Construction (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.97	8.58	0.28	0.28	0.25	0.25	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.97	8.58	0.28	0.28	0.25	0.25	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.69	6.13	0.20	0.20	0.18	0.18	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.13	1.12	0.04	0.04	0.03	0.03	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	10.6	7.43	0.00	14.8	0.00	3.47	14,746

Vendor	0.35	12.5	0.14	2.73	0.14	0.85	9,656
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	10.7	9.10	0.00	14.8	0.00	3.47	14,668
Vendor	0.34	13.0	0.14	2.73	0.14	0.85	9,643
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	7.56	5.74	0.00	10.0	0.00	2.34	10,522
Vendor	0.25	9.09	0.10	1.87	0.10	0.59	6,891
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	1.38	1.05	0.00	1.83	0.00	0.43	1,742
Vendor	0.05	1.66	0.02	0.34	0.02	0.11	1,141
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.12. Building Construction (2029) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.97	8.58	0.28	0.28	0.25	0.25	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.97	8.58	0.28	0.28	0.25	0.25	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.69	6.13	0.20	0.20	0.18	0.18	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.13	1.12	0.04	0.04	0.03	0.03	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	10.6	7.43	0.00	14.8	0.00	3.47	14,746
Vendor	0.35	12.5	0.14	2.73	0.14	0.85	9,656
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	10.7	9.10	0.00	14.8	0.00	3.47	14,668
Vendor	0.34	13.0	0.14	2.73	0.14	0.85	9,643
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	7.56	5.74	0.00	10.0	0.00	2.34	10,522
Vendor	0.25	9.09	0.10	1.87	0.10	0.59	6,891
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	1.38	1.05	0.00	1.83	0.00	0.43	1,742
Vendor	0.05	1.66	0.02	0.34	0.02	0.11	1,141
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.13. Building Construction (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.94	8.39	0.26	0.26	0.24	0.24	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.94	8.39	0.26	0.26	0.24	0.24	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.67	5.99	0.19	0.19	0.17	0.17	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.12	1.09	0.03	0.03	0.03	0.03	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	9.69	6.87	0.00	14.8	0.00	3.47	14,509
Vendor	0.35	11.9	0.14	2.73	0.14	0.85	9,355
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	9.89	8.08	0.00	14.8	0.00	3.47	14,435
Vendor	0.33	12.4	0.14	2.73	0.14	0.85	9,345
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	6.96	5.31	0.00	10.0	0.00	2.34	10,353
Vendor	0.25	8.59	0.10	1.87	0.10	0.59	6,677
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	1.27	0.97	0.00	1.83	0.00	0.43	1,714
Vendor	0.05	1.57	0.02	0.34	0.02	0.11	1,105
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.14. Building Construction (2030) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.94	8.39	0.26	0.26	0.24	0.24	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.94	8.39	0.26	0.26	0.24	0.24	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.67	5.99	0.19	0.19	0.17	0.17	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.12	1.09	0.03	0.03	0.03	0.03	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	9.69	6.87	0.00	14.8	0.00	3.47	14,509
Vendor	0.35	11.9	0.14	2.73	0.14	0.85	9,355
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	9.89	8.08	0.00	14.8	0.00	3.47	14,435
Vendor	0.33	12.4	0.14	2.73	0.14	0.85	9,345
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	6.96	5.31	0.00	10.0	0.00	2.34	10,353
Vendor	0.25	8.59	0.10	1.87	0.10	0.59	6,677
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—
Worker	1.27	0.97	0.00	1.83	0.00	0.43	1,714
Vendor	0.05	1.57	0.02	0.34	0.02	0.11	1,105
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.15. Building Construction (2031) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.92	8.12	0.24	0.24	0.22	0.22	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.92	8.12	0.24	0.24	0.22	0.22	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.66	5.80	0.17	0.17	0.16	0.16	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.12	1.06	0.03	0.03	0.03	0.03	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	9.26	6.31	0.00	14.8	0.00	3.47	14,267
Vendor	0.35	11.3	0.14	2.73	0.07	0.78	9,050
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	9.40	7.48	0.00	14.8	0.00	3.47	14,197

Vendor	0.33	11.9	0.14	2.73	0.07	0.78	9,041
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	6.65	4.91	0.00	10.0	0.00	2.34	10,182
Vendor	0.24	8.19	0.10	1.87	0.05	0.54	6,460
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	1.21	0.90	0.00	1.83	0.00	0.43	1,686
Vendor	0.04	1.50	0.02	0.34	0.01	0.10	1,069
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.16. Building Construction (2031) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.92	8.12	0.24	0.24	0.22	0.22	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.92	8.12	0.24	0.24	0.22	0.22	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.66	5.80	0.17	0.17	0.16	0.16	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.12	1.06	0.03	0.03	0.03	0.03	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	9.26	6.31	0.00	14.8	0.00	3.47	14,267
Vendor	0.35	11.3	0.14	2.73	0.07	0.78	9,050
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	9.40	7.48	0.00	14.8	0.00	3.47	14,197
Vendor	0.33	11.9	0.14	2.73	0.07	0.78	9,041
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	6.65	4.91	0.00	10.0	0.00	2.34	10,182
Vendor	0.24	8.19	0.10	1.87	0.05	0.54	6,460
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	1.21	0.90	0.00	1.83	0.00	0.43	1,686
Vendor	0.04	1.50	0.02	0.34	0.01	0.10	1,069
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.17. Building Construction (2032) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.90	7.87	0.22	0.22	0.21	0.21	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.90	7.87	0.22	0.22	0.21	0.21	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—

Off-Road Equipment	0.64	5.64	0.16	0.16	0.15	0.15	1,723
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.12	1.03	0.03	0.03	0.03	0.03	285
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	8.87	5.75	0.00	14.8	0.00	3.47	14,048
Vendor	0.28	10.8	0.07	2.66	0.07	0.78	8,770
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	9.01	6.46	0.00	14.8	0.00	3.47	13,980
Vendor	0.26	11.3	0.07	2.66	0.07	0.78	8,764
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	6.39	4.19	0.00	10.0	0.00	2.35	10,053
Vendor	0.19	7.88	0.05	1.82	0.05	0.54	6,278
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	1.17	0.76	0.00	1.83	0.00	0.43	1,664
Vendor	0.03	1.44	0.01	0.33	0.01	0.10	1,039
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.18. Building Construction (2032) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—

Off-Road Equipment	0.90	7.87	0.22	0.22	0.21	0.21	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.90	7.87	0.22	0.22	0.21	0.21	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.64	5.64	0.16	0.16	0.15	0.15	1,723
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.12	1.03	0.03	0.03	0.03	0.03	285
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	8.87	5.75	0.00	14.8	0.00	3.47	14,048
Vendor	0.28	10.8	0.07	2.66	0.07	0.78	8,770
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	9.01	6.46	0.00	14.8	0.00	3.47	13,980
Vendor	0.26	11.3	0.07	2.66	0.07	0.78	8,764
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	6.39	4.19	0.00	10.0	0.00	2.35	10,053
Vendor	0.19	7.88	0.05	1.82	0.05	0.54	6,278
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	1.17	0.76	0.00	1.83	0.00	0.43	1,664
Vendor	0.03	1.44	0.01	0.33	0.01	0.10	1,039
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.19. Building Construction (2033) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.88	7.67	0.20	0.20	0.19	0.19	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.88	7.67	0.20	0.20	0.19	0.19	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.63	5.48	0.15	0.15	0.13	0.13	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.11	1.00	0.03	0.03	0.02	0.02	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	8.53	5.19	0.00	14.8	0.00	3.47	13,828
Vendor	0.27	10.4	0.07	2.66	0.07	0.78	8,477
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	8.67	5.90	0.00	14.8	0.00	3.47	13,779
Vendor	0.25	10.9	0.07	2.66	0.07	0.78	8,473
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	6.16	3.81	0.00	10.0	0.00	2.34	9,881
Vendor	0.18	7.56	0.05	1.82	0.05	0.54	6,052

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	1.12	0.70	0.00	1.83	0.00	0.43	1,636
Vendor	0.03	1.38	0.01	0.33	0.01	0.10	1,002
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.20. Building Construction (2033) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.88	7.67	0.20	0.20	0.19	0.19	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.88	7.67	0.20	0.20	0.19	0.19	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.63	5.48	0.15	0.15	0.13	0.13	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.11	1.00	0.03	0.03	0.02	0.02	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	8.53	5.19	0.00	14.8	0.00	3.47	13,828
Vendor	0.27	10.4	0.07	2.66	0.07	0.78	8,477
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—

Worker	8.67	5.90	0.00	14.8	0.00	3.47	13,779
Vendor	0.25	10.9	0.07	2.66	0.07	0.78	8,473
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	6.16	3.81	0.00	10.0	0.00	2.34	9,881
Vendor	0.18	7.56	0.05	1.82	0.05	0.54	6,052
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	1.12	0.70	0.00	1.83	0.00	0.43	1,636
Vendor	0.03	1.38	0.01	0.33	0.01	0.10	1,002
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.21. Building Construction (2034) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.86	7.52	0.19	0.19	0.18	0.18	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.86	7.52	0.19	0.19	0.18	0.18	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.62	5.37	0.14	0.14	0.13	0.13	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.98	0.03	0.03	0.02	0.02	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	8.14	4.68	0.00	14.8	0.00	3.47	13,630
Vendor	0.27	10.0	0.07	2.66	0.07	0.78	8,209
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	7.87	5.34	0.00	14.8	0.00	3.47	13,583
Vendor	0.25	10.5	0.07	2.66	0.07	0.78	8,209
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	5.85	3.42	0.00	10.0	0.00	2.34	9,740
Vendor	0.18	7.27	0.05	1.82	0.05	0.54	5,863
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	1.07	0.62	0.00	1.83	0.00	0.43	1,613
Vendor	0.03	1.33	0.01	0.33	0.01	0.10	971
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.22. Building Construction (2034) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.86	7.52	0.19	0.19	0.18	0.18	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.86	7.52	0.19	0.19	0.18	0.18	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.62	5.37	0.14	0.14	0.13	0.13	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.98	0.03	0.03	0.02	0.02	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	8.14	4.68	0.00	14.8	0.00	3.47	13,630
Vendor	0.27	10.0	0.07	2.66	0.07	0.78	8,209
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	7.87	5.34	0.00	14.8	0.00	3.47	13,583
Vendor	0.25	10.5	0.07	2.66	0.07	0.78	8,209
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	5.85	3.42	0.00	10.0	0.00	2.34	9,740
Vendor	0.18	7.27	0.05	1.82	0.05	0.54	5,863
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	1.07	0.62	0.00	1.83	0.00	0.43	1,613
Vendor	0.03	1.33	0.01	0.33	0.01	0.10	971
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.23. Building Construction (2035) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.85	7.34	0.18	0.18	0.17	0.17	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.85	7.34	0.18	0.18	0.17	0.17	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.61	5.24	0.13	0.13	0.12	0.12	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.96	0.02	0.02	0.02	0.02	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	7.58	4.13	0.00	14.8	0.00	3.47	13,445
Vendor	0.27	9.62	0.07	2.66	0.07	0.78	7,936
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	7.73	5.29	0.00	14.8	0.00	3.47	13,403
Vendor	0.25	10.1	0.07	2.66	0.07	0.78	7,938
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	5.42	3.38	0.00	10.0	0.00	2.34	9,610
Vendor	0.18	7.00	0.05	1.82	0.05	0.54	5,667
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	0.99	0.62	0.00	1.83	0.00	0.43	1,591
Vendor	0.03	1.28	0.01	0.33	0.01	0.10	938

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.24. Building Construction (2035) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.85	7.34	0.18	0.18	0.17	0.17	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.85	7.34	0.18	0.18	0.17	0.17	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.61	5.24	0.13	0.13	0.12	0.12	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.96	0.02	0.02	0.02	0.02	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	7.58	4.13	0.00	14.8	0.00	3.47	13,445
Vendor	0.27	9.62	0.07	2.66	0.07	0.78	7,936
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	7.73	5.29	0.00	14.8	0.00	3.47	13,403
Vendor	0.25	10.1	0.07	2.66	0.07	0.78	7,938
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—

Worker	5.42	3.38	0.00	10.0	0.00	2.34	9,610
Vendor	0.18	7.00	0.05	1.82	0.05	0.54	5,667
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	0.99	0.62	0.00	1.83	0.00	0.43	1,591
Vendor	0.03	1.28	0.01	0.33	0.01	0.10	938
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.25. Building Construction (2036) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.83	7.12	0.17	0.17	0.16	0.16	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.83	7.12	0.17	0.17	0.16	0.16	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.60	5.10	0.12	0.12	0.11	0.11	1,723
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.93	0.02	0.02	0.02	0.02	285
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	7.39	4.08	0.00	14.8	0.00	3.47	13,271
Vendor	0.27	9.29	0.07	2.66	0.07	0.78	7,704

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	7.49	4.78	0.00	14.8	0.00	3.47	13,230
Vendor	0.25	9.80	0.07	2.66	0.07	0.78	7,707
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	5.33	2.99	0.00	10.0	0.00	2.35	9,501
Vendor	0.19	6.77	0.05	1.82	0.05	0.54	5,517
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	0.97	0.55	0.00	1.83	0.00	0.43	1,573
Vendor	0.03	1.24	0.01	0.33	0.01	0.10	913
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.26. Building Construction (2036) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.83	7.12	0.17	0.17	0.16	0.16	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.83	7.12	0.17	0.17	0.16	0.16	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.60	5.10	0.12	0.12	0.11	0.11	1,723
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—

Off-Road Equipment	0.11	0.93	0.02	0.02	0.02	0.02	285
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	7.39	4.08	0.00	14.8	0.00	3.47	13,271
Vendor	0.27	9.29	0.07	2.66	0.07	0.78	7,704
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	7.49	4.78	0.00	14.8	0.00	3.47	13,230
Vendor	0.25	9.80	0.07	2.66	0.07	0.78	7,707
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	5.33	2.99	0.00	10.0	0.00	2.35	9,501
Vendor	0.19	6.77	0.05	1.82	0.05	0.54	5,517
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	0.97	0.55	0.00	1.83	0.00	0.43	1,573
Vendor	0.03	1.24	0.01	0.33	0.01	0.10	913
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.27. Building Construction (2037) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.82	6.99	0.16	0.16	0.14	0.14	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—

Off-Road Equipment	0.82	6.99	0.16	0.16	0.14	0.14	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.58	4.99	0.11	0.11	0.10	0.10	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.91	0.02	0.02	0.02	0.02	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	7.10	3.57	0.00	14.8	0.00	3.47	13,111
Vendor	0.27	9.03	0.07	2.66	0.07	0.78	7,473
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	7.24	4.22	0.00	14.8	0.00	3.47	13,074
Vendor	0.25	9.48	0.07	2.66	0.07	0.78	7,479
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	5.10	2.95	0.00	10.0	0.00	2.34	9,362
Vendor	0.18	6.57	0.05	1.82	0.05	0.54	5,338
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	0.93	0.54	0.00	1.83	0.00	0.43	1,550
Vendor	0.03	1.20	0.01	0.33	0.01	0.10	884
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.28. Building Construction (2037) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.82	6.99	0.16	0.16	0.14	0.14	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.82	6.99	0.16	0.16	0.14	0.14	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.58	4.99	0.11	0.11	0.10	0.10	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.91	0.02	0.02	0.02	0.02	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	7.10	3.57	0.00	14.8	0.00	3.47	13,111
Vendor	0.27	9.03	0.07	2.66	0.07	0.78	7,473
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	7.24	4.22	0.00	14.8	0.00	3.47	13,074
Vendor	0.25	9.48	0.07	2.66	0.07	0.78	7,479
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	5.10	2.95	0.00	10.0	0.00	2.34	9,362
Vendor	0.18	6.57	0.05	1.82	0.05	0.54	5,338
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—

Worker	0.93	0.54	0.00	1.83	0.00	0.43	1,550
Vendor	0.03	1.20	0.01	0.33	0.01	0.10	884
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.29. Building Construction (2038) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.81	6.89	0.15	0.15	0.14	0.14	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.81	6.89	0.15	0.15	0.14	0.14	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.58	4.92	0.11	0.11	0.10	0.10	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.90	0.02	0.02	0.02	0.02	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	6.86	3.52	0.00	14.8	0.00	3.47	12,824
Vendor	0.27	8.78	0.07	2.66	0.07	0.78	7,282
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	6.95	4.17	0.00	14.8	0.00	3.47	12,912
Vendor	0.25	9.23	0.07	2.66	0.07	0.78	7,286

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	4.86	2.58	0.00	10.0	0.00	2.34	9,256
Vendor	0.19	6.39	0.05	1.82	0.05	0.54	5,202
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	0.89	0.47	0.00	1.83	0.00	0.43	1,532
Vendor	0.03	1.17	0.01	0.33	0.01	0.10	861
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.30. Building Construction (2038) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.81	6.89	0.15	0.15	0.14	0.14	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.81	6.89	0.15	0.15	0.14	0.14	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.58	4.92	0.11	0.11	0.10	0.10	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.90	0.02	0.02	0.02	0.02	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—

Worker	6.86	3.52	0.00	14.8	0.00	3.47	12,824
Vendor	0.27	8.78	0.07	2.66	0.07	0.78	7,282
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	6.95	4.17	0.00	14.8	0.00	3.47	12,912
Vendor	0.25	9.23	0.07	2.66	0.07	0.78	7,286
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	4.86	2.58	0.00	10.0	0.00	2.34	9,256
Vendor	0.19	6.39	0.05	1.82	0.05	0.54	5,202
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	0.89	0.47	0.00	1.83	0.00	0.43	1,532
Vendor	0.03	1.17	0.01	0.33	0.01	0.10	861
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.31. Building Construction (2039) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.80	6.78	0.15	0.15	0.13	0.13	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.80	6.78	0.15	0.15	0.13	0.13	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.57	4.84	0.10	0.10	0.10	0.10	1,718

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.88	0.02	0.02	0.02	0.02	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	6.42	3.01	0.00	14.8	0.00	3.47	12,685
Vendor	0.28	8.61	0.07	2.66	0.07	0.78	7,108
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	6.47	3.66	0.00	14.8	0.00	3.47	12,777
Vendor	0.25	9.05	0.07	2.66	0.07	0.78	7,113
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	4.59	2.22	0.00	10.0	0.00	2.34	9,060
Vendor	0.19	6.27	0.05	1.82	0.05	0.54	5,078
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	0.84	0.40	0.00	1.83	0.00	0.43	1,500
Vendor	0.03	1.14	0.01	0.33	0.01	0.10	841
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.32. Building Construction (2039) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.80	6.78	0.15	0.15	0.13	0.13	2,405

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.80	6.78	0.15	0.15	0.13	0.13	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.57	4.84	0.10	0.10	0.10	0.10	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.88	0.02	0.02	0.02	0.02	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	6.42	3.01	0.00	14.8	0.00	3.47	12,685
Vendor	0.28	8.61	0.07	2.66	0.07	0.78	7,108
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	6.47	3.66	0.00	14.8	0.00	3.47	12,777
Vendor	0.25	9.05	0.07	2.66	0.07	0.78	7,113
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	4.59	2.22	0.00	10.0	0.00	2.34	9,060
Vendor	0.19	6.27	0.05	1.82	0.05	0.54	5,078
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	0.84	0.40	0.00	1.83	0.00	0.43	1,500
Vendor	0.03	1.14	0.01	0.33	0.01	0.10	841
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.33. Building Construction (2040) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.80	6.71	0.14	0.14	0.13	0.13	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.80	6.71	0.14	0.14	0.13	0.13	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.18	1.54	0.03	0.03	0.03	0.03	551
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.28	0.01	0.01	0.01	0.01	91.2
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	6.03	2.96	0.00	14.8	0.00	3.47	12,561
Vendor	0.28	8.42	0.07	2.66	0.07	0.78	6,927
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	6.13	3.62	0.00	14.8	0.00	3.47	12,516
Vendor	0.25	8.80	0.07	2.66	0.07	0.78	6,933
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	1.38	0.70	0.00	3.21	0.00	0.75	2,876
Vendor	0.06	1.95	0.02	0.58	0.02	0.17	1,586

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	0.25	0.13	0.00	0.59	0.00	0.14	476
Vendor	0.01	0.36	< 0.005	0.11	< 0.005	0.03	263
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.34. Building Construction (2040) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.80	6.71	0.14	0.14	0.13	0.13	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.80	6.71	0.14	0.14	0.13	0.13	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.18	1.54	0.03	0.03	0.03	0.03	551
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.28	0.01	0.01	0.01	0.01	91.2
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	6.03	2.96	0.00	14.8	0.00	3.47	12,561
Vendor	0.28	8.42	0.07	2.66	0.07	0.78	6,927
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—

Worker	6.13	3.62	0.00	14.8	0.00	3.47	12,516
Vendor	0.25	8.80	0.07	2.66	0.07	0.78	6,933
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	1.38	0.70	0.00	3.21	0.00	0.75	2,876
Vendor	0.06	1.95	0.02	0.58	0.02	0.17	1,586
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	0.25	0.13	0.00	0.59	0.00	0.14	476
Vendor	0.01	0.36	< 0.005	0.11	< 0.005	0.03	263
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.35. Paving (2040) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.49	5.27	0.11	0.11	0.10	0.10	1,516
Paving	0.00	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.49	5.27	0.11	0.11	0.10	0.10	1,516
Paving	0.00	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.24	2.57	0.05	0.05	0.05	0.05	739
Paving	0.00	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.47	0.01	0.01	0.01	0.01	122
Paving	0.00	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	0.04	0.02	0.00	0.10	0.00	0.02	85.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	0.04	0.02	0.00	0.10	0.00	0.02	85.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	0.02	0.01	0.00	0.05	0.00	0.01	41.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	0.01	0.00	< 0.005	6.92
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.36. Paving (2040) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.49	5.27	0.11	0.11	0.10	0.10	1,516

Paving	0.00	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.49	5.27	0.11	0.11	0.10	0.10	1,516
Paving	0.00	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.24	2.57	0.05	0.05	0.05	0.05	739
Paving	0.00	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.47	0.01	0.01	0.01	0.01	122
Paving	0.00	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	0.04	0.02	0.00	0.10	0.00	0.02	85.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	0.04	0.02	0.00	0.10	0.00	0.02	85.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	0.02	0.01	0.00	0.05	0.00	0.01	41.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	0.00	0.01	0.00	< 0.005	6.92
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.37. Paving (2041) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.48	5.20	0.10	0.10	0.09	0.09	1,516
Paving	0.00	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.61	0.01	0.01	0.01	0.01	178
Paving	0.00	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.11	< 0.005	< 0.005	< 0.005	< 0.005	29.5
Paving	0.00	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	0.04	0.02	0.00	0.10	0.00	0.02	84.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	0.00	0.01	0.00	< 0.005	9.98
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	0.00	< 0.005	1.65
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.38. Paving (2041) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.48	5.20	0.10	0.10	0.09	0.09	1,516
Paving	0.00	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.61	0.01	0.01	0.01	0.01	178
Paving	0.00	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.11	< 0.005	< 0.005	< 0.005	< 0.005	29.5
Paving	0.00	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—

Worker	0.04	0.02	0.00	0.10	0.00	0.02	84.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	0.01	0.00	< 0.005	9.98
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	0.00	< 0.005	1.65
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.39. Architectural Coating (2041) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.74	< 0.005	< 0.005	< 0.005	< 0.005	134
Architectural Coatings	460	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.74	< 0.005	< 0.005	< 0.005	< 0.005	134
Architectural Coatings	460	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.44	< 0.005	< 0.005	< 0.005	< 0.005	80.0
Architectural Coatings	275	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.08	< 0.005	< 0.005	< 0.005	< 0.005	13.2
Architectural Coatings	50.1	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	1.15	0.49	0.00	2.96	0.00	0.69	2,489
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	1.17	0.62	0.00	2.96	0.00	0.69	2,481
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	0.69	0.36	0.00	1.67	0.00	0.39	1,486
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	0.13	0.07	0.00	0.31	0.00	0.07	246
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.40. Architectural Coating (2041) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.74	< 0.005	< 0.005	< 0.005	< 0.005	134

Architectural Coatings	460	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.74	< 0.005	< 0.005	< 0.005	< 0.005	134
Architectural Coatings	460	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.44	< 0.005	< 0.005	< 0.005	< 0.005	80.0
Architectural Coatings	275	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.08	< 0.005	< 0.005	< 0.005	< 0.005	13.2
Architectural Coatings	50.1	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Worker	1.15	0.49	0.00	2.96	0.00	0.69	2,489
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	1.17	0.62	0.00	2.96	0.00	0.69	2,481
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	0.69	0.36	0.00	1.67	0.00	0.39	1,486
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—

Worker	0.13	0.07	0.00	0.31	0.00	0.07	246
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.41. Architectural Coating (2042) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.74	< 0.005	< 0.005	< 0.005	< 0.005	134
Architectural Coatings	460	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	1.05
Architectural Coatings	3.60	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.17
Architectural Coatings	0.66	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Worker	1.03	0.61	0.00	2.96	0.00	0.69	2,460
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—

Worker	0.01	< 0.005	0.00	0.02	0.00	0.01	19.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	0.00	< 0.005	3.20
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.42. Architectural Coating (2042) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.74	< 0.005	< 0.005	< 0.005	< 0.005	134
Architectural Coatings	460	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	1.05
Architectural Coatings	3.60	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.17
Architectural Coatings	0.66	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—

Worker	1.03	0.61	0.00	2.96	0.00	0.69	2,460
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—
Worker	0.01	< 0.005	0.00	0.02	0.00	0.01	19.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	0.00	< 0.005	3.20
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Retirement Community	1.31	0.71	0.01	1.70	0.01	0.44	1,581
Apartments Mid Rise	33.1	17.9	0.21	43.0	0.19	11.0	39,977
Strip Mall	70.7	39.2	0.47	97.1	0.44	25.0	90,060
General Office Building	6.66	3.70	0.04	9.15	0.04	2.35	8,482
Total	112	61.6	0.72	151	0.68	38.8	140,101
Daily, Winter (Max)	—	—	—	—	—	—	—

Retirement Community	1.33	0.79	0.01	1.70	0.01	0.44	1,580
Apartments Mid Rise	33.6	20.0	0.21	43.0	0.20	11.0	39,964
Strip Mall	71.9	43.9	0.47	97.1	0.44	25.0	90,020
General Office Building	6.77	4.13	0.04	9.15	0.04	2.35	8,479
Total	114	68.8	0.73	151	0.68	38.8	140,043
Annual	—	—	—	—	—	—	—
Retirement Community	0.23	0.13	< 0.005	0.28	< 0.005	0.07	249
Apartments Mid Rise	5.77	3.26	0.04	7.07	0.03	1.82	6,299
Strip Mall	11.9	6.88	0.08	15.4	0.07	3.96	13,667
General Office Building	0.93	0.54	0.01	1.20	0.01	0.31	1,064
Total	18.8	10.8	0.12	23.9	0.11	6.16	21,279

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Retirement Community	1.22	0.66	0.01	1.59	0.01	0.41	1,480
Apartments Mid Rise	31.0	16.8	0.19	40.2	0.18	10.3	37,419
Strip Mall	66.2	36.7	0.44	90.9	0.41	23.4	84,296
General Office Building	6.23	3.46	0.04	8.56	0.04	2.20	7,939
Total	105	57.6	0.68	141	0.64	36.3	131,134
Daily, Winter (Max)	—	—	—	—	—	—	—
Retirement Community	1.25	0.74	0.01	1.59	0.01	0.41	1,479
Apartments Mid Rise	31.5	18.8	0.19	40.2	0.18	10.3	37,406

Strip Mall	67.3	41.1	0.44	90.9	0.41	23.4	84,259
General Office Building	6.34	3.87	0.04	8.56	0.04	2.20	7,936
Total	106	64.4	0.68	141	0.64	36.3	131,081
Annual	—	—	—	—	—	—	—
Retirement Community	0.21	0.12	< 0.005	0.26	< 0.005	0.07	233
Apartments Mid Rise	5.40	3.05	0.03	6.61	0.03	1.70	5,896
Strip Mall	11.1	6.44	0.07	14.4	0.07	3.71	12,792
General Office Building	0.87	0.50	0.01	1.12	0.01	0.29	996
Total	17.6	10.1	0.11	22.4	0.11	5.76	19,917

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Retirement Community	—	—	—	—	—	—	422
Apartments Mid Rise	—	—	—	—	—	—	4,382
Strip Mall	—	—	—	—	—	—	2,982
General Office Building	—	—	—	—	—	—	3,226
Total	—	—	—	—	—	—	11,012
Daily, Winter (Max)	—	—	—	—	—	—	—
Retirement Community	—	—	—	—	—	—	422
Apartments Mid Rise	—	—	—	—	—	—	4,382
Strip Mall	—	—	—	—	—	—	2,982

General Office Building	—	—	—	—	—	—	3,226
Total	—	—	—	—	—	—	11,012
Annual	—	—	—	—	—	—	—
Retirement Community	—	—	—	—	—	—	69.9
Apartments Mid Rise	—	—	—	—	—	—	726
Strip Mall	—	—	—	—	—	—	494
General Office Building	—	—	—	—	—	—	534
Total	—	—	—	—	—	—	1,823

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Retirement Community	—	—	—	—	—	—	422
Apartments Mid Rise	—	—	—	—	—	—	4,382
Strip Mall	—	—	—	—	—	—	2,982
General Office Building	—	—	—	—	—	—	3,226
Total	—	—	—	—	—	—	11,012
Daily, Winter (Max)	—	—	—	—	—	—	—
Retirement Community	—	—	—	—	—	—	422
Apartments Mid Rise	—	—	—	—	—	—	4,382
Strip Mall	—	—	—	—	—	—	2,982
General Office Building	—	—	—	—	—	—	3,226
Total	—	—	—	—	—	—	11,012

Annual	—	—	—	—	—	—	—
Retirement Community	—	—	—	—	—	—	69.9
Apartments Mid Rise	—	—	—	—	—	—	726
Strip Mall	—	—	—	—	—	—	494
General Office Building	—	—	—	—	—	—	534
Total	—	—	—	—	—	—	1,823

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Retirement Community	0.05	0.89	0.07	0.07	0.07	0.07	1,129
Apartments Mid Rise	0.40	6.90	0.56	0.56	0.56	0.56	8,778
Strip Mall	0.06	1.09	0.08	0.08	0.08	0.08	1,307
General Office Building	0.09	1.70	0.13	0.13	0.13	0.13	2,032
Total	0.61	10.6	0.84	0.84	0.84	0.84	13,246
Daily, Winter (Max)	—	—	—	—	—	—	—
Retirement Community	0.05	0.89	0.07	0.07	0.07	0.07	1,129
Apartments Mid Rise	0.40	6.90	0.56	0.56	0.56	0.56	8,778
Strip Mall	0.06	1.09	0.08	0.08	0.08	0.08	1,307
General Office Building	0.09	1.70	0.13	0.13	0.13	0.13	2,032
Total	0.61	10.6	0.84	0.84	0.84	0.84	13,246
Annual	—	—	—	—	—	—	—
Retirement Community	0.01	0.16	0.01	0.01	0.01	0.01	187

Apartments Mid Rise	0.07	1.26	0.10	0.10	0.10	0.10	1,453
Strip Mall	0.01	0.20	0.02	0.02	0.02	0.02	216
General Office Building	0.02	0.31	0.02	0.02	0.02	0.02	336
Total	0.11	1.93	0.15	0.15	0.15	0.15	2,193

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Retirement Community	0.05	0.89	0.07	0.07	0.07	0.07	1,129
Apartments Mid Rise	0.40	6.90	0.56	0.56	0.56	0.56	8,778
Strip Mall	0.06	1.09	0.08	0.08	0.08	0.08	1,307
General Office Building	0.09	1.70	0.13	0.13	0.13	0.13	2,032
Total	0.61	10.6	0.84	0.84	0.84	0.84	13,246
Daily, Winter (Max)	—	—	—	—	—	—	—
Retirement Community	0.05	0.89	0.07	0.07	0.07	0.07	1,129
Apartments Mid Rise	0.40	6.90	0.56	0.56	0.56	0.56	8,778
Strip Mall	0.06	1.09	0.08	0.08	0.08	0.08	1,307
General Office Building	0.09	1.70	0.13	0.13	0.13	0.13	2,032
Total	0.61	10.6	0.84	0.84	0.84	0.84	13,246
Annual	—	—	—	—	—	—	—
Retirement Community	0.01	0.16	0.01	0.01	0.01	0.01	187
Apartments Mid Rise	0.07	1.26	0.10	0.10	0.10	0.10	1,453
Strip Mall	0.01	0.20	0.02	0.02	0.02	0.02	216

General Office Building	0.02	0.31	0.02	0.02	0.02	0.02	336
Total	0.11	1.93	0.15	0.15	0.15	0.15	2,193

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Hearths	4,054	79.2	690	690	687	687	107,555
Consumer Products	74.3	—	—	—	—	—	—
Architectural Coatings	27.7	—	—	—	—	—	—
Landscape Equipment	19.5	1.72	0.14	0.14	0.10	0.10	566
Total	4,176	80.9	690	690	687	687	108,121
Daily, Winter (Max)	—	—	—	—	—	—	—
Hearths	4,054	79.2	690	690	687	687	107,555
Consumer Products	74.3	—	—	—	—	—	—
Architectural Coatings	27.7	—	—	—	—	—	—
Total	4,156	79.2	690	690	687	687	107,555
Annual	—	—	—	—	—	—	—
Hearths	166	3.25	28.3	28.3	28.1	28.1	4,000
Consumer Products	13.6	—	—	—	—	—	—
Architectural Coatings	5.06	—	—	—	—	—	—
Landscape Equipment	1.76	0.15	0.01	0.01	0.01	0.01	46.2
Total	187	3.40	28.3	28.3	28.2	28.2	4,047

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Hearths	4,054	79.2	690	690	687	687	107,555
Consumer Products	74.3	—	—	—	—	—	—
Architectural Coatings	27.7	—	—	—	—	—	—
Landscape Equipment	19.5	1.72	0.14	0.14	0.10	0.10	566
Total	4,176	80.9	690	690	687	687	108,121
Daily, Winter (Max)	—	—	—	—	—	—	—
Hearths	4,054	79.2	690	690	687	687	107,555
Consumer Products	74.3	—	—	—	—	—	—
Architectural Coatings	27.7	—	—	—	—	—	—
Total	4,156	79.2	690	690	687	687	107,555
Annual	—	—	—	—	—	—	—
Hearths	166	3.25	28.3	28.3	28.1	28.1	4,000
Consumer Products	13.6	—	—	—	—	—	—
Architectural Coatings	5.06	—	—	—	—	—	—
Landscape Equipment	1.76	0.15	0.01	0.01	0.01	0.01	46.2
Total	187	3.40	28.3	28.3	28.2	28.2	4,047

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Retirement Community	—	—	—	—	—	—	66.3
Apartments Mid Rise	—	—	—	—	—	—	740
Strip Mall	—	—	—	—	—	—	503

General Office Building	—	—	—	—	—	—	517
Total	—	—	—	—	—	—	1,826
Daily, Winter (Max)	—	—	—	—	—	—	—
Retirement Community	—	—	—	—	—	—	66.3
Apartments Mid Rise	—	—	—	—	—	—	740
Strip Mall	—	—	—	—	—	—	503
General Office Building	—	—	—	—	—	—	517
Total	—	—	—	—	—	—	1,826
Annual	—	—	—	—	—	—	—
Retirement Community	—	—	—	—	—	—	11.0
Apartments Mid Rise	—	—	—	—	—	—	122
Strip Mall	—	—	—	—	—	—	83.3
General Office Building	—	—	—	—	—	—	85.7
Total	—	—	—	—	—	—	302

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Retirement Community	—	—	—	—	—	—	66.3
Apartments Mid Rise	—	—	—	—	—	—	740
Strip Mall	—	—	—	—	—	—	503
General Office Building	—	—	—	—	—	—	517
Total	—	—	—	—	—	—	1,826

Daily, Winter (Max)	—	—	—	—	—	—	—
Retirement Community	—	—	—	—	—	—	66.3
Apartments Mid Rise	—	—	—	—	—	—	740
Strip Mall	—	—	—	—	—	—	503
General Office Building	—	—	—	—	—	—	517
Total	—	—	—	—	—	—	1,826
Annual	—	—	—	—	—	—	—
Retirement Community	—	—	—	—	—	—	11.0
Apartments Mid Rise	—	—	—	—	—	—	122
Strip Mall	—	—	—	—	—	—	83.3
General Office Building	—	—	—	—	—	—	85.7
Total	—	—	—	—	—	—	302

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Retirement Community	—	—	—	—	—	—	845
Apartments Mid Rise	—	—	—	—	—	—	3,391
Strip Mall	—	—	—	—	—	—	1,253
General Office Building	—	—	—	—	—	—	476
Total	—	—	—	—	—	—	5,965
Daily, Winter (Max)	—	—	—	—	—	—	—

Retirement Community	—	—	—	—	—	—	845
Apartments Mid Rise	—	—	—	—	—	—	3,391
Strip Mall	—	—	—	—	—	—	1,253
General Office Building	—	—	—	—	—	—	476
Total	—	—	—	—	—	—	5,965
Annual	—	—	—	—	—	—	—
Retirement Community	—	—	—	—	—	—	140
Apartments Mid Rise	—	—	—	—	—	—	561
Strip Mall	—	—	—	—	—	—	207
General Office Building	—	—	—	—	—	—	78.7
Total	—	—	—	—	—	—	987

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Retirement Community	—	—	—	—	—	—	845
Apartments Mid Rise	—	—	—	—	—	—	3,391
Strip Mall	—	—	—	—	—	—	1,253
General Office Building	—	—	—	—	—	—	476
Total	—	—	—	—	—	—	5,965
Daily, Winter (Max)	—	—	—	—	—	—	—
Retirement Community	—	—	—	—	—	—	845
Apartments Mid Rise	—	—	—	—	—	—	3,391

Strip Mall	—	—	—	—	—	—	1,253
General Office Building	—	—	—	—	—	—	476
Total	—	—	—	—	—	—	5,965
Annual	—	—	—	—	—	—	—
Retirement Community	—	—	—	—	—	—	140
Apartments Mid Rise	—	—	—	—	—	—	561
Strip Mall	—	—	—	—	—	—	207
General Office Building	—	—	—	—	—	—	78.7
Total	—	—	—	—	—	—	987

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Retirement Community	—	—	—	—	—	—	2.93
Apartments Mid Rise	—	—	—	—	—	—	16.7
Strip Mall	—	—	—	—	—	—	3.94
General Office Building	—	—	—	—	—	—	0.66
Total	—	—	—	—	—	—	24.3
Daily, Winter (Max)	—	—	—	—	—	—	—
Retirement Community	—	—	—	—	—	—	2.93
Apartments Mid Rise	—	—	—	—	—	—	16.7
Strip Mall	—	—	—	—	—	—	3.94

General Office Building	—	—	—	—	—	—	0.66
Total	—	—	—	—	—	—	24.3
Annual	—	—	—	—	—	—	—
Retirement Community	—	—	—	—	—	—	0.49
Apartments Mid Rise	—	—	—	—	—	—	2.77
Strip Mall	—	—	—	—	—	—	0.65
General Office Building	—	—	—	—	—	—	0.11
Total	—	—	—	—	—	—	4.02

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Retirement Community	—	—	—	—	—	—	2.93
Apartments Mid Rise	—	—	—	—	—	—	16.7
Strip Mall	—	—	—	—	—	—	3.94
General Office Building	—	—	—	—	—	—	0.66
Total	—	—	—	—	—	—	24.3
Daily, Winter (Max)	—	—	—	—	—	—	—
Retirement Community	—	—	—	—	—	—	2.93
Apartments Mid Rise	—	—	—	—	—	—	16.7
Strip Mall	—	—	—	—	—	—	3.94
General Office Building	—	—	—	—	—	—	0.66
Total	—	—	—	—	—	—	24.3

Annual	—	—	—	—	—	—	—
Retirement Community	—	—	—	—	—	—	0.49
Apartments Mid Rise	—	—	—	—	—	—	2.77
Strip Mall	—	—	—	—	—	—	0.65
General Office Building	—	—	—	—	—	—	0.11
Total	—	—	—	—	—	—	4.02

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—

Removed	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	PM10E	PM10T	PM2.5E	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—

Removed	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	10/13/2026	3/30/2027	5.00	120	—
Grading	Grading	3/31/2027	6/7/2028	5.00	310	—
Building Construction	Building Construction	6/8/2028	4/26/2040	5.00	3,100	—
Paving	Paving	4/27/2040	3/1/2041	5.00	220	—
Architectural Coating	Architectural Coating	3/2/2041	1/4/2042	5.00	220	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20

Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36

Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	9.53	LDA,LDT1,LDT2
Site Preparation	Vendor	—	7.16	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	9.53	LDA,LDT1,LDT2
Grading	Vendor	—	7.16	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	2,197	9.53	LDA,LDT1,LDT2
Building Construction	Vendor	431	7.16	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	9.53	LDA,LDT1,LDT2
Paving	Vendor	—	7.16	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—

Architectural Coating	Worker	439	9.53	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	7.16	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	9.53	LDA,LDT1,LDT2
Site Preparation	Vendor	—	7.16	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	9.53	LDA,LDT1,LDT2
Grading	Vendor	—	7.16	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	2,197	9.53	LDA,LDT1,LDT2
Building Construction	Vendor	431	7.16	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	9.53	LDA,LDT1,LDT2
Paving	Vendor	—	7.16	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—

Architectural Coating	Worker	439	9.53	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	7.16	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	5,195,745	1,731,915	1,356,000	452,000	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	—	—	180	0.00	—
Grading	—	—	930	0.00	—
Paving	0.00	0.00	0.00	0.00	0.00

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Retirement Community	—	0%

Apartments Mid Rise	—	0%
Strip Mall	0.00	0%
General Office Building	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2026	0.00	204	0.03	< 0.005
2027	0.00	204	0.03	< 0.005
2028	0.00	204	0.03	< 0.005
2029	0.00	204	0.03	< 0.005
2030	0.00	204	0.03	< 0.005
2031	0.00	204	0.03	< 0.005
2032	0.00	204	0.03	< 0.005
2033	0.00	204	0.03	< 0.005
2034	0.00	204	0.03	< 0.005
2035	0.00	204	0.03	< 0.005
2036	0.00	204	0.03	< 0.005
2037	0.00	204	0.03	< 0.005
2038	0.00	204	0.03	< 0.005
2039	0.00	204	0.03	< 0.005
2040	0.00	204	0.03	< 0.005
2041	0.00	204	0.03	< 0.005
2042	0.00	204	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Retirement Community	523	443	425	181,647	2,391	2,023	1,943	830,269
Apartments Mid Rise	13,230	11,941	9,947	4,590,574	60,472	54,580	45,465	20,982,513
Strip Mall	28,046	26,603	12,928	9,373,174	136,732	129,698	63,029	45,697,406
General Office Building	2,641	599	190	729,824	12,878	2,922	926	3,558,142

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Retirement Community	490	414	398	170,022	2,238	1,893	1,819	777,131
Apartments Mid Rise	12,383	11,177	9,310	4,296,777	56,602	51,087	42,555	19,639,632
Strip Mall	26,251	24,900	12,101	8,773,291	127,981	121,398	58,995	42,772,772
General Office Building	2,472	561	178	683,116	12,054	2,735	866	3,330,421

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Retirement Community	—
Wood Fireplaces	76
Gas Fireplaces	120
Propane Fireplaces	0
Electric Fireplaces	0

No Fireplaces	22
Conventional Wood Stoves	0
Catalytic Wood Stoves	11
Non-Catalytic Wood Stoves	11
Pellet Wood Stoves	0
Apartments Mid Rise	—
Wood Fireplaces	851
Gas Fireplaces	1338
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	243
Conventional Wood Stoves	0
Catalytic Wood Stoves	122
Non-Catalytic Wood Stoves	122
Pellet Wood Stoves	0

5.10.1.2. Mitigated

Hearth Type	Unmitigated (number)
Retirement Community	—
Wood Fireplaces	76
Gas Fireplaces	120
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	22
Conventional Wood Stoves	0
Catalytic Wood Stoves	11
Non-Catalytic Wood Stoves	11
Pellet Wood Stoves	0

Apartments Mid Rise	—
Wood Fireplaces	851
Gas Fireplaces	1338
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	243
Conventional Wood Stoves	0
Catalytic Wood Stoves	122
Non-Catalytic Wood Stoves	122
Pellet Wood Stoves	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
5195745	1,731,915	1,356,000	452,000	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Retirement Community	747,800	204	0.0330	0.0040	3,513,900
Apartments Mid Rise	7,764,900	204	0.0330	0.0040	27,314,013
Strip Mall	5,282,784	204	0.0330	0.0040	4,066,183
General Office Building	5,715,780	204	0.0330	0.0040	6,322,145

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Retirement Community	747,800	204	0.0330	0.0040	3,513,900
Apartments Mid Rise	7,764,900	204	0.0330	0.0040	27,314,013
Strip Mall	5,282,784	204	0.0330	0.0040	4,066,183
General Office Building	5,715,780	204	0.0330	0.0040	6,322,145

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Retirement Community	6,176,621	0.00
Apartments Mid Rise	68,906,160	0.00
Strip Mall	46,873,092	0.00
General Office Building	48,201,392	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)

Retirement Community	6,176,621	0.00
Apartments Mid Rise	68,906,160	0.00
Strip Mall	46,873,092	0.00
General Office Building	48,201,392	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Retirement Community	448	—
Apartments Mid Rise	1,798	—
Strip Mall	664	—
General Office Building	252	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Retirement Community	448	—
Apartments Mid Rise	1,798	—
Strip Mall	664	—
General Office Building	252	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Retirement Community	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0

Retirement Community	Household refrigerators and/or freezers	R-134a	1,430	0.22	0.60	0.00	1.00
Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Strip Mall	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Strip Mall	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00
Strip Mall	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0
General Office Building	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
General Office Building	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Retirement Community	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Retirement Community	Household refrigerators and/or freezers	R-134a	1,430	0.22	0.60	0.00	1.00
Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

Strip Mall	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Strip Mall	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00
Strip Mall	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0
General Office Building	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
General Office Building	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	7.30	annual days of extreme heat
Extreme Precipitation	19.1	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	3.58	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	2	0	0	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	0	0	N/A
Flooding	0	0	0	N/A
Drought	N/A	N/A	N/A	N/A

Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	2	1	1	3
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	1	1	2
Flooding	1	1	1	2
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	0.19
AQ-PM	4.37
AQ-DPM	27.6
Drinking Water	4.42
Lead Risk Housing	35.2
Pesticides	0.00
Toxic Releases	8.34
Traffic	11.0
Effect Indicators	—
CleanUp Sites	0.00
Groundwater	17.2
Haz Waste Facilities/Generators	35.6
Impaired Water Bodies	43.8
Solid Waste	70.4
Sensitive Population	—
Asthma	67.0
Cardio-vascular	85.2
Low Birth Weights	12.4
Socioeconomic Factor Indicators	—
Education	22.8
Housing	43.9
Linguistic	0.00
Poverty	63.0
Unemployment	74.7

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	43.06428846
Employed	63.51854228
Median HI	32.08007186
Education	—
Bachelor's or higher	50.17323239
High school enrollment	100
Preschool enrollment	44.43731554
Transportation	—
Auto Access	59.70742974
Active commuting	17.07943026
Social	—
2-parent households	36.3403054
Voting	59.21981265
Neighborhood	—
Alcohol availability	68.02258437
Park access	39.25317593
Retail density	24.63749519
Supermarket access	32.2340562
Tree canopy	93.63531374
Housing	—
Homeownership	43.3465931
Housing habitability	47.56833055
Low-inc homeowner severe housing cost burden	35.2239189
Low-inc renter severe housing cost burden	55.24188374
Uncrowded housing	56.87155139
Health Outcomes	—

Insured adults	41.85807776
Arthritis	0.0
Asthma ER Admissions	20.1
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	9.2
Cognitively Disabled	2.9
Physically Disabled	16.6
Heart Attack ER Admissions	54.4
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	61.0
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	51.4
Children	47.4
Elderly	48.7

English Speaking	92.6
Foreign-born	2.8
Outdoor Workers	45.3
Climate Change Adaptive Capacity	—
Impervious Surface Cover	87.5
Traffic Density	6.4
Traffic Access	0.0
Other Indices	—
Hardship	42.4
Other Decision Support	—
2016 Voting	52.1

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	16.0
Healthy Places Index Score for Project Location (b)	53.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Lot acreage for retirement community and mid rise apartments adjusted to match project description and account for mixed use development.
Construction: Construction Phases	Assumed no demolition of existing uses
Operations: Hearths	All electric fireplaces and no wood stoves

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Vehicle Class	Fuel	Process	Kgal/day
All Other Buses	Dsl	IDLEX	3.25E-05
All Other Buses	Dsl	RUNEX	0.002624
LDA	Dsl	RUNEX	0.000586
LDT1	Dsl	RUNEX	9.83E-07
LDT2	Dsl	RUNEX	0.002463
LHD1	Dsl	IDLEX	0.000309
LHD1	Dsl	RUNEX	0.043383
LHD2	Dsl	IDLEX	0.000284
LHD2	Dsl	RUNEX	0.027851
MDV	Dsl	RUNEX	0.006686
MH	Dsl	RUNEX	0.002062
Motor Coach	Dsl	IDLEX	0.000236
Motor Coach	Dsl	RUNEX	0.005487
PTO	Dsl	RUNEX	0.015421
SBUS	Dsl	IDLEX	0.00043
SBUS	Dsl	RUNEX	0.005007
T6 CAIRP Class 4	Dsl	IDLEX	4.75E-07
T6 CAIRP Class 4	Dsl	RUNEX	6.35E-05
T6 CAIRP Class 5	Dsl	IDLEX	5.85E-07
T6 CAIRP Class 5	Dsl	RUNEX	8.74E-05
T6 CAIRP Class 6	Dsl	IDLEX	2.64E-06
T6 CAIRP Class 6	Dsl	RUNEX	0.000227
T6 CAIRP Class 7	Dsl	IDLEX	6.66E-06
T6 CAIRP Class 7	Dsl	RUNEX	0.002284
T6 Instate Delivery Class 4	Dsl	IDLEX	7.44E-05
T6 Instate Delivery Class 4	Dsl	RUNEX	0.001395
T6 Instate Delivery Class 5	Dsl	IDLEX	4.50E-05
T6 Instate Delivery Class 5	Dsl	RUNEX	0.000844
T6 Instate Delivery Class 6	Dsl	IDLEX	0.000111
T6 Instate Delivery Class 6	Dsl	RUNEX	0.002129
T6 Instate Delivery Class 7	Dsl	IDLEX	7.61E-05
T6 Instate Delivery Class 7	Dsl	RUNEX	0.002209
T6 Instate Other Class 4	Dsl	IDLEX	0.000338
T6 Instate Other Class 4	Dsl	RUNEX	0.006787
T6 Instate Other Class 5	Dsl	IDLEX	0.000942
T6 Instate Other Class 5	Dsl	RUNEX	0.018968
T6 Instate Other Class 6	Dsl	IDLEX	0.000498
T6 Instate Other Class 6	Dsl	RUNEX	0.010001
T6 Instate Other Class 7	Dsl	IDLEX	0.000563
T6 Instate Other Class 7	Dsl	RUNEX	0.01065
T6 Instate Tractor Class 6	Dsl	IDLEX	4.99E-06
T6 Instate Tractor Class 6	Dsl	RUNEX	0.000117
T6 Instate Tractor Class 7	Dsl	IDLEX	8.26E-05

Fuel Type	Demand
Diesel	
Kgal/day	0.76
KGal/yr	275.58
Gas	
Kgal/day	2.81
KGal/yr	1026.14
Hybrid	
kgal/day	0.04
Kgal/yr	15.93
TOTAL	
KGal/yr	1317.66
Gal/yr	1317655.18

Mileage Check:	
VMT/yr	39154182.74
mpg	29.72

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T6 Instate Tractor Class 7	Dsl	RUNEX	0.002159
T6 OOS Class 4	Dsl	IDLEX	5.11E-07
T6 OOS Class 4	Dsl	RUNEX	6.98E-05
T6 OOS Class 5	Dsl	IDLEX	6.31E-07
T6 OOS Class 5	Dsl	RUNEX	9.58E-05
T6 OOS Class 6	Dsl	IDLEX	2.83E-06
T6 OOS Class 6	Dsl	RUNEX	0.00025
T6 OOS Class 7	Dsl	IDLEX	3.46E-06
T6 OOS Class 7	Dsl	RUNEX	0.001636
T6 Public Class 4	Dsl	IDLEX	5.93E-05
T6 Public Class 4	Dsl	RUNEX	0.000784
T6 Public Class 5	Dsl	IDLEX	0.000151
T6 Public Class 5	Dsl	RUNEX	0.001957
T6 Public Class 6	Dsl	IDLEX	5.57E-05
T6 Public Class 6	Dsl	RUNEX	0.000734
T6 Public Class 7	Dsl	IDLEX	0.00025
T6 Public Class 7	Dsl	RUNEX	0.004009
T6 Utility Class 5	Dsl	IDLEX	6.68E-06
T6 Utility Class 5	Dsl	RUNEX	0.00019
T6 Utility Class 6	Dsl	IDLEX	1.26E-06
T6 Utility Class 6	Dsl	RUNEX	3.59E-05
T6 Utility Class 7	Dsl	IDLEX	1.41E-06
T6 Utility Class 7	Dsl	RUNEX	4.93E-05
T7 CAIRP Class 8	Dsl	IDLEX	0.009652
T7 CAIRP Class 8	Dsl	RUNEX	0.121939
T7 NNOOS Class 8	Dsl	IDLEX	0.012549
T7 NNOOS Class 8	Dsl	RUNEX	0.176704
T7 NOOS Class 8	Dsl	IDLEX	0.005432
T7 NOOS Class 8	Dsl	RUNEX	0.064145
T7 Other Port Class 8	Dsl	IDLEX	0.000232
T7 Other Port Class 8	Dsl	RUNEX	0.011786
T7 POAK Class 8	Dsl	IDLEX	1.28E-11
T7 POAK Class 8	Dsl	RUNEX	3.11E-10
T7 POLA Class 8	Dsl	IDLEX	1.36E-11
T7 POLA Class 8	Dsl	RUNEX	4.96E-10
T7 Public Class 8	Dsl	IDLEX	0.000727
T7 Public Class 8	Dsl	RUNEX	0.017692
T7 Single Concrete/Transit Mix Class	Dsl	IDLEX	9.00E-05
T7 Single Concrete/Transit Mix Class	Dsl	RUNEX	0.00225
T7 Single Dump Class 8	Dsl	IDLEX	0.000786
T7 Single Dump Class 8	Dsl	RUNEX	0.014401
T7 Single Other Class 8	Dsl	IDLEX	0.00383
T7 Single Other Class 8	Dsl	RUNEX	0.047609
T7 SWCV Class 8	Dsl	IDLEX	0.000219

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T7 SWCV Class 8	Dsl	RUNEX	0.015838
T7 Tractor Class 8	Dsl	IDLEX	0.005314
T7 Tractor Class 8	Dsl	RUNEX	0.059567
T7 Utility Class 8	Dsl	IDLEX	7.08E-06
T7 Utility Class 8	Dsl	RUNEX	0.000326
UBUS	Dsl	RUNEX	5.67E-05
LDA	Gas	RUNEX	1.077437
LDA	Gas	STREX	0.031416
LDT1	Gas	RUNEX	0.089038
LDT1	Gas	STREX	0.002846
LDT2	Gas	RUNEX	0.838915
LDT2	Gas	STREX	0.026083
LHD1	Gas	IDLEX	0.000557
LHD1	Gas	RUNEX	0.118713
LHD1	Gas	STREX	0.001813
LHD2	Gas	IDLEX	4.14E-05
LHD2	Gas	RUNEX	0.009434
LHD2	Gas	STREX	0.000116
MCY	Gas	RUNEX	0.007361
MCY	Gas	STREX	0.00087
MDV	Gas	RUNEX	0.559487
MDV	Gas	STREX	0.01872
MH	Gas	RUNEX	0.006421
MH	Gas	STREX	9.36E-07
OBUS	Gas	IDLEX	2.41E-05
OBUS	Gas	RUNEX	0.002447
OBUS	Gas	STREX	4.08E-05
SBUS	Gas	IDLEX	5.40E-05
SBUS	Gas	RUNEX	0.000882
SBUS	Gas	STREX	4.84E-06
T6TS	Gas	IDLEX	0.000152
T6TS	Gas	RUNEX	0.0179
T6TS	Gas	STREX	0.00025
T7IS	Gas	RUNEX	6.74E-05
T7IS	Gas	STREX	5.35E-07
UBUS	Gas	RUNEX	0.000261
UBUS	Gas	STREX	5.24E-07
LDA	Phe	RUNEX	0.026076
LDA	Phe	STREX	0.001366
LDT1	Phe	RUNEX	0.000781
LDT1	Phe	STREX	4.54E-05
LDT2	Phe	RUNEX	0.008895
LDT2	Phe	STREX	0.000571
MDV	Phe	RUNEX	0.005472

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MDV	Phe	STREX	0.000431

GHD Biological Reports

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APPENDIX

Technical Memorandum

January 26, 2023

To	Ann Lindsay, LPH	**Contact No.**	(707) 267-2207
Copy to	George Williamson, LPH	**Email**	Miles.hartnett@ghd.com
From	Miles Hartnett, GHD	**Project No.**	12603187
Project Name	Life Plan Humboldt (LPH) Wooded Area Assessment		
Subject	Wooded Area Assessment for APN(s) 510-133-013 and 508-251-060, Hiller Rd. McKinleyville, CA		

Purpose

The purpose of this technical memorandum is to characterize wooded areas on APN(s) 510-133-013 and 508-251-060, Hiller Rd. McKinleyville, CA and map the vertical and horizontal locations of existing non-eucalyptus trees within the two parcels (project area). Recommendations are provided to avoid and/or minimize impacts to federally threatened or endangered avian species, raptors, and migratory birds.

Methods.

Miles Hartnett, GHD wildlife biologist, conducted a site inspection on January 19, 2023 to characterize wooded areas (i.e. eucalyptus grove, conifers) on the proposed project area. The location (vertical and horizontal) of non-eucalyptus/conifer trees greater than 6 inches diameter at breast height (DBH) were mapped using an Eos Arrow Gold high-accuracy (centimeter grade) GPS device streaming RTK correction. Potential for roosting and/or nesting habitat for federally threatened or endangered avian species, raptors, and migratory birds were assessed based on habitat present. Protocol level surveys for special status wildlife and/or nesting bird species were not completed as this time.

Results

Wooded areas within the proposed project area are primarily comprised of blue gum eucalyptus (*Eucalyptus globulus*). The eucalyptus grove contains an estimated 200 eucalyptus trees up to 50 inches DBH with a few native conifer and hardwood species scattered throughout (Figure 1: Wooded Area Assessment). A PG&E powerline runs east and west through the grove. The eucalyptus grove is expanding south into the adjacent field as evidenced by a vigorous population of regenerating saplings and seedlings.

Non-eucalyptus trees above 6 inches DBH throughout the proposed project area include 44 red alder (*Alnus rubra*) trees 6-24 DBH, six Sitka spruce (*Picea sitchensis*) trees 10-55 inches DBH, five Monterey pine (*Pinus radiata*) trees 10-68 inches DBH, five elderberry (*Sambucus sp.*) shrubs up to 8 inches DBH, two Douglas-fir trees (*Pseudotsuga menziesii*) 6-18 inches DBH, one grand fir (*Abies grandis*) tree 17 inches DBH, and three coastal willow (*Salix hookeriana*) trees 6-7 inches DBH amongst a patch of small (<4 inches DBH) coastal willow shrubs.

Horizontal and vertical location data for a total of 66 non-eucalyptus tree points were collected and mapped (see Figure 1: Wooded Area Assessment). Horizontal and vertical location data of each tree point can be accessed in the GIS spatial files. Species and size classes of trees identified within the proposed project area are detailed in Table 1 below.

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Table 1: Species and size classes of trees identified within the proposed project parcels.

Species name	Common name	Quantity	Size Class (inches)	Status
Abies grandis	grand fir	1	17 inches DBH	Native
Alnus rubra	red alder	44	6-24 inches DBH	Native
Eucalyptus globulus	blue gum eucalyptus	200 (estimated)	6-50 inches DBH	Non-native invasive
Picea sitchensis	Sitka spruce	6	10-55 inches DBH	Native
Pinus radiata	Monterey pine	5	10-68 inches DBH	Non-native invasive
Pseudotsuga menziesii	Douglas-fir	2	6-18 inches DBH	Native
Salix hookeriana	coastal willow	3	6-7 inches DBH	Native
Sambucus sp.	elderberry	5	4- 8 inches DBH.	Native

Wooded areas throughout the proposed project area do not contain suitable habitat for any potentially occurring federally threatened or endangered avian species including the marbled murrelet (*Brachyramphus marmoratus),* northern spotted owl (*Strix occidentalis caurina*), western snowy plover (*Charadrius nivosus nivosus*), and yellow-billed cuckoo (*Coccyzus americanus).* All vegetated areas within the proposed project area do, however, contain suitable habitat for other common migratory and/or nesting bird species including raptors and other special status species.

Recommendations

The following recommendations are to avoid and/or minimize impacts to federally threatened or endangered avian species, raptors, and migratory birds.

- It is recommended, if feasible, that all major vegetation and/or tree removal be conducted outside of nesting bird season (typically March 1-August 15 of any year) to avoid impacts to nesting birds
- If vegetation removal must occur during nesting bird season it is recommended that preconstruction nesting bird surveys be conducted no more than 7 days prior to the onset of vegetation removal or other ground-breaking activities during nesting bird season. Nesting bird season is typically March 1-August 15 of any year or whenever nesting bird behavior (i.e. copulation, nest building) is displayed. If active bird nests are located, buffer zones and mitigation measures should be established by a qualified biologist in consultation with the California Department of Fish and Wildlife (CDFW) until all fledglings have left the nest.
- Consultation with the United States Fish and Wildlife Service (USFWS) regarding federally threatened or endangered avian species is not anticipated.

Please do not hesitate to reach out if you have any questions or concerns regarding this report.

Regards,

Miles Hartnett
Wildlife Biologist

Aquatic Resources Delineation Report

Life Plan Humboldt

March 8, 2023

Aquatic Resources Delineation Report
Life Plan Humboldt

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March 8, 2023

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1. Summary

GHD prepared this Aquatic Resources Delineation Report and accompanying appendices on behalf of Life Plan Humboldt (Client), in support of the proposed Life Plan Humboldt (Project) within the community of McKinleyville, California (**Appendix A, Figure 1**). The surveys were conducted within the Project Study Boundary (PSB) as shown in **Appendix A, Figure 2**. GHD conducted the aquatic resource delineation fieldwork on January 19th, 25th, and 31st 2023. United States Army Corps of Engineers (USACE) three-parameter wetlands were mapped based on wetland indicative vegetation, hydric soils, and wetland hydrology. In addition to USACE three-parameter wetlands, one and two-parameter wetlands were mapped per the wetland definition provided in the McKinleyville Community Plan, 2002.

The aquatic resource delineation identified one contiguous three-parameter wetland area and two one-parameter wetland areas. The three-parameter wetland consists of swale extending southeast from the northwestern section of the PSB and is likely USACE and Regional Water Quality Control Board (RWQCB) jurisdictional. The total area of the three-parameter wetland mapped within the PSB is 23,940. The two one-parameter wetland areas regulated under the McKinleyville Community Plan consisted of a 724 square foot (sqft) patch of hydrophytic vegetation adjacent to the three-parameter wetland and 171 sqft depressional area within the eastern portion of the PSB. The drainage ditch along the south side of Hiller Rd is a part of McKinleyville's municipal drainage system and was determined to be an upland ditch based on dominant uplands vegetation. The drainage ditch is likely within the 80-ft County Righty of Way for Hiller Rd. Other waters such as lakes, streams, and watercourses were not observed within the PSB. Please see **Appendix A, Figure 2**, for a map detailing sample point locations and identified wetland areas.

2. Introduction

On behalf of the Life Plan Humboldt (LPH), GHD prepared this Aquatic Resource Delineation Report (also known as a wetland delineation report), and accompanying appendices, in support of the aging in place life plan community project (Project) in McKinleyville, Humboldt County, CA. This report provides an investigation into whether wetlands and/or other aquatic resources are present within the Project Study Boundary (PSB), and can support future environmental documentation, permitting, and construction planning for the Project 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 Project includes the development of an aging in place life plan community consisting of multiple residential units and other amenities. The Project site located within Section 6, Township 06 North, Range 01 East, and Section 31, Township 07 North, Range 01 East, Arcata North USGS 7.5 Minute Quadrangle, in Humboldt County, California. The site is comprised of approximately 14.7 acres and includes the entirety of Assessor Parcel Numbers (APNs) 510-133-013 and 508-251-060 on Hiller Road, McKinleyville, California (**Appendix A, Figure 1**).

The PSB consists of the two APNs and contains an open pasture and scattered eucalyptus grove bordered by the McKinleyville shopping center and open space to the north, commercial development to the east, residential development to the south, and a church and active pastureland to the west. The property is a generally flat to gently sloped with a small swale that dissects the site in a north westerly direction.

2.2 Regulatory Background

2.2.1 Federal

Waters of the United States

The Code of Federal Regulations (CFR), 40 CFR § 230.3 states the following:

The term waters of the United States are defined as:

> *(1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;*
>
> *(2) All interstate waters including interstate wetlands;*
>
> *(3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:*
>
> > *(i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or*
> >
> > *(ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or*
> >
> > *(iii) Which are used or could be used for industrial purposes by industries in interstate commerce;*
>
> *(4) All impoundments of waters otherwise defined as waters of the United States under this definition;*
>
> *(5) Tributaries of waters identified in paragraphs (s)(1) through (4) of this section;*
>
> *(6) The territorial sea;*
>
> *(7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (s)(1) through (6) of this section; waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the criteria of this definition) are not waters of the United States.* (40 CFR § 230.3).

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

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.

2.2.3 McKinleyville Community Plan

The McKinleyville Community Plan (2002, updated 2017) section 3422 defines wetland areas using a one-parameter definition as follows (p. 57):

> Item 7*. 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:*
>
> – The presence of at least periodic predominance of hydrophytic vegetation; or,
>
> – predominately hydric soils; or,
>
> – periodic inundation for seven (7) consecutive days.
>
> Item 12*. For purposes of these requirements, wetlands and wetland buffer standards shall not apply to watercourses consisting entirely of a drainage ditch, or other man-made drainage device, construction or system.*

For this study "one-parameter wetlands" are areas that meet the definition of wetlands under the McKinleyville Community Plan detailed above.

3. Methodology

3.1 Aquatic Resources Delineation Approach

GHD scientists conducted the aquatic resource delineation on January 19th, 25th, and 31st 2023. 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, USACE Wetland Determination Data Forms**).

In potential three-parameter wetland areas, vegetation, soil, and hydrology data were collected in a transect across the upland/wetland boundary with two paired 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 Gold high-accuracy (centimeter grade) GPS streaming RTK correction 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 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 "Up" and numbered in sequence (e.g., Up1, Up2). 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.

Areas outside of three-parameter wetlands that met one or two parameters were designated one-parameter wetlands per the McKinleyville Community Plan definition of wetlands described in **Section 2.2.3.**

3.2 Botanical Methodology

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: *State of California 2016 Wetland Plant List* (Lichvar et al. 2018). 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).

The prevalence index, a weighted metric of all dominant and non-dominant species present, was calculated in areas dominated by FAC species where wetland hydrology and hydric soil were not observed. The sample points at locations that did not pass the prevalence index or FAC-neutral test, and were not accompanied by indicators of wetland hydrology or hydric soils were not determined to consist of hydrophytic vegetation for the purposes of determining one-parameter wetlands under the McKinleyville Community Plan.

3.3 Soils Methodology

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 18 inches or to the depth otherwise required to confirm hydric soil indicators. Data on soil color, texture, and redoximorphic features were recorded. Any observed redoximorphic features were noted along with their percentage within the soil matrix, and care was taken to distinguish chromas of 1 and 2 that 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 two main soil units within the PSB (**Appendix D, NRCS Custom Soil Resources Report**). 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 accurately characterize potential wetlands/uplands boundaries.

Soil map units within the PSB include soil map units 145: Halfbluff-Tepona-Urban Land, 0 to 2 percent slopes, and soil map unit 225: Arcata and Candymountain soils, 0 to 2 percent slopes. These soil map units are described below:

Soil Map Unit 145: Halfbluff-Tepona-Urban Land, 0 to 2 percent slopes.

The map unit composition is as follows: 35 percent Halfbluff and similar soils, 30 percent Tepona and similar soils, 25 percent Urban Land, residential and 10 percent minor components. The Halfbluff-Tepona soil type setting includes marine terraces, backslopes or tread of marine deposits derived from sedimentary rock parent material. The Urban Land soil setting includes alluvial fans.

The Halfbluff soil series is classified as an Oxyaquic Humudepts. The a depth to a restrictive feature is more than 80 inches. The natural drainage class is moderately well-drained. The depth to the water table is approximately 30 to 39 inches. There is no inherent ponding or flooding frequency. The available water storage in a soil profile is moderate, or about 7.9 inches, and the capacity of the most limiting layer to transmit water is moderately high to high, or about 0.60 to 2.00 inches per hour. Irrigated land capability classification is 1, and non-irrigated land capability classification is 2s1. The hydrologic soil group is C. The soil series unit is inherently not hydric.

The Tepona soil series is classified as an Oxyaquic Humudepts, The depth to a restrictive feature is more than 80 inches. The natural drainage class is moderately well-drained. The depth to the water table is approximately 30 to 39 inches. There is no inherent ponding or flooding frequency. The available water storage in a soil profile is high, or about 9.4 inches, and the capacity of the most limiting layer to transmit water is moderately high to high, or about 0.60 to 2.00 inches per hour. Irrigated land capability classification is not specified, and non-irrigated land capability classification is 2s. The hydrologic soil group is C. The soil series unit is inherently not hydric.

For the Urban Land portion of the soil complex, depth to a restrictive, drainage classes and frequency of ponding or flooding is not stated. Irrigated land capability classification is not specified, and non-irrigated land capability classification is 8. The hydrologic soil group is not stated. The soil series unit is not considered hydric.

The descriptions of the minor components are as follows: five percent Talawa (considered hydric), three percent Tillas (not considered hydric), and two percent Hookton (not considered hydric) (NRCS 2020).

Soil Map Unit 225: Arcata and Candymountain soils, 0 to 2 percent slopes

The map unit composition is as follows: 50 percent Arcata and similar soils, 35 percent Candymountain and similar soils, and 15 percent minor components. The Arcata and Candymountain soil setting includes marine terraces, backslopes or tread of marine deposits derived from mixed sources of parent material.

The Arcata soil series is classified as a Pachic Humudepts. The depth to a restrictive feature is more than 80 inches. The natural drainage class is well-drained. The depth to the water table is more than 80 inches. There is no inherent frequency of ponding or flooding. The available water storage in a soil profile is moderate, or about 8.9 inches, and the capacity of the most limiting layer to transmit water is moderately high to high, or about 0.60 to 2.00 inches per hour. Irrigated land capability classification is 1 and non-irrigated land capability classification is 2s. The hydrologic soil group is B. The soil series unit is inherently not hydric.

The Candymountain soil series is classified as a Typic Humudept. The depth to a restrictive feature is more than 80 inches. The natural drainage class is well-drained. The depth to the water table is more than 80 inches. There is no inherent frequency of ponding or flooding. The available water storage in a soil profile is moderate, or about 8.9 inches, and the capacity of the most limiting layer to transmit water is moderately high to high, or about 0.60 to 2.00 inches per hour. Irrigated land capability classification is not specified and non-irrigated land capability classification is 2s. The hydrologic soil group is B. The soil series unit is inherently not hydric.

The descriptions of the minor components, which are mostly inherently not hydric except for the Talawa soil series, are as follows: four percent Urban land, three percent Timmons, three percent Halfbluff, three percent Megwil, and two percent Talawa (NRCS 2020).

Please see the full report in **Appendix D** for complete details.

3.4 Precipitation and Hydrology

GHD performed the investigation within the PSB during January 19th, 25th, and 31st 2023, during the winter wet season after a period of above average rainfall. Precipitation was within normal thresholds according to the USDA WETS tables at the time fieldwork was conducted. A WETS table showing climatic data for the Arcata Eureka Airport, CA, Station is provided in **Appendix E, NRCS National Water and Climate Center WETS Table)** (NOAA 2023). Aerial photography and the National Wetland Inventory (NWI) Mapper were referenced before conducting fieldwork (**Appendix A, Figure 4**) (NWI 2023). The closest stream or water body is Widow White Creek, approximately 3,280 ft north of the PSB. The PSB is located outside of the 100-year flood zone according to the FEMA National Flood Hazard Layer (NFHL) (**Appendix A, Figure 5**). Wetland hydrology indicators, such as drainage patterns, material deposits, soil saturation, high water table, or surface water presence, were recorded in the field.

4. Results

The PSB contains one three-parameter wetland, comprising of 23,940 sqft and is likely USACE and RWQCB jurisdictional and regulated by the McKinleyville Community Plan. Additionally, the PSB contains two small one-parameter wetlands, comprising a total of 895 sqft, regulated by the McKinleyville Community Plan. The roadside ditch along Hiller Rd is part of the municipal storm drainage system and drains under Hiller Rd. through a 36-inch (outside diameter (OD)) concrete culvert. The roadside ditch was determined to be an upland ditch with a dominance of upland vegetation and is not likely to be USACE or RWQCB jurisdictional nor regulated by the McKinleyville Community Plan. **Appendix A, Figure 2** shows the results of the aquatic resource delineation.

Total area in square feet of identified wetlands within the PSB are detailed in **Table 1** below:

Table 1. Wetland Areas Identified Within the PSB

Wetland ID	Wetland Type	Area (sqft)	Coordinates (lat/long)
Wetland 1 (W1)	Three-parameter	23,940	40.941395, -124.105482
Wetland 2 (W2)	One-parameter	724	40.941289, -124.105601
Wetland 3 (W3)	One-parameter	171	40.941740, -124.105874

4.1 Three-Parameter Wetlands

One contiguous three-parameter wetland was mapped within the PSB as “Wetland 1” totaling 23,940 sqft and is likely under the jurisdiction of both the USACE and RWQCB and regulated by the McKinleyville Community Plan (**Appendix C, Photo 1**). Wetland 1 consists of a wet swale extending inward from the northwest corner of the PSB and can be classified as a Palustrine Emergent wetland (PEM) according to the Cowardin system (FGDC 2013). Wetland 1 is not hydrologically connected by surface flows to any other waters.

Dominant vegetation within Wetland 1 consisted primarily of common rush (*Juncus effusus*, FACW), bent grass (*Agrostis stolonifera*, FAC), and common velvetgrass (*Holcus lanatus*, FAC). Sample points within Wetland 1 met hydrophytic vegetation indicator 2 by passing the dominance test for hydrophytic vegetation.

Soils within Wetland 1 consisted of loams with a 10YR 2/1 upper horizon from 0-19 inches directly underlain by 10YR 4/1 and/or 10YR 4/2 depleted horizons from 16-35 inches with 25% 7.5 YR 6/8 and/or 10YR 6/8 redoximorphic features. Sample points within Wetland 1 met hydric soil indicator Thick Dark Surface (A12).

Observations of hydrology within Wetland 1 consisted primarily of the presence of surface water, saturation within 12 inches of the soil surface, and the presence of reduced iron within 12 inches of the soil surface verified by a positive reaction to alpha

, alpha-dipyridyl (αα-dip). Sample points within Wetland 1 met primary wetland hydrology indicators Surface Water (A1), Saturation (A3), and Presence of Reduced Iron (C4), as well as secondary indicators Geomorphic Position (D2) and passing the FAC-Neutral Test (D5).

Two paired sample point transects consisting of soil pits and vegetation plots were collected for Wetland 1 (W1), the only three-parameter wetland identified within the PSB. GPS coordinates of three-parameter wetland sample point locations for each transect are detailed below in **Table 2**:

Table 2. Three-Parameter Wetland Sampling Point Locations

Sample Point	Coordinates (lat/long)
W1T1-w	40.941395, -124.105482
W1T1-u	40.941289, -124.105601
W1T2-w	40.941740, -124.105874
W1T2-u	40.941777, -124.105691

Please see **Appendix A, Figure 2** for a map of delineated wetlands within the PSB and **Appendix B**, **USACE Wetland Determination Data Forms**, for more details regarding data collected at each sample point location.

4.2 One-Parameter Wetlands

Two separate one-parameter wetlands were mapped within the PSB as “Wetland 2” and “Wetland 3” and may be regulated via the McKinleyville Community Plan. These areas showed signs of wetland vegetation, wetland soils, and/or wetland hydrology, but lacked the indicators necessary to meet all three wetland parameters. Sample points that met one or two wetland parameters were classified and mapped as one-parameter wetlands for the purposes and regulatory framework guiding this study (to conform to the wetlands definition in the McKinleyville Community Plan.

Wetland 2 met two wetland parameters, is comprised of 724 sqft, and is located at the at the northeast end of Wetland 1 (**Appendix C, Photo 2**). Wetland 2 is likely hydrologically connected to Wetland 1. Dominant vegetation within Wetland 2 consisted primarily of slough sedge (*Carex obnupta*, OBL), California blackberry (*Rubus ursinus*, FACU), and coastal willow (*Salix hookeriana,* FACW). Sample points within Wetland 2 met hydrophytic vegetation indicator 2 by passing the dominance test for hydrophytic vegetation.

Soils within Wetland 2 consisted of loams with a 10YR 2/1 upper horizon from 0-10 inches underlain by a 10YR 3/2 horizon from 10-13 inches with 5% 10YR 5/8 distinct redoximorphic features and a 2.5Y 5/4 depleted horizon from 13-20 inches with 30% 7.5 YR 5/8 distinct redoximorphic features. The 10YR 3/2 horizon from 10-13 inches had chroma too high to meet the Thick Dark Surface (A12) hydric soil indicator observed in adjacent wetlands within the PSB. Sample points within Wetland 2 did not meet any hydric soil indicators.

Observations of hydrology within Wetland 2 included of the presence of a water table at 15 inches from the soil surface, and saturated soil at 10 inches from the soil surface. inches of the soil surface. Application of αα-dip tested negative throughout the soil profile. Sample points within Wetland 2 met primary wetland hydrology indicator Saturation (A3), as well as secondary indicator Geomorphic Position (D2).

Wetland 3 met two wetland parameters, is comprised of 171 sqft, and is located in a depression at the lower end of a shallow upland swale along the southern edge of the eucalyptus grove (**Appendix C, Photo 3**). There was evidence of mixed soil horizons in Wetland 3 indicating some level of mechanical disturbance or excavation likely causing the depression. Wetland 3 is not hydrologically connected by surface flows to any other waters.

Dominant vegetation within Wetland 3 consisted primarily of blue gum eucalyptus (*Eucalyptus globulus*, UPL), and sweet vernal grass (*Anthoxanthum odoratum,* FACU). Sample points within Wetland 3 did not pass the dominance test or prevalence index for hydrophytic vegetation and lacked any other indicators for hydrophytic vegetation.

Soils within Wetland 3 consisted of loams with a 10YR 2/1 upper horizon from 0-10 inches directly underlain by a 10YR 4/1 depleted horizon form 10-16 inches with 5% 5 YR 5/8 distinct redoximorphic features. Sample points within Wetland 3 met hydric soil indicator Thick Dark Surface (A12).

Observations of hydrology within Wetland 3 included of the presence of a water table at 4 inches from the soil surface, and saturated soil at 1 inch from the soil surface. Application of αα-dip tested positive at 12 inches from the soil surface. The sample point within Wetland 3 met primary wetland hydrology indicators High Water Table (A2), Saturation (A3), Algal Mat or Crust (B4), Presence of Reduced Iron (C4), as well as secondary indicators Water-Stained Leaves (B9) and Geomorphic Position (D2).

Sample points consisting of soil pits and vegetation plots were taken within each one-parameter wetland area identified within the PSB. A single sample point (in the wetland area) was collected for Wetland 2 (W2) and a paired sample point (wetland and upland) transect was collected for Wetland 3 (W3). GPS coordinates of one-parameter wetland sample point locations are detailed below in **Table 3**:

Table 3. One-Parameter Wetland Sampling Point Locations

Sample Point	Coordinates (lat/long)
W2-w	40.941395, -124.105482
W3T1-w	40.941289, -124.105601
W3T1-u	40.941740, -124.105874

Please see **Appendix A, Figure 2** for a map of delineated wetlands within the PSB and **Appendix B**, **USACE Wetland Determination Data Forms**, for more details regarding data collected at each sample point location.

4.3 Uplands

Nine upland sampling points were collected to characterize various areas throughout the PSB that may be affected by Project related activities (**Appendix C, Photos 4-6**). These areas did not show signs of wetland hydrology, hydric soils, or wetland vegetation.

Dominant vegetation in upland areas were comprised of blue gum eucalyptus (*Eucalyptus globulus*, UPL), California blackberry (*Rubus ursinus*, FACU), rattlesnake grass (*Briza maxima*, UPL), sweet vernal grass (*Anthoxanthum odoratum*, FACU), orchard grass (*Dactylis glomerata*, FACU), evergreen huckleberry (*Vaccinium ovatum*, FACU), salal (*Gaultheria shallon*, FACU), bent grass (*Agrostis stolonifera*, FAC), common velvetgrass (*Holcus lanatus*, FAC), reed fescue (*Festuca arundinacea*, FAC), red alder (*Alnus rubra*, FAC), and coastal willow *(Salix hookeriana*, FACW). Seven of the nine sample points in upland areas did not pass the dominance test hydrophytic vegetation and lacked any other indicators for hydrophytic vegetation.

Two of the nine upland sample points at Up3 and Up9 consisted entirely of FAC and FACU vegetation with a dominance of invasive non-native FAC graminoid species including reed fescue (*Festuca arundinacea*, FAC) at Up9, and bent grass (*Agrostis stolonifera*, FAC) at Up3. The lack of wetland hydrology and hydric soil at these sample points in addition to the prevalence of other upland vegetation suggests that these areas do not represent a predominance of hydrophytic vegetation but are rather being overtaken by invasive FAC species. The prevalence index, a weighted metric of all dominant and non-dominant species present, was calculated at these two sample points. The sample points at these locations did not pass the prevalence index or FAC-neutral test, were not accompanied by indicators of wetland hydrology or hydric soils and were thus not determined to consist of hydrophytic vegetation based on the result of the PI and FAC-neutral test (A PI great than 3.0 is not considered to be wetlands vegetation).

A summary of the vegetative metrics used to determine uplands vegetation at each upland sample point is detailed below in **Table 4**.

Table 4. Upland Plot Vegetation Determination

Upland Vegetation Plot ID	Dominance Test (Dominant species > 50% FAC, FACW, or OBL Vegetation)	FAC Neutral Test (Excluding FAC species)	Prevalence Index (Score ≤ 3.0 Consists of Hydrophytic Vegetation)	Hydrophytic Vegetation Present
Up1	Fail (0%)	Fail	N/A	No
Up2	Fail (50%)	Fail	N/A	No
Up3	Pass (100%)	Fail	Fail (3.05)	No
Up4	Fail (50%)	Fail	N/A	No
Up5	Fail (50%)	Fail	N/A	No
Up6	Fail (40%)	Fail	N/A	No
Up7	Fail (17%)	Fail	N/A	No
Up8	Fail (50%)	Fail	N/A	No
Up9	Pass (100%)	Fail	Fail (3.2)	No

Soils in upland areas consisted mostly of loams with an upper horizon of 10YR 3/3 from 0 to 10 inches with no redoximorphic features, and a lower horizon from 10 to 18 inches of 10YR 3/4 with no redoximorphic features. Upland sample points in closer proximity to wetland areas had soils consisting of darker loams with an upper horizon of 10YR 2/2 from 0-19 inches, and a lower horizon of 10YR 4/3 with 30% redoximorphic features from 19-30 inches. These upland sample points in closer proximity to wetland areas were used in paired transects and often showed darker upper horizons with chromas too high to meet the Thick Dark Surface (A12) hydric soil indicator found in adjacent wetlands.

Hydrology observed in upland areas generally lacked the presence of surface water, high water table, soil saturation within 12 inches of the soil surface and had negative reactions to αα-dip. Two upland sample points used in paired transects in closer proximity to wetland areas showed signs of soil saturation within 12 inches of the soil surface but lacked indicators for wetland vegetation and hydric soils. Field sampling took place after substantial precipitation events resulting in above average rainfall for the area (see WETS tables) and it is likely that soil saturation observed at or immediately above 12 inches from the soil surface is transitory and likely does not persist for long enough to support hydrophytic vegetation or develop hydric soils in the upper substrate. Upland sample points did not show sufficient indicators for wetland hydrology.

Upland sampling points consisting of soil pits and/or vegetation plots were taken at various locations throughout the PSB to confirm the presence of upland areas. A total of nine upland sample points were collected throughout the PSB. GPS coordinates of upland sample point locations are detailed below in **Table 4**:

Table 4. Upland Sampling Point Locations

Sample Point	Coordinates (lat/long)
Up1	40.941768, -124.104623
Up2	40.940900, -124.104919
Up3	40.940810, -124.106718
Up4	40.941996, -124.106074
Up5	40.942060, -124.106203
Up6	40.942045, -124.105508
Up7	40.942027, -124.104744
Up8	40.941817, -124.103764
Up9	40.941171, -124.103572

Please see **Appendix A, Figure 2** for a map of delineated wetlands within the PSB and **Appendix B**, **USACE Wetland Determination Data Forms**, for more details regarding data collected at each sample point location.

4.4 Other Waters

Other waters such as streams, lakes, and watercourses were not observed within the PSB. The roadside ditch likely within the 80-ft County Righty of Way along the south side of Hiller Rd. was determined to be an upland ditch dominated by upland vegetation including California blackberry (*Rubus ursinus*, FACU), salal (*Gaultheria shallon*, FACU), evergreen huckleberry (*Vaccinium ovatum*, FACU), red alder (*Alnus rubra*, FAC), reed fescue (*Festuca arundinacea,* FAC) and bentgrass (*Agrostis stolonifera*, FAC). The ditch does not meet the definition of Waters of the U.S. and/or Waters of the State an is not regulated by the McKinleyville Community Plan. The ditch drains into a 36-inch concrete culvert and flows into a similar roadside ditch north of Hiller Rd (**Appendix C, Photos 7-8**). Three sample points, Up5, Up6, and Up7, were collected along the ditch all showing predominance of upland vegetation (**Appendix B, USACE Wetland Determination Data Forms**).

5. Conclusions

The aquatic resources delineation prepared for Life Plan Humboldt, conducted on Assessor Parcel Numbers (APNs) 510-133-013 and 508-251-060 on Hiller Road, McKinleyville, California and completed on January 31th, 2023, determined the extent of three-parameter wetlands and one-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). Three-parameter wetlands mapped within the PSB totaled 23,940 square feet and are likely USACE and/or RWQCB jurisdictional. One-parameter wetlands mapped within the PSB totaled 895 square feet and are likely regulated under Section 3422 of the McKinleyville Community Plan. A map of all delineated wetlands within the PSB is included in **Appendix A,**

Figure 2. USACE Wetland Determination Data Forms showing sample point data collected in transects across wetland boundaries and additional upland sampling points is attached in **Appendix B**.

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 on in early 2023.

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.

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8. Report Preparers

8.1 Client

Life Plan Humboldt, 2475 North Bank Rd, McKinleyville, CA 95519 USA

8.2 GHD

This report was prepared by the following GHD staff:

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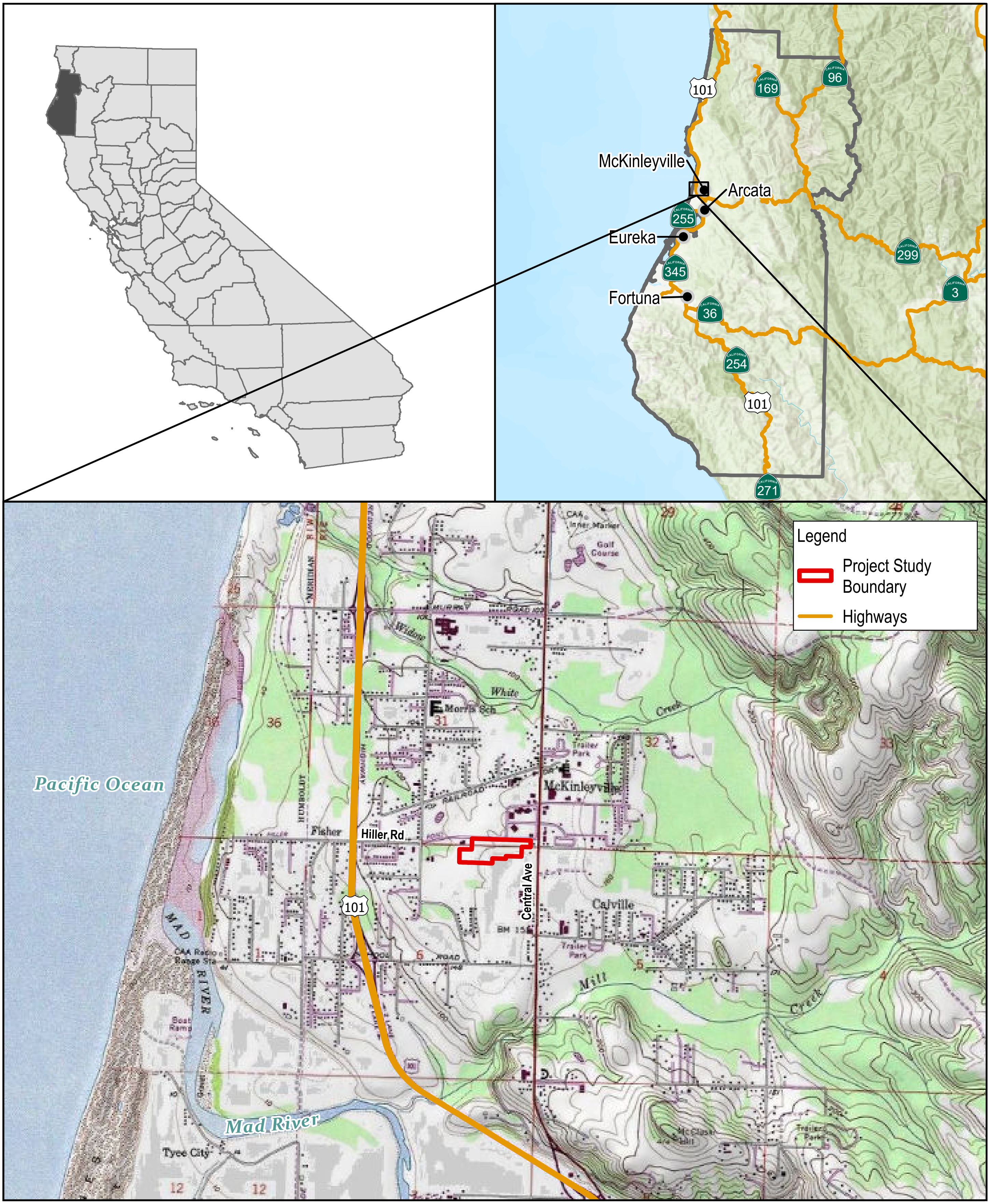
Jane Cipra, Botanist – Contributor

Jesse Lopez, GIS Specialist – Maps and Figures

Misha Schwarz, PWS – Project Manager, Reviewer

Appendix A

Figures



Paper Size ANSI A

0 1,000 2,000 3,000

Feet

Map Projection: Mercator Auxiliary Sphere
Horizontal Datum: WGS 1984
Grid: WGS 1984 Web Mercator Auxiliary Sphere

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GHD

Life Plan Humboldt
Wetland Delineation South Hiller Rd, McKinleyville

Project No. **12603187**
Revision No. **-**
Date **Feb 2023**

Vicinity Map

FIGURE 1

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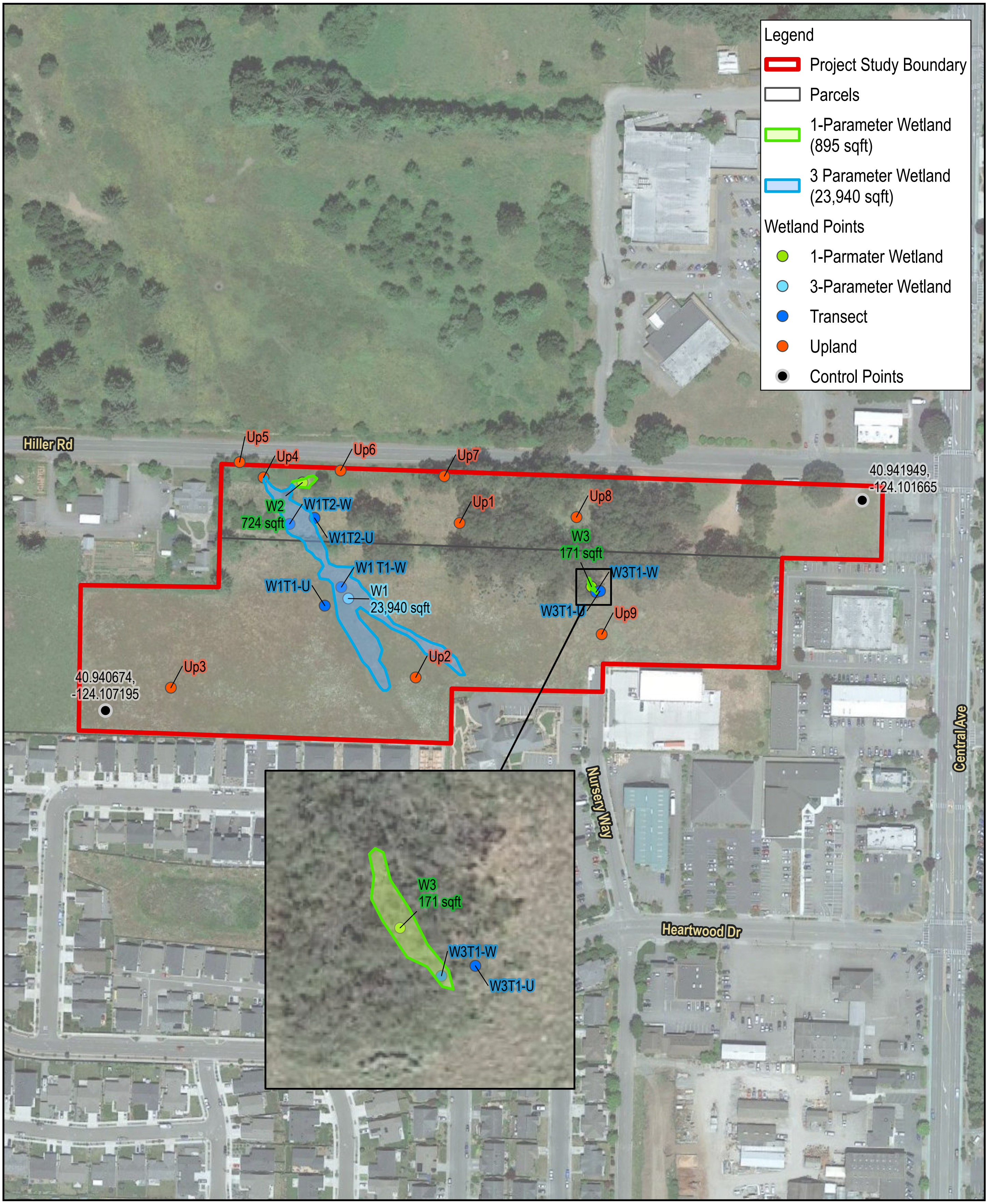
Data source: World Topographic Map - labelless: California State Parks, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA; World Hillshade: Esri, NASA, NGA, USGS, FEMA; USA_Topo_Maps: Copyright: © 2011 National Geographic Society, i-cubed; World Topographic Map - labelless: California State Parks, Esri, HERE, Garmin, FAO, NOAA, USGS, Bureau of Land Management, EPA, NPS; World Hillshade: Esri, USGS. Created by: jlopez4



Paper Size ANSI A

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Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

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GHD

Life Plan Humboldt
Wetland Delineation South Hiller Rd, McKinleyville

Project No. 12603187
Revision No. -
Date Mar 2023

Wetland Delineation

FIGURE 2

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Print date: 07 Mar 2023 - 17:15

Data source: Humboldt County GIS,Tiled service layer: © OpenStreetMap (and) contributors, CC-BY-SA. Created by: jlopez4

Paper Size ANSI A

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Feet

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Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

GHD

Life Plan Humboldt
Wetland Delineation South Hiller Rd, McKinleyville

Project No.	**12603187**
Revision No.	**-**
Date	**Mar 2023**

NRCS Soil Survey

FIGURE 3

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Print date: 07 Mar 2023 - 17:16

Data source: Humboldt County GIS, USFWS National Wetlands Inventory,Tiled service layer: © OpenStreetMap (and) contributors, CC-BY-SA. Created by: jlopez4

Paper Size ANSI A

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Feet

N

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

GHD

Life Plan Humboldt
Wetland Delineation South Hiller Rd, McKinleyville

National Wetland Inventory (NWI)

Project No. **12603187**
Revision No. **-**
Date **Mar 2023**

FIGURE 4

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Print date: 07 Mar 2023 - 17:18

Data source: Humboldt County GIS, USFWS National Wetlands Inventory,Tiled service layer: © OpenStreetMap (and) contributors, CC-BY-SA. Created by: jlopez4

Paper Size ANSI A

0 280 560 840 1,120

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

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GHD

Life Plan Humboldt
Wetland Delineation South Hiller Rd, McKinleyville

FEMA 100-year Flood Zone

Project No. **12603187**
Revision No. **-**
Date **Mar 2023**

FIGURE 5

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Print date: 07 Mar 2023 - 17:17

Data source: Humboldt County GIS, USFWS National Wetlands Inventory,World_Transportation: Esri, HERE, iPC
Tiled service layer: © OpenStreetMap (and) contributors, CC-BY-SA. Created by: jlopez4

Appendix B

USACE Wetland Determination Data Forms

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

Project/Site: South Allard Road City/County: McKinleyville/HUM Sampling Date: 1/18/2023
Applicant/Owner: LPH - Life Plan Humboldt State: CA Sampling Point: W1-T1-W
Investigator(s): Miles Hedtwitt Section, Township, Range: S6 T6N R1E
Landform (hillslope, terrace, etc.): Marine terrace Local relief (concave, convex, none): Swale Slope (%): 0-5
Subregion (LRR): A Lat: 40.941395 Long: -124.[illegible]187 Datum: NAD83
Soil Map Unit Name: Hallbluff-Typic-Urban / Arcata + Candymountain NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

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: r=5')			
1. Ranunculus repens	15	no	FAC
2. Juncus patens	35	yes	FACW
3. Plantago lanceolata	5	no	FACU
4. Rumex crispus	3	no	FAC
5. Lotus corniculatus	3	no	~~FAC~~
6. Agrostis stolonifera	30	yes	FAC
7. Festuca arundinacea	20	no	FACW
8.			
9.			
10.			
11. 50%=55.5 20%=22.2			
	111	= 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 ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: W1T1-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 %	Type[1]	Loc[2]	Texture	Remarks
0-16	10yr 2/1	98	7.5yr 5/6	2	C	M	Sandy loam	
16-35	10yr 4/1	75	10yr 6/8	25%	C	M	sandy clay loam	
END								

1-16
6-35

[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)
- X Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- X Surface Water (A1)
- ___ 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)
- X 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)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): 2

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

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

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: South Hiller Road City/County: Mckinleyville / HUM Sampling Date: 1/18/2023

Applicant/Owner: LPH - Life Plan Humboldt State: CA Sampling Point: WITI-U

Investigator(s): Miles Hitchell Section, Township, Range: S6 T6N R1E

Landform (hillslope, terrace, etc.): marine terrace Local relief (concave, convex, none): convex Slope (%): 0-5

Subregion (LRR): A Lat: 40.941289 Long: -124.105601 Datum: NAD 1983

Soil Map Unit Name: Hallbluff-Tepona-Urban / Arcata + Candymountain NWI classification: ——

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

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

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

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

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

Remarks: The area was sampled at above average rainfall. Hydrology indicators were likely intermittent based on observed soil and vegetation.

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: r=5)			
1. Anthoxanthum odoratum	40	yes	FACU
2. Plantago lanceolata	8	no	FACU
3. Agrostis stolonifera	35	yes	FAC
4. Holcus lanatus	15	no	FAC
5. Ranunculus repens	5	no	FAC
6.			
7.			
8.			
9.			
10.			
11. 50% = 51.5 20% = 20.6			
= Total Cover	103		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum ___

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 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% Fail
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ___ No X

Remarks:

SOIL

Sampling Point: W1-T1-4

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

0-19
19-30

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-14	10yr 2/2	100					loam	
19-30	10yr 4/3	70	7.5 5/8	30%	C	M	sandy loam	
END								

[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)
- 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)
- ___ 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): 13

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 10

Wetland Hydrology Present? Yes ___ No X

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

Remarks: - Hydrology may be intermittent.
- Above average rainfall, sampled area immediate after rain.
- Negative reaction to Alpha Alpha Di throughout profile

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

Project/Site: South Hiller Road City/County: McKinleyville/Humboldt Sampling Date: 1/25/2023

Applicant/Owner: Life Plan Humboldt State: CA Sampling Point: W1-T2-W

Investigator(s): Miles Hartnet, Jane Cipra Section, Township, Range: ~~T06N R01E~~ S31 T7N R1E

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

Subregion (LRR): ~~WMVC~~ LRR-A Lat: 40.941259 Long: -124.05601 Datum: NA1983

Soil Map Unit Name: Halfbluff-Tepona-Urban / Arcata + Candymountain NWI classification: ~~none~~ 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:
Precipitation is 100% of normal. Wetland veg & hydrology are present. αα dipyiridol was positive

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: 5m)			
1. Salix hookeriana	2%		FACW
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 1m)			
1. Festuca arundinacea	5%		FAC
2. Holcus lanatus	70%	yes	FAC
3. Ranunculus repens	10%		FAC
4. Lotus corniculatus	5%		FAC
5. Juncus effusus	10%		FACW
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum ___			

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ___	x 1 = ___
FACW species ___	x 2 = ___
FAC species 100	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

Sampling Point: W1-R-W

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

0-19
19-26

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
~~0-19~~	10yr 2/1	100%					loam	
19-26	10yr 4/2	75	7.5yr 6/8	25%	C	M	sandy loam	
END								

[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)
- X Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):
Type: ______
Depth (inches): ______

Hydric Soil Present? Yes X No ___

Remarks:
αα d.p
positive + ~~alpha alpha d~~

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): 2"
Water Table Present? Yes ___ No ___ Depth (inches): –
Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 0"

Wetland Hydrology Present? Yes X No ___

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

Remarks:

positive alpha alpha at 5"

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

Project/Site: South Hiller Road City/County: McKinleyville/Humboldt Sampling Date: 1/25/2023

Applicant/Owner: Life Plan Humboldt State: CA Sampling Point: W1-T2-1

Investigator(s): Miles Hartnet, Jane Cipra Section, Township, Range: ~~T06N R01E~~ S31 T7N R1E

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

Subregion (LRR): WMVC - LRR - A Lat: 40.941777 Long: -124.105691 Datum: NAD 83

Soil Map Unit Name: Halfbluff-Tepona-Urban / Arcata + Candymountain 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 X No ___

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

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

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

Remarks: Area sampled at above average rainfall
- Hydrology indicators may be intermittent (based on obs. soil and veg)

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 M)			
1. Dactylis glomerata	45%	yes	FACU
2. Rubus ursinus	5%		FACU
3. Stachys chamissonis	5%		FACW
4. Holcus lanatus	45%	yes	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0

Remarks:

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	45	x 3 = 135
FACU species	45	x 4 = 180
UPL species		x 5 =
Column Totals:	90 (A)	315 (B)

Prevalence Index = B/A = 3.5

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 ✓

SOIL

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)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10yr 2/2	100					loam	
12-19	10yr 3/1	98	7.5yr 5/6				loam	
19-25	10yr 3/2	75	7.5yr 5/8	25			sandy loam	
END								

[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)
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)
__ 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): 9

Wetland Hydrology Present? Yes ___ No X

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

Remarks:
• Water table + Saturation observed but are likely intermittent based on soil/veg and above average rainfall.
• Vegetation alpha alpha dip - reaction though last period
• above average rainfall -

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

Project/Site: South Hiller Road City/County: McKinleyville/Humboldt Sampling Date: 1/25/2023

Applicant/Owner: Life Plan Humboldt State: CA Sampling Point: W2-W

Investigator(s): Miles Hartnet, Jane Cipra Section, Township, Range: ~~T06N R01E~~ S31 T7N R1E

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

Subregion (LRR): WMVC LRA-A Lat: 40.941395 Long: -124.105482 Datum: NAD83

Soil Map Unit Name: Halfbluff-Tepona-Urban / Arcata + Candymountain 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 X - 1-Par Only

Remarks:
Carex obnupta patch north of fence. Hydrology + vegetation = wetland 1-parameter under McKinleyville Community Plan. Not a USACE wetland

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: 5 m)			
1. Salix hookeriana	5%	yes	FACW
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 1 m)			
1. Carex obnupta	80%	yes	OBL
2. Gaultheria shallon	15%		FACU
3. Equisetum telmateia	5%		FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ____)			
1. Rubus ursinus	10	yes	FACU
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0

Remarks:

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 66% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 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 ____

1 Par

SOIL

Sampling Point: ~~[illegible]~~ WZ-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 %	Type[1]	Loc[2]	Texture	Remarks
0-10	10yr 2/1	100					loam	
10-13	10yr 3/2	95	7.5yr 5/8	5			loam	
13-20	2.5y 5/4	70	7.5yr 5/8	30			silty loam	
END								

0-20

[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)
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 ___ Depth (inches): ___
Water Table Present? Yes ___ No ___ Depth (inches): 15
Saturation Present? (includes capillary fringe) Yes ___ No ___ Depth (inches): 10

Wetland Hydrology Present? Yes X No ___

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

Remarks:

- negative reaction to α α' d.p.
- above average rainfall

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

Project/Site: South Hills Rd City/County: McKinleyville/HUM Sampling Date: 1/13-T1-Lot5

Applicant/Owner: CPH - Life Plan Humboldt State: CA Sampling Point: 1/31/2023

Investigator(s): Miles Hackett, Misha Schwarz Section, Township, Range: 56 T6N R1E

Landform (hillslope, terrace, etc.): marine terrace Local relief (concave, convex, none): concave Slope (%): 0-2

Subregion (LRR): A Lat: 40.944284 Long: -124.105601 Datum: NAD83

Soil Map Unit Name: Halfbluff-Trinidad-Urban/Arcata urban complex NWI classification: —

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

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

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

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

Hydrophytic Vegetation Present? Yes ___ No X	Is the Sampled Area within a Wetland? Yes ___ No X	1-par Only.
Hydric Soil Present? Yes X No ___		
Wetland Hydrology Present? Yes X No ___		

Remarks:
- 1-par wetland under McKinleyville Community Plan.
- Not a USACE wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Eucalyptus globulus	40	yes	UPL
2.			
3.			
4.			
	40	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=15)			
1. Eucalyptus globulus	60	yes	UPL
2.			
3.			
4.			
5.			
	60	= Total Cover	
Herb Stratum (Plot size: r=5')			
1. Anthoxanthum odoratum	80	yes	FACU
2. Vicia sativa	5	no	UPL
3. Geranium dissectum	5	no	UPL
4. Galium aparine	5	no	FACU
5. Rumex acetosella	3	no	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	98	= Total Cover	
Woody Vine Stratum (Plot size: r=15')			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 5

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 =
FACW species	0	x 2 =
FAC species	0	x 3 =
FACU species	~~88~~	x 4 = ~~352~~ 352
UPL species	110	x 5 = 550
Column Totals:	198 (A)	902 (B)

Prevalence Index = B/A = 4.56

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50% Fail

___ 3 - Prevalence Index is ≤3.0[1] Fail

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

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ___ No X

Remarks:

mostly covered (80%) Eucalyptus detritus

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)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10yr 2/1	100					loam	
10-16	10yr 4/1	95	5yr 5/8	5			sandy loam	
END								

[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)
- _X_ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ______________

Depth (inches): ______________

Hydric Soil Present? Yes _X_ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- _X_ High Water Table (A2)
- _X_ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- _X_ 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)
- _X_ 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)

- _X_ 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)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

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

Water Table Present? Yes _X_ No ___ Depth (inches): 4

Saturation Present? (includes capillary fringe) Yes _X_ No ___ Depth (inches): ~~10~~ 1

Wetland Hydrology Present? Yes _X_ No ___

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

Remarks:

positive αα dip at 12"

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

Project/Site: South Hiller Rd City/County: McKinleyville/Hum Sampling Date: 1/31/2023

Applicant/Owner: LPH – Life Plan Humboldt State: CA Sampling Point: W3-T1-1A

Investigator(s): Miles Hartwick, Mishe Schwarz Section, Township, Range: S6 T6N R0E

Landform (hillslope, terrace, etc.): marine terrace Local relief (concave, convex, none): S/none Slope (%): 5-10

Subregion (LRR): A Lat: 40.941740 Long: -124.10574 Datum: NAD83

Soil Map Unit Name: Highbluff-Toponca-Urban/Arcata Candymountain NWI classification: —

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

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

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

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

Hydrophytic Vegetation Present?	Yes ___	No X
Hydric Soil Present?	Yes ___	No X
Wetland Hydrology Present?	Yes ___	No X

Is the Sampled Area within a Wetland? Yes ___ No X

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Eucalyptus globulus	40	yes	UPL
2.			
3.			
4.			
	40 = Total Cover		
Sapling/Shrub Stratum (Plot size: r=15')			
1. Eucalyptus globulus	35	yes	UPL
2.			
3.			
4.			
5.			
	35 = Total Cover		
Herb Stratum (Plot size: r=5')			
1. Anthoxanthum odoratum	90	yes	FACU
2. Briza maxima	10	no	UPL
3. Vicia sativa	5	no	UPL
4. Rumex acetosella	3	no	FACU
5. Geranium dissectum	3	no	UPL
6. Galium aparine	3	no	FACU
7.			
8.			
9.			
10.			
11.			
	114 = Total Cover		
Woody Vine Stratum (Plot size: r=15')			
1.			
2.			
	___ = Total Cover		

% Bare Ground in Herb Stratum 3

Remarks:

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50% Fail

___ 3 - Prevalence Index is ≤3.0[1]

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

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ___ No X

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 %	Type[1]	Loc[2]	Texture	Remarks
0-8	10yr 3/2.5	100					loam	
8-18	10yr 2/2	100					loam	
END								

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ___ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ___ No ✓

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

Remarks:

negative ~~&~~ α α dip

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

Project/Site: South Hiller Road City/County: McKinleyville/Humboldt Sampling Date: 1/25/2023

Applicant/Owner: Life Plan Humboldt State: CA Sampling Point: UP1

Investigator(s): Miles Hartnet, Jane Cipra Section, Township, Range: ~~T06N R01E~~ S3/T7N R1E

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

Subregion (LRR): WMVC-LRR-A Lat: 40.941715 Long: -124.104603 Datum: NAD83

Soil Map Unit Name: Halfbluff-Tepona-Urban / Arcata + Candymountain 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:
Clearly upland at edge of Eucalyptus grove.

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: 5 m)			
1. Eucalyptus	3%		
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 1 m)			
1. Briza maxima	93%	yes	UPL
2. Hypochaeris radicata	2%		
3. Sonchus asper	1%		
4. Geranium dissectum	1%		
5. Pteridium	3%		
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum ___

Remarks:

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ___ No ✓

SOIL

Sampling Point: UP-1

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

0-23

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/3	100					loam	
12-23	10YR 3/2	100					loam	
END								

[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:

- negative at d.p.

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

Project/Site: South Hiller Road City/County: McKinleyville/Humboldt Sampling Date: 1/25/2023

Applicant/Owner: Life Plan Humboldt State: CA Sampling Point: UP2

Investigator(s): Miles Hartnet, Jane Cipra Section, Township, Range: T06N R01E S6

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

Subregion (LRR): WMVC LRR-A Lat: 40.940860 Long: -124.104919 Datum: NAD83

Soil Map Unit Name: Halfbluff-Tepona-Urban / Arcata + Candymountain 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 X No ____

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
		= Total Cover	
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. Hypochaeris radicata	10%		FACU
2. Daucus carota	2%		FACU
3. Anthoxanthum odoratum	50%	yes	FACU
4. Agrostis stolonifera	30%	yes	FAC
5.			
6.			
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	30	x 3 = 90
FACU species	62	x 4 = 248
UPL species		x 5 =
Column Totals:	92 (A)	338 (B)

Prevalence Index = B/A = 3.67

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

Sampling Point: UP2

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

0-23

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/3	100					loam	
12-16	10YR 4/3	90	5YR 5/8	10	C	M	loam	
16-23	2.5Y 6/4	70	5YR 6/8	30	C	M	clay loam	
END								

[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:

negative @ [illegible]

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

Project/Site: South Hiller Road City/County: McKinleyville/Humboldt Sampling Date: 1/25/2023
Applicant/Owner: Life Plan Humboldt State: CA Sampling Point: UP3
Investigator(s): Miles Hartnet, Jane Cipra Section, Township, Range: T06N R01E S6
Landform (hillslope, terrace, etc.): marine terrace Local relief (concave, convex, none): slope Slope (%): 5%
Subregion (LRR): WMVC-LRR-A Lat: 41.940810 Long: -124.106718 Datum: NAD83
Soil Map Unit Name: Halfbluff-Tepona-Urban / Arcata + Candymountain 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:
*see veg remark below

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 m)			
1. Daucus carota	5%		FACU
2. Agrostis stolonifera	70%	yes	FAC
3. Hypochaeris radicata	5%	"	FACU
4. Festuca arundinacea	5%		FAC
5. Dactylis glomerata	8%		FAC(U)
6. Anthoxanthum odoratum	2%		FACU
7.			
8.			
9.			
10.			
11.			
= Total Cover	95		
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	75	x 3 = 225
FACU species	20	x 4 = 80
UPL species		x 5 =
Column Totals:	100 (A)	305 (B)

Prevalence Index = B/A = 3.05

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50% PASS
- ____ 3 - Prevalence Index is ≤3.0[1] FAIL
- ____ 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:
- Sample point contains dom. FAC invasive spp. and other FACU spp.
- No hydrology or soil / fail prevalence index – Determined not to be hydrophyte

SOIL

Sampling Point: 11P3

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-14	10yr3/3	100						
14-18	10yr3/3	92	7.5yr5/6	8				faint
18-24	10yr3/4	70	7.5yr6/8	30				
End								

0-24

[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:

negative α α dip.

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

Project/Site: South Hiller Road City/County: McKinleyville/Humboldt Sampling Date: 1/25/2023

Applicant/Owner: Life Plan Humboldt State: CA Sampling Point: UP4

Investigator(s): Miles Hartnet, Jane Cipra Section, Township, Range: T06N R01E S31 T7N R1E

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

Subregion (LRR): WMVC - LRRA Lat: 40.941996 Long: -124.146718 Datum: NAD83

Soil Map Unit Name: Halfbluff-Tepona-Urban / Arcata + Candymountain 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 X No ____

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

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

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

Remarks: • Veg only
Vegetation sampled for 1-par wetland. Did not qualify. Nearby soil pit did not find hydric soil so soil was not tested here.

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: 5 m)			
1. Salix hookeriana	30	yes	FACW
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 1 m)			
1. Festuca arundinacea	2%		FAC
2. Ranunculus repens	1%		FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	3 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1. Rubus ursinus	40%	yes	FACU
2.			
	40 = Total Cover		

% Bare Ground in Herb Stratum 97

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	30	x 2 = 60
FAC species	3	x 3 = 9
FACU species	40	x 4 = 160
UPL species	____	x 5 = ____
Column Totals:	73 (A)	229 (B)

Prevalence Index = B/A = 3.13

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:
Bare ground is covered in leaf + grass litter. Very little herbaceous veg.

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

Project/Site: South Hiller Road City/County: McKinleyville/Humboldt Sampling Date: 1/25/2023

Applicant/Owner: Life Plan Humboldt State: CA Sampling Point: UP5

Investigator(s): Miles Hartnet, Jane Cipra Section, Township, Range: ~~T06N R01E~~ S31 T7N, R1E

Landform (hillslope, terrace, etc.): marine terrace Local relief (concave, convex, none): ditch Slope (%): 0-5%

Subregion (LRR): WMVC-LRR-A Lat: 40.942060 Long: -124.106203 Datum: NAD83

Soil Map Unit Name: Halfbluff-Tepona-Urban / Arcata + Candymountain 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 X No ____

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

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

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

Remarks: Veg sample only. Ditch at culvert. Does not appear hydrologically connected to the wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus rubra	10%	yes	FAC
2. Abies grandis	2%		FACU
3.			
4.			
	12 = Total Cover		
Sapling/Shrub Stratum (Plot size: 5 m)			
1. Cytisus scoparius	1%		UPL
2. Polystichum munitum	1%		FACU
3.			
4.			
5.			
	2 = Total Cover		
Herb Stratum (Plot size: 1 m)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: 5 m)			
1. Rubus ursinus	40	yes	FACU
2. Rubus armeniacus	20%		FAC
	6 = Total Cover		
% Bare Ground in Herb Stratum 100			

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:
No herbaceous veg in ditch

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

Project/Site: South Hiller Road City/County: McKinleyville/Humboldt Sampling Date: 1/25/2023

Applicant/Owner: Life Plan Humboldt State: CA Sampling Point: UP6

Investigator(s): Miles Hartnet, Jane Cipra Section, Township, Range: ~~T06N R01E~~ S31, T7N, R1E

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

Subregion (LRR): WMVC - LRR A Lat: 40.942015 Long: -124.105588 Datum: NAD83

Soil Map Unit Name: Halfbluff-Tepona-Urban / Arcata + Candymountain 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:
upland veg. in shallow ditch.
- Veg. sheet only.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 10 m)			
1. Alnus rubra	3		FAC
2.			
3.			
4.			
		= Total Cover	
Sapling/Shrub Stratum (Plot size: 5m)			
1. Vaccinium ovatum	10%	yes	FACU
2. Gaultheria shallon	20%	yes	FACU
3.			
4.			
5.			
	30	= Total Cover	
Herb Stratum (Plot size: 1m)			
1. Festuca arundinacea	20%	yes	FAC
2. Daucus carota	1%		FACU
3. Agrostis stolonifera	30	yes	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	51	= Total Cover	
Woody Vine Stratum (Plot size: 5m)			
1. Rubus ursinus	5%	yes	FACU
2. Rubus armeniacus	1%		FAC
	6	= 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: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 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:

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

Project/Site: South Hiller Road City/County: McKinleyville/Humboldt Sampling Date: 1/25/2023

Applicant/Owner: Life Plan Humboldt State: CA Sampling Point: UP7

Investigator(s): Miles Hartnet, Jane Cipra Section, Township, Range: ~~T06N R01E~~ S31 T07N, R01E

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

Subregion (LRR): WMVC-LRR-A Lat: 40.942027 Long: -124.104744 Datum: NAD83

Soil Map Unit Name: Halfbluff-Tepona-Urban / Arcata + Candymountain 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 X No ____

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

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

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

Remarks:
Eastern end of shallow roadside ditch, Confirmed not 1-par. *Veg samp only

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pseudotsuga menziesii	15	yes	FACU
2. Alnus rubra	5	"	FAC
3. Eucalyptus globulus	20	yes	UPL
4.			
	40 = Total Cover		
Sapling/Shrub Stratum (Plot size: 5 m)			
1. Salix hookeriana	5%		FACW
2. Gaultheria shallon	50%	yes	FACU
3. Vaccinium ovatum	2%	"	FACU
4. Ilex aquifolium	2%		FACU
5. Polystichum munitum	2%		FACU
	61 = Total Cover		
Herb Stratum (Plot size: 1 m)			
1. Dactylis glomerata	20	yes	FACU
2. Daucus carota	1%	"	FACU
3. Festuca arundinacea	30	yes	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	____ = Total Cover		
Woody Vine Stratum (Plot size: 5 m)			
1. Rubus ursinus	10%	yes	FACU
2.			
	10 = Total Cover		

% Bare Ground in Herb Stratum ____

Remarks:

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.17 (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 ✓

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

Project/Site: South Hiller Road City/County: McKinleyville/Humboldt Sampling Date: 1/25/2023

Applicant/Owner: Life Plan Humboldt State: CA Sampling Point: UP8

Investigator(s): Miles Hartnet, Jane Cipra Section, Township, Range: ~~T06N R01E~~ S31 T7N, R1E

Landform (hillslope, terrace, etc.): marine terrace Local relief (concave, convex, none): slope Slope (%): 0-5

Subregion (LRR): WMVC / LRR A Lat: 40.941817 Long: -124.105764 Datum: NAD83

Soil Map Unit Name: Halfbluff-Tepona-Urban / Arcata + Candymountain 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 X No ____

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

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

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

Remarks:
within Eucalyptus grove. Soil pit included

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Eucalyptus globulus	10	yes	UPL
2.			
3.			
4.			
		= Total Cover	
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. Holcus lanatus	5		FAC
2. Festuca arundinacea	30	yes	FAC
3. Lupinus arboreus	5		
4. Stachys chamissonis	3		
5. Geranium molle	1		
6. Sonchus asper	1		
7.			
8.			
9.			
10.			
11.			
	43	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
		= Total Cover	
% Bare Ground in Herb Stratum 57			

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:
Litter and dirt visible in bare ground

SOIL

Sampling Point: UP 8

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16	10yr3/3	100						
10-17	10yr3/2	100						
END								

3-17

[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:

Negative ac ac dip -

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

Project/Site: South Hiller Road City/County: McKinleyville/Humboldt Sampling Date: 1/25/2023

Applicant/Owner: Life Plan Humboldt State: CA Sampling Point: UP9

Investigator(s): Miles Hartnet, Jane Cipra Section, Township, Range: T06N R01E S6

Landform (hillslope, terrace, etc.): marine terrace Local relief (concave, convex, none): [illegible] Slope (%): 0-5%

Subregion (LRR): WMVC Lat: 40.941171 Long: -124.183577 Datum: NAD83

Soil Map Unit Name: Halfbluff-Tepona-Urban / Arcata + Candymountain 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 X No ____

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

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

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

Remarks:
Open field at east end of property. Did not pass prevalence index.
• see veg remarks below.

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. Festuca arundinacea	60	yes	FAC
2. Rumex acetocella	10		FACU
3. Lapsana communis	2		FACU
4. Plantago lanceolata	1		FACU
5. Taraxacum officinale	1		FACU
6. Hypochaeris radicata	2		
7.			
8.			
9.			
10.			
11.			
= Total Cover	76		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 24

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	60	x 3 = 180
FACU species	16	x 4 = 64
UPL species		x 5 =
Column Totals:	76 (A)	244 (B)

Prevalence Index = B/A = 3.2

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50% PASS
- ___ 3 - Prevalence Index is ≤3.0[1] FAIL
- ___ 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:
Bare ground + litter visible
• The sample point contains dominant FAC invasive sp and other FACU spp. No indicators for hydrology or soils, fails prevalence index — Determined not to be hydrophytic.

SOIL

Sampling Point: U9

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10yr3/2	100					loam	
6-18	10yr2/2	100					loam	
18-24	10yr3/1	80	7.5yr6/8	20	C	M	sandy loam	
END								

0-24

[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:

negative at dp.

sampled at above average rainfall.

Appendix C

Site Photographs

Photo 1: Description: Representative photo of Wetland 1, a three-parameter wetland comprising 23,940 sqft. Photo taken at sample point W1T2-w. Location: 40.941740,-124.105874 Date: January 25, 2023	
Photo 2: Description: Representative photo of Wetland 2, a one-parameter wetland comprising 724 sqft. Photo taken at sample point W2-w. Location: 40.941973,-124.105786 Date: January 25, 2023	

Photo 3: Description: Representative photo of Wetland 3, a one-parameter wetland comprising 171 sqft. Photo taken at sample point W3T1-w. Location: 40.941401,-124.103607 Date: January 31, 2023	
Photo 4: Description: Representative photo of upland areas comprising of pastureland. Photo taken at sample point Up2. Location: 40.940900,-124.104919 Date: January 25, 2023	

Photo 5:

Description:

Representative photo of upland areas comprising mowed pastureland on the eastern section of the PSB.

Photo taken at sample point Up9.

Location:

40.941171,-124.103606

Date:

January 25, 2023

Photo 6:

Description:

Representative photo of upland areas within the eucalyptus grove.

Photo taken at sample point Up8.

Location:

40.941817,-124.103764

Date:

January 25, 2023

Photo 7: Description: Representative photo of the upland ditch along the south side of Hiller Rd. Photo taken at sample point Up7. Location: 40.942027,-124.104744 Date: January 31, 2023	
Photo 8: Description: Inlet of the 36-inch concrete culvert under Hiller Rd. The black PVC pipe drains water from the adjacent property directly west of the PSB. Photo taken at sample point Up5. Location: 40.942060,-124.106203 Date: January 31, 2023	

Appendix D

NRCS Custom Soil Resources Report

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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

Custom Soil Resource Report for Humboldt County, Central Part, California

12603187 LPH Wetland Delineation

February 2, 2023

Preface

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

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

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

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

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

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

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How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

Soil Map

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

Soil Map

Map Scale: 1:2,720 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0, 40, 80, 160, 240

Feet: 0, 100, 200, 400, 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Humboldt County, Central Part, California
Survey Area Data: Version 9, Sep 1, 2022

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

Date(s) aerial images were photographed: Jun 1, 2022—Jun 19, 2022

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
145	Halfbluff-Tepona-Urban Land, 0 to 2 percent slopes	14.0	94.0%
225	Arcata and Candymountain soils, 0 to 2 percent slopes	0.9	6.0%
Totals for Area of Interest		**14.9**	**100.0%**

Map Unit Descriptions

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

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

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

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

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

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

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

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

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

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

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

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

Humboldt County, Central Part, California

145—Halfbluff-Tepona-Urban Land, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 23d0g
Elevation: 10 to 120 feet
Mean annual precipitation: 35 to 90 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 275 to 325 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Halfbluff and similar soils: 35 percent
Tepona and similar soils: 30 percent
Urban land, residential: 25 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Halfbluff

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 11 inches: fine sandy loam
BA - 11 to 18 inches: fine sandy loam
Bw - 18 to 35 inches: sandy loam
CB - 35 to 43 inches: sandy loam
2C1 - 43 to 55 inches: loamy sand
2C2 - 55 to 60 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately 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: About 30 to 39 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 7.9 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: C
Ecological site: F004BX118CA - Sitka spruce-redwood/salal/western brackenfern, marine terraces, marine deposits, fine sandy loam

Hydric soil rating: No

Description of Tepona

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

Oi - 0 to 2 inches: slightly decomposed plant material
A1 - 2 to 12 inches: loam
A2 - 12 to 25 inches: very fine sandy loam
Bw1 - 25 to 35 inches: sandy loam
Bw2 - 35 to 41 inches: sandy loam
C1 - 41 to 49 inches: sandy loam
C2 - 49 to 60 inches: sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately 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: About 30 to 39 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 9.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: C
Ecological site: F004BX118CA - Sitka spruce-redwood/salal/western brackenfern, marine terraces, marine deposits, fine sandy loam
Hydric soil rating: No

Description of Urban Land, Residential

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Convex

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: No

Minor Components

Talawa

Percent of map unit: 5 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

Tillas

Percent of map unit: 3 percent
Landform: Alluvial fans
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Hookton

Percent of map unit: 2 percent
Landform: Erosion remnants
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
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

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: 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

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

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Appendix E

NRCS National Water and Climate Center WETS Table

WETS Table

WETS Station: ARCATA EUREKA AP, CA								
Requested years: 2003 - 2023								
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	55.9	40.0	47.9	6.80	4.36	8.18	11	-
Feb	55.2	39.1	47.2	5.80	2.98	7.08	10	-
Mar	55.8	40.7	48.2	6.59	4.55	7.85	12	-
Apr	56.8	42.1	49.4	4.23	2.57	5.12	9	-
May	58.9	45.7	52.3	1.89	0.83	2.31	5	-
Jun	62.3	48.5	55.4	1.07	0.35	1.22	2	-
Jul	63.0	51.2	57.1	0.20	0.06	0.21	0	-
Aug	63.9	51.4	57.6	0.20	0.05	0.21	0	-
Sep	64.7	48.3	56.5	-	-	-	-	-
Oct	62.7	45.3	54.0	3.14	1.12	3.79	5	-
Nov	58.1	41.6	49.9	5.32	3.81	6.29	10	-
Dec	54.9	39.2	47.0	8.56	5.53	10.30	13	-
Annual:					-	-		
Average	59.4	44.4	51.9	-	-	-	-	-
Total	-	-	-	-			-	-

GROWING SEASON DATES

Years with missing data:	24 deg = 1	28 deg = 2	32 deg = 1
Years with no occurrence:	24 deg = 19	28 deg = 5	32 deg = 0
Data years used:	24 deg = 20	28 deg = 19	32 deg = 20
Probability	24 F or higher	28 F or higher	32 F or higher
50 percent *	No occurrence	Insufficient data	3/26 to 11/24: 243 days
70 percent *	No occurrence	Insufficient data	3/17 to 12/3: 261 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													
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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	M0.00											6.39
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: 2023-02-03													

Wetland Habitat Mitigation & Monitoring Plan

Life Plan Humboldt

Life Plan Humboldt

3 April 2023

→ The Power of Commitment

Prepared for:

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Project name	Life Plan Humboldt						
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[Status code]							
[Status code]							

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The Power of Commitment

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Appendix B: NRCS National Water and Climate Center WETS Table

Appendix C: Life Plan Humboldt Aquatic Resources Delineation 2023

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Figure 1 Vicinity and Project Location Map

Figure 2 Wetland Delineation

Figure 3 Wetland Mitigation Areas

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 Site Location and Project Description

The Project includes the development of an aging in place life plan community consisting of multiple residential units and other amenities. The Project site located within Section 6, Township 06 North, Range 01 East, and Section 31, Township 07 North, Range 01 East, Arcata North USGS 7.5 Minute Quadrangle, Humboldt Base and Meridian, in Humboldt County, California. The site is comprised of one parcel approximately 14.7 acres and includes Assessor Parcel Numbers (APNs) 510-133-013 and 508-251-060 on Hiller Road, McKinleyville, California (**Appendix A, Figure 1**).

The Project site consists of the two APNs and contains an open pasture and eucalyptus grove bordered by the McKinleyville shopping center and undeveloped property to the north, commercial development to the east, residential development to the south, and a church and active pastureland to the west. The property is a generally flat to gently sloped with a wetland swale that dissects the site in a southeast to north westerly direction.

1.2 Purpose

This Wetland Habitat Mitigation and Monitoring Plan (WHMMP) has been prepared on behalf of Life Plan Humboldt aging in place life plan community project (hereafter "Project") for the U.S. Army Corps of Engineers (USACE) and North Coast Regional Water Quality Control Board (NCRWQCB, or "Regional Board") to satisfy water quality permit requirements. It is anticipated that the Project will impact regulated jurisdictional wetlands. The Project will thus require permits from the United States Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (CWA), and a corresponding Water Quality Certification from the North Coast Regional Water Quality Control Board (NCRWQCB) under Section 401 of the CWA. 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.

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 USACE jurisdictional three-parameter wetlands resulting from Project implementation in compliance with the Project's Initial Study/Mitigated Negative Declaration (IS/MND) prepared under the California Environmental Quality Act (CEQA).

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*) and the McKinleyville Community Plan. This WHMMP provides information on impacts to and creation of both three-parameter and one-parameter wetlands as required by the above mentioned respective agencies. This WHMMP provides mitigation and monitoring details for wetlands and riparian habitat as discussed in the accordance with anticipated Project permit requirements, including the following elements:

1. Baseline information on location and extent of existing wetlands.
2. Identification of wetland creation sites.
3. Proposed mitigation and implementation thereof.
4. Ecological performance standards for wetland creation sites.
5. Monitoring protocols and reporting responsibilities.

6. Corrective actions if performance standards are not met.
7. Responsible parties for actions identified in this WHMMP.

2. Baseline Information

2.1 Studies within the Project Area

An Aquatic Resources Delineation (GHD 2023) was prepared to assess baseline environmental conditions within the Project Area and is included as **Appendix C.** This study evaluated the extent of existing aquatic resources within the Project Area and will be used to inform the mitigation design for wetland creation. The existing vegetative, soil, and hydrological conditions have helped guide what vegetation assemblages the Project will aim to re-establish post-construction that are suitable for the soil types and hydrologic conditions observed in the Project area.

GHD performed the Aquatic Resources Delineation (GHD 2023) within the Project Area in January 2023 during the winter wet season when accumulated precipitation was at or above average. A WETS table showing climate data for the Arcata Eureka Airport, CA, Station was referenced to confirm precipitation was within the limits of normal (NRCS 2023a). Aerial photography, NRCS Soil Survey for Humboldt County, Central Part, California (NRCS 2023b), the National Wetland Inventory (NWI 2023), and the FEMA National Flood Hazard Layer (FEMA 2023) were referenced prior to conducting fieldwork (GHD 2023). Wetland indicators for vegetation, soils, and hydrology were recorded in the field and are described below in **Section 3.2**.

The following sections 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 (i.e. wetland habitat, upland habitat surrounding wetlands) will be summarized, as they have informed the mitigation design for wetland creation.

2.2 Jurisdictional Areas

Existing Jurisdictional Wetlands Within the Project Area

A wetland delineation was completed in 2023 (**Appendix C**) 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 *USACE Wetland Delineation Manual* (USACE 1987) and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region* (USACE 2010). Three-parameter wetlands are defined as areas that meet all three criteria for wetlands as described by the 1987 Manual and may be jurisdictional to USACE and NCRWQCB. One-parameter wetlands are defined under the McKinleyville Community Plan Section 3422 as areas 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 consecutive days.

One three-parameter wetland area (Wetland 1) was mapped within the Project Area totalling 0.55 acres and is likely to be USACE and NCRWQCB jurisdictional, subject to agency determination. Two one-parameter wetland areas (Wetland 2 and Wetland 3) totalling 0.02 acres were mapped within the Project Area subject to regulation under the McKinleyville Community Plan (**Table 2.2-1, Delineated Wetlands Within the Project area**), and are not subject to USACE or NCRWQCB jurisdiction. .

Table 2.2-1 Delineated Wetlands Within the Project Area

Wetland ID	Wetland Type	Jurisdictional Entity	Total Delineated (square feet / acres)
Wetland 1	PEM1B Three-Parameter Wetland	USACE/NCRWQCB/ McKinleyville Community Plan	23,940 / 0.55
Wetland 2	One-Parameter Wetland	McKinleyville Community Plan	724 / 0.017
Wetland 3	One-Parameter Wetland	McKinleyville Community Plan	171 / 0.004

Approximately 14.13 acres of the Project Area were determined to be upland areas and did not meet any of the three parameters to be considered wetland. Some upland sample plots were dominated by invasive facultative pasture crops but lacked indicators for wetland hydrology and soils (GHD 2023). The sample points at locations where vegetation did not pass the prevalence index or FAC-neutral test and were not accompanied by indicators of wetland hydrology or hydric soils were not determined to consist of hydrophytic vegetation for the purposes of determining one-parameter wetlands under the McKinleyville Community Plan.

2.3 Existing Habitat Value and Function

The Project Area is within the Mill Creek-Mad River watershed (HUC12: 180101020408) and is primarily comprised of upland pasture dominated by non-native grasses dissected by a wetland swale running northwest through the property. A non-native eucalyptus grove comprises the northeast section of the Project Area and is expanding into the adjacent pastureland. Wetlands within the Project Area have likely been degraded over time by cattle grazing, surrounding development, and the introduction of non-native invasive species.

Three-Parameter Wetlands

For the purposes of this WHMMP, three-parameter wetlands are defined as areas that meet all three parameters (i.e. hydrophytic vegetation, hydric soils, and wetland hydrology) for wetland determination as defined in the USACE Wetland Delineation Manual (USACE 1987). One contiguous three-parameter wetland (Wetland 1) was mapped within the Project Area totalling 0.55 acres and likely jurisdictional to USACE and NCRWQCB **(Appendix A, Figure 2).**

Wetland 1 consists of an open wetland swale, mostly free of rooted woody vegetation and is classified according to the Cowardin system as a palustrine emergent persistent wetland with a seasonally saturated water regime (PEM1B) (FGDC 2013). The vegetation was primarily characterized by creeping bentgrass (*Agrostis stolonifera*, FAC, invasive non-native), common velvetgrass (*Holcus lanatus*, FAC, invasive non-native), and common rush (*Juncus effusus*, FACW, native). Sample points within Wetland 1 passed the dominance test for hydrophytic vegetation.

Soil in Wetland 1 consisted mostly of loams with a thick dark 10YR 2/1 upper horizon (0 to 16 inches) underlain by a depleted 10YR 4/1 lower horizon (4 or 6 to14 inches) with 25% 10YR 6/8 distinct redoximorphic concentrations within the matrix. Soils within Wetland 1 satisfied the criteria for hydric soil indicator Thick Dark Surface (A12).

Observations of hydrology within Wetland 1 consisted primarily of the presence of surface water, saturation within 12 inches of the soil surface, and the presence of reduced iron within 12 inches of the soil surface verified by a positive reaction to alpha, alpha-dipyridyl (αα-dip). Sample points within Wetland 1 met primary wetland hydrology indicators Surface Water (A1), Saturation (A3), and Presence of Reduced Iron (C4), as well as secondary indicators Geomorphic Position (D2) and passing the FAC-Neutral Test (D5).

One-Parameter Wetlands

For the purposes of this WHMMP, one-parameter wetlands are defined as areas that meet one or two parameters (i.e. hydrophytic vegetation, hydric soils, and wetland hydrology) for wetland determination as defined in the USACE Wetland Delineation Manual (USACE 1987). Two separate one-parameter wetlands (Wetland 2 and Wetland 3) were mapped within the Project Area totaling 0.02 acres and are likely regulated under the McKinleyville Community Plan (**Appendix A, Figure 2).**

Wetland 2 met two wetland parameters, is comprised of 724 sqft, and is located at the at the northeast end of Wetland 1. Dominant vegetation within Wetland 2 consisted primarily of slough sedge (*Carex obnupta*, OBL, native), California blackberry (*Rubus ursinus*, FACU, native), and coastal willow (*Salix hookeriana,* FACW, native). Sample points within Wetland 2 passed the dominance test for hydrophytic vegetation.

Soils within Wetland 2 consisted of loams with a 10YR 2/1 upper horizon from 0-10 inches underlain by a 10YR 3/2 horizon from 10-13 inches with 5% 10YR 5/8 distinct redoximorphic features and a 2.5Y 5/4 depleted horizon from 13-20 inches with 30% 7.5 YR 5/8 distinct redoximorphic features. The 10YR 3/2 horizon from 10-13 inches had chroma too high to meet the Thick Dark Surface (A12) hydric soil indicator observed in adjacent wetlands within the PSB. Sample points within Wetland 2 did not meet any hydric soil indicators.

Observations of hydrology within Wetland 2 included of the presence of a water table at 15 inches from the soil surface, and saturated soil at 10 inches from the soil surface. inches of the soil surface. Application of αα-dip tested negative throughout the soil profile. Sample points within Wetland 2 met primary wetland hydrology indicator Saturation (A3), as well as secondary indicator Geomorphic Position (D2).

Wetland 3 met two wetland parameters, is comprised of 171 sqft, and is located in a depression at the lower end of a shallow upland swale along the southern edge of the eucalyptus grove. There was evidence of mixed soil horizons in Wetland 3 indicating some level of mechanical disturbance or excavation likely causing the depression.

Dominant vegetation within Wetland 3 consisted primarily of blue gum eucalyptus (*Eucalyptus globulus*, UPL, invasive non-native), and sweet vernal grass (*Anthoxanthum odoratum,* FACU, invasive non-native). Sample points within Wetland 3 did not pass the dominance test or prevalence index for hydrophytic vegetation and lacked any other indicators for hydrophytic vegetation.

Soils within Wetland 3 consisted of loams with a 10YR 2/1 upper horizon from 0-10 inches directly underlain by a 10YR 4/1 depleted horizon form 10-16 inches with 5% 5 YR 5/8 distinct redoximorphic features. Sample points within Wetland 3 met hydric soil indicator Thick Dark Surface (A12).

Observations of hydrology within Wetland 3 included of the presence of a water table at 4 inches from the soil surface, and saturated soil at 1 inch from the soil surface. Application of αα-dip tested positive at 12 inches from the soil surface. The sample point within Wetland 3 met primary wetland hydrology indicators High Water Table (A2), Saturation (A3), Algal Mat or Crust (B4), Presence of Reduced Iron (C4), as well as secondary indicators Water-Stained Leaves (B9) and Geomorphic Position (D2).

Other Waters

Other waters such as streams, lakes, and watercourses were not observed within the Project Area (GHD 2023). A roadside ditch along the south side of Hiller Rd. was determined to be an upland ditch dominated by upland vegetation including California blackberry (*Rubus ursinus*, FACU, native), salal (*Gaultheria shallon*, FACU, native), evergreen huckleberry (*Vaccinium ovatum*, FACU, native), red alder (*Alnus rubra*, FAC, native), reed fescue (*Festuca arundinacea,* FAC, invasive non-native) and bentgrass (*Agrostis stolonifera*, FAC, invasive non-native). The ditch does not meet the definition of Waters of the U.S. and/or Waters of the State and is not regulated by the McKinleyville Community Plan. The ditch drains into a 36-inch concrete culvert and flows into a roadside ditch north of Hiller Rd.

Upland Habitat

Uplands within the Project Area consists primarily of a eucalyptus grove and non-native pastureland. Dominant vegetation in upland areas were comprised of blue gum eucalyptus (*Eucalyptus globulus*, UPL, invasive non-native), California blackberry (*Rubus ursinus*, FACU, native), rattlesnake grass (*Briza maxima*, UPL, invasive non-native), sweet vernal grass (*Anthoxanthum odoratum*, FACU, invasive non-native), orchard grass (*Dactylis glomerata*, FACU, invasive non-native), evergreen huckleberry (*Vaccinium ovatum*, FACU, native), salal (*Gaultheria shallon*, FACU, native), bent grass (*Agrostis stolonifera*, FAC, invasive non-native), common velvetgrass (*Holcus lanatus*, FAC, invasive non-native), reed fescue (*Festuca arundinacea*, FAC, invasive non-native), red alder (*Alnus rubra*, FAC, native), and coastal willow *(Salix hookeriana*, FACW, native).

Soils in upland areas consisted mostly of loams with an upper horizon of 10YR 3/3 from 0 to 10 inches with no redoximorphic features, and a lower horizon from 10 to 18 inches of 10YR 3/4 with no redoximorphic features. Upland sample points in closer proximity to wetland areas had soils consisting of darker loams with an upper horizon of 10YR 2/2 from 0-19 inches, and a lower horizon of 10YR 4/3 with 30% redoximorphic features from 19-30 inches.

Hydrology observed in upland areas generally lacked the presence of surface water, high water table, soil saturation within 12 inches of the soil surface and had negative reactions to αα-dip.

2.4 Project Impacts to Jurisdictional Wetlands

Impacts to Jurisdictional Wetlands within the Project Area

Based on the current design, the Project would permanently impact 17,870 sqft of delineated three-parameter wetlands and 895 sqft of one-parameter wetland areas. (**Table 2.4**-1 – **Impacts to Jurisdictional Wetlands, Appendix A, Figure 3a-3b**). Permanent fill of wetland areas would occur during construction of Project-related facilities within the Project Area (**Appendix A, Figure 3a-3b**). The filling of wetlands would be mitigated (including wetland setbacks of 50 feet) at approximately 1.5:1 ratio, which would be achieved by providing new wetlands (creation) onsite within the Project Area. The 1.5:1 mitigation ratio would create a significant ecological uplift with regard to the extent and quality of existing wetlands that will be filled, which are mostly non-native pasture grass and herb species.

Table 2.4-1 Impacts to Jurisdictional Wetlands

Wetland ID and Type	Type of Impact (Permanent / Temporary)	Jurisdictional Entity	Current Estimated Impacts (square feet / acres)	Mitigation Area at 1.5:1 (square feet / acres)
Wetland 1: PEM1B Three-Parameter Wetland	Permanent (fill)	USACE/NCRWQCB/ McKinleyville Community Plan	17,870 / 0.41	26,805 / 0.62
Wetland 2: One-Parameter Wetland	Permanent (fill)	McKinleyville Community Plan	724 / 0.017	1,086 / 0.025
Wetland 3: One-Parameter Wetland	Permanent (fill)	McKinleyville Community Plan	171 / 0.004	257 / 0.006
				Total Mitigation Area Required: 28,148 / 0.65

Wetland Type Conversions to Jurisdictional Wetlands within the Project Area

Additionally, the Project seeks to convert 6,070sqft of delineated three-parameter palustrine emergent persistent wetlands with a seasonally saturated water regime (PEM1B) (**Table 2.4-2 – Approximate Impacts to Jurisdictional Wetlands, Appendix A, Figure 3a-3b**). The conversion area is entirely within the proposed mitigation site and would be subject to the same success criteria as created wetlands. The conversion area seeks to enhance the value and function of existing wetlands by excavating the bottom pool of the wetland to approximately 1.0 ft below the wet season water table converting the water regime from seasonally saturated to seasonally flooded creating higher quantities of aquatic habitat for a longer duration of time throughout the season.

Table 2.4-2 Wetland Type Conversions of Jurisdictional Wetlands

Wetland ID and Type	***Type of Conversion***	***Jurisdictional Entity***	***Conversion Area (square feet / acres)***
Wetland 1: PEM1B Three-Parameter Wetland	PEM1B three-parameter wetland to PEM1C three-parameter wetland	USACE/NCRWQCB	6,070 / 0.139

3. Mitigation Plan

3.1 Mitigation Objectives

The overarching goal of the WHMMP is to ensure that potential impacts to aquatic resources resulting from Project implementation are successfully compensated as required by Project permits. The following compensatory mitigation objectives have been created for this WHMMP based off objectives detailed in the *USACE Regional Compensatory Mitigation and Monitoring* Guidelines (USACE 2015), *Implementation Guidance for the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (SWRCB 2020), and the *McKinleyville Community Plan (*2017b*)* to guide the development of wetland and riparian habitat creation and monitoring methods and success criteria.

The following objectives will guide the creation of wetlands:

-The acreage of three-parameter wetlands created onsite will be greater than the area of wetlands permanently impacted by Project construction by a ratio of 1.5:1 or greater.

-Three-parameter wetlands created onsite will be dominated by native wetland species and have low target invasive plant cover.

-Three-parameter wetlands created will show an improvement in quality compared to baseline conditions of existing wetlands.

Please see **Appendix A, Figure 3** for a map depicting areas proposed for wetland creation.

3.2 Mitigation Ratio and Credits

The proposed mitigation ratio for the filling of wetlands within the Project Area is 1.5:1. The ratio was selected to offset all anticipated impacts to aquatic resources within the Project Area, increase the total area of wetland habitat available within the Project Area and provide ecological uplift. Ecological uplift relates to increasing the quality of impacted wetlands by creation wetlands and establishing native wetland vegetation and habitat while increasing the function by increasing the duration of saturated conditions within the created wetlands by altering the wetland hydrologic regime.

For compensatory mitigation of permanently impacted wetlands, the mitigation is onsite, in-kind and adjacent to the same wetland type (palustrine emergent) that is being established. The proposed compensatory mitigation site will create a larger quantity and higher quality three-parameter wetlands along the edges of the existing wetland swale at the northwest corner of the Project Area (**Appendix A, Figure 3a-3b**).

Current grading calculations anticipate approximately 17,840 sqft of permanent impacts to USACE/NCRWQCB jurisdictional three-parameter wetlands and 895 sqft of one-parameter wetlands regulated under the McKinleyville Community Plan. Impacts to both three-parameter wetlands and one-parameter wetlands will be mitigated for in the creation of three-parameter wetland areas at a 1.5:1 ratio.

The proposed mitigation area is 28,750 sqft, approximately 600 sqft larger than the total mitigation area required at a 1.5:1 ratio, and will increase the likelihood of achieving success criteria. Mitigation will be achieved by creating new onsite three parameter wetlands detailed in **Table 3.2-1** below.

Table 3.2-1 Summary of Proposed Mitigation Areas

Current Use/Existing Habitat	Proposed Mitigation Habitat	Proposed Action	Location (Latitude/ Longitude)
Upland pasture habitat (28,750 sqft)	Three-parameter PEM1C wetland habitat.	Create three-parameter PEM1C wetlands by excavating below the high water table and planting native wetland vegetation.	40.941795,-124.105720
Three-parameter PEM1B wetland habitat (6,070 sqft)	Three-parameter PEM1C wetland habitat	Create three-parameter PEM1C wetlands by excavating below the high water table and planting native wetland vegetation	40.941395, -124.105482

3.3 Wetland Creation

Project-related development will require filling wetlands. Based on the current conceptual plan, approximately 17,870 sqft of three-parameter wetlands and 895 sqft of one-parameter wetlands will be filled (**Appendix A, Figure 3a-3b**). The filling of wetlands will be mitigated for at a 1.5:1 ratio, which will be achieved by creating approximately 28,750 sqft of new three-parameter wetlands and will include mitigation areas for impacts to both one and three-parameter wetland areas. New wetland areas will be created in upland areas adjacent to existing wetland areas located in the northwest section of the Project Area. Proposed wetland creation consists of the expansion of existing wetland areas at the bottom of the wetland swale by excavating uplands adjacent to the swale and replanting of the excavated areas with native wetland plant species. The proposed hydrologic design results in a consistent and relatively simple management of natural processes, leading to a high likelihood of success.

On-site and in-kind creation of palustrine emergent wetland habitat with native wetland plant species is proposed to compensate for the impact to wetlands during Project construction. The conceptual design of the wetland creation site is described below.

3.4 Wetland Creation Site Selection

The proposed wetland creation site expands existing wetlands within the Project Area (**Appendix A, Figure 3a-3b**). The location was chosen based on topography and water table data obtained from groundwater sampling points in those areas. The wetland creation site is directly adjacent to, and will become integrated with, the larger palustrine emergent three-parameter wetland swale that comprises Wetland 1 (**Appendix A, Figure 2**).

In order to ensure successful design and implementation of created three-parameter wetlands, the proposed ground surface elevation will be excavated to approximately 1.0 ft below the average wet season water table at the lowest point of the created wetland. Design criteria was modelled after juxtaposed wetlands in the Project Area, both topographically and through groundwater sampling of upland areas. The mitigation sites are currently set at or below the elevation of the adjacent wetlands in the Project. Current drainage patterns at the mitigation sites are surface overflow and groundwater conveyance from the surrounding slopes to the north and west sections of the Project Area, which drain generally northwest toward Hiller Rd. The wetland mitigation sites are situated at the bottom slope of the wetland swale and will be fed primarily through groundwater discharge in winter, promoting success of establishment.

Groundwater Sampling

In addition to groundwater observations made during the wetland delineation (GHD 2023), five additional groundwater sampling points were taken within the proposed mitigation areas on March 3, 2023. The groundwater monitoring points were located in mapped uplands within the proposed wetland creation area to determine the approximate depth to groundwater during the wet season. This information will be used to guide the wetland creation design by confirming the approximate depth at which created wetlands need to be excavated to achieve adequate hydrology for wetland success (groundwater with 12 inches of the surface for 14 consecutive days).

Sampling occurred on March 3, 2023 after significant precipitation events including low elevation snowfall within the Project Area. Precipitation was above average according to the WETS table for Arcata/Eureka Airport in McKinleyville CA and groundwater depth may have been abnormally high at the time of sampling (**Appendix B**). The sampling results detailed below suggest there will be adequate groundwater in wetland mitigation areas to achieve wetland hydrology success criteria. Observed depth to groundwater for each groundwater monitoring point is recorded below in **Table 3.4-1.**

Table 3.4-1 Groundwater Sampling Points

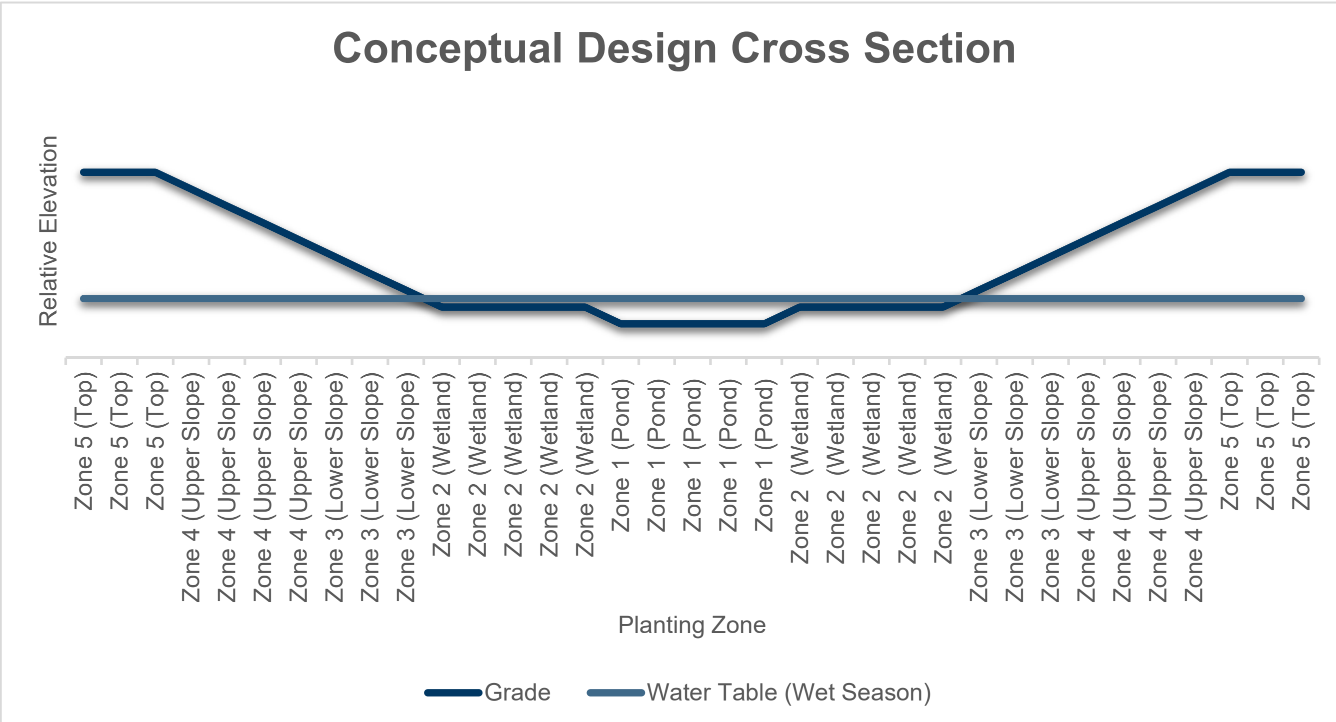
Groundwater Sampling Point	Depth to Groundwater (in)	Location (Latitude/ Longitude)
1	4	40.941184, -124.106099
2	12	40.941932, -124.106188
3	11	40.941876, -124.105706
4	6	40.941753, -124.105551
5	6	40.941916, -124.105223

3.5 Wetland Creation Conceptual Design

Wetland Mitigation Site 1-Three-parameter wetland habitat and pond

Wetland Mitigation Site 1 will be excavated to a depth of approximately 1.0 ft below the average wet season water table at the pond bottom, at the average wet season water table at the wetland habitat bottom, with sides at a 3:1 slope to the top of slope at the existing ground level. A conceptual design for Wetland Mitigation Site 1 is detailed in the figure below:

Figure 3.5-A: Wetland Mitigation Site 1, Three-Parameter Wetland Habitat and Pond Conceptual Design



Wetland Mitigation Planting Zones

Planting zones at the wetland mitigation sites have been separated into five planting zones as depicted above in **Figure 3.5-A**. The following steps will be taken to revegetate the mitigation wetland:

1. Hydromulch Zone 3 to Zone 4 (toe of slope up to top of the existing grade) with wetland edge seed mix (**Table 3.5-3**)
2. Plant Zone 1 to Zone 3 (bottom and halfway up the sides) with plugs **(Table 3.5-1**)
3. Scarify Zone 5 around the edge of the wetland (10-15 feet from edge) and plant ReGreen at 35 lbs./acre and native grass seed at 25 lbs./acre.

As the Project design progresses, the plans and specifications for the following details will be included:

1. Planting schedule
2. Piezometer locations
3. Grading plan details

The excavated area will be planted with the following species found in **Table 3.5-1** using container stock. The proposed planting list for wetland creation was based on the dominant native species composition present in adjacent wetland habitats as described in the wetland delineation report (GHD 2023), as well as the addition of other native wetland species observed on-site in lesser amounts. Hydroseeding will be used in conjunction with broadcast seeding along the edges of the mitigation sites. Hydromulch will be applied in a single application at a rate of 2,500 lbs/acre after broadcasting of seed mixes. The mulch will consist of natural sterile fiber, be free of synthetic materials (i.e. plastic), and contain no more than seven percent ash or 250 parts per million of boron. Hydroseeding will be done in October-November at the beginning of the rainy season for optimal seed germination.

Table 3.5-1 and **3.5-2** below detail the suggested planting list and Wetland Indicator Status as defined by the USACE 2020 Western Valleys, Mountain, and Coasts (WMVC) designation. The planting zones coincide with those depicted in **Figure 3.5-A: Wetland Mitigation Site 1, Three-Parameter Wetland Habitat and Pond Conceptual Design.**

Table 3.5-1 Planting Treatments for Wetland Mitigation Planting Zones

Scientific name	Common name	Lifeform	WMVC Indicator Status	Unit	Spacing	# per acre
Zone 1: Planting List for Pool Bottom (Lowest Ponding Area)						
Carex obnupta	Slough sedge	Perennial sedge	OBL	plug	3 ft	970
Eleocharis macrostachya	Spike rush	Perennial sedge	OBL	Plant band	3ft	970
Oenanthe sarmentosa	Water parsley	Perennial herb	OBL	plug	3ft	970
Zone 2: Planting List for Wetland Bottom (Edge of Pond to Toe of Slope)						
Carex obnupta	Slough sedge	Perennial sedge	OBL	plug	3 ft	970
Juncus effusus var. pacifica	Pacific rush	Perennial rush	FACW	plug	3 ft	970
Zone 3: Planting List for Lower Sides and Edges (Toe of Slope to Lower 50% of Slope)						
Carex obnupta	Slough sedge	Perennial sedge	OBL	plug	3 ft	970
Salix hookeriana	Coastal Willow	Shrub	FACW	Cutting	15 ft -north and west side only	80
Spiraea douglasii	Rose spirea	Shrub	FACW	1-gal	15 ft	80
Native grass seed-single species or mix	Recommended genera include: *Bromus, Elymus, Festuca*, etc.	Grass	FACU/UPL	lb	95% cover	25 lbs
Hydro-mulch	mulch	N/A	N/A	lb	95% cover	2,500 lbs
Zone 4: Planting List for Upper Sides and Edges (Upper 50% of Slope to Top of Slope)						
Ribes sanguineum	Flowering currant	Shrub	FACU	5-gallon	15 ft	80
Salix hookeriana	Coastal Willow	Shrub	FACW	Cutting	15ft – north and west side only	80
Salix sitchensis	Sitka Willow	Shrub	FACW	Cutting	15 ft- north and west side only	80
Symphyotrichum chilense	Pacific aster	Perennial herb	FAC	plug	3 ft	970
Native grass seed-single species or mix	Recommended genera include: *Bromus, Elymus, Festuca*, etc.	Grass	FACU/UPL	lb	95% cover	25 lbs
Hydro-mulch	mulch	N/A	N/A	lb	95% cover	2,500 lbs

Scientific name	*Common name*	*Lifeform*	*WMVC Indicator Status*	*Unit*	*Spacing*	*# per acre*
Zone 5: Planting List for Top of Slope (Top of Slope to 15 feet)						
Alnus rubra	Red alder	Tree	FAC	1-gal	20 ft	25
Pinus contorta ssp. Contorta	Beach pine	Tree	FAC	5-gal	20 ft	25
Native grass seed-single species or mix	Recommended genera include: *Bromus, Elymus, Festuca*, etc.	Grass seed	FACU/UPL	lb	95% cover	25 lbs
ReGreen©	*Sterile grass mixture*	N/A	N/A	lb	95% cover	35lbs
Hydro-mulch	mulch	N/A	N/A	lb	95% cover	2,500 lbs

Table 3.5-2 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.
Facultative Upland	FACU	Usually occur in non-wetlands, but may occur in wetlands.
Upland	UPL	Almost never occur in wetlands.

Seed Mixes and Mulch

The seed mix in **Table 3.5-3** is recommended for Planting Zones 3-5 along the wetland edge. The seed mix in **Table 3.5-3** is recommended for upland slopes along the wetland edge. Immediately following grading, a weed free straw will be applied at approximately 2,500 pounds per acre to promote seed germination and erosion control. Woody vegetation removed from the within the limits of grading will be chipped into mulch, placed in small temporary piles and reapplied around the container plantings.

Table 3.5-3 Wetland Edge Seed Mix

Scientific name	*Common name*	*Lifeform*	*Pounds of Pure Live Seed/Acre*
Grass Seed			
Bromus carinatus	California brome	Perennial grass	8.3
Elymus glaucus	Blue wildrye	Perennial grass	8.3
Festuca microstachys	Small fescue	Perennial grass	8.3

4. Mitigation Maintenance Plan

4.1 Revegetation and Post-Planting Maintenance

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.

Wetland revegetation will focus on appropriate native species, as described in **Section 3.5**. Following initial construction, the mitigation area is expected to be self-maintaining and dynamic into the long-term future. The wetlands will be self-sustaining and no watering or maintenance activities such as mowing, or pruning would be needed to maintain the wetlands. The planting lists do not include any particularly aggressive species and were chosen based on the baseline information gathered from previous studies (GHD 2023).

Planting holes will be no deeper than the container and twice as wide. Each tree and shrub planted will receive one to two packets of mycorrhizae. Trees and shrubs planted will be protected from deer browsing with anti-browse cages, excluding 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.

4.2 Invasive Species Controls

Over the course of the monitoring period, invasive species encroachment will be assessed. Invasive non-native plants can inhibit successful establishment of native species, and therefore reduce the value of the created wetland habitats. Invasive species that will be targeted for removal include those with Cal-IPC moderate to high ratings. Species with a Cal-IPC rating of limited may also be targeted for removal but will not be considered in success criteria assessments as their ecological impacts are considered minor. Removal methods will primarily include hand removal with brush cutters and removal of the entire root mass.

Invasive species observed in the Project Area (GHD 2023a) that are listed in the Cal-IPC inventory are detailed in **Table 4.2-1 below.**

Table 4.2-1 Cal-IPC Rated Species Observed within the Project Area

Scientific Name	*Common Name*	*Lifeform*	*Cal-IPC Rating*
Agrostis stolonifera	Creeping bentgrass	Grass	Limited
Anthoxanthum odoratum	Sweet vernal grass	Grass	Limited
Briza maxima	Rattlesnake grass	Grass	Limited
Cortaderia selloana	Pampasgrass	Grass	High
Cirsium vulgare	Bull thistle	Herb	Moderate
Cytisus scoparius	Scotch broom	Shrub	High
Dactylis glomerata	Orchard grass	Grass	Limited
Eucalyptus globulus	Blue gum	Tree	Limited
Festuca arundinacea	Reed fescue	Grass	Moderate

Scientific Name	Common Name	Lifeform	Cal-IPC Rating
Geranium dissectum	Cutleaf geranium	Herb	Limited
Holcus lanatus	Common velvetgrass	Grass	Moderate
Hypochaeris raditata	Rough cat's ear	Herb	Moderate
Leucanthemum vulgare	Ox-eye daisy	Herb	Moderate
Ranunculus repens	Creeping buttercup	Herb	Limited
Rumex acetosella	Sheep sorrel	Herb	Moderate
Rumex crispus	Curly dock	Herb	Limited
Rubus armeniacus	Himalayan blackberry	Shrub	High
Footnotes: Cal-IPC Rating Definitions			
**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 statewide 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

Life Plan Humboldt 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. All maintenance activities within the designated 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 suitable replacement species 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).
- .
- any other pertinent information regarding the overall success of the mitigation areas.

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

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 analysed and compared to the performance criteria set forth for that habitat type in that year. Following monitoring, Life Plan Humboldt will submit to the Regional Board, the County 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, if needed. 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 Site Monitoring Report will be submitted to the Regional Board, County and USACE by the end of year.

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.

Annual reports will be prepared and submitted to the Regional Board, County 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).

5.2 Monitoring Methodology

Annual monitoring of created wetlands within the mitigation area will be conducted per the monitoring schedule detailed in **Table 5.4.1** to evaluate progress toward success and performance criteria summarized in **Table 7.1-1.**

Vegetation Monitoring Methodology

Vegetation sampling will use quadrats ($1m^2$) located randomly along transects within the created wetland area. The location of the first quadrat will be randomized relative to the beginning of the baseline, with quadrats at set distances thereafter. All plant species present within each quadrat will be identified and their absolute percent cover noted, along with total absolute vegetative cover and bare soil within each quadrat. The number of quadrats sampled will be sufficient to achieve an adequate sample size. Relative percent cover of native species will be calculated post-site visit using absolute cover.

Target invasive plant cover will be calculated from the data collected, as described above. Each year of data collection, the absolute cover of CAL-IPC medium to high ranked invasive species will be compared. The timing of monitoring visits will be flexible for annual variation in weather conditions and will likely take place in June, July, or August.

The most current wetland indicator plant list will be used to determine the ranking of species present in the mitigation areas 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).

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

Data sheets with results from each quadrat sampled during each site visit will be included as an appendix submitted with each annual report, and an analysis of results compared to the performance criteria summarized in **Table 7.1-1.**

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 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.

A staff gauge will be installed at the site of the pond.

Post-construction hydrology monitoring at the site will be implemented to monitor groundwater levels. Hydrology will be monitored in Year 1, Year 3, and Year 5.

Photo Monitoring Stations

Permanent photo-documentation points will be established within the project site. A minimum of one photopoint is required for each monitored created wetland unit. Photopoint locations will be included on a map that will accompany monitoring reports.

Photographs will be taken annually during the monitoring period. 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 and focal length of lens will be noted in monitoring documentation. Photographs will be taken from about five feet in height, ideally from a tripod with the height noted, consistent from year to year.

5.3 Reference Sites

All existing wetlands on-site will be impacted by the proposed Project or converted to other types of wetlands. There will be no suitable on-site reference area for which to compare the created wetlands. Baseline conditions were characterized in the LPH Aquatic Resource Delineation (GHD 2023) and success will largely be determined with the criteria listed in **Section 7**.

5.4 Timeline and Monitoring Schedule

Construction is anticipated to occur within one or two construction seasons in 2024 or 2025. Mitigation monitoring will commence the year following construction.

Table 5.4-1 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. Results from hydrology and vegetation monitoring.
Year 2	X	--	--	Baseline summary of conditions on-site in each mitigation area.
Year 3	X	X	X	Baseline summary of conditions on-site in each mitigation area. 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. 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.

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.

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 limited in **Table 4.2-1**- 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 Wetland Success Criteria

The wetland area that will be monitored for performance includes the bottom of the pool to the outer toe of the excavated slope and will coincide with Zone 1 and Zone 2 of the **Three-Parameter Wetland Habitat and Pond Conceptual Design,** detailed in **Section 3.5, Figure A**. The pond and wetland area will be the area targeted as the three-parameter wetland boundary by Year 5 (also see **Appendix A, Figure 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), supports wetland hydrology, and 28,148 sqft of three-parameter wetlands are created (to be assessed with a wetland delineation in 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 5-year monitoring period.

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 pers.

Hydrology Success Criteria

The mitigation site will be considered successful if two out of three wet season hydrology events meet wetland hydrology standards.

Annual monitoring of created wetlands will be conducted to evaluate achievement of vegetation and hydrology success criteria. The wetland mitigation site post-planting shall meet the following criteria described in **Table 7.1-1**.

Table 7.1-1 Performance Standards for Wetland Creation Sites

Year	Success Criteria Description
Year 1	50 percent (≥) relative cover[1] of native wetland species. No more than 25 percent absolute cover[2] of target invasive plants.
Year 3	60 percent (≥) relative cover of native wetland species. No more than 20 percent absolute cover of target invasive plants.
Year 5	70 percent (≥) relative cover of native wetland species. No more than 15 percent absolute cover of target invasive plants. Wetland hydrology is met for two out of three monitoring events.
Years 1, 3, and 5	•Native wetland species consist of OBL/FACW/FAC species. •No large non-vegetated bare spots (greater than 25 percent) or erosional area.

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.

If the success criteria for vegetation and hydrology in created wetlands are met by Year 5, and a wetland delineation confirms successful establishment of 28,148 sqft of three-parameter wetland, then the mitigation project will be considered successful, and monitoring will be complete at Year 5.

If at the end of Year 5, the performance standards have not been met, then additional monitoring and 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 all success criteria are met in earlier years, this will be demonstrated in the report, and monitoring will cease.

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 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. A copy of the signed, notarized, and filed Deed Restriction must be submitted to the Regional Water Board no less than 10-working days prior to Project commencement. The Deed Restriction addresses the wetland mitigation site located at the northern end of the Project area.

9. Responsible Parties

It will be the responsibility of Life Plan Humboldt to monitor the areas identified in this Plan.

10. Scope and Limitations

This report: has been prepared by GHD for Life Plan Humboldt and may only be used and relied on by Life Plan Humboldt for the purpose agreed between GHD and Life Plan Humboldt .

GHD otherwise disclaims responsibility to any person other than Life Plan Humboldt 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.

11. References

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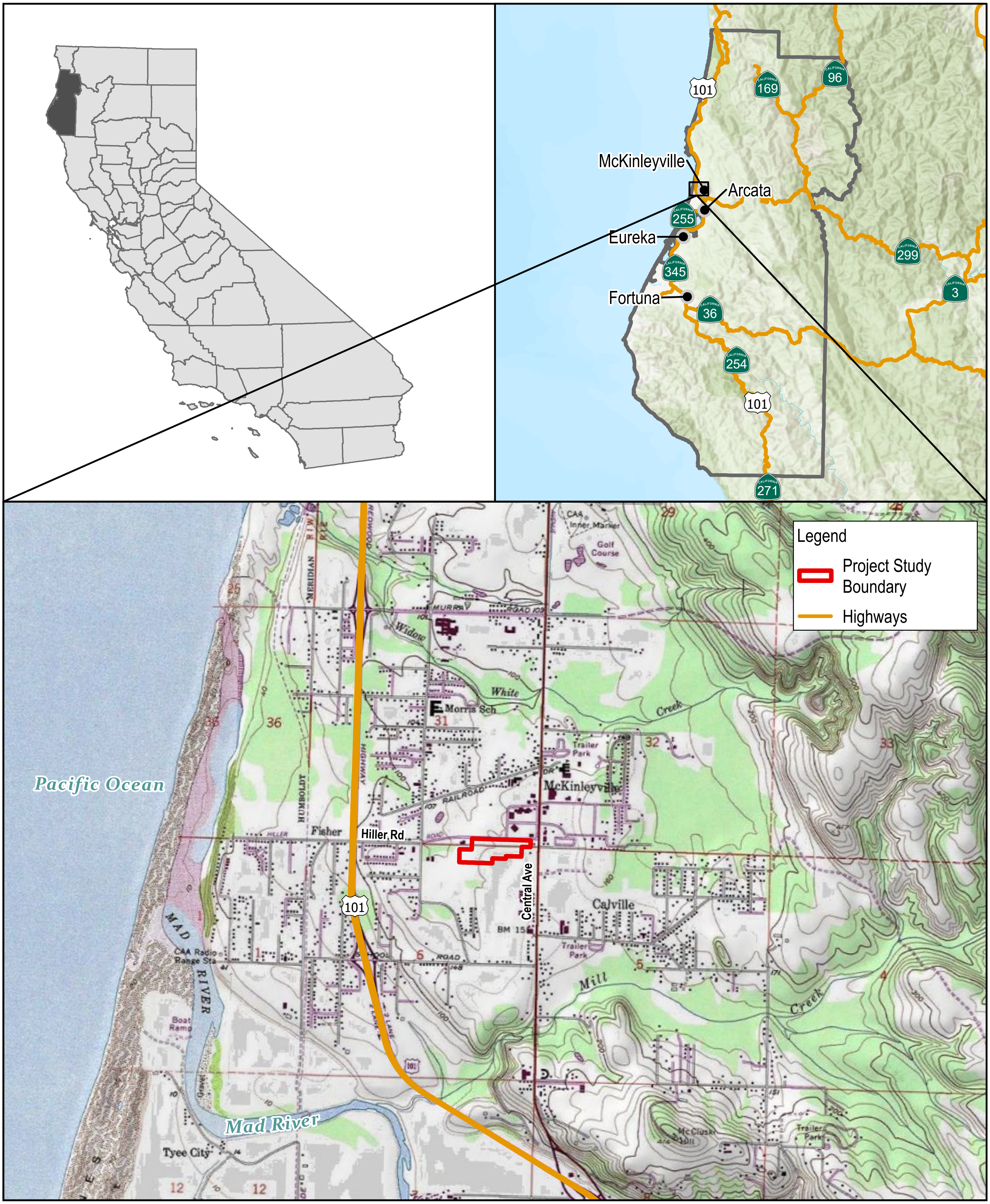
Appendix A

Figures



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Life Plan Humboldt
Wetland Delineation South Hiller Rd, McKinleyville

Project No. **12603187**
Revision No. **-**
Date **Feb 2023**

Vicinity Map

FIGURE 1

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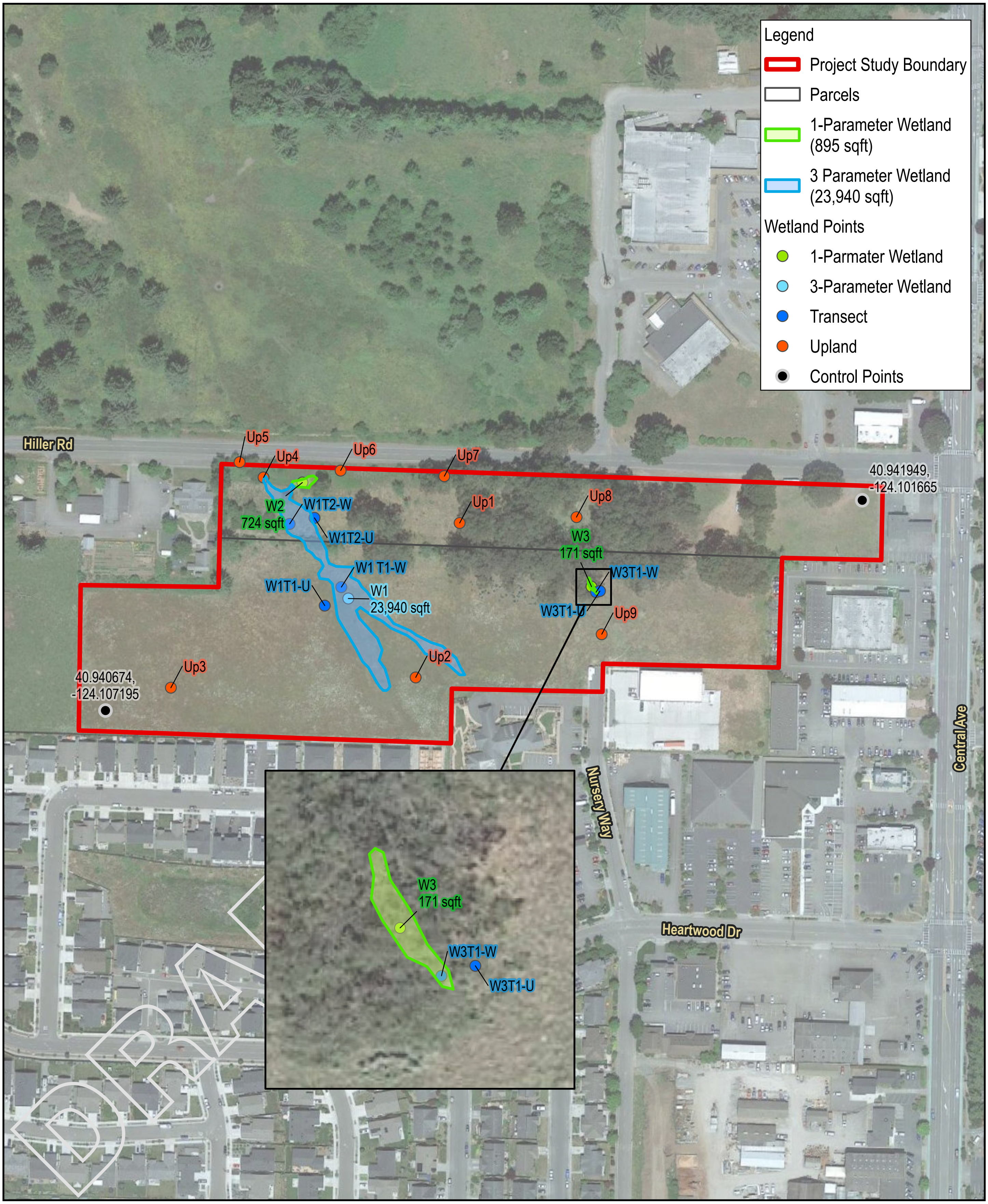

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Life Plan Humboldt
Wetland Delineation South Hiller Rd, McKinleyville

Wetland Delineation

Project No. **12603187**
Revision No. **-**
Date **Feb 2023**

FIGURE 2

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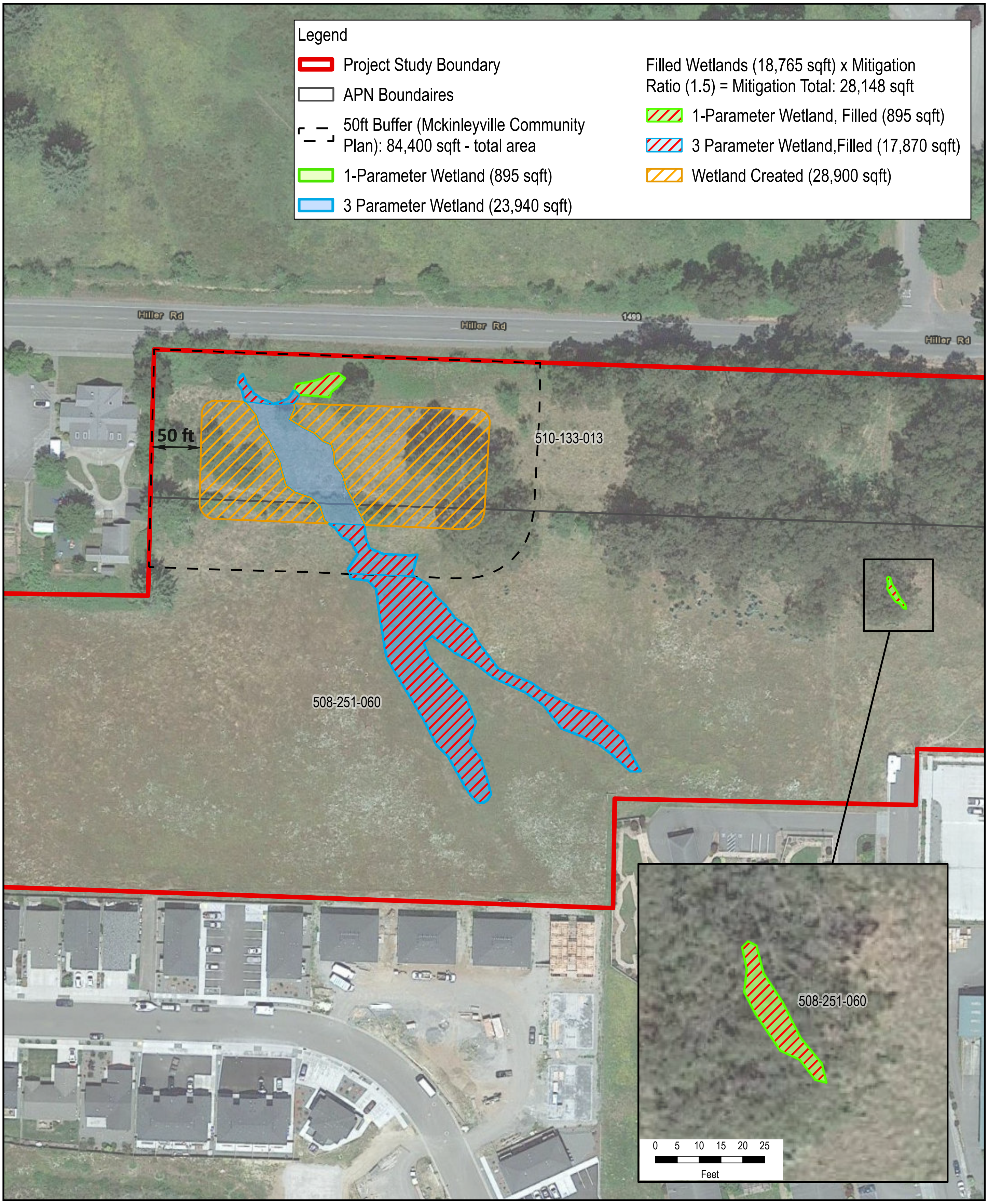

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Life Plan Humboldt
Wetland Delineation Mitigation and Monitoring Plan

Wetland Mitigation Area Alternative 1

Project No. **12603187**
Revision No. **-**
Date **Mar 2023**

FIGURE 3A

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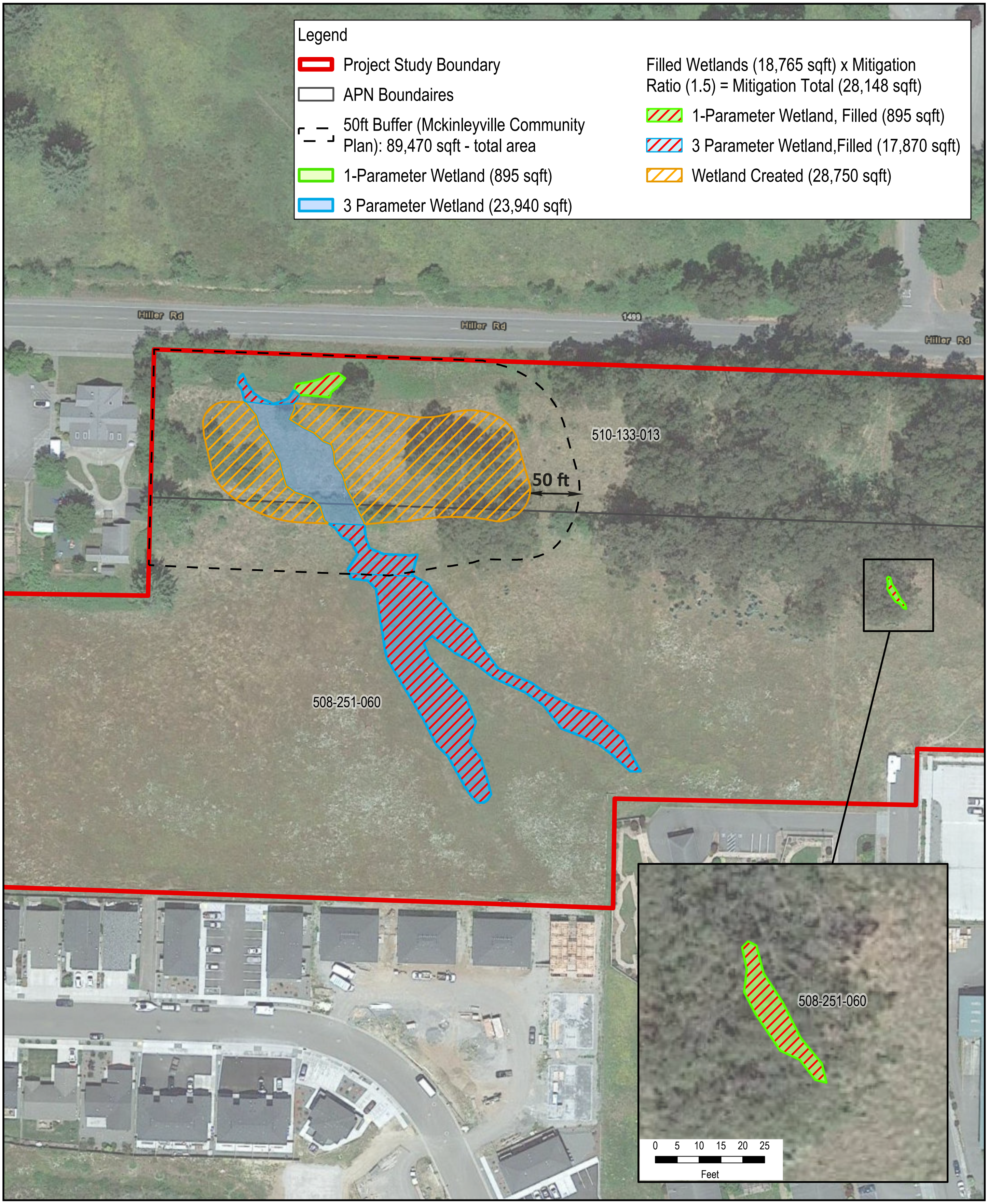

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Life Plan Humboldt

Wetland Delineation Mitigation and Monitoring Plan

Wetland Mitigation Area Alternative 2

Project No. **12603187**
Revision No. **-**
Date **Mar 2023**

FIGURE 3B

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Appendix B

NRCS National Water and Climate Center

WETS Table

WETS Table

WETS Station: ARCATA EUREKA AP, CA								
Requested years: 2003 - 2023								
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	55.9	40.0	47.9	6.80	4.36	8.18	11	-
Feb	55.1	38.9	47.0	5.83	3.06	7.12	10	-
Mar	55.8	40.7	48.2	6.59	4.55	7.85	12	-
Apr	56.8	42.1	49.4	4.23	2.57	5.12	9	-
May	58.9	45.7	52.3	1.89	0.83	2.31	5	-
Jun	62.3	48.5	55.4	1.07	0.35	1.22	2	-
Jul	63.0	51.2	57.1	0.20	0.06	0.21	0	-
Aug	63.9	51.4	57.6	0.20	0.05	0.21	0	-
Sep	64.7	48.3	56.5	-	-	-	-	-
Oct	62.7	45.3	54.0	3.14	1.12	3.79	5	-
Nov	58.1	41.6	49.9	5.32	3.81	6.29	10	-
Dec	54.9	39.2	47.0	8.56	5.53	10.30	13	-
Annual:					-	-		
Average	59.3	44.4	51.9	-	-	-	-	-
Total	-	-	-	-			-	-

GROWING SEASON DATES			
Years with missing data:	24 deg = 1	28 deg = 1	32 deg = 1
Years with no occurrence:	24 deg = 19	28 deg = 5	32 deg = 0
Data years used:	24 deg = 20	28 deg = 20	32 deg = 20
Probability	24 F or higher	28 F or higher	32 F or higher
50 percent *	No occurrence	1/21 to 1/9: 353 days	3/26 to 11/24: 243 days
70 percent *	No occurrence	12/30 to 1/31: 397 days	3/17 to 12/3: 261 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													
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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	M6.74										19.60
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: 2023-03-14													

Appendix C

Life Plan Humboldt Aquatic Resources Delineation (Attached Separately)

Technical Memorandum

July 13, 2023

To	Ann Lindsay, LPH George Williamson, LPH	**Contact No.**	707.267.2224
Copy to	Misha Schwarz, GHD Project Manager	**Email**	alindsay52@gmail.com; georgew@planwestpartners.com;
From	Miles Hartnett, GHD Biologist	**Project No.**	12603187
Project Name	Life Plan Humboldt (LPH) Aging in Place Life Plan Community Project		
Subject	Botanical Survey and Report Memorandum		

1. Introduction

This technical memorandum reports the results of the completed protocol-level botanical surveys on behalf of Life Plan Humboldt (LPH), in support of the Aging in Place Life Plan Community Project (Project) in McKinleyville, California. GHD conducted seasonally appropriate floristic surveys for special status plant species and Sensitive Natural Communities (SNC's) within the Project Study Boundary (PSB) on May 9th and June 13th, 2023. This technical memorandum summarizes all botanical and vegetation classification studies conducted during the survey. One special status plant species, Harlequin lotus (*Hosackia gracilis*-CRPR 4.2) and one SNC, Coastal dune willow - Sitka willow - Douglas spiraea thickets Shrubland Alliance (Sallix hookeriana - Salix sitchensis - Spiraea douglasii- S3/G4) was detected within the PSB. Vegetative SNC's were mapped in addition to wetland communities identified in the Aquatic Resources Delineation Report completed for Life Plan Humboldt on March 8, 2023.

1.1 Project Location and Setting

The Project site is located within Section 6, Township 06 North, Range 01 East, and Section 31, Township 07 North, Range 01 East, Arcata North USGS 7.5 Minute Quadrangle, in Humboldt County, California. The site is comprised of approximately 14.7 acres and includes the entirety of Assessor Parcel Numbers (APNs) 510-133-013 and 508-251-060 on Hiller Road, McKinleyville, California (**Attachment A: Figure 1, Vicinity Map**).

The surveys were conducted within the Project Study Boundary (PSB) as shown in **Attachment A: Figure 2, PSB.** The PSB consists of the two APNs and contains an open pasture and a scattered eucalyptus grove bordered by the McKinleyville shopping center and open space to the north, commercial development to the east, residential development to the south, and a church and active pastureland to the west. The property is a generally flat to gently sloped with a wet swale that dissects the site in a north westerly direction.

2. Regulatory Setting

2.1 Federally Listed Species

Special status plant species under federal jurisdiction include those listed as endangered, threatened, or as candidate species by the United States Fish and Wildlife Service (USFWS) under the Federal Endangered Species Act (ESA).

2.2 State Listed and/or Special Status Species

Special status plant species under California Department of Fish and Wildlife (CDFW) jurisdiction include the following:

– Endangered, Threatened, or Candidate plant species listed under the California Endangered Species Act (CESA)
– Plants listed as Rare under California Native Plant Protection Act (FGC, § 1900 et seq.)
– Plants on the California Native Plant Society's (CNPS) California Rare Plant Rank (CRPR) Lists 1 and 2.
– Taxa which meet the criteria for listing as described in Section 15380 of the California Environmental Equality Act (CEQA). All CRPR 1 and 2 and some CRPR 3 and 4 plants may fall under Section 15380 of CEQA.
– Locally significant plants (CEQA Guidelines, § 15125, subd. (c)) as designated in local or regional plans, policies, or ordinances are also considered special status plant species (CDFW 2018).

Plant species on CRPR Lists 1 and 2 are considered eligible for state listing as endangered or threatened pursuant to the California Fish and Game Code (FGC), and CDFW has oversite of these special status plant species as a trustee agency under Section 1802 of the FGC. Such species are considered during the CEQA process because they meet the definition of threatened or endangered under Sections 2062 and 2067 of the FGC

Plant species on CRPR Lists 3 and 4 do not have formal protection under CEQA, but may merit consideration in certain circumstances including occurrences at the periphery of a species' range, areas where the taxon is especially uncommon, areas where the taxon has sustained heavy losses or is declining, occurrences exhibiting unusual morphology or occurring on unusual substrates, species maintained on BLM, USFWS, or USFS sensitive species lists, and taxa associated with a habitat that is declining in California at a significant rate (CNPS 2020).

2.3 Sensitive Natural Communities

SNC's include those that are tracked in the California Natural Diversity Database (CNDDB) as well as A Manual of California Vegetation (MCV2) alliances or associations with NatureServe State Ranks of S1 to S3. CDFW maintains a list of MCV2 alliances that must be considered during the CEQA process (CDFW 2023a). Aquatic resources (e.g. watercourses, ponds, wetlands, vernal pools, etc.) are also considered sensitive communities and are afforded special protections under CEQA and other federal, state, and local laws, regulations, and ordinances.

Sources for assessing SNC's include *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986), *List of Vegetation Alliances* (CDFW 2023a), and *A Manual of California Vegetation Online Edition* (CNPS 2023b).

3. Methods

3.1 Pre-Survey Investigations

A scoping list of special status plant species and communities with recorded occurrences in the project vicinity was compiled prior to surveys on April 7, 2023 by consulting the CNDDB (CDFW 2023b), the CNPS Rare Plant Inventory (CNPS 2023a), and U.S. Fish and Wildlife Service IPaC (USFWS 2023) The CNDDB RareFind database was also consulted for rare plant occurrences documented in the project vicinity.

The scoping list includes special status plant species with documented occurrences within a nine-quad search of the PSB including the Arcata North USGS 7.5-Minute quadrangle and adjacent eight quadrangles (Trinidad, Crannell, Panther Creek, Blue Lake, Korbel, Arcata South, Eureka, and Tyee City). The query yielded 58 special status plant species with documented occurrences within the nine-quad scoping area. All special status plant species identified in the database queries described above were compiled and reviewed prior to the field survey visits and evaluated for their potential to occur within the PSB based on existing habitat availability **(Table 1)**. Results of each database query are provided in **Attachment E: Database Query Results.**

Of the 58 special status species identified in the database query, 15 were determined to have a moderate to high potential to occur within the PSB based on existing habitat observed during site visits. The remaining 43 species have no or low potential to occur within the PSB because they are restricted by hydrologic conditions, soil or substrate, topographic conditions, pH conditions, geographic isolation, or associated vegetative communities that do not occur within the PSB.

Special status plant species with a moderate to high potential to occur within the PSB include the following 15 species: Bolander's reed grass (*Calamagrostis bolanderi*), bristle-stalked sedge (*Carex leptalea)* , northern meadow sedge *(Carex praticola),* Oregon goldthread *(Coptis laciniata),* giant fawn lily *(Erythronium oregonum),* harlequin lotus *(Hosackia gracilis),* western lily (*Lilium occidentale*), leafy-stemmed miterwort *(Mitellastra caulescens),* Howell's montia *(Montia howellii),* nodding semaphore grass *(Pleuropogon refractus),* maple-leaved checkerbloom *(Sidalcea malachroides),* Siskiyou checkerbloom *(Sidalcea malviflora ssp. patula),* coast checkerbloom *(Sidalcea oregana ssp. eximia)*, Scouler's catchfly*(Silene scouleri ssp. scouleri)*, and cylindrical trichodon *(Trichodon cylindricus)*.

Table 1 below details all 58 special status plant species identified in the database scoping and query results described above as well as a discussion of the potential for each species to occur within the PSB based on the existing habitat present.

Table 1. Potential for Special Status Plants to Occur within the PSB

Scientific Name	Common Name	FESA	CESA	Global Rank[2]	State Rank[2]	CRPR[2]	Habitat Requirements[1]	Potential to Occur in the PSB
Abronia umbellate var. breviflora	Pink sand-verbena	None	None		S2	1B.1	Coastal dunes	**No potential**. The PSB does not contain suitable habitat for this species.
Angelica lucida	sea-watch	None	None	G5	S3	4.2	Coastal bluff scrub, Coastal dunes, Coastal scrub, Marshes and swamps (coastal salt).	**No potential**. The PSB does not contain suitable habitat for this species.
Astragalus pycnostachyus var. pycnostachyus	Coastal marsh milk vetch	None	None	G2T2	S2	1B.2	Coastal dunes (mesic), Coastal scrub, Marshes and swamps (coastal salt, streamsides)	**No potential**. The PSB does not contain suitable habitat for this species. Wetland meadow habitat is freshwater wetland.
Astragalus rattanii var. rattanii	Rattan's milk-vetch	None	None	G4T4	S4	4.3	Chaparral, Cismontane woodland, Lower montane coniferous forest	**No potential**. The PSB does not contain suitable habitat for this species
Calamagrostis bolanderi	Bolander's reed grass	None	None	G4	S4	4.2	Bogs and fens, Broadleafed upland forest, Closed-cone coniferous forest, Coastal scrub, Marshes and swamps, Meadows and seeps, North Coast coniferous forest	**Moderate potential.** Wetland meadow habitat is present in the PSB and may contain suitable habitat for this species.
Cardamine angulata	seaside bittercress	None	None	G4G5	S3	2B.2	Lower montane coniferous forest, North Coast coniferous forest	**No potential**. The PSB does not contain suitable habitat for this species
Carex arcta	Northern clustered sedge	None	None	G5	S1	2B.2	Bogs and fens, North Coast coniferous forest (mesic)	**Low potential**. The PSB contains only marginally suitable habitat for this species and is outside of its known elevation range.

Scientific Name	Common Name	FESA	CESA	Global Rank[2]	State Rank[2]	CRPR[2]	Habitat Requirements[1]	Potential to Occur in the PSB
Carex leptalea	bristle-stalked sedge	None	None	G5	S1	2B.2	Bogs and fens, Marshes and swamps, Meadows and seeps	**Moderate potential.** Wetland meadow habitat is present in the PSB and may contain suitable habitat for this species.
Carex lyngbyei	Lyngbye's sedge	None	None	G5	S3	2B.2	Marshes and swamps (brackish)	**No potential**. The PSB does not contain suitable habitat for this species.
Carex praticola	northern meadow sedge	None	None	G5	S2	2B.2	Meadows and seeps	**Moderate potential.** Wetland meadow habitat is present in the PSB and may contain suitable habitat for this species.
Castilleja ambigua var. humboldtiensis	Humboldt Bay owl's-clover	None	None	G4T2	S2	1B.2	Marshes and swamps (coastal salt)	**No potential**. The PSB does not contain suitable habitat for this species.
Castilleja litoralis	Oregon coast paintbrush	None	None	G3	S3	2B.2	Coastal bluff scrub, Coastal dunes, Coastal scrub	**No potential**. The PSB does not contain suitable habitat for this species.
Chloropyron maritimum ssp. palustre	Point Reyes salty bird's-beak	None	None	G4?T2	S2	1B.2	Marshes and swamps (coastal salt)	**No potential**. The PSB does not contain suitable habitat for this species.
Chrysosplenium glechomifolium	Pacific golden saxifrage	None	None	G5?	S3	4.3	North Coast coniferous forest, Riparian forest	**No potential**. The PSB does not contain suitable habitat for this species.
Collinsia corymbosa	round-headed collinsia	None	None	G1	S1	1B.2	Coastal dunes	**No potential**. The PSB does not contain suitable habitat for this species.
Coptis laciniata	Oregon goldthread	None	None	G4?	S3?	4.2	Meadows and seeps, North Coast coniferous forest	**Moderate potential.** Wetland meadow habitat is present in the PSB and may contain suitable habitat for this species.
Eleocharis parvula	small spikerush	None	None	G5	S3	4.3	Marshes and swamps	**No potential**. The PSB does not contain suitable habitat (i.e. coastal salt marsh) for this species.
Epilobium septentrionale	Humboldt County fuchsia	None	None	G4	S4	4.3	Broadleafed upland forest, North Coast coniferous forest	**No potential**. The PSB does not contain suitable habitat for this species.
Erysimum menziesii	Menzies' wallflower	FE	CE	G1	S1	1B.1	Coastal dunes	**No potential**. The PSB does not contain suitable habitat for this species.

Scientific Name	Common Name	FESA	CESA	Global Rank[2]	State Rank[2]	CRPR[2]	Habitat Requirements[1]	Potential to Occur in the PSB
Erythronium oregonum	giant fawn lily	None	None	G5	S2	2B.2	Cismontane woodland, Meadows and seeps	**Moderate potential.** Wetland meadow habitat is present in the PSB and may contain suitable habitat for this species.
Erythronium revolutum	coast fawn lily	None	None	G4G5	S3	2B.2	Bogs and fens, Broadleafed upland forest, North Coast coniferous forest	**Low potential**. The PSB contains only marginally suitable habitat for this species.
Fissidens pauperculus	minute pocket moss	None	None	G3?	S2	1B.2	North Coast coniferous forest	**No potential**. The PSB does not contain suitable habitat for this species.
Fritillaria purdyi	Purdy's fritillary	None	None	G4	S4	4.3	Chaparral, Cismontane woodland, Lower montane coniferous forest	**No potential**. The PSB does not contain suitable habitat for this species.
Gilia capitata ssp. *pacifica*	Pacific gilia	None	None	G5T3	S2	1B.2	Chaparral, Coastal bluff scrub, Coastal prairie, Valley and foothill grassland	**Low potential**. The PSB contains only marginally suitable habitat for this species.
Gilia millefoliata	dark-eyed gilia	None	None	G2	S2	1B.2	Coastal dunes	**No potential**. The PSB does not contain suitable habitat for this species.
Glehnia littoralis ssp. leiocarpa	American glehnia	None	None	G5T5	S2S3	4.2	Coastal dunes	**No potential**. The PSB does not contain suitable habitat for this species.
Hemizonia congesta ssp. tracyi	Tracy's tarplant	None	None	G5T4	S4	4.3	Coastal prairie, Lower montane coniferous forest, North Coast coniferous forest	**Low potential**. The PSB contains only marginally suitable habitat for this species.
Hesperevax sparsiflora var. *brevifolia*	short-leaved evax	None	None	G4T3	S3	1B.2	Coastal bluff scrub, Coastal dunes, Coastal prairie	**Low potential**. The PSB contains only marginally suitable habitat for this species.
Hosackia gracilis	harlequin lotus	None	None	G3G4	S3	4.2	Broadleafed upland forest, Cismontane woodland, Closed-cone coniferous forest, Coastal bluff scrub, Coastal prairie, Coastal	**Present.** Species was observed within the PSB on June 13th, 2023.

Scientific Name	Common Name	FESA	CESA	Global Rank[2]	State Rank[2]	CRPR[2]	Habitat Requirements[1]	Potential to Occur in the PSB
							scrub, Marshes and swamps, Meadows and seeps, North Coast coniferous forest, Valley and foothill grassland	
Iliamna latibracteata	California globe mallow	None	None	G2G3	S2	1B.2	Chaparral (montane), Lower montane coniferous forest, North Coast coniferous forest (mesic), Riparian scrub (streambanks)	**No potential**. The PSB does not contain suitable habitat for this species.
Lasthenia californica ssp. *macrantha*	perennial goldfields	None	None	G3T2	S2	1B.2	Coastal bluff scrub, Coastal dunes, Coastal scrub	**No potential**. The PSB does not contain suitable habitat for this species.
Lathyrus glandulosus	sticky pea	None	None	G3	S3	4.3	Cismontane woodland	**No potential**. The PSB does not contain suitable habitat for this species.
Lathyrus japonicus	seaside pea	None	None	G5	S2	2B.1	Coastal dunes	**No potential**. The PSB does not contain suitable habitat for this species.
Lathyrus palustris	marsh pea	None	None	G5	S2	2B.2	Bogs and fens, Coastal prairie, Coastal scrub, Lower montane coniferous forest, Marshes and swamps, North Coast coniferous forest	**Low potential**. The PSB contains only marginally suitable habitat for this species.
Layia carnosa	beach layia	FE	CE	G2	S2	1B.1	Coastal dunes, Coastal scrub	**No potential**. The PSB does not contain suitable habitat for this species.
Lilium kelloggii	Kellogg's lily	None	None	G3	S3	4.3	Lower montane coniferous forest, North Coast coniferous forest	**No potential**. The PSB does not contain suitable habitat for this species.
Lilium occidentale	western lily	FE	CE	G1	S1	1B.1	Bogs and fens, Coastal bluff scrub, Coastal prairie, Coastal scrub, Marshes	**Moderate potential**. The PSB contains wet pasture and meadow habitat that may be suitable for this species. The closest recent occurrences (< 20 years) are

Scientific Name	Common Name	FESA	CESA	Global Rank[2]	State Rank[2]	CRPR[2]	Habitat Requirements[1]	Potential to Occur in the PSB
							and swamps, North Coast coniferous forest	located at the Table Bluff Ecological Reserve in the Fields Landing quad.
Listera cordata	heart-leaved twayblade	None	None	G5	S4	4.2	Bogs and fens, Lower montane coniferous forest, North Coast coniferous forest	**Low potential**. The PSB contains only marginally suitable habitat for this species.
Lycopodium clavatum	running pine	None	None	G5	S3	4.1	Lower montane coniferous forest (mesic) Marshes and swamps North Coast coniferous forest (mesic)	**Low potential**. The PSB contains only marginally suitable habitat for this species.
Mitellastra caulescens	leafy-stemmed mitrewort	None	None	G5	S4	4.2	Broadleafed upland forest, Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest	**Moderate potential.** Wetland meadow habitat is present in the PSB and may contain suitable habitat for this species.
Monotropa uniflora	ghost-pipe	None	None	G5	S2	2B.2	Broadleafed upland forest, North Coast coniferous forest	**No potential**. The PSB does not contain suitable habitat for this species.
Montia howellii	Howell's montia	None	None	G3G4	S2	2B.2	Meadows and seeps, North Coast coniferous forest, Vernal pools	**Moderate potential.** Wetland meadow habitat is present in the PSB and may contain suitable habitat for this species.
Oenothera wolfii	Wolf's evening-primrose	None	None	G2	S1	1B.1	Coastal bluff scrub, Coastal dunes, Coastal prairie, Lower montane coniferous forest	**Low potential**. The PSB contains only marginally suitable habitat for this species.
Packera bolanderi var. *bolanderi*	seacoast ragwort	None	None	G4T4	S2S3	2B.2	Coastal scrub, North Coast coniferous forest	**No potential**. The PSB does not contain suitable habitat for this species.
Piperia candida	white-flowered rein orchid	None	None	G3	S3	1B.2	Broadleafed upland forest, Lower montane coniferous	**No potential**. The PSB does not contain suitable habitat for this species.

Scientific Name	Common Name	FESA	CESA	Global Rank[2]	State Rank[2]	CRPR[2]	Habitat Requirements[1]	Potential to Occur in the PSB
							forest, North Coast coniferous forest	
Pityopus californicus	California pinefoot	None	None	G4G5	S4	4.2	Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest, Upper montane coniferous forest	**No potential**. The PSB does not contain suitable habitat for this species.
Pleuropogon refractus	nodding semaphore grass	None	None	G4	S4	4.2	Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest, Riparian forest	**Moderate potential.** Wetland meadow habitat is present in the PSB and may contain suitable habitat for this species.
Ribes laxiflorum	trailing black currant	None	None	G5?	S3	4.3	North Coast coniferous forest	**No potential**. The PSB does not contain suitable habitat for this species.
Sidalcea malachroides	maple-leaved checkerbloom	None	None	G3	S3	4.2	Broadleafed upland forest, Coastal prairie, Coastal scrub, North Coast coniferous forest, Riparian woodland	**Moderate potential.** The PSB contains some habitat that may be suitable for this species.
Sidalcea malviflora ssp. *patula*	Siskiyou checkerbloom	None	None	G5T2	S2	1B.2	Coastal bluff scrub, Coastal prairie, North Coast coniferous forest	**Moderate potential.** The PSB contains some habitat that may be suitable for this species
Sidalcea oregana ssp*. eximia*	coast checkerbloom	None	None	G5T1	S1	1B.2	Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest	**Moderate potential.** Wetland meadow habitat is present in the PSB and may contain suitable habitat for this species.
Silene scouleri ssp. *scouleri*	Scouler's catchfly	None	None	G5T4T5	S2S3	2B.2	Coastal bluff scrub, Coastal prairie, Valley and foothill grassland	**Moderate potential.** The PSB contains some habitat that may be suitable for this species

Scientific Name	Common Name	FESA	CESA	Global Rank[2]	State Rank[2]	CRPR[2]	Habitat Requirements[1]	Potential to Occur in the PSB
Spergularia canadensis var. occidentalis	western sand-spurrey	None	None	G5T4	S1	2B.1	Marshes and swamps (coastal salt)	**No potential**. The PSB does not contain suitable habitat (i.e. coastal salt marsh) for this species.
Sulcaria spiralifera	twisted horsehair lichen	None	None	G3G4	S2	1B.2	Coastal dunes, North Coast coniferous forest	**No potential**. The PSB does not contain suitable habitat for this species.
Tiarella trifoliata var. trifoliata	trifoliate laceflower	None	None	G5T5	S2S3	3.2	Lower montane coniferous forest, North Coast coniferous forest	**No potential**. The PSB does not contain suitable habitat for this species.
Trichodon cylindricus	cylindrical trichodon	None	None	G4G5	S2	2B.2	Broadleafed upland forest, Meadows and seeps, Upper montane coniferous forest	**Moderate potential.** Wetland meadow habitat is present in the PSB and may contain suitable habitat for this species.
Usnea longissima	Methuselah's beard lichen	None	None	G4	S4	4.2	Broadleafed upland forest, North Coast coniferous forest	**No potential**. The PSB does not contain suitable habitat for this species.
Viola palustris	alpine marsh violet	None	None	G5	S1S2	2B.2	Bogs and fens, Coastal scrub	**Low potential**. The PSB contains only marginally suitable habitat for this species.

Footnotes:
1 General habitat, and microhabitat column information, reprinted from CNDDB (April 7, 2023).
2 Rankings from CNDDB (April 7, 2023

Column Header Categories and Abbreviations:
FESA Listing status under the federal Endangered Species Act (ESA)
FE Federal Endangered; FT = Federal Threatened; FC = Federal Candidate; FD = Federally Delisted
CESA Listing status under the California state Endangered Species Act (CESA)
SE State Endangered; SD = State Delisted; ST = State Threatened.

G-Rank: Global Rank from NatureServe's Heritage Methodology (NatureServe 2021) (ranking according to degree of global imperilment - G1 = Critically Imperiled—At very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors; G2 = Imperiled—At high risk of extinction due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors; G3 = Vulnerable—At moderate risk of extinction due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors; G4 = Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors; G5 = Secure—Common; widespread and abundant. Subspecies/variety level: "Subspecies/varieties receive a T-rank attached to the G-rank. With the subspecies/varieties, the G-rank reflects the condition of the entire species, whereas the T-rank reflects the global situation of just the subspecies or variety" (CDFW 2021b); ? = " Denotes inexact numeric rank" (NatureServe 2021); Q = " Questionable taxonomy that may reduce conservation priority" (NatureServe 2021)

S-Rank: State Rank from NatureServe's Heritage Methodology (NatureServe 2021) (ranking according to degree of imperilment in the state (California) - S1 = Critically Imperiled—Critically imperiled in the state because of extreme rarity (often 5 or fewer populations) or because of factor(s) such as very steep declines making it especially vulnerable to extirpation from the state; S2 = Imperiled—Imperiled in the state because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the state; S3 = Vulnerable—Vulnerable in the state due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation from the state; S4 = Apparently Secure—Uncommon but not rare in the state; some cause for long-term concern due to declines or other factors; S5 = Secure—Common, widespread, and abundant in the state; SNR = State Not Ranked.

CRPR: California Rare Plant Ratings (CNPS 2023a) - 1A = Plants presumed extinct in California; 1B = Plants rare, threatened or endangered in California and elsewhere; 2 = Plants rare, threatened, or endangered in California, but more common elsewhere; 3 = Plants about which more information is needed (a review list); 4 = Plants of limited distribution (a watch list); n/a = not applicable; Threat Code extensions and their meanings: ".1 - Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat); .2 – Moderately threatened in California (20-80% of occurrences threatened / moderate degree and immediacy of threat); .3 – Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)"

Potential to Occur:

No potential: Habitat in and adjacent to the PSB is clearly unsuitable for the species requirements (cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).

Low potential: Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found in the PSB.

Moderate potential: Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found in the PSB.

High potential: All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on in the PSB

Present: Detected or documented on-site.

3.2 Floristic Surveys

GHD wildlife biologist/botanist, Miles Hartnett, conducted floristic surveys on May 9th, 2023 and June 13th, 2023 during the appropriate blooming period for each special status plant species with moderate or high potential to occur within the PSB as determined above in **Table 1**. The special status plant survey followed *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW 2018) and *General Rare Plant Survey Guidelines by the Endangered Species Recovery Program* (USFWS 2002). The special status plant survey was conducted by walking the site and identifying all plant species encountered to the lowest taxonomic level necessary for rare plant identification. Nomenclature follows The *Jepson Manual, Second Edition* (Baldwin et al 2012).

Miles Hartnett has nine years of professional experience in wildlife biology, forestry, botany, and environmental compliance and received a Bachelor of Science degree in Environmental Science and Ecological Restoration form Humboldt State University in 2011 with multiple studies pertaining to plant taxonomy, biology, ecology, soils, wetland soils, and watershed management. Mr. Hartnett holds a Rare Plant Voucher Collecting Permit (No. 2081 a-20-090-V).

A complete list of all species observed within the project area is provided in **Attachment B: List of Observed Taxa**. Observed SNCs were recording using the *Combined Vegetation Rapid Assessment and Releve Filed Form* provided in Attachment D.

4. Results

4.1 Special Status Plants

This study constitutes a seasonally appropriate botanical survey for this project. A total of 87 plant species were observed within the PSB during all site visits. A complete list of all plant species observed is included in **Attachment B: List of Observed Taxa**.

One special status plant species was observed within the PSB during the survey site visits and is detailed below:

1). Harlequin lotus (*Hosackia gracilis* Benth) (**Attachment C: Photos 1-2)**

Conservation Status:

• CA Rare Plant Rank of 4.2 (Watch List/Limited Distribution; fairly threatened in California).

• Global Rank: G3G4 (Vulnerable to Apparently Secure)

• State Rank: S3 (Vulnerable)

A population of approximately 1,000 individuals of *H. gracilis* was identified throughout the PSB on June 13, 2023. Prior to this occurrence, there have been no other occurrences of *H. gracilis* documented on the CNDDB or Rare Plant Inventory within the Arcata North USGS 7.5-Minute quadrangle. *H. gracilis* individuals observed were primarily associated with non-native pasture grasses such as *Anthoxanthum odoratum, Holcus lanatus,* and *Agrostis stolonifera*, and were integrating closing with *Lotus ulginosus*. The occurrences were located in open pasture areas between GPS coordinates (40.941981, -124.105896) and (40.940997, -124.104844) at an elevation of approximately 135 feet above sea level (**Attachment A: Figure 3, Special Status Plant Species).**

H. gracilis is a perennial rhizomatous herb in the Fabaceae family and associates with many general habitat types including broadleafed upland forest, cismontane woodland, closed-cone coniferous forest, coastal bluff scrub, coastal prairie, coastal scrub, marshes and swamps, meadows and seeps, north coast coniferous forest, and valley and foothill grassland. General micro habitats include wetlands and roadsides. Threats to this species include development, grazing, feral pigs, habitat alteration, and competition (CNPS 2023a).

4.2 Sensitive Natural Communities

Natural communities within the PSB were classified according to *A Manual of California Vegetation Online Edition* (Sawyer et. al. 2019). SNC's include those that are listed in CNDDB as well as observed alliances or associations with NatureServe State Rarity Ranks of S1 to S3 and are listed on CDFW's *List of California Sensitive Natural Communities* (CDFW 2023a). Observed SNC's were recorded in the field using the *Combined Vegetation Rapid Assessment and Releve Field Form* provided in **Attachment D: Rapid Assessment Datasheets**.

Aquatic resources including wetlands are also classified as sensitive communities. Aquatic resources identified within the PSB during the Aquatic Resources Delineation completed for Life Plan Humboldt on March 8, 2023 are included with SNC's for the purposes of this this report. Please see the Aquatic Resources Delineation Report for Life Plan Humboldt for details, maps, and datasheets regarding wetland communities identified within the PSB (GHD 2023).

Non-sensitive vegetative communities observed within the PSB include common velvet grass-sweet vernal grass meadows (*Anthoxanthum odoratum - Holcus lanatus*) Herbaceous Semi-Natural Alliance, Kentucky bluegrass - Redtop – Creeping bentgrass meadows (*Poa pratensis - Agrostis gigantea - Agrostis stolonifera*) Herbaceous Semi-Natural Alliance, and Eucalyptus groves (*Eucalyptus spp.)* Woodland Semi-Natural Alliance.

One SNC was observed within the PSB in addition to previously delineated wetlands and is detailed below:

1). Coastal dune willow- Sitka willow – Douglas spiraea (*Salix hookeriana - Salix sitchensis - Spiraea* douglasii) Shrubland Alliance **Attachment C: Photos 3-4**):

Conservation Status:

• Global Rank: G3 (Vulnerable)

• State Rank: S3 (Vulnerable)

One discontinuous community of Coastal dune willow- Sitka willow – Douglas spiraea (*Salix hookeriana - Salix sitchensis - Spiraea* douglasii) Shrubland Alliance comprising approximately 3,025 sqft within the PSB was identified on May 9th, 2023. The occurrences were located primarily along the outer edges of wetland communities between GPS coordinates (40.942177, -124.104115) and (40.941778, -124.106008) at an elevation of approximately 135 feet above sea level (**Appendix A: Figure 4, Wetlands and Sensitive Natural Communities).**

Salix hookeriana and *Salix sitchensis* alliances were treated as separate alliances in *A Manual of California Vegetation, Second Edition* (2009), however, they have since been merged into a combined alliance in *A Manual of California Vegetation, Online Edition (*2023*)*. *Salix sitchensis* and *S. hookeriana* are typical dominants or co-dominants in this alliance and stands range from Alaska to California. They grow along low elevation streams and lagoons along the North Coast of California. Stands commonly occur in road banks and along shores of creeks, rivers, lagoons, and dune hollows. It is the major willow scrub along the moist, northwestern coastal belt of California (CNPS 2023b).

5. Conclusion

Seasonally appropriate floristic surveys for special status plants and SNCs with potential to occur within the PSB were conducted by GHD on May 9th and June 13th, 2023. One special-status plant species, Harlequin lotus (*Hosackia gracilis*-CRPR 4.2) and one SNC, Coastal dune willow- Sitka willow – Douglas spiraea (*Salix hookeriana - Salix sitchensis - Spiraea* douglasii) Shrubland Alliance (G3/S3) were observed throughout the PSB.

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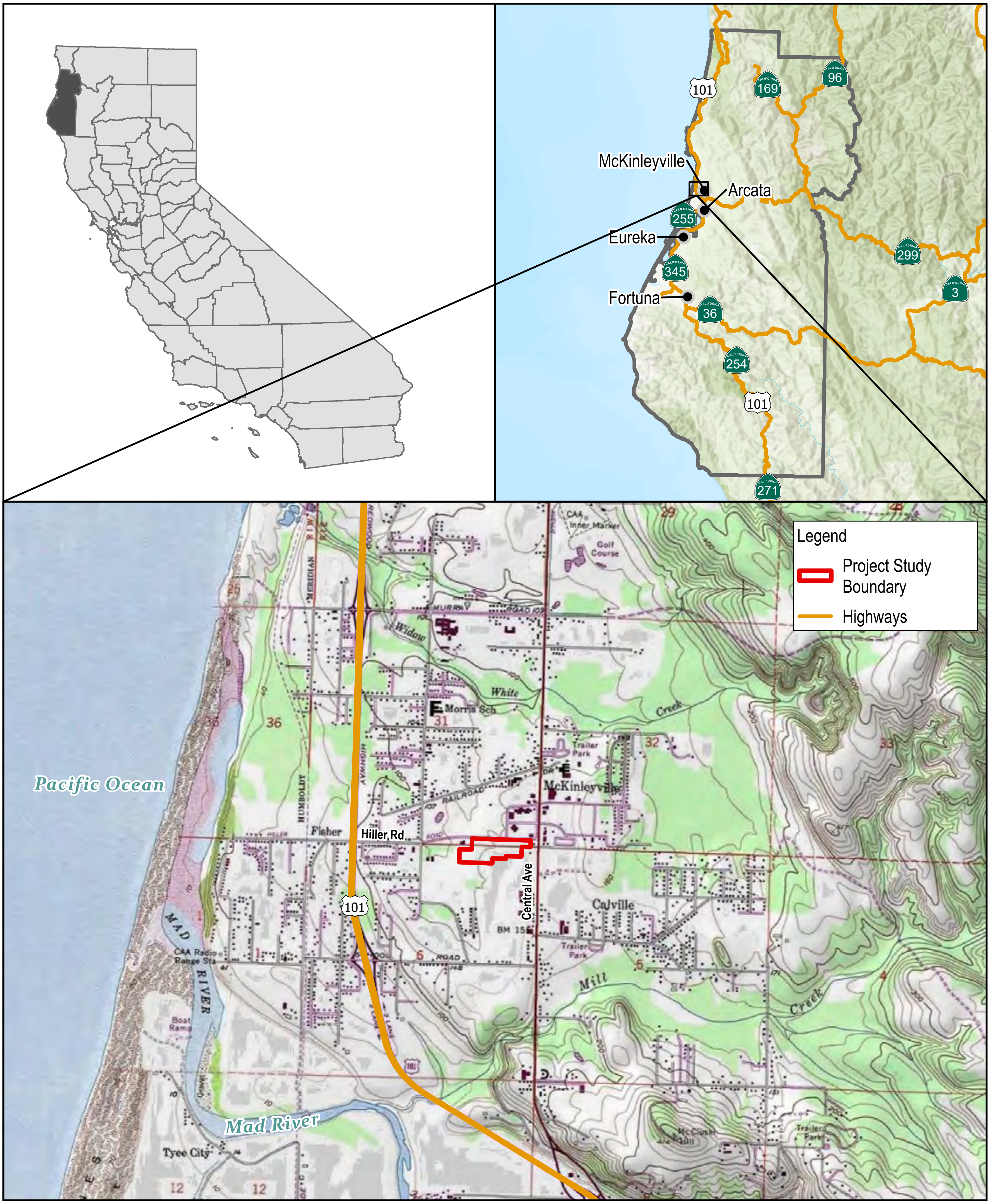
Attachment A

Figures



Paper Size ANSI A

0 1,000 2,000 3,000

Feet

Map Projection: Mercator Auxiliary Sphere
Horizontal Datum: WGS 1984
Grid: WGS 1984 Web Mercator Auxiliary Sphere

N

GHD

Life Plan Humboldt
Wetland Delineation South Hiller Rd, McKinleyville

Project No. **12603187**
Revision No. **-**
Date **Jul 2023**

Vicinity Map

FIGURE 1

\\ghdnet\ghd\US\Eureka\Projects\561\12603187\GIS\Maps\Deliverables\LPH_Botanical_Memo.aprx - 12603187_001_Vicinity Print date: 06 Jul 2023 - 10:27

Data source: World Topographic Map - labelless: California State Parks, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA; World Hillshade: Esri, NASA, NGA, USGS, FEMA; USA_Topo_Maps: Copyright: © 2011 National Geographic Society, i-cubed; World Topographic Map - labelless: California State Parks, Esri, HERE, Garmin, FAO, NOAA, USGS, Bureau of Land Management, EPA, NPS; World Hillshade: Esri, USGS. Created by: jlopez4

Paper Size ANSI A

0 75 150 225 300

Feet

N

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

GHD

Life Plan Humboldt
Rare Plants and Sensitive Natural Communities Survey
McKinleyville

Project Study Boundary (PSB)

Project No. **12603187**
Revision No. **-**
Date **Jun 2023**

FIGURE 2

\\ghdnet\ghd\US\Eureka\Projects\561\12603187\GIS\Maps\Deliverables\LPH_Botanical_Memo.aprx
Print date: 30 Jun 2023 - 14:10

Data source: Humboldt County GIS, USFWS National Wetlands Inventory,Tiled service layer: © OpenStreetMap (and) contributors, CC-BY-SA. Created by: jlopez4

Paper Size ANSI A

0 75 150 225 300

Feet

N

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

GHD

Life Plan Humboldt
Rare Plants and Sensitive Natural Communities Survey
McKinleyville

Project No. **12603187**
Revision No. **-**
Date **Jun 2023**

Special Status Species

FIGURE 3

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Print date: 30 Jun 2023 - 14:20

Data source: Humboldt County GIS, USFWS National Wetlands Inventory,Tiled service layer: © OpenStreetMap (and) contributors, CC-BY-SA. Created by: jlopez4

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

GHD

Life Plan Humboldt
Rare Plants and Sensitive Natural Communities Survey
McKinleyville

Wetlands and Sensitive Natural Communities (SNC)

Project No. **12603187**
Revision No. **-**
Date **Jul 2023**

FIGURE 4

\\ghdnet\ghd\US\Eureka\Projects\561\12603187\GIS\Maps\Deliverables\LPH_Botanical_Memo.aprx
Print date: 06 Jul 2023 - 11:40

Data source: Humboldt County GIS,Tiled service layer: © OpenStreetMap (and) contributors, CC-BY-SA. Created by: jlopez4

Attachment B

List of Observed Taxa

Attachment B. Plant species observed in the PSB 2022.

Scientific Name	Common Name	Family	Status
Abies grandis	grand fir	Pinaceae	native
Acmispon parvula	hill lotus	Fabacea	native
Agrostis stolonifera	redtop	Poaceae	invasive non-native
Alnus rubra	red alder	Betulaceae	native
Anthoxanthum odoratum	sweet vernal grass	Poaceae	invasive non-native
Avena barbata	slim oat	Poaceae	non-native
Baccharis pilularis	coyote brush	Asteraceae	non-native
Bellis perennis	English daisy	Asteraceae	non-native
Brassica nigra	black mustard	Brassicaceae	invasive non-native
Briza maxima	rattlesnake grass	Poaceae	non-native
Bromus carinatus	California brome	Poaceae	native
Bromus diandrus	ripgut	Poaceae	non-native
Bromus hordeaceus	soft chess	Poaceae	invasive non-native
Carex hartfordii	Montery sedge	Cyperaceae	native
Carex obnupta	slough sedge	Cyperaceae	native
Cerastrium fontanum	common chickweed	Caryophyllaceae	non-native
Cerastrium glomeratum	sticky chickweed	Caryophyllaceae	non-native
Cirsium vulgare	bullthistle	Asteraceae	invasive non-native
Claytonia sibirica	candy flower	Montiaceae	native
Cortaderia sp.	pampas grass	Poaceae	invasive non-native
Crocsosmia x crocosmiiflora	monbretia	Iridaceae	invasive non-native
Cytisus scoparius	Scotch broom	Fabaceae	invasive non-native
Dactylus glomeratus	orchard grass	Poaceae	non-native
Daucus carota	carrot	Apiaceae	non-native
Daucus pusillus	wild carrot	Apiaceae	native
Epilobium ciliatum	Northern willow herb	Onagraceae	native
Equisetum arvense	common horsetail	Equisetaceae	native
Erigeron canadensis	horseweed	Asteraceae	native
Erodium moschatum	whitestem filaree	Geraniaceae	non-native
Eucalyptus globulus	blue gum	Myrtaceae	invasive non-native
Festuca arundinacea	reed fescue	Poaceae	invasive non-native
Festuca perennis	Italian rye grass	Poaceae	invasive non-native
Fragaria vesca	wild strawberry	Rosaceae	native
Gallium aparine	cleavers	Rubiaceae	non-native
Gaultheria shallon	salal	Ericaceae	native
Geranium dissectum	cutleaf geranium	Geraniaceae	non-native
Geranium molle	dove's foot geranium	Geraniaceae	non-native
Gernanium robertianum	Rpobert geranium	Geraniaceae	non-native

Scientific Name	Common Name	Family	Status
Holcus lanatus	common velvetgrass	Poaceae	invasive non-native
Hosackia gracilis	**harlequin lotus**	**Fabacea**	**native (CRPR 4.2)**
Hypochaeris glabra	smooth cats ear	Asteraceae	invasive non-native
Hypochaeris radicata	hairy cats ear	Asteraceae	invasive non-native
Ilex aquifolium	holly	Aquifoliaceae	invasive non-native
Juncus effusus var. pacifica	Pacific rush	Juncaceae	native
Juncus hesperius	coast rush	Juncaceae	native
Lactuca saligna	willow lettuce	Asteraceae	non-native
Lapsana communis	nipplewort	Asteraceae	non-native
Leucanthemum vulgare	oxe eye daisy	Asteraceae	invasive non-native
Linum bienne	flax	Linaceae	non-native
Lonicera involucrata	coast twinberry	Caprifoliaceae	native
Lotus corniculatus	bird's foot trefoil	Fabaceae	non-native
Lotus ulginosus	marsh lotus	Fabaceae	non-native
Lupinus rivularis	riverbank lupine	Fabaceae	native
Medicago polymorpha	burclover	Fabaceae	invasive non-native
Narcissus spp.	daffodil	Amaryllidaceae	non-native
Oenanthe sarmentosa	water parsley	Apiaceae	non-native
Oxalis articulata	windowbox woodsorrel	Oxalidaceae	non-native
Oxalis pes-caprae	Burmuda buttercup	Oxalidaceae	invasive non-native
Picea sitchensis	Sitka spruce	Pinaceae	native
Pinus radiata	Montery pine	Pinaceae	invasive non-native
Plantago lanceolata	ribwort	Plantaginaceae	invasive non-native
Poa annua	annual blue grass	Poaceae	non-native
Polystichum munitum	Western sword fern	Dryopteridaceae	native
Pseudotsuga menziesii	Douglas-fir	Pinaceae	native
Pteridium aquilinum	bracken fern	Dennstaedtiaceae	native
Ranunculus repens	creeping buttercup	Ranunculaceae	invasive non-native
Raphanus sativus	wild radish	Brassicaceae	non-native
Rubus armeniacus	Himalayan blackberry	Rosaceae	invasive non-native
Rubus parviflorus	thimbleberry	Rosaceae	native
Rubus ursinus	California blackberry	Rosaceae	native
Rumex acetosella	sheep sorrel	Polygonaceae	invasive non-native
Rumex crispus	curley dock	Polygonaceae	invasive non-native
Salix hookeriana	coastal willow	Salicaceae	native
Salix sitchensis	Sitka willow	Salicaceae	native
Sambucus racemosa	red elderberry	Viburnaceae	native
Scrophularia californica	California figwort	Scrophulariaceae	native
Sonchus asper	prickly sow thistle	Asteraceae	non-native

Scientific Name	Common Name	Family	Status
Stachys chamissonis	hedge nettle	Lamiaceae	native
Taraxacum officinale	common dandelion	Asteraceae	non-native
Trifoliem pratensis	red clover	Fabacea	non-native
Trifolium dubium	lesser trefoil	Fabaceae	non-native
Trifolium repens	white clover	Fabaceae	non-native
Tropaeolum majus	garden nasturtium	Tropaeolaceae	non-native
Vaccinium ovatum	evergreen huckleberry	Ericaceae	native
Veronica anagallis-aquatica	water speedwell	Plantaginaceae	non-native
Vicia americana	American vetch	Fabacea	native
Vicia sativa	spring vetch	Fabaceae	non-native

Attachment C

Site Photographs

Photo 1:

Description:

Harlequin lotus (*Hosackia gracilis*- CRPR 4.2).

Approximately 1,000 individuals observed throughout the PSB.

Location:

40.941963,-124.105344

Date:

June 13, 2023

Photo 2:

Description:

Harlequin lotus (*Hosackia gracilis*- CRPR 4.2) community associated with non-native *A. odoratum* and *H. lanatus,* Integrating closely with non-native *L. ulginosus.*

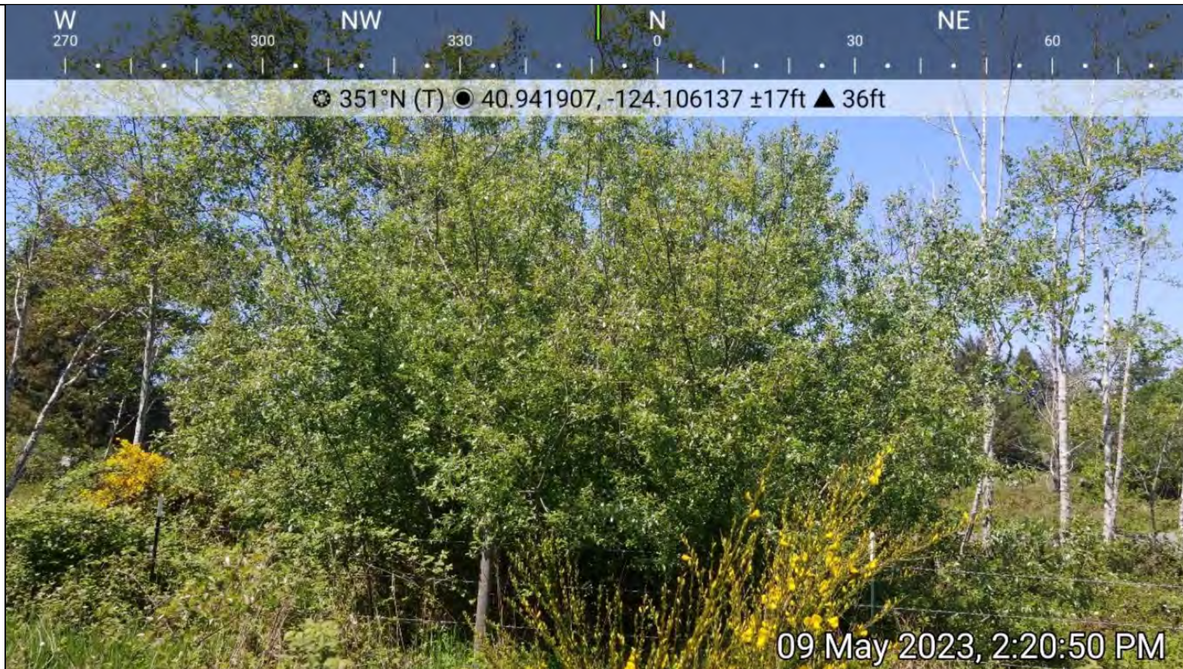
Location:

40.941691,-124.105763

Date:

June 13, 2023

This Technical Memorandum is provided as an interim output under our agreement with Life Plan Humboldt. It is provided to foster discussion in relation to technical matters associated with the project and should not be relied upon in any other way.

Photo 3: Description: Coastal dune willow-Sitka willow – Douglas spiraea (*Salix hookeriana - Salix sitchensis - Spiraea* douglasii) Shrubland Alliance comprising approximately 3,025 sqft within the PSB. Location: 40.941907,-124.106137 Date: May 09, 2023	
Photo 4: Description: Coastal dune willow-Sitka willow – Douglas spiraea (*Salix hookeriana - Salix sitchensis - Spiraea* douglasii) Shrubland Alliance comprising approximately 3,025 sqft within the PSB. Location: 40.941878,-124.106091 Date: May 09, 2023	

Attachment D

Rapid Assessment Datasheets

5/9/2023 MA

Combined Vegetation Rapid Assessment and Relevé Field Form

(Revised March 27, 2018)

SPECIES SHEET

Database #: ________

IV. VEGETATION DESCRIPTION

% NonVasc cover:____ Total % Vasc Veg cover: 100

% Cover - Conifer tree / Hardwood tree: C / ~~tr~~ Regenerating Tree: 5 Shrub: >75 Herbaceous: ____

Height Class - Conifer tree / Hardwood tree: ~~5~~ / ~~5~~ Regenerating Tree: 3 Shrub: 5 Herbaceous: ____

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
S	SALHOO Salix hookeriana	75		
H	RANREP Ranunculus repens	1-5		
H	JUNEFF Juncus effusus	+		
S	RUBURS Rubus ursinus	5-15		
H	HOLLAN Holcus lanatus	1-5		
H	ANTODO Anthoxanthum odoratum	1-5		
H	RUMCRI Rumex Crispus	+		
H	GALAPA Galium Aparine	1-5		
H	MEDPOL Medicago polymorpha	+		
H	EROMOS Erodium moschatum	r		
H	OENSAR Oenanthe sarmentosa	+		

Unusual species: ________

Combined Vegetation Rapid Assessment and Relevé Field Form
(Revised March 27, 2018)

For Office Use:	Final database #:	Final vegetation type:	Alliance ___ Association

I. LOCATIONAL/ENVIRONMENTAL DESCRIPTION — circle: Relevé or RA

Database #:	Date: 5/9/2023	Name of recorder: Miles Hartzell - GHD
		Other surveyors:
	UID:	Location Name: Hiller Rd. McKinleyville, CA

GPS name: EOS Arrow 100 — For Relevé only: Bearing°, left axis at ID point ____ of Long / Short side

UTME ______ UTMN ______ Zone: 11 NAD83 GPS error: ft./ m./ PDOP 1m

Decimal degrees: LAT 40.941996 LONG -124.106074

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: Samsung Galaxy S9 — Cardinal photos at ID point: No

Other photos: See Attached photo, North bearing from 40.9419326, -124.1061605

Stand Size (acres): <1, 1-5, >5 | Plot Area (m²): 100 / ____ | Plot Dimensions ____ x ____ m | RA Radius 3 m

Exposure, Actual °: ____ NE NW SE SW Flat Variable | Steepness, Actual °: 1-5% 0° 1-5° >5-25° >25

Topography: Macro: top upper mid lower bottom | Micro: convex flat concave undulating

Geology code: MISF — Soil Texture code: Loam | Upland or Wetland/Riparian (circle one)

% Surface cover: (Incl. outcrops) (>60cm diam) (25-60cm) (7.5-25cm) (2mm-7.5cm) (Incl sand, mud)

H₂O: 0 BA Stems: 5 Litter: 5 Bedrock: 0 Boulder: 0 Stone: 0 Cobble: 0 Gravel: 0 Fines: 90 =100%

% Current year bioturbation ____ Past bioturbation present? Yes / No | % Hoof punch 1 - Deer

Fire evidence: Yes / No (circle one) If yes, describe in Site history section, including date of fire, if known.

Site history, stand age, comments:

- Adjacent to wet pasture wetland. (Juncus effusus, Holcus lanatus, Ranunculus repens, etc)
- Some of stand growing on old spoils pile
- Site has been actively managed for pasture land
- Patchy, small ~ approximately 3000 sqft total

Disturbance code / Intensity (L,M,H): 04 / L 05 / H 19 / M ___ / ___ / ___ "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: Salix hookeriana - Salix sitchensis - Spiraea douglasii Shrubland Alliance

Field-assessed Association name (optional): ______

Adjacent Alliances/direction: Holcus lanatus - Anthoxanthum odoratum Herbaceous Alliance (S.I.)

Confidence in Alliance identification: L M H — Explain: meets membership rules

Phenology (E,P,L): Herb ___ Shrub X Tree X — Other identification or mapping information:

Attachment E

Database Query Results

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Humboldt County, California

Local office

Arcata Fish And Wildlife Office

(707) 822-7201
(707) 822-8411

1655 Heindon Road

Arcata, CA 95521-4573

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Pacific Marten, Coastal Distinct Population Segment Martes caurina Wherever found There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/9081	Threatened

Birds

NAME	STATUS
Marbled Murrelet Brachyramphus marmoratus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/4467	Threatened
Northern Spotted Owl Strix occidentalis caurina Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/1123	Threatened
Western Snowy Plover Charadrius nivosus nivosus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/8035	Threatened
Yellow-billed Cuckoo Coccyzus americanus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/3911	Threatened

Reptiles

NAME	STATUS

Green Sea Turtle Chelonia mydas No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6199	Threatened

Fishes

NAME	STATUS
Tidewater Goby Eucyclogobius newberryi Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/57	Endangered

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Flowering Plants

NAME	STATUS
Western Lily Lilium occidentale Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/998	Endangered

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Allen's Hummingbird Selasphorus sasin This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9637	Breeds Feb 1 to Jul 15

Bald Eagle Haliaeetus leucocephalus — Breeds Jan 1 to Sep 30

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Black Oystercatcher Haematopus bachmani — Breeds Apr 15 to Oct 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9591

Black Swift Cypseloides niger — Breeds Jun 15 to Sep 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8878

Black Turnstone Arenaria melanocephala — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

California Gull Larus californicus — Breeds Mar 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Cassin's Auklet Ptychoramphus aleuticus — Breeds Mar 21 to Sep 21

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/6967

Clark's Grebe Aechmophorus clarkii — Breeds Jun 1 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Evening Grosbeak Coccothraustes vespertinus — Breeds May 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Lesser Yellowlegs Tringa flavipes — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9679

Marbled Godwit Limosa fedoa — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9481

Olive-sided Flycatcher Contopus cooperi — Breeds May 20 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3914

Rufous Hummingbird selasphorus rufus — Breeds Apr 15 to Jul 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8002

Short-billed Dowitcher Limnodromus griseus — Breeds Jun 1 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9480

Western Grebe aechmophorus occidentalis — Breeds Jun 1 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/6743

Willet Tringa semipalmata — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Wrentit *Chamaea fasciata* Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

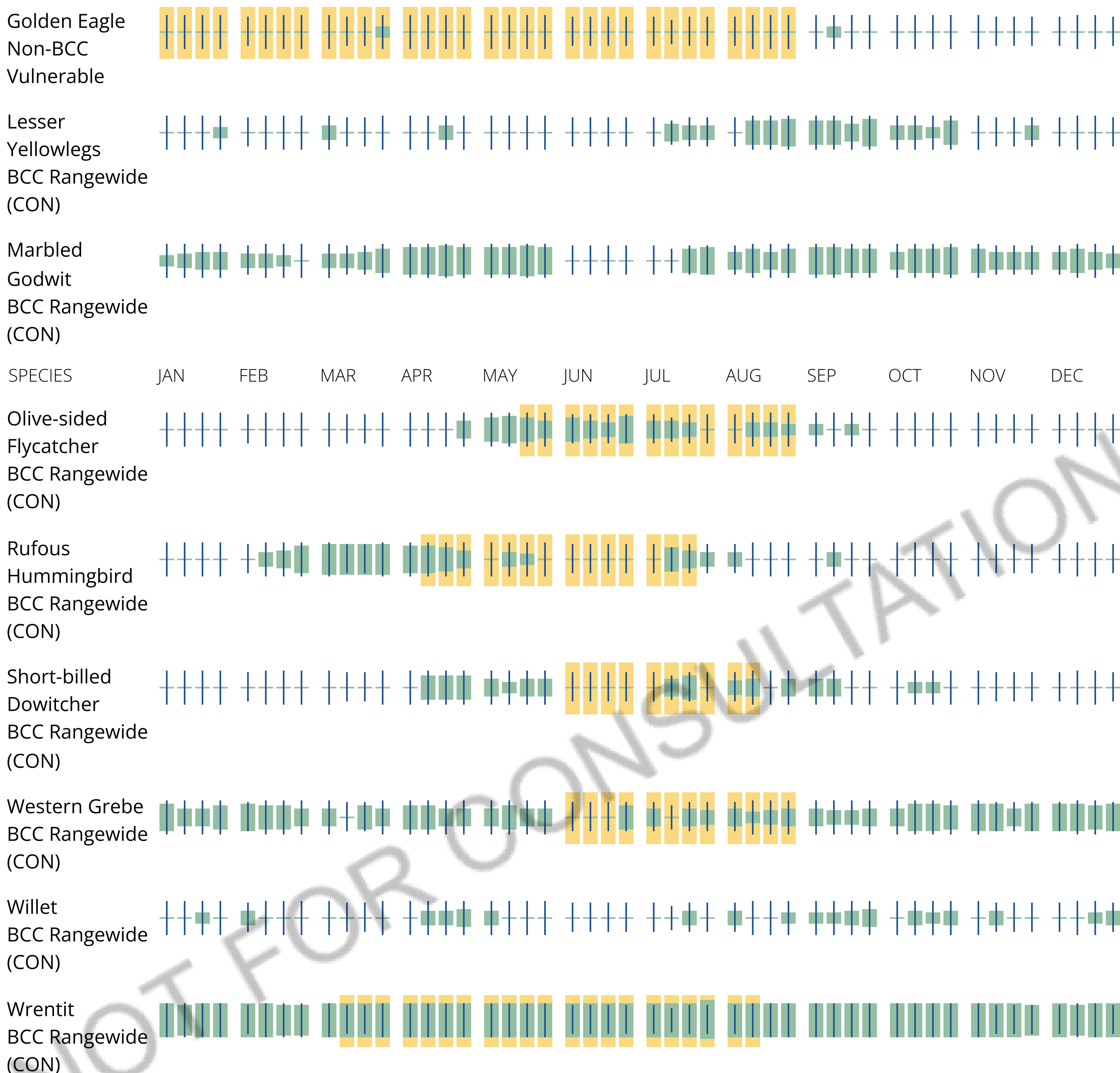
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures] describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures] or [permits] may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Element_Type	Scientific_Name	Common_Name	Element_Code	Federal_Status	State_Status	CDFW_Status	CA_Rare_Plant_Rank	Quad_Code	Quad_Name	Data_Status	Taxonomic_Sort
Animals - Amphibians	Ascaphus truei	Pacific tailed frog	AAABA01010	None	None	SSC	-	4112411	CRANNELL	Mapped and Unprocessed	Animals - Amphibians - Ascaphidae - Ascaphus truei
Animals - Amphibians	Ascaphus truei	Pacific tailed frog	AAABA01010	None	None	SSC	-	4112318	PANTHER CREEK	Mapped and Unprocessed	Animals - Amphibians - Ascaphidae - Ascaphus truei
Animals - Amphibians	Ascaphus truei	Pacific tailed frog	AAABA01010	None	None	SSC	-	4012481	ARCATA NORTH	Mapped and Unprocessed	Animals - Amphibians - Ascaphidae - Ascaphus truei
Animals - Amphibians	Ascaphus truei	Pacific tailed frog	AAABA01010	None	None	SSC	-	4012388	BLUE LAKE	Mapped and Unprocessed	Animals - Amphibians - Ascaphidae - Ascaphus truei
Animals - Amphibians	Ascaphus truei	Pacific tailed frog	AAABA01010	None	None	SSC	-	4012471	ARCATA SOUTH	Mapped and Unprocessed	Animals - Amphibians - Ascaphidae - Ascaphus truei
Animals - Amphibians	Ascaphus truei	Pacific tailed frog	AAABA01010	None	None	SSC	-	4012378	KORBEL	Mapped and Unprocessed	Animals - Amphibians - Ascaphidae - Ascaphus truei
Animals - Amphibians	Plethodon elongatus	Del Norte salamander	AAAAD12050	None	None	WL	-	4012378	KORBEL	Mapped and Unprocessed	Animals - Amphibians - Plethodontidae - Plethodon elongatus
Animals - Amphibians	Plethodon elongatus	Del Norte salamander	AAAAD12050	None	None	WL	-	4012388	BLUE LAKE	Mapped and Unprocessed	Animals - Amphibians - Plethodontidae - Plethodon elongatus
Animals - Amphibians	Plethodon elongatus	Del Norte salamander	AAAAD12050	None	None	WL	-	4112318	PANTHER CREEK	Mapped and Unprocessed	Animals - Amphibians - Plethodontidae - Plethodon elongatus
Animals - Amphibians	Plethodon elongatus	Del Norte salamander	AAAAD12050	None	None	WL	-	4112411	CRANNELL	Unprocessed	Animals - Amphibians - Plethodontidae - Plethodon elongatus
Animals - Amphibians	Rana aurora	northern red-legged frog	AAABH01021	None	None	SSC	-	4112411	CRANNELL	Mapped and Unprocessed	Animals - Amphibians - Ranidae - Rana aurora
Animals - Amphibians	Rana aurora	northern red-legged frog	AAABH01021	None	None	SSC	-	4112318	PANTHER CREEK	Mapped	Animals - Amphibians - Ranidae - Rana aurora
Animals - Amphibians	Rana aurora	northern red-legged frog	AAABH01021	None	None	SSC	-	4012481	ARCATA NORTH	Mapped and Unprocessed	Animals - Amphibians - Ranidae - Rana aurora
Animals - Amphibians	Rana aurora	northern red-legged frog	AAABH01021	None	None	SSC	-	4012482	TYEE CITY	Mapped	Animals - Amphibians - Ranidae - Rana aurora
Animals - Amphibians	Rana aurora	northern red-legged frog	AAABH01021	None	None	SSC	-	4012388	BLUE LAKE	Mapped and Unprocessed	Animals - Amphibians - Ranidae - Rana aurora
Animals - Amphibians	Rana aurora	northern red-legged frog	AAABH01021	None	None	SSC	-	4012472	EUREKA	Mapped and Unprocessed	Animals - Amphibians - Ranidae - Rana aurora
Animals - Amphibians	Rana aurora	northern red-legged frog	AAABH01021	None	None	SSC	-	4012471	ARCATA SOUTH	Mapped and Unprocessed	Animals - Amphibians - Ranidae - Rana aurora
Animals - Amphibians	Rana aurora	northern red-legged frog	AAABH01021	None	None	SSC	-	4012378	KORBEL	Mapped and Unprocessed	Animals - Amphibians - Ranidae - Rana aurora
Animals - Amphibians	Rana boylii pop. 1	foothill yellow-legged frog - north coast DPS	AAABH01051	None	None	SSC	-	4012378	KORBEL	Mapped and Unprocessed	Animals - Amphibians - Ranidae - Rana boylii pop. 1
Animals - Amphibians	Rana boylii pop. 1	foothill yellow-legged frog - north coast DPS	AAABH01051	None	None	SSC	-	4012471	ARCATA SOUTH	Mapped	Animals - Amphibians - Ranidae - Rana boylii pop. 1
Animals - Amphibians	Rana boylii pop. 1	foothill yellow-legged frog - north coast DPS	AAABH01051	None	None	SSC	-	4012388	BLUE LAKE	Mapped and Unprocessed	Animals - Amphibians - Ranidae - Rana boylii pop. 1
Animals - Amphibians	Rana boylii pop. 1	foothill yellow-legged frog - north coast DPS	AAABH01051	None	None	SSC	-	4012481	ARCATA NORTH	Mapped and Unprocessed	Animals - Amphibians - Ranidae - Rana boylii pop. 1
Animals - Amphibians	Rana boylii pop. 1	foothill yellow-legged frog - north coast DPS	AAABH01051	None	None	SSC	-	4112318	PANTHER CREEK	Mapped	Animals - Amphibians - Ranidae - Rana boylii pop. 1
Animals - Amphibians	Rana boylii pop. 1	foothill yellow-legged frog - north coast DPS	AAABH01051	None	None	SSC	-	4112411	CRANNELL	Mapped	Animals - Amphibians - Ranidae - Rana boylii pop. 1

Animals - Amphibians	Rhyacotriton variegatus	southern torrent salamander	AAAAJ01020	None	None	SSC	-	4112411	CRANNELL	Mapped and Unprocessed	Animals - Amphibians - Rhyacotritonidae - Rhyacotriton variegatus
Animals - Amphibians	Rhyacotriton variegatus	southern torrent salamander	AAAAJ01020	None	None	SSC	-	4112318	PANTHER CREEK	Mapped and Unprocessed	Animals - Amphibians - Rhyacotritonidae - Rhyacotriton variegatus
Animals - Amphibians	Rhyacotriton variegatus	southern torrent salamander	AAAAJ01020	None	None	SSC	-	4012481	ARCATA NORTH	Mapped and Unprocessed	Animals - Amphibians - Rhyacotritonidae - Rhyacotriton variegatus
Animals - Amphibians	Rhyacotriton variegatus	southern torrent salamander	AAAAJ01020	None	None	SSC	-	4012388	BLUE LAKE	Mapped and Unprocessed	Animals - Amphibians - Rhyacotritonidae - Rhyacotriton variegatus
Animals - Amphibians	Rhyacotriton variegatus	southern torrent salamander	AAAAJ01020	None	None	SSC	-	4012471	ARCATA SOUTH	Mapped and Unprocessed	Animals - Amphibians - Rhyacotritonidae - Rhyacotriton variegatus
Animals - Amphibians	Rhyacotriton variegatus	southern torrent salamander	AAAAJ01020	None	None	SSC	-	4012378	KORBEL	Mapped and Unprocessed	Animals - Amphibians - Rhyacotritonidae - Rhyacotriton variegatus
Animals - Birds	Accipiter cooperii	Coopers hawk	ABNKC12040	None	None	WL	-	4012378	KORBEL	Mapped	Animals - Birds - Accipitridae - Accipiter cooperii
Animals - Birds	Accipiter cooperii	Coopers hawk	ABNKC12040	None	None	WL	-	4012471	ARCATA SOUTH	Unprocessed	Animals - Birds - Accipitridae - Accipiter cooperii
Animals - Birds	Accipiter cooperii	Coopers hawk	ABNKC12040	None	None	WL	-	4012472	EUREKA	Unprocessed	Animals - Birds - Accipitridae - Accipiter cooperii
Animals - Birds	Accipiter cooperii	Coopers hawk	ABNKC12040	None	None	WL	-	4012482	TYEE CITY	Unprocessed	Animals - Birds - Accipitridae - Accipiter cooperii
Animals - Birds	Accipiter striatus	sharp-shinned hawk	ABNKC12020	None	None	WL	-	4012481	ARCATA NORTH	Unprocessed	Animals - Birds - Accipitridae - Accipiter striatus
Animals - Birds	Circus hudsonius	northern harrier	ABNKC11011	None	None	SSC	-	4012481	ARCATA NORTH	Unprocessed	Animals - Birds - Accipitridae - Circus hudsonius
Animals - Birds	Circus hudsonius	northern harrier	ABNKC11011	None	None	SSC	-	4012482	TYEE CITY	Unprocessed	Animals - Birds - Accipitridae - Circus hudsonius
Animals - Birds	Circus hudsonius	northern harrier	ABNKC11011	None	None	SSC	-	4012472	EUREKA	Mapped and Unprocessed	Animals - Birds - Accipitridae - Circus hudsonius
Animals - Birds	Circus hudsonius	northern harrier	ABNKC11011	None	None	SSC	-	4012471	ARCATA SOUTH	Unprocessed	Animals - Birds - Accipitridae - Circus hudsonius
Animals - Birds	Elanus leucurus	white-tailed kite	ABNKC06010	None	None	FP	-	4012471	ARCATA SOUTH	Unprocessed	Animals - Birds - Accipitridae - Elanus leucurus
Animals - Birds	Elanus leucurus	white-tailed kite	ABNKC06010	None	None	FP	-	4012472	EUREKA	Mapped	Animals - Birds - Accipitridae - Elanus leucurus
Animals - Birds	Elanus leucurus	white-tailed kite	ABNKC06010	None	None	FP	-	4012481	ARCATA NORTH	Mapped and Unprocessed	Animals - Birds - Accipitridae - Elanus leucurus
Animals - Birds	Haliaeetus leucocephalus	bald eagle	ABNKC10010	Delisted	Endangered	FP	-	4012471	ARCATA SOUTH	Mapped and Unprocessed	Animals - Birds - Accipitridae - Haliaeetus leucocephalus
Animals - Birds	Haliaeetus leucocephalus	bald eagle	ABNKC10010	Delisted	Endangered	FP	-	4012378	KORBEL	Mapped and Unprocessed	Animals - Birds - Accipitridae - Haliaeetus leucocephalus
Animals - Birds	Brachyramphus marmoratus	marbled murrelet	ABNNN06010	Threatened	Endangered	-	-	4012472	EUREKA	Unprocessed	Animals - Birds - Alcidae - Brachyramphus marmoratus
Animals - Birds	Cerorhinca monocerata	rhinoceros auklet	ABNNN11010	None	None	WL	-	4112411	CRANNELL	Mapped	Animals - Birds - Alcidae - Cerorhinca monocerata
Animals - Birds	Fratercula cirrhata	tufted puffin	ABNNN12010	None	None	SSC	-	4112411	CRANNELL	Mapped	Animals - Birds - Alcidae - Fratercula cirrhata
Animals - Birds	Chaetura vauxi	Vauxs swift	ABNUA03020	None	None	SSC	-	4012472	EUREKA	Unprocessed	Animals - Birds - Apodidae - Chaetura vauxi
Animals - Birds	Ardea alba	great egret	ABNGA04040	None	None	-	-	4012472	EUREKA	Mapped and Unprocessed	Animals - Birds - Ardeidae - Ardea alba
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	4012472	EUREKA	Mapped and Unprocessed	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	4012471	ARCATA SOUTH	Mapped	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	4012481	ARCATA NORTH	Mapped and Unprocessed	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	4012482	TYEE CITY	Unprocessed	Animals - Birds - Ardeidae - Ardea

											herodias
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	4012378	KORBEL	Unprocessed	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	Botaurus lentiginosus	American bittern	ABNGA01020	None	None	-	-	4012481	ARCATA NORTH	Unprocessed	Animals - Birds - Ardeidae - Botaurus lentiginosus
Animals - Birds	Botaurus lentiginosus	American bittern	ABNGA01020	None	None	-	-	4012471	ARCATA SOUTH	Unprocessed	Animals - Birds - Ardeidae - Botaurus lentiginosus
Animals - Birds	Egretta thula	snowy egret	ABNGA06030	None	None	-	-	4012472	EUREKA	Mapped and Unprocessed	Animals - Birds - Ardeidae - Egretta thula
Animals - Birds	Egretta thula	snowy egret	ABNGA06030	None	None	-	-	4012482	TYEE CITY	Unprocessed	Animals - Birds - Ardeidae - Egretta thula
Animals - Birds	Nycticorax nycticorax	black-crowned night heron	ABNGA11010	None	None	-	-	4012482	TYEE CITY	Unprocessed	Animals - Birds - Ardeidae - Nycticorax nycticorax
Animals - Birds	Nycticorax nycticorax	black-crowned night heron	ABNGA11010	None	None	-	-	4012472	EUREKA	Mapped and Unprocessed	Animals - Birds - Ardeidae - Nycticorax nycticorax
Animals - Birds	Nycticorax nycticorax	black-crowned night heron	ABNGA11010	None	None	-	-	4012388	BLUE LAKE	Mapped and Unprocessed	Animals - Birds - Ardeidae - Nycticorax nycticorax
Animals - Birds	Nycticorax nycticorax	black-crowned night heron	ABNGA11010	None	None	-	-	4012471	ARCATA SOUTH	Mapped	Animals - Birds - Ardeidae - Nycticorax nycticorax
Animals - Birds	Nycticorax nycticorax	black-crowned night heron	ABNGA11010	None	None	-	-	4012378	KORBEL	Unprocessed	Animals - Birds - Ardeidae - Nycticorax nycticorax
Animals - Birds	Charadrius montanus	mountain plover	ABNNB03100	None	None	SSC	-	4012471	ARCATA SOUTH	Mapped	Animals - Birds - Charadriidae - Charadrius montanus
Animals - Birds	Charadrius montanus	mountain plover	ABNNB03100	None	None	SSC	-	4012472	EUREKA	Mapped and Unprocessed	Animals - Birds - Charadriidae - Charadrius montanus
Animals - Birds	Charadrius montanus	mountain plover	ABNNB03100	None	None	SSC	-	4012482	TYEE CITY	Unprocessed	Animals - Birds - Charadriidae - Charadrius montanus
Animals - Birds	Charadrius montanus	mountain plover	ABNNB03100	None	None	SSC	-	4012481	ARCATA NORTH	Unprocessed	Animals - Birds - Charadriidae - Charadrius montanus
Animals - Birds	Charadrius montanus	mountain plover	ABNNB03100	None	None	SSC	-	4112411	CRANNELL	Unprocessed	Animals - Birds - Charadriidae - Charadrius montanus
Animals - Birds	Charadrius nivosus nivosus	western snowy plover	ABNNB03031	Threatened	None	SSC	-	4112411	CRANNELL	Unprocessed	Animals - Birds - Charadriidae - Charadrius nivosus nivosus
Animals - Birds	Charadrius nivosus nivosus	western snowy plover	ABNNB03031	Threatened	None	SSC	-	4012481	ARCATA NORTH	Mapped and Unprocessed	Animals - Birds - Charadriidae - Charadrius nivosus nivosus
Animals - Birds	Charadrius nivosus nivosus	western snowy plover	ABNNB03031	Threatened	None	SSC	-	4012482	TYEE CITY	Mapped and Unprocessed	Animals - Birds - Charadriidae - Charadrius nivosus nivosus
Animals - Birds	Charadrius nivosus nivosus	western snowy plover	ABNNB03031	Threatened	None	SSC	-	4012472	EUREKA	Mapped and Unprocessed	Animals - Birds - Charadriidae - Charadrius nivosus nivosus
Animals - Birds	Falco columbarius	merlin	ABNKD06030	None	None	WL	-	4012472	EUREKA	Unprocessed	Animals - Birds - Falconidae - Falco columbarius
Animals - Birds	Falco peregrinus anatum	American peregrine falcon	ABNKD06071	Delisted	Delisted	FP	-	4012472	EUREKA	Mapped and Unprocessed	Animals - Birds - Falconidae - Falco peregrinus anatum
Animals - Birds	Falco peregrinus anatum	American peregrine falcon	ABNKD06071	Delisted	Delisted	FP	-	4012481	ARCATA NORTH	Mapped	Animals - Birds - Falconidae - Falco peregrinus anatum
Animals - Birds	Falco peregrinus anatum	American peregrine falcon	ABNKD06071	Delisted	Delisted	FP	-	4112411	CRANNELL	Unprocessed	Animals - Birds - Falconidae - Falco peregrinus anatum
Animals - Birds	Falco peregrinus anatum	American peregrine falcon	ABNKD06071	Delisted	Delisted	FP	-	4012471	ARCATA SOUTH	Mapped and Unprocessed	Animals - Birds - Falconidae - Falco peregrinus anatum
Animals - Birds	Riparia riparia	bank swallow	ABPAU08010	None	Threatened	-	-	4012378	KORBEL	Mapped	Animals - Birds - Hirundinidae - Riparia riparia
Animals - Birds	Riparia riparia	bank swallow	ABPAU08010	None	Threatened	-	-	4112411	CRANNELL	Mapped	Animals - Birds - Hirundinidae - Riparia riparia
Animals - Birds	Riparia riparia	bank swallow	ABPAU08010	None	Threatened	-	-	4012481	ARCATA NORTH	Mapped and Unprocessed	Animals - Birds - Hirundinidae - Riparia riparia

Animals - Birds	Riparia riparia	bank swallow	ABPAU08010	None	Threatened	-	-	4012472	EUREKA	Mapped	Animals - Birds - Hirundinidae - Riparia riparia
Animals - Birds	Hydrobates furcatus	fork-tailed storm-petrel	ABNDC04010	None	None	SSC	-	4112411	CRANNELL	Mapped and Unprocessed	Animals - Birds - Hydrobatidae - Hydrobates furcatus
Animals - Birds	Icteria virens	yellow-breasted chat	ABPBX24010	None	None	SSC	-	4012378	KORBEL	Unprocessed	Animals - Birds - Icteriidae - Icteria virens
Animals - Birds	Pandion haliaetus	osprey	ABNKC01010	None	None	WL	-	4012378	KORBEL	Mapped and Unprocessed	Animals - Birds - Pandionidae - Pandion haliaetus
Animals - Birds	Pandion haliaetus	osprey	ABNKC01010	None	None	WL	-	4112411	CRANNELL	Mapped	Animals - Birds - Pandionidae - Pandion haliaetus
Animals - Birds	Pandion haliaetus	osprey	ABNKC01010	None	None	WL	-	4012481	ARCATA NORTH	Mapped and Unprocessed	Animals - Birds - Pandionidae - Pandion haliaetus
Animals - Birds	Pandion haliaetus	osprey	ABNKC01010	None	None	WL	-	4012482	TYEE CITY	Unprocessed	Animals - Birds - Pandionidae - Pandion haliaetus
Animals - Birds	Pandion haliaetus	osprey	ABNKC01010	None	None	WL	-	4012471	ARCATA SOUTH	Mapped and Unprocessed	Animals - Birds - Pandionidae - Pandion haliaetus
Animals - Birds	Pandion haliaetus	osprey	ABNKC01010	None	None	WL	-	4012472	EUREKA	Mapped and Unprocessed	Animals - Birds - Pandionidae - Pandion haliaetus
Animals - Birds	Pandion haliaetus	osprey	ABNKC01010	None	None	WL	-	4012388	BLUE LAKE	Unprocessed	Animals - Birds - Pandionidae - Pandion haliaetus
Animals - Birds	Poecile atricapillus	black-capped chickadee	ABPAW01010	None	None	WL	-	4012472	EUREKA	Unprocessed	Animals - Birds - Paridae - Poecile atricapillus
Animals - Birds	Poecile atricapillus	black-capped chickadee	ABPAW01010	None	None	WL	-	4012481	ARCATA NORTH	Unprocessed	Animals - Birds - Paridae - Poecile atricapillus
Animals - Birds	Poecile atricapillus	black-capped chickadee	ABPAW01010	None	None	WL	-	4012378	KORBEL	Unprocessed	Animals - Birds - Paridae - Poecile atricapillus
Animals - Birds	Passerculus sandwichensis alaudinus	Bryants savannah sparrow	ABPBX99011	None	None	SSC	-	4012471	ARCATA SOUTH	Unprocessed	Animals - Birds - Passerellidae - Passerculus sandwichensis alaudinus
Animals - Birds	Passerculus sandwichensis alaudinus	Bryants savannah sparrow	ABPBX99011	None	None	SSC	-	4012481	ARCATA NORTH	Unprocessed	Animals - Birds - Passerellidae - Passerculus sandwichensis alaudinus
Animals - Birds	Passerculus sandwichensis alaudinus	Bryants savannah sparrow	ABPBX99011	None	None	SSC	-	4012472	EUREKA	Unprocessed	Animals - Birds - Passerellidae - Passerculus sandwichensis alaudinus
Animals - Birds	Pelecanus occidentalis californicus	California brown pelican	ABNFC01021	Delisted	Delisted	FP	-	4012471	ARCATA SOUTH	Unprocessed	Animals - Birds - Pelecanidae - Pelecanus occidentalis californicus
Animals - Birds	Pelecanus occidentalis californicus	California brown pelican	ABNFC01021	Delisted	Delisted	FP	-	4012472	EUREKA	Unprocessed	Animals - Birds - Pelecanidae - Pelecanus occidentalis californicus
Animals - Birds	Pelecanus occidentalis californicus	California brown pelican	ABNFC01021	Delisted	Delisted	FP	-	4012482	TYEE CITY	Unprocessed	Animals - Birds - Pelecanidae - Pelecanus occidentalis californicus
Animals - Birds	Pelecanus occidentalis californicus	California brown pelican	ABNFC01021	Delisted	Delisted	FP	-	4112411	CRANNELL	Unprocessed	Animals - Birds - Pelecanidae - Pelecanus occidentalis californicus
Animals - Birds	Nannopterum auritum	double-crested cormorant	ABNFD01020	None	None	WL	-	4112411	CRANNELL	Mapped and Unprocessed	Animals - Birds - Phalacrocoracidae - Nannopterum auritum
Animals - Birds	Nannopterum auritum	double-crested cormorant	ABNFD01020	None	None	WL	-	4012472	EUREKA	Unprocessed	Animals - Birds - Phalacrocoracidae - Nannopterum auritum
Animals - Birds	Nannopterum auritum	double-crested cormorant	ABNFD01020	None	None	WL	-	4012471	ARCATA SOUTH	Mapped	Animals - Birds - Phalacrocoracidae - Nannopterum auritum
Animals - Birds	Nannopterum auritum	double-crested cormorant	ABNFD01020	None	None	WL	-	4012378	KORBEL	Unprocessed	Animals - Birds - Phalacrocoracidae - Nannopterum auritum
Animals - Birds	Sphyrapicus ruber	red-breasted sapsucker	ABNYF05020	None	None	-	-	4012472	EUREKA	Unprocessed	Animals - Birds - Picidae - Sphyrapicus ruber
Animals - Birds	Coturnicops noveboracensis	yellow rail	ABNME01010	None	None	SSC	-	4012472	EUREKA	Mapped and Unprocessed	Animals - Birds - Rallidae - Coturnicops noveboracensis
Animals - Birds	Coturnicops noveboracensis	yellow rail	ABNME01010	None	None	SSC	-	4012471	ARCATA SOUTH	Mapped and Unprocessed	Animals - Birds - Rallidae - Coturnicops noveboracensis

Animals - Birds	Rallus obsoletus obsoletus	California Ridgways rail	ABNME05011	Endangered	Endangered	FP	-	4012472	EUREKA	Mapped and Unprocessed	Animals - Birds - Rallidae - Rallus obsoletus obsoletus
Animals - Birds	Rallus obsoletus obsoletus	California Ridgways rail	ABNME05011	Endangered	Endangered	FP	-	4012482	TYEE CITY	Mapped	Animals - Birds - Rallidae - Rallus obsoletus obsoletus
Animals - Birds	Numenius americanus	long-billed curlew	ABNNF07070	None	None	WL	-	4012471	ARCATA SOUTH	Unprocessed	Animals - Birds - Scolopacidae - Numenius americanus
Animals - Birds	Asio flammeus	short-eared owl	ABNSB13040	None	None	SSC	-	4012471	ARCATA SOUTH	Unprocessed	Animals - Birds - Strigidae - Asio flammeus
Animals - Birds	Asio flammeus	short-eared owl	ABNSB13040	None	None	SSC	-	4012481	ARCATA NORTH	Unprocessed	Animals - Birds - Strigidae - Asio flammeus
Animals - Birds	Asio flammeus	short-eared owl	ABNSB13040	None	None	SSC	-	4012472	EUREKA	Unprocessed	Animals - Birds - Strigidae - Asio flammeus
Animals - Birds	Asio otus	long-eared owl	ABNSB13010	None	None	SSC	-	4012388	BLUE LAKE	Unprocessed	Animals - Birds - Strigidae - Asio otus
Animals - Birds	Strix occidentalis caurina	Northern Spotted Owl	ABNSB12011	Threatened	Threatened	-	-	4012378	KORBEL	Mapped	Animals - Birds - Strigidae - Strix occidentalis caurina
Animals - Birds	Strix occidentalis caurina	Northern Spotted Owl	ABNSB12011	Threatened	Threatened	-	-	4012388	BLUE LAKE	Mapped	Animals - Birds - Strigidae - Strix occidentalis caurina
Animals - Birds	Strix occidentalis caurina	Northern Spotted Owl	ABNSB12011	Threatened	Threatened	-	-	4012471	ARCATA SOUTH	Mapped	Animals - Birds - Strigidae - Strix occidentalis caurina
Animals - Birds	Strix occidentalis caurina	Northern Spotted Owl	ABNSB12011	Threatened	Threatened	-	-	4012472	EUREKA	Mapped	Animals - Birds - Strigidae - Strix occidentalis caurina
Animals - Birds	Strix occidentalis caurina	Northern Spotted Owl	ABNSB12011	Threatened	Threatened	-	-	4012481	ARCATA NORTH	Mapped	Animals - Birds - Strigidae - Strix occidentalis caurina
Animals - Birds	Strix occidentalis caurina	Northern Spotted Owl	ABNSB12011	Threatened	Threatened	-	-	4112318	PANTHER CREEK	Mapped	Animals - Birds - Strigidae - Strix occidentalis caurina
Animals - Birds	Strix occidentalis caurina	Northern Spotted Owl	ABNSB12011	Threatened	Threatened	-	-	4112411	CRANNELL	Mapped	Animals - Birds - Strigidae - Strix occidentalis caurina
Animals - Birds	Contopus cooperi	olive-sided flycatcher	ABPAE32010	None	None	SSC	-	4012481	ARCATA NORTH	Unprocessed	Animals - Birds - Tyrannidae - Contopus cooperi
Animals - Birds	Empidonax traillii	willow flycatcher	ABPAE33040	None	Endangered	-	-	4012378	KORBEL	Unprocessed	Animals - Birds - Tyrannidae - Empidonax traillii
Animals - Fish	Acipenser medirostris pop. 1	green sturgeon - southern DPS	AFCAA01031	Threatened	None	-	-	4012471	ARCATA SOUTH	Mapped	Animals - Fish - Acipenseridae - Acipenser medirostris pop. 1
Animals - Fish	Acipenser medirostris pop. 1	green sturgeon - southern DPS	AFCAA01031	Threatened	None	-	-	4012472	EUREKA	Mapped	Animals - Fish - Acipenseridae - Acipenser medirostris pop. 1
Animals - Fish	Acipenser medirostris pop. 2	green sturgeon - northern DPS	AFCAA01032	None	None	SSC	-	4012472	EUREKA	Unprocessed	Animals - Fish - Acipenseridae - Acipenser medirostris pop. 2
Animals - Fish	Acipenser medirostris pop. 2	green sturgeon - northern DPS	AFCAA01032	None	None	SSC	-	4012378	KORBEL	Unprocessed	Animals - Fish - Acipenseridae - Acipenser medirostris pop. 2
Animals - Fish	Acipenser transmontanus	white sturgeon	AFCAA01050	None	None	SSC	-	4012472	EUREKA	Unprocessed	Animals - Fish - Acipenseridae - Acipenser transmontanus
Animals - Fish	Eucyclogobius newberryi	tidewater goby	AFCQN04010	Endangered	None	-	-	4012472	EUREKA	Mapped and Unprocessed	Animals - Fish - Gobiidae - Eucyclogobius newberryi
Animals - Fish	Eucyclogobius newberryi	tidewater goby	AFCQN04010	Endangered	None	-	-	4012471	ARCATA SOUTH	Mapped and Unprocessed	Animals - Fish - Gobiidae - Eucyclogobius newberryi
Animals - Fish	Spirinchus thaleichthys	longfin smelt	AFCHB03010	Candidate	Threatened	-	-	4012471	ARCATA SOUTH	Mapped and Unprocessed	Animals - Fish - Osmeridae - Spirinchus thaleichthys
Animals - Fish	Spirinchus thaleichthys	longfin smelt	AFCHB03010	Candidate	Threatened	-	-	4012472	EUREKA	Mapped and Unprocessed	Animals - Fish - Osmeridae - Spirinchus thaleichthys
Animals - Fish	Spirinchus thaleichthys	longfin smelt	AFCHB03010	Candidate	Threatened	-	-	4012482	TYEE CITY	Unprocessed	Animals - Fish - Osmeridae - Spirinchus thaleichthys
Animals - Fish	Thaleichthys pacificus	eulachon	AFCHB04010	Threatened	None	-	-	4012482	TYEE CITY	Mapped	Animals - Fish - Osmeridae - Thaleichthys pacificus

Animals - Fish	Thaleichthys pacificus	eulachon	AFCHB04010	Threatened	None	-	-	4012481	ARCATA NORTH	Mapped and Unprocessed	Animals - Fish - Osmeridae - Thaleichthys pacificus
Animals - Fish	Thaleichthys pacificus	eulachon	AFCHB04010	Threatened	None	-	-	4112411	CRANNELL	Unprocessed	Animals - Fish - Osmeridae - Thaleichthys pacificus
Animals - Fish	Thaleichthys pacificus	eulachon	AFCHB04010	Threatened	None	-	-	4012472	EUREKA	Mapped	Animals - Fish - Osmeridae - Thaleichthys pacificus
Animals - Fish	Thaleichthys pacificus	eulachon	AFCHB04010	Threatened	None	-	-	4012388	BLUE LAKE	Mapped	Animals - Fish - Osmeridae - Thaleichthys pacificus
Animals - Fish	Thaleichthys pacificus	eulachon	AFCHB04010	Threatened	None	-	-	4012471	ARCATA SOUTH	Mapped	Animals - Fish - Osmeridae - Thaleichthys pacificus
Animals - Fish	Thaleichthys pacificus	eulachon	AFCHB04010	Threatened	None	-	-	4012378	KORBEL	Mapped	Animals - Fish - Osmeridae - Thaleichthys pacificus
Animals - Fish	Entosphenus tridentatus	Pacific lamprey	AFBAA02100	None	None	SSC	-	4012471	ARCATA SOUTH	Mapped and Unprocessed	Animals - Fish - Petromyzontidae - Entosphenus tridentatus
Animals - Fish	Entosphenus tridentatus	Pacific lamprey	AFBAA02100	None	None	SSC	-	4012378	KORBEL	Unprocessed	Animals - Fish - Petromyzontidae - Entosphenus tridentatus
Animals - Fish	Entosphenus tridentatus	Pacific lamprey	AFBAA02100	None	None	SSC	-	4012472	EUREKA	Mapped and Unprocessed	Animals - Fish - Petromyzontidae - Entosphenus tridentatus
Animals - Fish	Entosphenus tridentatus	Pacific lamprey	AFBAA02100	None	None	SSC	-	4112411	CRANNELL	Unprocessed	Animals - Fish - Petromyzontidae - Entosphenus tridentatus
Animals - Fish	Entosphenus tridentatus	Pacific lamprey	AFBAA02100	None	None	SSC	-	4112318	PANTHER CREEK	Unprocessed	Animals - Fish - Petromyzontidae - Entosphenus tridentatus
Animals - Fish	Entosphenus tridentatus	Pacific lamprey	AFBAA02100	None	None	SSC	-	4012481	ARCATA NORTH	Mapped and Unprocessed	Animals - Fish - Petromyzontidae - Entosphenus tridentatus
Animals - Fish	Lampetra richardsoni	western brook lamprey	AFBAA02180	None	None	SSC	-	4012481	ARCATA NORTH	Mapped and Unprocessed	Animals - Fish - Petromyzontidae - Lampetra richardsoni
Animals - Fish	Lampetra richardsoni	western brook lamprey	AFBAA02180	None	None	SSC	-	4112318	PANTHER CREEK	Unprocessed	Animals - Fish - Petromyzontidae - Lampetra richardsoni
Animals - Fish	Lampetra richardsoni	western brook lamprey	AFBAA02180	None	None	SSC	-	4112411	CRANNELL	Unprocessed	Animals - Fish - Petromyzontidae - Lampetra richardsoni
Animals - Fish	Lampetra richardsoni	western brook lamprey	AFBAA02180	None	None	SSC	-	4012472	EUREKA	Mapped and Unprocessed	Animals - Fish - Petromyzontidae - Lampetra richardsoni
Animals - Fish	Lampetra richardsoni	western brook lamprey	AFBAA02180	None	None	SSC	-	4012378	KORBEL	Unprocessed	Animals - Fish - Petromyzontidae - Lampetra richardsoni
Animals - Fish	Lampetra richardsoni	western brook lamprey	AFBAA02180	None	None	SSC	-	4012471	ARCATA SOUTH	Mapped	Animals - Fish - Petromyzontidae - Lampetra richardsoni
Animals - Fish	Oncorhynchus clarkii clarkii	coast cutthroat trout	AFCHA0208A	None	None	SSC	-	4012471	ARCATA SOUTH	Mapped and Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus clarkii clarkii
Animals - Fish	Oncorhynchus clarkii clarkii	coast cutthroat trout	AFCHA0208A	None	None	SSC	-	4012378	KORBEL	Mapped and Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus clarkii clarkii
Animals - Fish	Oncorhynchus clarkii clarkii	coast cutthroat trout	AFCHA0208A	None	None	SSC	-	4012472	EUREKA	Mapped and Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus clarkii clarkii
Animals - Fish	Oncorhynchus clarkii clarkii	coast cutthroat trout	AFCHA0208A	None	None	SSC	-	4012388	BLUE LAKE	Mapped and Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus clarkii clarkii
Animals - Fish	Oncorhynchus clarkii clarkii	coast cutthroat trout	AFCHA0208A	None	None	SSC	-	4112411	CRANNELL	Mapped and Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus clarkii clarkii
Animals - Fish	Oncorhynchus clarkii clarkii	coast cutthroat trout	AFCHA0208A	None	None	SSC	-	4112318	PANTHER CREEK	Mapped and Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus clarkii clarkii
Animals - Fish	Oncorhynchus clarkii clarkii	coast cutthroat trout	AFCHA0208A	None	None	SSC	-	4012481	ARCATA NORTH	Mapped and Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus clarkii clarkii
Animals - Fish	Oncorhynchus gorbuscha	pink salmon	AFCHA02010	None	None	-	-	4012481	ARCATA NORTH	Unprocessed	Animals - Fish - Salmonidae -

											Oncorhynchus gorbuscha
Animals - Fish	Oncorhynchus keta	chum salmon	AFCHA02020	None	None	-	-	4012481	ARCATA NORTH	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus keta
Animals - Fish	Oncorhynchus kisutch pop. 2	coho salmon - southern Oregon / northern California ESU	AFCHA02032	Threatened	Threatened	-	-	4012481	ARCATA NORTH	Mapped and Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus kisutch pop. 2
Animals - Fish	Oncorhynchus kisutch pop. 2	coho salmon - southern Oregon / northern California ESU	AFCHA02032	Threatened	Threatened	-	-	4112318	PANTHER CREEK	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus kisutch pop. 2
Animals - Fish	Oncorhynchus kisutch pop. 2	coho salmon - southern Oregon / northern California ESU	AFCHA02032	Threatened	Threatened	-	-	4112411	CRANNELL	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus kisutch pop. 2
Animals - Fish	Oncorhynchus kisutch pop. 2	coho salmon - southern Oregon / northern California ESU	AFCHA02032	Threatened	Threatened	-	-	4012388	BLUE LAKE	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus kisutch pop. 2
Animals - Fish	Oncorhynchus kisutch pop. 2	coho salmon - southern Oregon / northern California ESU	AFCHA02032	Threatened	Threatened	-	-	4012472	EUREKA	Mapped and Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus kisutch pop. 2
Animals - Fish	Oncorhynchus kisutch pop. 2	coho salmon - southern Oregon / northern California ESU	AFCHA02032	Threatened	Threatened	-	-	4012378	KORBEL	Mapped and Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus kisutch pop. 2
Animals - Fish	Oncorhynchus kisutch pop. 2	coho salmon - southern Oregon / northern California ESU	AFCHA02032	Threatened	Threatened	-	-	4012471	ARCATA SOUTH	Mapped and Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus kisutch pop. 2
Animals - Fish	Oncorhynchus mykiss irideus pop. 1	steelhead - Klamath Mountains Province DPS	AFCHA0209D	None	None	SSC	-	4112318	PANTHER CREEK	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 1
Animals - Fish	Oncorhynchus mykiss irideus pop. 48	steelhead - northern California DPS summer-run	AFCHA0213P	Threatened	Endangered	-	-	4112318	PANTHER CREEK	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 48
Animals - Fish	Oncorhynchus mykiss irideus pop. 48	steelhead - northern California DPS summer-run	AFCHA0213P	Threatened	Endangered	-	-	4012481	ARCATA NORTH	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 48
Animals - Fish	Oncorhynchus mykiss irideus pop. 48	steelhead - northern California DPS summer-run	AFCHA0213P	Threatened	Endangered	-	-	4012482	TYEE CITY	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 48
Animals - Fish	Oncorhynchus mykiss irideus pop. 48	steelhead - northern California DPS summer-run	AFCHA0213P	Threatened	Endangered	-	-	4012388	BLUE LAKE	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 48
Animals - Fish	Oncorhynchus mykiss irideus pop. 48	steelhead - northern California DPS summer-run	AFCHA0213P	Threatened	Endangered	-	-	4012378	KORBEL	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 48
Animals - Fish	Oncorhynchus mykiss irideus pop. 49	steelhead - northern California DPS winter-run	AFCHA0213Q	Threatened	None	-	-	4012378	KORBEL	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 49
Animals - Fish	Oncorhynchus mykiss irideus pop. 49	steelhead - northern California DPS winter-run	AFCHA0213Q	Threatened	None	-	-	4012471	ARCATA SOUTH	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 49
Animals - Fish	Oncorhynchus mykiss irideus pop. 49	steelhead - northern California DPS winter-run	AFCHA0213Q	Threatened	None	-	-	4012388	BLUE LAKE	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 49
Animals - Fish	Oncorhynchus mykiss irideus pop. 49	steelhead - northern California DPS winter-run	AFCHA0213Q	Threatened	None	-	-	4012472	EUREKA	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 49
Animals - Fish	Oncorhynchus mykiss irideus pop. 49	steelhead - northern California DPS winter-run	AFCHA0213Q	Threatened	None	-	-	4012482	TYEE CITY	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 49
Animals - Fish	Oncorhynchus mykiss irideus pop. 49	steelhead - northern California DPS winter-run	AFCHA0213Q	Threatened	None	-	-	4012481	ARCATA NORTH	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 49
Animals - Fish	Oncorhynchus mykiss irideus pop. 49	steelhead - northern California DPS winter-run	AFCHA0213Q	Threatened	None	-	-	4112318	PANTHER CREEK	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 49
Animals - Fish	Oncorhynchus mykiss irideus pop. 49	steelhead - northern California DPS winter-run	AFCHA0213Q	Threatened	None	-	-	4112411	CRANNELL	Mapped	Animals - Fish - Salmonidae - Oncorhynchus

											mykiss irideus pop. 49
Animals - Fish	Oncorhynchus tshawytscha pop. 17	chinook salmon - California coastal ESU	AFCHA0205S	Threatened	None	-	-	4112411	CRANNELL	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 17
Animals - Fish	Oncorhynchus tshawytscha pop. 17	chinook salmon - California coastal ESU	AFCHA0205S	Threatened	None	-	-	4112318	PANTHER CREEK	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 17
Animals - Fish	Oncorhynchus tshawytscha pop. 17	chinook salmon - California coastal ESU	AFCHA0205S	Threatened	None	-	-	4012481	ARCATA NORTH	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 17
Animals - Fish	Oncorhynchus tshawytscha pop. 17	chinook salmon - California coastal ESU	AFCHA0205S	Threatened	None	-	-	4012472	EUREKA	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 17
Animals - Fish	Oncorhynchus tshawytscha pop. 17	chinook salmon - California coastal ESU	AFCHA0205S	Threatened	None	-	-	4012388	BLUE LAKE	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 17
Animals - Fish	Oncorhynchus tshawytscha pop. 17	chinook salmon - California coastal ESU	AFCHA0205S	Threatened	None	-	-	4012471	ARCATA SOUTH	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 17
Animals - Fish	Oncorhynchus tshawytscha pop. 17	chinook salmon - California coastal ESU	AFCHA0205S	Threatened	None	-	-	4012378	KORBEL	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 17
Animals - Fish	Oncorhynchus tshawytscha pop. 30	chinook salmon - upper Klamath and Trinity Rivers ESU	AFCHA02056	Candidate	Threatened	SSC	-	4012378	KORBEL	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 30
Animals - Fish	Oncorhynchus tshawytscha pop. 30	chinook salmon - upper Klamath and Trinity Rivers ESU	AFCHA02056	Candidate	Threatened	SSC	-	4112318	PANTHER CREEK	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 30
Animals - Fish	Oncorhynchus tshawytscha pop. 30	chinook salmon - upper Klamath and Trinity Rivers ESU	AFCHA02056	Candidate	Threatened	SSC	-	4112411	CRANNELL	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 30
Animals - Insects	Bombus caliginosus	obscure bumble bee	IIHYM24380	None	None	-	-	4112411	CRANNELL	Mapped and Unprocessed	Animals - Insects - Apidae - Bombus caliginosus
Animals - Insects	Bombus caliginosus	obscure bumble bee	IIHYM24380	None	None	-	-	4012481	ARCATA NORTH	Mapped and Unprocessed	Animals - Insects - Apidae - Bombus caliginosus
Animals - Insects	Bombus caliginosus	obscure bumble bee	IIHYM24380	None	None	-	-	4012482	TYEE CITY	Mapped and Unprocessed	Animals - Insects - Apidae - Bombus caliginosus
Animals - Insects	Bombus caliginosus	obscure bumble bee	IIHYM24380	None	None	-	-	4012472	EUREKA	Mapped and Unprocessed	Animals - Insects - Apidae - Bombus caliginosus
Animals - Insects	Bombus caliginosus	obscure bumble bee	IIHYM24380	None	None	-	-	4012471	ARCATA SOUTH	Mapped and Unprocessed	Animals - Insects - Apidae - Bombus caliginosus
Animals - Insects	Bombus caliginosus	obscure bumble bee	IIHYM24380	None	None	-	-	4012378	KORBEL	Mapped and Unprocessed	Animals - Insects - Apidae - Bombus caliginosus
Animals - Insects	Bombus crotchii	Crotch bumble bee	IIHYM24480	None	Candidate Endangered	-	-	4012482	TYEE CITY	Mapped	Animals - Insects - Apidae - Bombus crotchii
Animals - Insects	Bombus crotchii	Crotch bumble bee	IIHYM24480	None	Candidate Endangered	-	-	4012481	ARCATA NORTH	Mapped	Animals - Insects - Apidae - Bombus crotchii
Animals - Insects	Bombus occidentalis	western bumble bee	IIHYM24252	None	Candidate Endangered	-	-	4012482	TYEE CITY	Mapped and Unprocessed	Animals - Insects - Apidae - Bombus occidentalis
Animals - Insects	Bombus occidentalis	western bumble bee	IIHYM24252	None	Candidate Endangered	-	-	4112411	CRANNELL	Mapped	Animals - Insects - Apidae - Bombus occidentalis
Animals - Insects	Bombus occidentalis	western bumble bee	IIHYM24252	None	Candidate Endangered	-	-	4012472	EUREKA	Mapped and Unprocessed	Animals - Insects - Apidae - Bombus occidentalis
Animals - Insects	Bombus occidentalis	western bumble bee	IIHYM24252	None	Candidate Endangered	-	-	4012481	ARCATA NORTH	Mapped and Unprocessed	Animals - Insects - Apidae - Bombus occidentalis
Animals - Insects	Bombus occidentalis	western bumble bee	IIHYM24252	None	Candidate Endangered	-	-	4012378	KORBEL	Mapped and Unprocessed	Animals - Insects - Apidae - Bombus occidentalis
Animals - Insects	Bombus occidentalis	western bumble bee	IIHYM24252	None	Candidate Endangered	-	-	4012471	ARCATA SOUTH	Mapped and Unprocessed	Animals - Insects - Apidae - Bombus occidentalis
Animals - Insects	Cicindela hirticollis gravida	sandy beach tiger beetle	IICOL02101	None	None	-	-	4012471	ARCATA SOUTH	Mapped	Animals - Insects - Carabidae - Cicindela hirticollis gravida
Animals - Insects	Cicindela hirticollis gravida	sandy beach tiger beetle	IICOL02101	None	None	-	-	4012472	EUREKA	Mapped	Animals - Insects - Carabidae - Cicindela hirticollis gravida

Animals - Insects	Scaphinotus behrensi	Behrens snail-eating beetle	IICOL4L070	None	None	-	-		4012481	ARCATA NORTH	Mapped	Animals - Insects - Carabidae - Scaphinotus behrensi
Animals - Insects	Scaphinotus behrensi	Behrens snail-eating beetle	IICOL4L070	None	None	-	-		4012471	ARCATA SOUTH	Mapped	Animals - Insects - Carabidae - Scaphinotus behrensi
Animals - Mammals	Aplodontia rufa humboldtiana	Humboldt mountain beaver	AMAFA01017	None	None	-	-		4012471	ARCATA SOUTH	Mapped	Animals - Mammals - Aplodontiidae - Aplodontia rufa humboldtiana
Animals - Mammals	Aplodontia rufa humboldtiana	Humboldt mountain beaver	AMAFA01017	None	None	-	-		4012378	KORBEL	Mapped	Animals - Mammals - Aplodontiidae - Aplodontia rufa humboldtiana
Animals - Mammals	Aplodontia rufa humboldtiana	Humboldt mountain beaver	AMAFA01017	None	None	-	-		4012481	ARCATA NORTH	Mapped	Animals - Mammals - Aplodontiidae - Aplodontia rufa humboldtiana
Animals - Mammals	Aplodontia rufa humboldtiana	Humboldt mountain beaver	AMAFA01017	None	None	-	-		4112411	CRANNELL	Mapped	Animals - Mammals - Aplodontiidae - Aplodontia rufa humboldtiana
Animals - Mammals	Aplodontia rufa humboldtiana	Humboldt mountain beaver	AMAFA01017	None	None	-	-		4012472	EUREKA	Mapped	Animals - Mammals - Aplodontiidae - Aplodontia rufa humboldtiana
Animals - Mammals	Aplodontia rufa humboldtiana	Humboldt mountain beaver	AMAFA01017	None	None	-	-		4012388	BLUE LAKE	Mapped	Animals - Mammals - Aplodontiidae - Aplodontia rufa humboldtiana
Animals - Mammals	Arborimus albipes	white-footed vole	AMAFF23010	None	None	SSC	-		4012482	TYEE CITY	Mapped	Animals - Mammals - Cricetidae - Arborimus albipes
Animals - Mammals	Arborimus albipes	white-footed vole	AMAFF23010	None	None	SSC	-		4012378	KORBEL	Mapped	Animals - Mammals - Cricetidae - Arborimus albipes
Animals - Mammals	Arborimus pomo	Sonoma tree vole	AMAFF23030	None	None	SSC	-		4012378	KORBEL	Mapped and Unprocessed	Animals - Mammals - Cricetidae - Arborimus pomo
Animals - Mammals	Arborimus pomo	Sonoma tree vole	AMAFF23030	None	None	SSC	-		4012471	ARCATA SOUTH	Mapped and Unprocessed	Animals - Mammals - Cricetidae - Arborimus pomo
Animals - Mammals	Arborimus pomo	Sonoma tree vole	AMAFF23030	None	None	SSC	-		4012481	ARCATA NORTH	Mapped	Animals - Mammals - Cricetidae - Arborimus pomo
Animals - Mammals	Arborimus pomo	Sonoma tree vole	AMAFF23030	None	None	SSC	-		4112411	CRANNELL	Mapped and Unprocessed	Animals - Mammals - Cricetidae - Arborimus pomo
Animals - Mammals	Arborimus pomo	Sonoma tree vole	AMAFF23030	None	None	SSC	-		4112318	PANTHER CREEK	Unprocessed	Animals - Mammals - Cricetidae - Arborimus pomo
Animals - Mammals	Arborimus pomo	Sonoma tree vole	AMAFF23030	None	None	SSC	-		4012388	BLUE LAKE	Mapped and Unprocessed	Animals - Mammals - Cricetidae - Arborimus pomo
Animals - Mammals	Erethizon dorsatum	North American porcupine	AMAFJ01010	None	None	-	-		4012388	BLUE LAKE	Unprocessed	Animals - Mammals - Erethizontidae - Erethizon dorsatum
Animals - Mammals	Erethizon dorsatum	North American porcupine	AMAFJ01010	None	None	-	-		4012472	EUREKA	Mapped and Unprocessed	Animals - Mammals - Erethizontidae - Erethizon dorsatum
Animals - Mammals	Erethizon dorsatum	North American porcupine	AMAFJ01010	None	None	-	-		4112411	CRANNELL	Mapped	Animals - Mammals - Erethizontidae - Erethizon dorsatum
Animals - Mammals	Erethizon dorsatum	North American porcupine	AMAFJ01010	None	None	-	-		4012481	ARCATA NORTH	Mapped and Unprocessed	Animals - Mammals - Erethizontidae - Erethizon dorsatum
Animals - Mammals	Erethizon dorsatum	North American porcupine	AMAFJ01010	None	None	-	-		4012482	TYEE CITY	Unprocessed	Animals - Mammals - Erethizontidae - Erethizon dorsatum
Animals - Mammals	Erethizon dorsatum	North American porcupine	AMAFJ01010	None	None	-	-		4012471	ARCATA SOUTH	Mapped	Animals - Mammals - Erethizontidae - Erethizon dorsatum
Animals - Mammals	Erethizon dorsatum	North American porcupine	AMAFJ01010	None	None	-	-		4012378	KORBEL	Mapped and Unprocessed	Animals - Mammals - Erethizontidae -

											Erethizon dorsatum
Animals - Mammals	Enhydra lutris nereis	southern sea otter	AMAJF09012	Threatened	None	FP	-	4112411	CRANNELL	Unprocessed	Animals - Mammals - Mustelidae - Enhydra lutris nereis
Animals - Mammals	Enhydra lutris nereis	southern sea otter	AMAJF09012	Threatened	None	FP	-	4012472	EUREKA	Unprocessed	Animals - Mammals - Mustelidae - Enhydra lutris nereis
Animals - Mammals	Martes caurina humboldtensis	Humboldt marten	AMAJF01012	Threatened	Endangered	SSC	-	4112411	CRANNELL	Unprocessed	Animals - Mammals - Mustelidae - Martes caurina humboldtensis
Animals - Mammals	Martes caurina humboldtensis	Humboldt marten	AMAJF01012	Threatened	Endangered	SSC	-	4112318	PANTHER CREEK	Unprocessed	Animals - Mammals - Mustelidae - Martes caurina humboldtensis
Animals - Mammals	Pekania pennanti	Fisher	AMAJF01020	None	None	SSC	-	4112318	PANTHER CREEK	Mapped and Unprocessed	Animals - Mammals - Mustelidae - Pekania pennanti
Animals - Mammals	Pekania pennanti	Fisher	AMAJF01020	None	None	SSC	-	4112411	CRANNELL	Unprocessed	Animals - Mammals - Mustelidae - Pekania pennanti
Animals - Mammals	Pekania pennanti	Fisher	AMAJF01020	None	None	SSC	-	4012481	ARCATA NORTH	Mapped and Unprocessed	Animals - Mammals - Mustelidae - Pekania pennanti
Animals - Mammals	Pekania pennanti	Fisher	AMAJF01020	None	None	SSC	-	4012388	BLUE LAKE	Mapped and Unprocessed	Animals - Mammals - Mustelidae - Pekania pennanti
Animals - Mammals	Pekania pennanti	Fisher	AMAJF01020	None	None	SSC	-	4012378	KORBEL	Mapped and Unprocessed	Animals - Mammals - Mustelidae - Pekania pennanti
Animals - Mammals	Pekania pennanti	Fisher	AMAJF01020	None	None	SSC	-	4012471	ARCATA SOUTH	Mapped and Unprocessed	Animals - Mammals - Mustelidae - Pekania pennanti
Animals - Mammals	Corynorhinus townsendii	Townsends big-eared bat	AMACC08010	None	None	SSC	-	4012471	ARCATA SOUTH	Mapped	Animals - Mammals - Vespertilionidae - Corynorhinus townsendii
Animals - Mammals	Corynorhinus townsendii	Townsends big-eared bat	AMACC08010	None	None	SSC	-	4012378	KORBEL	Mapped	Animals - Mammals - Vespertilionidae - Corynorhinus townsendii
Animals - Mammals	Lasionycteris noctivagans	silver-haired bat	AMACC02010	None	None	-	-	4012472	EUREKA	Unprocessed	Animals - Mammals - Vespertilionidae - Lasionycteris noctivagans
Animals - Mammals	Lasiurus cinereus	hoary bat	AMACC05032	None	None	-	-	4012471	ARCATA SOUTH	Unprocessed	Animals - Mammals - Vespertilionidae - Lasiurus cinereus
Animals - Mammals	Myotis evotis	long-eared myotis	AMACC01070	None	None	-	-	4012471	ARCATA SOUTH	Mapped	Animals - Mammals - Vespertilionidae - Myotis evotis
Animals - Mammals	Myotis evotis	long-eared myotis	AMACC01070	None	None	-	-	4012481	ARCATA NORTH	Mapped	Animals - Mammals - Vespertilionidae - Myotis evotis
Animals - Mammals	Myotis evotis	long-eared myotis	AMACC01070	None	None	-	-	4112411	CRANNELL	Mapped	Animals - Mammals - Vespertilionidae - Myotis evotis
Animals - Mammals	Myotis yumanensis	Yuma myotis	AMACC01020	None	None	-	-	4012472	EUREKA	Unprocessed	Animals - Mammals - Vespertilionidae - Myotis yumanensis
Animals - Mollusks	Littorina subrotundata	Newcombs littorine snail	IMGASR3010	None	None	-	-	4012472	EUREKA	Unprocessed	Animals - Mollusks - Littorinidae - Littorina subrotundata
Animals - Mollusks	Littorina subrotundata	Newcombs littorine snail	IMGASR3010	None	None	-	-	4012471	ARCATA SOUTH	Unprocessed	Animals - Mollusks - Littorinidae - Littorina subrotundata
Animals - Mollusks	Margaritifera falcata	western pearlshell	IMBIV27020	None	None	-	-	4012471	ARCATA SOUTH	Unprocessed	Animals - Mollusks - Margaritiferidae - Margaritifera falcata
Animals - Mollusks	Margaritifera falcata	western pearlshell	IMBIV27020	None	None	-	-	4012388	BLUE LAKE	Mapped	Animals - Mollusks - Margaritiferidae - Margaritifera falcata

Animals - Mollusks	Margaritifera falcata	western pearlshell	IMBIV27020	None	None	-	-	4112411	CRANNELL	Mapped	Animals - Mollusks - Margaritiferidae - Margaritifera falcata
Animals - Mollusks	Margaritifera falcata	western pearlshell	IMBIV27020	None	None	-	-	4112318	PANTHER CREEK	Mapped	Animals - Mollusks - Margaritiferidae - Margaritifera falcata
Animals - Mollusks	Margaritifera falcata	western pearlshell	IMBIV27020	None	None	-	-	4012481	ARCATA NORTH	Mapped	Animals - Mollusks - Margaritiferidae - Margaritifera falcata
Animals - Mollusks	Anodonta californiensis	California floater	IMBIV04220	None	None	-	-	4012472	EUREKA	Mapped and Unprocessed	Animals - Mollusks - Unionidae - Anodonta californiensis
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	4012472	EUREKA	Mapped and Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	4012388	BLUE LAKE	Mapped	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	4012481	ARCATA NORTH	Mapped	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	4112411	CRANNELL	Mapped	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	4012471	ARCATA SOUTH	Mapped and Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	4012378	KORBEL	Mapped and Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Community - Terrestrial	Northern Coastal Salt Marsh	Northern Coastal Salt Marsh	CTT52110CA	None	None	-	-	4012471	ARCATA SOUTH	Mapped	Community - Terrestrial - Northern Coastal Salt Marsh
Community - Terrestrial	Northern Coastal Salt Marsh	Northern Coastal Salt Marsh	CTT52110CA	None	None	-	-	4012482	TYEE CITY	Mapped	Community - Terrestrial - Northern Coastal Salt Marsh
Community - Terrestrial	Northern Coastal Salt Marsh	Northern Coastal Salt Marsh	CTT52110CA	None	None	-	-	4012472	EUREKA	Mapped	Community - Terrestrial - Northern Coastal Salt Marsh
Community - Terrestrial	Northern Foredune Grassland	Northern Foredune Grassland	CTT21211CA	None	None	-	-	4012482	TYEE CITY	Mapped	Community - Terrestrial - Northern Foredune Grassland
Plants - Bryophytes	Trichodon cylindricus	cylindrical trichodon	NBMUS7N020	None	None	-	2B.2	4012481	ARCATA NORTH	Mapped	Plants - Bryophytes - Ditrichaceae - Trichodon cylindricus
Plants - Bryophytes	Fissidens pauperculus	minute pocket moss	NBMUS2W0U0	None	None	-	1B.2	4012481	ARCATA NORTH	Mapped	Plants - Bryophytes - Fissidentaceae - Fissidens pauperculus
Plants - Bryophytes	Fissidens pauperculus	minute pocket moss	NBMUS2W0U0	None	None	-	1B.2	4012471	ARCATA SOUTH	Mapped	Plants - Bryophytes - Fissidentaceae - Fissidens pauperculus
Plants - Lichens	Sulcaria spiralifera	twisted horsehair lichen	NLT0042560	None	None	-	1B.2	4012482	TYEE CITY	Mapped	Plants - Lichens - Alectoriaceae - Sulcaria spiralifera
Plants - Lichens	Sulcaria spiralifera	twisted horsehair lichen	NLT0042560	None	None	-	1B.2	4112411	CRANNELL	Mapped	Plants - Lichens - Alectoriaceae - Sulcaria spiralifera
Plants - Lichens	Sulcaria spiralifera	twisted horsehair lichen	NLT0042560	None	None	-	1B.2	4012472	EUREKA	Mapped	Plants - Lichens - Alectoriaceae - Sulcaria spiralifera
Plants - Lichens	Usnea longissima	Methuselahs beard lichen	NLLEC5P420	None	None	-	4.2	4012388	BLUE LAKE	Unprocessed	Plants - Lichens - Parmeliaceae - Usnea longissima
Plants - Lichens	Usnea longissima	Methuselahs beard lichen	NLLEC5P420	None	None	-	4.2	4112318	PANTHER CREEK	Unprocessed	Plants - Lichens - Parmeliaceae - Usnea longissima
Plants - Lichens	Usnea longissima	Methuselahs beard lichen	NLLEC5P420	None	None	-	4.2	4112411	CRANNELL	Unprocessed	Plants - Lichens - Parmeliaceae - Usnea longissima
Plants - Lichens	Usnea longissima	Methuselahs beard lichen	NLLEC5P420	None	None	-	4.2	4012471	ARCATA SOUTH	Mapped	Plants - Lichens - Parmeliaceae - Usnea longissima
Plants - Lichens	Usnea longissima	Methuselahs beard lichen	NLLEC5P420	None	None	-	4.2	4012378	KORBEL	Mapped and Unprocessed	Plants - Lichens - Parmeliaceae - Usnea longissima
Plants - Vascular	Angelica lucida	sea-watch	PDAPI070G0	None	None	-	4.2	4012471	ARCATA SOUTH	Unprocessed	Plants - Vascular - Apiaceae - Angelica lucida
Plants - Vascular	Angelica lucida	sea-watch	PDAPI070G0	None	None	-	4.2	4112411	CRANNELL	Unprocessed	Plants - Vascular - Apiaceae - Angelica lucida
Plants - Vascular	Angelica lucida	sea-watch	PDAPI070G0	None	None	-	4.2	4012482	TYEE CITY	Unprocessed	Plants - Vascular - Apiaceae -

											Angelica lucida
Plants - Vascular	Angelica lucida	sea-watch	PDAPI070G0	None	None	-	4.2	4012481	ARCATA NORTH	Unprocessed	Plants - Vascular - Apiaceae - Angelica lucida
Plants - Vascular	Angelica lucida	sea-watch	PDAPI070G0	None	None	-	4.2	4012472	EUREKA	Unprocessed	Plants - Vascular - Apiaceae - Angelica lucida
Plants - Vascular	Glehnia littoralis ssp. leiocarpa	American glehnia	PDAPI13011	None	None	-	4.2	4012472	EUREKA	Unprocessed	Plants - Vascular - Apiaceae - Glehnia littoralis ssp. leiocarpa
Plants - Vascular	Glehnia littoralis ssp. leiocarpa	American glehnia	PDAPI13011	None	None	-	4.2	4012481	ARCATA NORTH	Unprocessed	Plants - Vascular - Apiaceae - Glehnia littoralis ssp. leiocarpa
Plants - Vascular	Glehnia littoralis ssp. leiocarpa	American glehnia	PDAPI13011	None	None	-	4.2	4012482	TYEE CITY	Unprocessed	Plants - Vascular - Apiaceae - Glehnia littoralis ssp. leiocarpa
Plants - Vascular	Glehnia littoralis ssp. leiocarpa	American glehnia	PDAPI13011	None	None	-	4.2	4112411	CRANNELL	Unprocessed	Plants - Vascular - Apiaceae - Glehnia littoralis ssp. leiocarpa
Plants - Vascular	Hemizonia congesta ssp. tracyi	Tracys tarplant	PDAST4R067	None	None	-	4.3	4012378	KORBEL	Unprocessed	Plants - Vascular - Asteraceae - Hemizonia congesta ssp. tracyi
Plants - Vascular	Hesperevax sparsiflora var. brevifolia	short-leaved evax	PDASTE5011	None	None	-	1B.2	4012472	EUREKA	Mapped and Unprocessed	Plants - Vascular - Asteraceae - Hesperevax sparsiflora var. brevifolia
Plants - Vascular	Lasthenia californica ssp. macrantha	perennial goldfields	PDAST5L0C5	None	None	-	1B.2	4012472	EUREKA	Mapped	Plants - Vascular - Asteraceae - Lasthenia californica ssp. macrantha
Plants - Vascular	Layia carnosa	beach layia	PDAST5N010	Threatened	Endangered	-	1B.1	4012472	EUREKA	Mapped and Unprocessed	Plants - Vascular - Asteraceae - Layia carnosa
Plants - Vascular	Layia carnosa	beach layia	PDAST5N010	Threatened	Endangered	-	1B.1	4112411	CRANNELL	Mapped	Plants - Vascular - Asteraceae - Layia carnosa
Plants - Vascular	Layia carnosa	beach layia	PDAST5N010	Threatened	Endangered	-	1B.1	4012482	TYEE CITY	Mapped and Unprocessed	Plants - Vascular - Asteraceae - Layia carnosa
Plants - Vascular	Packera bolanderi var. bolanderi	seacoast ragwort	PDAST8H0H1	None	None	-	2B.2	4112411	CRANNELL	Mapped and Unprocessed	Plants - Vascular - Asteraceae - Packera bolanderi var. bolanderi
Plants - Vascular	Packera bolanderi var. bolanderi	seacoast ragwort	PDAST8H0H1	None	None	-	2B.2	4112318	PANTHER CREEK	Mapped	Plants - Vascular - Asteraceae - Packera bolanderi var. bolanderi
Plants - Vascular	Cardamine angulata	seaside bittercress	PDBRA0K010	None	None	-	2B.1	4012471	ARCATA SOUTH	Mapped	Plants - Vascular - Brassicaceae - Cardamine angulata
Plants - Vascular	Erysimum menziesii	Menzies wallflower	PDBRA160R0	Endangered	Endangered	-	1B.1	4012482	TYEE CITY	Mapped and Unprocessed	Plants - Vascular - Brassicaceae - Erysimum menziesii
Plants - Vascular	Erysimum menziesii	Menzies wallflower	PDBRA160R0	Endangered	Endangered	-	1B.1	4012472	EUREKA	Mapped	Plants - Vascular - Brassicaceae - Erysimum menziesii
Plants - Vascular	Silene scouleri ssp. scouleri	Scoulers catchfly	PDCAR0U1MC	None	None	-	2B.2	4012472	EUREKA	Mapped	Plants - Vascular - Caryophyllaceae - Silene scouleri ssp. scouleri
Plants - Vascular	Spergularia canadensis var. occidentalis	western sand-spurrey	PDCAR0W032	None	None	-	2B.1	4012472	EUREKA	Mapped and Unprocessed	Plants - Vascular - Caryophyllaceae - Spergularia canadensis var. occidentalis
Plants - Vascular	Spergularia canadensis var. occidentalis	western sand-spurrey	PDCAR0W032	None	None	-	2B.1	4012471	ARCATA SOUTH	Mapped	Plants - Vascular - Caryophyllaceae - Spergularia canadensis var. occidentalis
Plants - Vascular	Carex arcta	northern clustered sedge	PMCYP030X0	None	None	-	2B.2	4012472	EUREKA	Mapped	Plants - Vascular - Cyperaceae - Carex arcta
Plants - Vascular	Carex arcta	northern clustered sedge	PMCYP030X0	None	None	-	2B.2	4012481	ARCATA NORTH	Mapped	Plants - Vascular - Cyperaceae - Carex arcta
Plants - Vascular	Carex leptalea	bristle-stalked sedge	PMCYP037E0	None	None	-	2B.2	4112411	CRANNELL	Mapped and Unprocessed	Plants - Vascular - Cyperaceae - Carex leptalea
Plants - Vascular	Carex lyngbyei	Lyngbyes sedge	PMCYP037Y0	None	None	-	2B.2	4112411	CRANNELL	Mapped	Plants - Vascular - Cyperaceae - Carex lyngbyei
Plants - Vascular	Carex lyngbyei	Lyngbyes sedge	PMCYP037Y0	None	None	-	2B.2	4012482	TYEE CITY	Mapped	Plants - Vascular - Cyperaceae - Carex lyngbyei
Plants - Vascular	Carex lyngbyei	Lyngbyes sedge	PMCYP037Y0	None	None	-	2B.2	4012481	ARCATA NORTH	Mapped	Plants - Vascular - Cyperaceae - Carex lyngbyei
Plants - Vascular	Carex lyngbyei	Lyngbyes sedge	PMCYP037Y0	None	None	-	2B.2	4012472	EUREKA	Mapped and Unprocessed	Plants - Vascular - Cyperaceae - Carex lyngbyei

Plants - Vascular	Carex lyngbyei	Lyngbyes sedge	PMCYP037Y0	None	None	-	2B.2	4012471	ARCATA SOUTH	Mapped and Unprocessed	Plants - Vascular - Cyperaceae - Carex lyngbyei
Plants - Vascular	Carex praticola	northern meadow sedge	PMCYP03B20	None	None	-	2B.2	4012471	ARCATA SOUTH	Mapped	Plants - Vascular - Cyperaceae - Carex praticola
Plants - Vascular	Carex praticola	northern meadow sedge	PMCYP03B20	None	None	-	2B.2	4012472	EUREKA	Mapped	Plants - Vascular - Cyperaceae - Carex praticola
Plants - Vascular	Eleocharis parvula	small spikerush	PMCYP091G0	None	None	-	4.3	4012471	ARCATA SOUTH	Unprocessed	Plants - Vascular - Cyperaceae - Eleocharis parvula
Plants - Vascular	Astragalus pycnostachyus var. pycnostachyus	coastal marsh milk-vetch	PDFAB0F7B2	None	None	-	1B.2	4012472	EUREKA	Mapped	Plants - Vascular - Fabaceae - Astragalus pycnostachyus var. pycnostachyus
Plants - Vascular	Astragalus rattanii var. rattanii	Rattans milk-vetch	PDFAB0F7E2	None	None	-	4.3	4012481	ARCATA NORTH	Unprocessed	Plants - Vascular - Fabaceae - Astragalus rattanii var. rattanii
Plants - Vascular	Hosackia gracilis	harlequin lotus	PDFAB2A0D0	None	None	-	4.2	4012472	EUREKA	Unprocessed	Plants - Vascular - Fabaceae - Hosackia gracilis
Plants - Vascular	Hosackia gracilis	harlequin lotus	PDFAB2A0D0	None	None	-	4.2	4012471	ARCATA SOUTH	Unprocessed	Plants - Vascular - Fabaceae - Hosackia gracilis
Plants - Vascular	Hosackia gracilis	harlequin lotus	PDFAB2A0D0	None	None	-	4.2	4012378	KORBEL	Unprocessed	Plants - Vascular - Fabaceae - Hosackia gracilis
Plants - Vascular	Lathyrus glandulosus	sticky pea	PDFAB251A0	None	None	-	4.3	4012378	KORBEL	Unprocessed	Plants - Vascular - Fabaceae - Lathyrus glandulosus
Plants - Vascular	Lathyrus glandulosus	sticky pea	PDFAB251A0	None	None	-	4.3	4012471	ARCATA SOUTH	Unprocessed	Plants - Vascular - Fabaceae - Lathyrus glandulosus
Plants - Vascular	Lathyrus glandulosus	sticky pea	PDFAB251A0	None	None	-	4.3	4012481	ARCATA NORTH	Unprocessed	Plants - Vascular - Fabaceae - Lathyrus glandulosus
Plants - Vascular	Lathyrus glandulosus	sticky pea	PDFAB251A0	None	None	-	4.3	4012388	BLUE LAKE	Unprocessed	Plants - Vascular - Fabaceae - Lathyrus glandulosus
Plants - Vascular	Lathyrus japonicus	seaside pea	PDFAB250C0	None	None	-	2B.1	4012481	ARCATA NORTH	Mapped	Plants - Vascular - Fabaceae - Lathyrus japonicus
Plants - Vascular	Lathyrus japonicus	seaside pea	PDFAB250C0	None	None	-	2B.1	4012472	EUREKA	Mapped	Plants - Vascular - Fabaceae - Lathyrus japonicus
Plants - Vascular	Lathyrus japonicus	seaside pea	PDFAB250C0	None	None	-	2B.1	4112411	CRANNELL	Mapped	Plants - Vascular - Fabaceae - Lathyrus japonicus
Plants - Vascular	Lathyrus japonicus	seaside pea	PDFAB250C0	None	None	-	2B.1	4012471	ARCATA SOUTH	Mapped	Plants - Vascular - Fabaceae - Lathyrus japonicus
Plants - Vascular	Lathyrus palustris	marsh pea	PDFAB250P0	None	None	-	2B.2	4012472	EUREKA	Mapped	Plants - Vascular - Fabaceae - Lathyrus palustris
Plants - Vascular	Ribes laxiflorum	trailing black currant	PDGRO020V0	None	None	-	4.3	4012481	ARCATA NORTH	Unprocessed	Plants - Vascular - Grossulariaceae - Ribes laxiflorum
Plants - Vascular	Ribes laxiflorum	trailing black currant	PDGRO020V0	None	None	-	4.3	4012388	BLUE LAKE	Unprocessed	Plants - Vascular - Grossulariaceae - Ribes laxiflorum
Plants - Vascular	Ribes laxiflorum	trailing black currant	PDGRO020V0	None	None	-	4.3	4112411	CRANNELL	Unprocessed	Plants - Vascular - Grossulariaceae - Ribes laxiflorum
Plants - Vascular	Ribes laxiflorum	trailing black currant	PDGRO020V0	None	None	-	4.3	4112318	PANTHER CREEK	Unprocessed	Plants - Vascular - Grossulariaceae - Ribes laxiflorum
Plants - Vascular	Ribes laxiflorum	trailing black currant	PDGRO020V0	None	None	-	4.3	4012471	ARCATA SOUTH	Unprocessed	Plants - Vascular - Grossulariaceae - Ribes laxiflorum
Plants - Vascular	Ribes laxiflorum	trailing black currant	PDGRO020V0	None	None	-	4.3	4012378	KORBEL	Unprocessed	Plants - Vascular - Grossulariaceae - Ribes laxiflorum
Plants - Vascular	Erythronium oregonum	giant fawn lily	PMLIL0U0C0	None	None	-	2B.2	4112318	PANTHER CREEK	Mapped	Plants - Vascular - Liliaceae - Erythronium oregonum
Plants - Vascular	Erythronium oregonum	giant fawn lily	PMLIL0U0C0	None	None	-	2B.2	4012388	BLUE LAKE	Mapped	Plants - Vascular - Liliaceae - Erythronium oregonum
Plants - Vascular	Erythronium revolutum	coast fawn lily	PMLIL0U0F0	None	None	-	2B.2	4012388	BLUE LAKE	Mapped and Unprocessed	Plants - Vascular - Liliaceae - Erythronium revolutum
Plants - Vascular	Erythronium revolutum	coast fawn lily	PMLIL0U0F0	None	None	-	2B.2	4012472	EUREKA	Mapped	Plants - Vascular - Liliaceae - Erythronium revolutum
Plants - Vascular	Erythronium revolutum	coast fawn lily	PMLIL0U0F0	None	None	-	2B.2	4012378	KORBEL	Mapped and Unprocessed	Plants - Vascular - Liliaceae -

											Erythronium revolutum
Plants - Vascular	Fritillaria purdyi	Purdys fritillary	PMLIL0V0H0	None	None	-	4.3	4012378	KORBEL	Unprocessed	Plants - Vascular - Liliaceae - Fritillaria purdyi
Plants - Vascular	Lilium kelloggii	Kelloggs lily	PMLIL1A0A0	None	None	-	4.3	4012378	KORBEL	Unprocessed	Plants - Vascular - Liliaceae - Lilium kelloggii
Plants - Vascular	Lilium kelloggii	Kelloggs lily	PMLIL1A0A0	None	None	-	4.3	4012471	ARCATA SOUTH	Unprocessed	Plants - Vascular - Liliaceae - Lilium kelloggii
Plants - Vascular	Lilium occidentale	western lily	PMLIL1A0G0	Endangered	Endangered	-	1B.1	4012471	ARCATA SOUTH	Mapped	Plants - Vascular - Liliaceae - Lilium occidentale
Plants - Vascular	Lilium occidentale	western lily	PMLIL1A0G0	Endangered	Endangered	-	1B.1	4012472	EUREKA	Mapped	Plants - Vascular - Liliaceae - Lilium occidentale
Plants - Vascular	Lilium occidentale	western lily	PMLIL1A0G0	Endangered	Endangered	-	1B.1	4012481	ARCATA NORTH	Mapped	Plants - Vascular - Liliaceae - Lilium occidentale
Plants - Vascular	Lycopodium clavatum	running-pine	PPLYC01080	None	None	-	4.1	4012481	ARCATA NORTH	Mapped and Unprocessed	Plants - Vascular - Lycopodiaceae - Lycopodium clavatum
Plants - Vascular	Lycopodium clavatum	running-pine	PPLYC01080	None	None	-	4.1	4012388	BLUE LAKE	Mapped and Unprocessed	Plants - Vascular - Lycopodiaceae - Lycopodium clavatum
Plants - Vascular	Lycopodium clavatum	running-pine	PPLYC01080	None	None	-	4.1	4012472	EUREKA	Unprocessed	Plants - Vascular - Lycopodiaceae - Lycopodium clavatum
Plants - Vascular	Lycopodium clavatum	running-pine	PPLYC01080	None	None	-	4.1	4112318	PANTHER CREEK	Mapped and Unprocessed	Plants - Vascular - Lycopodiaceae - Lycopodium clavatum
Plants - Vascular	Lycopodium clavatum	running-pine	PPLYC01080	None	None	-	4.1	4112411	CRANNELL	Mapped and Unprocessed	Plants - Vascular - Lycopodiaceae - Lycopodium clavatum
Plants - Vascular	Lycopodium clavatum	running-pine	PPLYC01080	None	None	-	4.1	4012471	ARCATA SOUTH	Mapped and Unprocessed	Plants - Vascular - Lycopodiaceae - Lycopodium clavatum
Plants - Vascular	Lycopodium clavatum	running-pine	PPLYC01080	None	None	-	4.1	4012378	KORBEL	Mapped and Unprocessed	Plants - Vascular - Lycopodiaceae - Lycopodium clavatum
Plants - Vascular	Iliamna latibracteata	California globe mallow	PDMAL0K040	None	None	-	1B.2	4012378	KORBEL	Mapped	Plants - Vascular - Malvaceae - Iliamna latibracteata
Plants - Vascular	Iliamna latibracteata	California globe mallow	PDMAL0K040	None	None	-	1B.2	4012388	BLUE LAKE	Mapped	Plants - Vascular - Malvaceae - Iliamna latibracteata
Plants - Vascular	Sidalcea malachroides	maple-leaved checkerbloom	PDMAL110E0	None	None	-	4.2	4012388	BLUE LAKE	Mapped and Unprocessed	Plants - Vascular - Malvaceae - Sidalcea malachroides
Plants - Vascular	Sidalcea malachroides	maple-leaved checkerbloom	PDMAL110E0	None	None	-	4.2	4012481	ARCATA NORTH	Mapped and Unprocessed	Plants - Vascular - Malvaceae - Sidalcea malachroides
Plants - Vascular	Sidalcea malachroides	maple-leaved checkerbloom	PDMAL110E0	None	None	-	4.2	4012472	EUREKA	Mapped and Unprocessed	Plants - Vascular - Malvaceae - Sidalcea malachroides
Plants - Vascular	Sidalcea malachroides	maple-leaved checkerbloom	PDMAL110E0	None	None	-	4.2	4012378	KORBEL	Mapped and Unprocessed	Plants - Vascular - Malvaceae - Sidalcea malachroides
Plants - Vascular	Sidalcea malachroides	maple-leaved checkerbloom	PDMAL110E0	None	None	-	4.2	4012471	ARCATA SOUTH	Mapped and Unprocessed	Plants - Vascular - Malvaceae - Sidalcea malachroides
Plants - Vascular	Sidalcea malviflora ssp. patula	Siskiyou checkerbloom	PDMAL110F9	None	None	-	1B.2	4012378	KORBEL	Mapped and Unprocessed	Plants - Vascular - Malvaceae - Sidalcea malviflora ssp. patula
Plants - Vascular	Sidalcea malviflora ssp. patula	Siskiyou checkerbloom	PDMAL110F9	None	None	-	1B.2	4012472	EUREKA	Mapped	Plants - Vascular - Malvaceae - Sidalcea malviflora ssp. patula
Plants - Vascular	Sidalcea malviflora ssp. patula	Siskiyou checkerbloom	PDMAL110F9	None	None	-	1B.2	4012481	ARCATA NORTH	Mapped	Plants - Vascular - Malvaceae - Sidalcea malviflora ssp. patula
Plants - Vascular	Sidalcea oregana ssp. eximia	coast checkerbloom	PDMAL110K9	None	None	-	1B.2	4012481	ARCATA NORTH	Mapped	Plants - Vascular - Malvaceae - Sidalcea oregana ssp. eximia
Plants - Vascular	Sidalcea oregana ssp. eximia	coast checkerbloom	PDMAL110K9	None	None	-	1B.2	4012472	EUREKA	Mapped	Plants - Vascular - Malvaceae - Sidalcea oregana ssp. eximia
Plants - Vascular	Monotropa uniflora	ghost-pipe	PDMON03030	None	None	-	2B.2	4012472	EUREKA	Mapped	Plants - Vascular - Monotropaceae -

												Monotropa uniflora
Plants - Vascular	Monotropa uniflora	ghost-pipe	PDMON03030	None	None	-	2B.2	4012471	ARCATA SOUTH	Mapped	Plants - Vascular - Monotropaceae - Monotropa uniflora
Plants - Vascular	Pityopus californicus	California pinefoot	PDMON05010	None	None	-	4.2	4012378	KORBEL	Unprocessed	Plants - Vascular - Monotropaceae - Pityopus californicus
Plants - Vascular	Pityopus californicus	California pinefoot	PDMON05010	None	None	-	4.2	4012481	ARCATA NORTH	Unprocessed	Plants - Vascular - Monotropaceae - Pityopus californicus
Plants - Vascular	Pityopus californicus	California pinefoot	PDMON05010	None	None	-	4.2	4012388	BLUE LAKE	Unprocessed	Plants - Vascular - Monotropaceae - Pityopus californicus
Plants - Vascular	Pityopus californicus	California pinefoot	PDMON05010	None	None	-	4.2	4112411	CRANNELL	Unprocessed	Plants - Vascular - Monotropaceae - Pityopus californicus
Plants - Vascular	Pityopus californicus	California pinefoot	PDMON05010	None	None	-	4.2	4112318	PANTHER CREEK	Unprocessed	Plants - Vascular - Monotropaceae - Pityopus californicus
Plants - Vascular	Montia howellii	Howells montia	PDPOR05070	None	None	-	2B.2	4112318	PANTHER CREEK	Mapped	Plants - Vascular - Montiaceae - Montia howellii
Plants - Vascular	Montia howellii	Howells montia	PDPOR05070	None	None	-	2B.2	4012481	ARCATA NORTH	Mapped	Plants - Vascular - Montiaceae - Montia howellii
Plants - Vascular	Montia howellii	Howells montia	PDPOR05070	None	None	-	2B.2	4012472	EUREKA	Mapped	Plants - Vascular - Montiaceae - Montia howellii
Plants - Vascular	Montia howellii	Howells montia	PDPOR05070	None	None	-	2B.2	4012378	KORBEL	Mapped and Unprocessed	Plants - Vascular - Montiaceae - Montia howellii
Plants - Vascular	Montia howellii	Howells montia	PDPOR05070	None	None	-	2B.2	4012471	ARCATA SOUTH	Mapped	Plants - Vascular - Montiaceae - Montia howellii
Plants - Vascular	Abronia umbellata var. breviflora	pink sand-verbena	PDNYC010N4	None	None	-	1B.1	4012472	EUREKA	Mapped and Unprocessed	Plants - Vascular - Nyctaginaceae - Abronia umbellata var. breviflora
Plants - Vascular	Abronia umbellata var. breviflora	pink sand-verbena	PDNYC010N4	None	None	-	1B.1	4012481	ARCATA NORTH	Mapped	Plants - Vascular - Nyctaginaceae - Abronia umbellata var. breviflora
Plants - Vascular	Abronia umbellata var. breviflora	pink sand-verbena	PDNYC010N4	None	None	-	1B.1	4112411	CRANNELL	Mapped	Plants - Vascular - Nyctaginaceae - Abronia umbellata var. breviflora
Plants - Vascular	Abronia umbellata var. breviflora	pink sand-verbena	PDNYC010N4	None	None	-	1B.1	4012482	TYEE CITY	Mapped	Plants - Vascular - Nyctaginaceae - Abronia umbellata var. breviflora
Plants - Vascular	Epilobium septentrionale	Humboldt County fuchsia	PDONA06110	None	None	-	4.3	4012378	KORBEL	Unprocessed	Plants - Vascular - Onagraceae - Epilobium septentrionale
Plants - Vascular	Oenothera wolfii	Wolfs evening-primrose	PDONA0C1K0	None	None	-	1B.1	4112411	CRANNELL	Mapped	Plants - Vascular - Onagraceae - Oenothera wolfii
Plants - Vascular	Oenothera wolfii	Wolfs evening-primrose	PDONA0C1K0	None	None	-	1B.1	4012481	ARCATA NORTH	Mapped	Plants - Vascular - Onagraceae - Oenothera wolfii
Plants - Vascular	Oenothera wolfii	Wolfs evening-primrose	PDONA0C1K0	None	None	-	1B.1	4012472	EUREKA	Mapped	Plants - Vascular - Onagraceae - Oenothera wolfii
Plants - Vascular	Listera cordata	heart-leaved twayblade	PMORC1N060	None	None	-	4.2	4012481	ARCATA NORTH	Unprocessed	Plants - Vascular - Orchidaceae - Listera cordata
Plants - Vascular	Listera cordata	heart-leaved twayblade	PMORC1N060	None	None	-	4.2	4012388	BLUE LAKE	Unprocessed	Plants - Vascular - Orchidaceae - Listera cordata
Plants - Vascular	Listera cordata	heart-leaved twayblade	PMORC1N060	None	None	-	4.2	4112411	CRANNELL	Unprocessed	Plants - Vascular - Orchidaceae - Listera cordata
Plants - Vascular	Listera cordata	heart-leaved twayblade	PMORC1N060	None	None	-	4.2	4112318	PANTHER CREEK	Unprocessed	Plants - Vascular - Orchidaceae - Listera cordata
Plants - Vascular	Listera cordata	heart-leaved twayblade	PMORC1N060	None	None	-	4.2	4012378	KORBEL	Unprocessed	Plants - Vascular - Orchidaceae - Listera cordata
Plants - Vascular	Listera cordata	heart-leaved twayblade	PMORC1N060	None	None	-	4.2	4012471	ARCATA SOUTH	Unprocessed	Plants - Vascular - Orchidaceae - Listera cordata
Plants - Vascular	Piperia candida	white-flowered rein orchid	PMORC1X050	None	None	-	1B.2	4112411	CRANNELL	Mapped	Plants - Vascular - Orchidaceae - Piperia candida
Plants - Vascular	Castilleja ambigua var. humboldtiensis	Humboldt Bay owls-clover	PDSCR0D402	None	None	-	1B.2	4012482	TYEE CITY	Mapped	Plants - Vascular - Orobanchaceae - Castilleja ambigua var. humboldtiensis
Plants - Vascular	Castilleja ambigua var. humboldtiensis	Humboldt Bay owls-clover	PDSCR0D402	None	None	-	1B.2	4012481	ARCATA NORTH	Mapped	Plants - Vascular - Orobanchaceae - Castilleja ambigua var. humboldtiensis

Plants - Vascular	Castilleja ambigua var. humboldtiensis	Humboldt Bay owls-clover	PDSCR0D402	None	None	-	1B.2	4012472	EUREKA	Mapped	Plants - Vascular - Orobanchaceae - Castilleja ambigua var. humboldtiensis
Plants - Vascular	Castilleja ambigua var. humboldtiensis	Humboldt Bay owls-clover	PDSCR0D402	None	None	-	1B.2	4012471	ARCATA SOUTH	Mapped and Unprocessed	Plants - Vascular - Orobanchaceae - Castilleja ambigua var. humboldtiensis
Plants - Vascular	Castilleja litoralis	Oregon coast paintbrush	PDSCR0D012	None	None	-	2B.2	4012472	EUREKA	Mapped	Plants - Vascular - Orobanchaceae - Castilleja litoralis
Plants - Vascular	Castilleja litoralis	Oregon coast paintbrush	PDSCR0D012	None	None	-	2B.2	4112411	CRANNELL	Mapped	Plants - Vascular - Orobanchaceae - Castilleja litoralis
Plants - Vascular	Chloropyron maritimum ssp. palustre	Point Reyes salty birds-beak	PDSCR0J0C3	None	None	-	1B.2	4012482	TYEE CITY	Mapped	Plants - Vascular - Orobanchaceae - Chloropyron maritimum ssp. palustre
Plants - Vascular	Chloropyron maritimum ssp. palustre	Point Reyes salty birds-beak	PDSCR0J0C3	None	None	-	1B.2	4012472	EUREKA	Mapped and Unprocessed	Plants - Vascular - Orobanchaceae - Chloropyron maritimum ssp. palustre
Plants - Vascular	Chloropyron maritimum ssp. palustre	Point Reyes salty birds-beak	PDSCR0J0C3	None	None	-	1B.2	4012471	ARCATA SOUTH	Mapped	Plants - Vascular - Orobanchaceae - Chloropyron maritimum ssp. palustre
Plants - Vascular	Collinsia corymbosa	round-headed collinsia	PDSCR0H060	None	None	-	1B.2	4012472	EUREKA	Mapped	Plants - Vascular - Plantaginaceae - Collinsia corymbosa
Plants - Vascular	Calamagrostis bolanderi	Bolanders reed grass	PMPOA17010	None	None	-	4.2	4112411	CRANNELL	Unprocessed	Plants - Vascular - Poaceae - Calamagrostis bolanderi
Plants - Vascular	Pleuropogon refractus	nodding semaphore grass	PMPOA4Y080	None	None	-	4.2	4112411	CRANNELL	Unprocessed	Plants - Vascular - Poaceae - Pleuropogon refractus
Plants - Vascular	Pleuropogon refractus	nodding semaphore grass	PMPOA4Y080	None	None	-	4.2	4112318	PANTHER CREEK	Unprocessed	Plants - Vascular - Poaceae - Pleuropogon refractus
Plants - Vascular	Pleuropogon refractus	nodding semaphore grass	PMPOA4Y080	None	None	-	4.2	4012472	EUREKA	Unprocessed	Plants - Vascular - Poaceae - Pleuropogon refractus
Plants - Vascular	Pleuropogon refractus	nodding semaphore grass	PMPOA4Y080	None	None	-	4.2	4012481	ARCATA NORTH	Unprocessed	Plants - Vascular - Poaceae - Pleuropogon refractus
Plants - Vascular	Pleuropogon refractus	nodding semaphore grass	PMPOA4Y080	None	None	-	4.2	4012388	BLUE LAKE	Unprocessed	Plants - Vascular - Poaceae - Pleuropogon refractus
Plants - Vascular	Pleuropogon refractus	nodding semaphore grass	PMPOA4Y080	None	None	-	4.2	4012471	ARCATA SOUTH	Unprocessed	Plants - Vascular - Poaceae - Pleuropogon refractus
Plants - Vascular	Pleuropogon refractus	nodding semaphore grass	PMPOA4Y080	None	None	-	4.2	4012378	KORBEL	Unprocessed	Plants - Vascular - Poaceae - Pleuropogon refractus
Plants - Vascular	Gilia capitata ssp. pacifica	Pacific gilia	PDPLM040B6	None	None	-	1B.2	4012388	BLUE LAKE	Unprocessed	Plants - Vascular - Polemoniaceae - Gilia capitata ssp. pacifica
Plants - Vascular	Gilia capitata ssp. pacifica	Pacific gilia	PDPLM040B6	None	None	-	1B.2	4012472	EUREKA	Mapped	Plants - Vascular - Polemoniaceae - Gilia capitata ssp. pacifica
Plants - Vascular	Gilia capitata ssp. pacifica	Pacific gilia	PDPLM040B6	None	None	-	1B.2	4112411	CRANNELL	Mapped	Plants - Vascular - Polemoniaceae - Gilia capitata ssp. pacifica
Plants - Vascular	Gilia millefoliata	dark-eyed gilia	PDPLM04130	None	None	-	1B.2	4112411	CRANNELL	Mapped and Unprocessed	Plants - Vascular - Polemoniaceae - Gilia millefoliata
Plants - Vascular	Gilia millefoliata	dark-eyed gilia	PDPLM04130	None	None	-	1B.2	4012482	TYEE CITY	Mapped	Plants - Vascular - Polemoniaceae - Gilia millefoliata
Plants - Vascular	Gilia millefoliata	dark-eyed gilia	PDPLM04130	None	None	-	1B.2	4012472	EUREKA	Mapped and Unprocessed	Plants - Vascular - Polemoniaceae - Gilia millefoliata
Plants - Vascular	Coptis laciniata	Oregon goldthread	PDRAN0A020	None	None	-	4.2	4012388	BLUE LAKE	Mapped and Unprocessed	Plants - Vascular - Ranunculaceae - Coptis laciniata
Plants - Vascular	Coptis laciniata	Oregon goldthread	PDRAN0A020	None	None	-	4.2	4112318	PANTHER CREEK	Unprocessed	Plants - Vascular - Ranunculaceae - Coptis laciniata
Plants - Vascular	Coptis laciniata	Oregon goldthread	PDRAN0A020	None	None	-	4.2	4012378	KORBEL	Unprocessed	Plants - Vascular - Ranunculaceae - Coptis laciniata
Plants - Vascular	Chrysosplenium glechomifolium	Pacific golden saxifrage	PDSAX07020	None	None	-	4.3	4012378	KORBEL	Unprocessed	Plants - Vascular - Saxifragaceae - Chrysosplenium glechomifolium

Plants - Vascular	Chrysosplenium glechomifolium	Pacific golden saxifrage	PDSAX07020	None	None	-	4.3	4012471	ARCATA SOUTH	Unprocessed	Plants - Vascular - Saxifragaceae - Chrysosplenium glechomifolium
Plants - Vascular	Chrysosplenium glechomifolium	Pacific golden saxifrage	PDSAX07020	None	None	-	4.3	4112411	CRANNELL	Unprocessed	Plants - Vascular - Saxifragaceae - Chrysosplenium glechomifolium
Plants - Vascular	Chrysosplenium glechomifolium	Pacific golden saxifrage	PDSAX07020	None	None	-	4.3	4012388	BLUE LAKE	Unprocessed	Plants - Vascular - Saxifragaceae - Chrysosplenium glechomifolium
Plants - Vascular	Chrysosplenium glechomifolium	Pacific golden saxifrage	PDSAX07020	None	None	-	4.3	4012481	ARCATA NORTH	Unprocessed	Plants - Vascular - Saxifragaceae - Chrysosplenium glechomifolium
Plants - Vascular	Chrysosplenium glechomifolium	Pacific golden saxifrage	PDSAX07020	None	None	-	4.3	4012472	EUREKA	Unprocessed	Plants - Vascular - Saxifragaceae - Chrysosplenium glechomifolium
Plants - Vascular	Mitellastra caulescens	leafy-stemmed mitrewort	PDSAX0N020	None	None	-	4.2	4012481	ARCATA NORTH	Unprocessed	Plants - Vascular - Saxifragaceae - Mitellastra caulescens
Plants - Vascular	Mitellastra caulescens	leafy-stemmed mitrewort	PDSAX0N020	None	None	-	4.2	4012388	BLUE LAKE	Unprocessed	Plants - Vascular - Saxifragaceae - Mitellastra caulescens
Plants - Vascular	Mitellastra caulescens	leafy-stemmed mitrewort	PDSAX0N020	None	None	-	4.2	4112411	CRANNELL	Unprocessed	Plants - Vascular - Saxifragaceae - Mitellastra caulescens
Plants - Vascular	Mitellastra caulescens	leafy-stemmed mitrewort	PDSAX0N020	None	None	-	4.2	4112318	PANTHER CREEK	Unprocessed	Plants - Vascular - Saxifragaceae - Mitellastra caulescens
Plants - Vascular	Mitellastra caulescens	leafy-stemmed mitrewort	PDSAX0N020	None	None	-	4.2	4012471	ARCATA SOUTH	Mapped and Unprocessed	Plants - Vascular - Saxifragaceae - Mitellastra caulescens
Plants - Vascular	Mitellastra caulescens	leafy-stemmed mitrewort	PDSAX0N020	None	None	-	4.2	4012378	KORBEL	Mapped and Unprocessed	Plants - Vascular - Saxifragaceae - Mitellastra caulescens
Plants - Vascular	Tiarella trifoliata var. trifoliata	trifoliate laceflower	PDSAX10031	None	None	-	3.2	4012378	KORBEL	Unprocessed	Plants - Vascular - Saxifragaceae - Tiarella trifoliata var. trifoliata
Plants - Vascular	Tiarella trifoliata var. trifoliata	trifoliate laceflower	PDSAX10031	None	None	-	3.2	4012388	BLUE LAKE	Unprocessed	Plants - Vascular - Saxifragaceae - Tiarella trifoliata var. trifoliata
Plants - Vascular	Viola palustris	alpine marsh violet	PDVIO041G0	None	None	-	2B.2	4012472	EUREKA	Mapped	Plants - Vascular - Violaceae - Viola palustris
Plants - Vascular	Viola palustris	alpine marsh violet	PDVIO041G0	None	None	-	2B.2	4012471	ARCATA SOUTH	Mapped	Plants - Vascular - Violaceae - Viola palustris

CNPS Rare Plant Inventory

CALIFORNIA NATIVE PLANT SOCIETY

Search Results

58 matches found. Click on scientific name for details

Search Criteria: 9-Quad include [4112411:4112318:4012472:4012471:4012378:4012481:4012482:4012388]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	STATE RANK	CA RARE PLANT RANK	GENERAL HABITATS	MICROHABITATS	LOWEST ELEVATION (FT)	HIGHEST ELEVATION (FT)
Abronia umbellata var. breviflora	pink sand-verbena	Nyctaginaceae	annual herb	Jun-Oct	None	None	S2	1B.1	Coastal dunes		0	35
Angelica lucida	sea-watch	Apiaceae	perennial herb	Apr-Sep	None	None	S3	4.2	Coastal bluff scrub, Coastal dunes, Coastal scrub, Marshes and swamps (coastal salt)		0	490
Astragalus pycnostachyus var. pycnostachyus	coastal marsh milk-vetch	Fabaceae	perennial herb	(Apr)Jun-Oct	None	None	S2	1B.2	Coastal dunes (mesic), Coastal scrub, Marshes and swamps (coastal salt, streamsides)		0	180
Astragalus rattanii var. rattanii	Rattan's milk-vetch	Fabaceae	perennial herb	Apr-Jul	None	None	S4	4.3	Chaparral, Cismontane woodland, Lower montane coniferous forest	Gravelly, Streambanks	100	2705
Calamagrostis bolanderi	Bolander's reed grass	Poaceae	perennial rhizomatous herb	May-Aug	None	None	S4	4.2	Bogs and fens, Broadleafed upland forest, Closed-cone coniferous forest, Coastal scrub, Marshes and swamps (freshwater), Meadows and seeps (mesic), North Coast coniferous forest	Mesic	0	1495

Cardamine angulata	seaside bittercress	Brassicaceae	perennial herb	(Jan)Mar-Jul	None	None	S3	2B.2	Lower montane coniferous forest, North Coast coniferous forest	Streambanks	50	3000
Carex arcta	northern clustered sedge	Cyperaceae	perennial herb	Jun-Sep	None	None	S1	2B.2	Bogs and fens, North Coast coniferous forest (mesic)		195	4595
Carex leptalea	bristle-stalked sedge	Cyperaceae	perennial rhizomatous herb	Mar-Jul	None	None	S1	2B.2	Bogs and fens, Marshes and swamps, Meadows and seeps (mesic)		0	2295
Carex lyngbyei	Lyngbye's sedge	Cyperaceae	perennial rhizomatous herb	Apr-Aug	None	None	S3	2B.2	Marshes and swamps (brackish, freshwater)		0	35
Carex praticola	northern meadow sedge	Cyperaceae	perennial herb	May-Jul	None	None	S2	2B.2	Meadows and seeps (mesic)		0	10500
Castilleja ambigua var. humboldtiensis	Humboldt Bay owl's-clover	Orobanchaceae	annual herb (hemiparasitic)	Apr-Aug	None	None	S2	1B.2	Marshes and swamps (coastal salt)		0	10
Castilleja litoralis	Oregon coast paintbrush	Orobanchaceae	perennial herb (hemiparasitic)	Jun	None	None	S3	2B.2	Coastal bluff scrub, Coastal dunes, Coastal scrub	Sandy	50	330
Chloropyron maritimum ssp. palustre	Point Reyes salty bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	Jun-Oct	None	None	S2	1B.2	Marshes and swamps (coastal salt)		0	35
Chrysosplenium glechomifolium	Pacific golden saxifrage	Saxifragaceae	perennial herb	Feb-Jun	None	None	S3	4.3	North Coast coniferous forest, Riparian forest	Roadsides (sometimes), Seeps (sometimes), Streambanks	35	1770
Collinsia corymbosa	round-headed collinsia	Plantaginaceae	annual herb	Apr-Jun	None	None	S1	1B.2	Coastal dunes		0	65
Coptis laciniata	Oregon goldthread	Ranunculaceae	perennial rhizomatous herb	(Feb)Mar-May(Sep-Nov)	None	None	S3?	4.2	Meadows and seeps, North Coast coniferous forest (streambanks)	Mesic	0	3280
Eleocharis parvula	small spikerush	Cyperaceae	perennial herb	(Apr)Jun-Aug(Sep)	None	None	S3	4.3	Marshes and swamps		5	9910

Epilobium septentrionale	Humboldt County fuchsia	Onagraceae	perennial herb	Jul-Sep	None	None	S4	4.3	Broadleafed upland forest, North Coast coniferous forest	Rocky (sometimes), Sandy (sometimes)	150	5905
Erysimum menziesii	Menzies' wallflower	Brassicaceae	perennial herb	Mar-Sep	FE	CE	S1	1B.1	Coastal dunes		0	115
Erythronium oregonum	giant fawn lily	Liliaceae	perennial herb	Mar-Jun(Jul)	None	None	S2	2B.2	Cismontane woodland, Meadows and seeps	Openings, Rocky, Serpentinite (sometimes)	330	3775
Erythronium revolutum	coast fawn lily	Liliaceae	perennial bulbiferous herb	Mar-Jul(Aug)	None	None	S3	2B.2	Bogs and fens, Broadleafed upland forest, North Coast coniferous forest	Mesic, Streambanks	0	5250
Fissidens pauperculus	minute pocket moss	Fissidentaceae	moss		None	None	S2	1B.2	North Coast coniferous forest (damp coastal soil)		35	3360
Fritillaria purdyi	Purdy's fritillary	Liliaceae	perennial bulbiferous herb	Mar-Jun	None	None	S4	4.3	Chaparral, Cismontane woodland, Lower montane coniferous forest	Serpentinite (usually)	575	7400
Gilia capitata ssp. pacifica	Pacific gilia	Polemoniaceae	annual herb	Apr-Aug	None	None	S2	1B.2	Chaparral (openings), Coastal bluff scrub, Coastal prairie, Valley and foothill grassland		15	5465
Gilia millefoliata	dark-eyed gilia	Polemoniaceae	annual herb	Apr-Jul	None	None	S2	1B.2	Coastal dunes		5	100
Glehnia littoralis ssp. leiocarpa	American glehnia	Apiaceae	perennial herb	May-Aug	None	None	S2S3	4.2	Coastal dunes		0	65
Hemizonia congesta ssp. tracyi	Tracy's tarplant	Asteraceae	annual herb	(Mar-Apr)May-Oct	None	None	S4	4.3	Coastal prairie, Lower montane coniferous forest, North Coast coniferous forest	Openings, Serpentinite (sometimes)	395	3935
Hesperevax sparsiflora var. brevifolia	short-leaved evax	Asteraceae	annual herb	Mar-Jun	None	None	S3	1B.2	Coastal bluff scrub (sandy), Coastal dunes, Coastal prairie		0	705

Hosackia gracilis	harlequin lotus	Fabaceae	perennial rhizomatous herb	Mar-Jul	None	None	S3	4.2	Broadleafed upland forest, Cismontane woodland, Closed-cone coniferous forest, Coastal bluff scrub, Coastal prairie, Coastal scrub, Marshes and swamps, Meadows and seeps, North Coast coniferous forest, Valley and foothill grassland	Roadsides	0	2295
Iliamna latibracteata	California globe mallow	Malvaceae	perennial herb	Jun-Aug	None	None	S2	1B.2	Chaparral (montane), Lower montane coniferous forest, North Coast coniferous forest (mesic), Riparian scrub (streambanks)	Burned areas (often)	195	6560
Lasthenia californica ssp. macrantha	perennial goldfields	Asteraceae	perennial herb	Jan-Nov	None	None	S2	1B.2	Coastal bluff scrub, Coastal dunes, Coastal scrub		15	1705
Lathyrus glandulosus	sticky pea	Fabaceae	perennial rhizomatous herb	Apr-Jun	None	None	S3	4.3	Cismontane woodland		985	2625
Lathyrus japonicus	seaside pea	Fabaceae	perennial rhizomatous herb	May-Aug	None	None	S2	2B.1	Coastal dunes		5	100
Lathyrus palustris	marsh pea	Fabaceae	perennial herb	Mar-Aug	None	None	S2	2B.2	Bogs and fens, Coastal prairie, Coastal scrub, Lower montane coniferous forest, Marshes and swamps, North Coast coniferous forest	Mesic	5	330

Layia carnosa	beach layia	Asteraceae	annual herb	Mar-Jul	FT	CE	S2	1B.1	Coastal dunes, Coastal scrub (sandy)		0	195
Lilium kelloggii	Kellogg's lily	Liliaceae	perennial bulbiferous herb	(Feb)May-Aug	None	None	S3	4.3	Lower montane coniferous forest, North Coast coniferous forest	Openings, Roadsides	10	4265
Lilium occidentale	western lily	Liliaceae	perennial bulbiferous herb	Jun-Jul	FE	CE	S1	1B.1	Bogs and fens, Coastal bluff scrub, Coastal prairie, Coastal scrub, Marshes and swamps (freshwater), North Coast coniferous forest (openings)		5	605
Listera cordata	heart-leaved twayblade	Orchidaceae	perennial herb	Feb-Jul	None	None	S4	4.2	Bogs and fens, Lower montane coniferous forest, North Coast coniferous forest		15	4495
Lycopodium clavatum	running-pine	Lycopodiaceae	perennial rhizomatous herb	Jun-Aug(Sep)	None	None	S3	4.1	Lower montane coniferous forest (mesic), Marshes and swamps, North Coast coniferous forest (mesic)	Edges (often), Openings, Roadsides	150	4020
Mitellastra caulescens	leafy-stemmed mitrewort	Saxifragaceae	perennial rhizomatous herb	(Mar)Apr-Oct	None	None	S4	4.2	Broadleafed upland forest, Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest	Mesic, Roadsides (sometimes)	15	5580
Monotropa uniflora	ghost-pipe	Ericaceae	perennial herb (achlorophyllous)	Jun-Aug(Sep)	None	None	S2	2B.2	Broadleafed upland forest, North Coast coniferous forest		35	1805

Montia howellii	Howell's montia	Montiaceae	annual herb	(Feb)Mar-May	None	None	S2	2B.2	Meadows and seeps, North Coast coniferous forest, Vernal pools	Roadsides (sometimes), Vernally Mesic	0	2740
Oenothera wolfii	Wolf's evening-primrose	Onagraceae	perennial herb	May-Oct	None	None	S1	1B.1	Coastal bluff scrub, Coastal dunes, Coastal prairie, Lower montane coniferous forest	Mesic (usually), Sandy	10	2625
Packera bolanderi var. bolanderi	seacoast ragwort	Asteraceae	perennial rhizomatous herb	(Jan-Apr)May-Jul(Aug)	None	None	S2S3	2B.2	Coastal scrub, North Coast coniferous forest	Roadsides (sometimes)	100	2135
Piperia candida	white-flowered rein orchid	Orchidaceae	perennial herb	(Mar-Apr)May-Sep	None	None	S3	1B.2	Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest	Serpentinite (sometimes)	100	4300
Pityopus californicus	California pinefoot	Ericaceae	perennial herb (achlorophyllous)	(Mar-Apr)May-Aug	None	None	S4	4.2	Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest, Upper montane coniferous forest	Mesic	50	7300
Pleuropogon refractus	nodding semaphore grass	Poaceae	perennial rhizomatous herb	(Feb-Mar)Apr-Aug	None	None	S4	4.2	Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest, Riparian forest	Mesic	0	5250
Ribes laxiflorum	trailing black currant	Grossulariaceae	perennial deciduous shrub	Mar-Jul(Aug)	None	None	S3	4.3	North Coast coniferous forest	Roadsides (sometimes)	15	4575

Sidalcea malachroides	maple-leaved checkerbloom	Malvaceae	perennial herb	(Mar)Apr-Aug	None	None	S3	4.2	Broadleafed upland forest, Coastal prairie, Coastal scrub, North Coast coniferous forest, Riparian woodland	Disturbed areas (often)	0	2395
Sidalcea malviflora ssp. patula	Siskiyou checkerbloom	Malvaceae	perennial rhizomatous herb	(Mar)May-Aug	None	None	S2	1B.2	Coastal bluff scrub, Coastal prairie, North Coast coniferous forest	Roadsides (often)	50	4035
Sidalcea oregana ssp. eximia	coast checkerbloom	Malvaceae	perennial herb	Jun-Aug	None	None	S1	1B.2	Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest		15	4395
Silene scouleri ssp. scouleri	Scouler's catchfly	Caryophyllaceae	perennial herb	(Mar-May)Jun-Aug(Sep)	None	None	S2S3	2B.2	Coastal bluff scrub, Coastal prairie, Valley and foothill grassland		0	1970
Spergularia canadensis var. occidentalis	western sand-spurrey	Caryophyllaceae	annual herb	Jun-Aug	None	None	S1	2B.1	Marshes and swamps (coastal salt)		0	10
Sulcaria spiralifera	twisted horsehair lichen	Parmeliaceae	fruticose lichen (epiphytic)		None	None	S2	1B.2	Coastal dunes (SLO Co.), North Coast coniferous forest (immediate coast)		0	295
Tiarella trifoliata var. trifoliata	trifoliate laceflower	Saxifragaceae	perennial rhizomatous herb	(May)Jun-Aug	None	None	S2S3	3.2	Lower montane coniferous forest, North Coast coniferous forest	Edges, Streambanks	560	4920
Trichodon cylindricus	cylindrical trichodon	Ditrichaceae	moss		None	None	S2	2B.2	Broadleafed upland forest, Meadows and seeps, Upper montane coniferous forest	Roadsides, Sandy	165	6570

Usnea longissima	Methuselah's beard lichen	Parmeliaceae	fruticose lichen (epiphytic)		None	None	S4	4.2	Broadleafed upland forest, North Coast coniferous forest	165	4790
Viola palustris	alpine marsh violet	Violaceae	perennial rhizomatous herb	Mar-Aug	None	None	S1S2	2B.2	Bogs and fens (coastal), Coastal scrub (mesic)	0	490

Showing 1 to 58 of 58 entries

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Wetland Delineation Report

McKinleyville Town Center Wetlands Mapping

October 19, 2023

Wetland Delineation Report

McKinleyville Town Center Wetlands Mapping

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October 19, 2023

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1. Summary

GHD prepared this Wetland Delineation Report and accompanying appendices on behalf of the Humboldt County (Client), in support of the proposed McKinleyville Town Center Wetlands Mapping (Project) within the community of McKinleyville, California (**Appendix A, Figure 1**). The surveys were conducted within the Project Study Boundary (PSB) as shown in **Appendix A, Figure 2**. GHD conducted the wetland delineation fieldwork on May 30, May 31, and August 2, 2023. United States Army Corps of Engineers (USACE) three-parameter wetlands were mapped based on wetland indicative vegetation, hydric soils, and wetland hydrology. In addition to USACE three-parameter wetlands, one and two-parameter wetlands were mapped per the wetland definition provided in the McKinleyville Community Plan, 2002. One-parameter wetlands qualifying as potential Sensitive Natural Communities (SNC)s recognized by the California Department of Fish and Wildlife (CDFW) were also noted for the purposes of this report.

The wetland delineation identified two three-parameter wetlands, comprising a total of 0.08 acres, which are artificially created and regularly maintained stormwater detention facilities on APN 508-251-061 and are likely not jurisdictional to the USACE, RWQCB, or McKinleyville Community Plan. Additionally, the PSB contains four one-parameter wetlands on APN 510-132-031, comprising a total of 0.62 acres, that may be regulated by the McKinleyville Community Plan. With regard to SNCs 0.41 acres of the 0.62 acres of one-parameter wetlands are also potential SNCs. Other waters such as rivers, streams, and lakes were not observed within the PSB. Please see **Appendix A, Figure 3**, for a map detailing sample point locations and identified wetland areas.

2. Introduction

On behalf of the County of Humboldt, GHD prepared this Wetland Delineation Report and accompanying appendices, in support of the McKinleyville Town Center Wetlands Mapping Project (Project) in McKinleyville, Humboldt County, CA. This report provides an investigation into whether wetlands and/or other aquatic resources are present within the Project Study Boundary (PSB), and can support future environmental documentation, permitting, and construction planning for the Project 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 Project included mapping all wetlands within the McKinleyville Town Center as defined by either the USACE Wetland Delineation Manual and Regional Supplements and/or the McKinleyville Community Plan. The Project site located within Section 6, Township 06 North, Range 01 East, and Section 31, Township 07 North, Range 01 East, Arcata North USGS 7.5 Minute Quadrangle, in Humboldt County, California (**Appendix A, Figure 1**). The PSB is comprised of approximately 50.11 acres and includes all relevant portions of Assessor Parcel Numbers (APNs) detailed below in **Table 2-1** within the McKinleyville Town Center in McKinleyville, California (**Appendix A, Figure 2**).

Table 2-1: Wetland Types Delineated for this Study by APN.

Assessor's Parcel Number (APN)	APN Total Acreage (*survey area does not include entire area for some APNs)	1-Parameter Wetland Delineation	3-Parameter Wetland Delineation
510-132-031	57.46	x	N/A
510-132-015	0.3	x	x
510-132-032	0.85	x	x
510-341-019	1.85	No Access	No Access
510-341-015	1.19	No Access	No Access
510-122-022	0.09	x	x
508-251-061	1.52	x	x
510-132-017	0.26	x	x

The PSB consists of the eight APNs detailed above and includes undeveloped and/or partially developed portions the McKinleyville Town Center that contain scattered forest, pastureland, open space, and/or other vegetated areas. Sample points were not taken for one-parameter or three-parameter wetlands as part of this study APNs 510-341-019 and 510-341-015 due to access restraints. One-parameter and/or three-parameter wetlands on APNs 510-341-019 and 510-341-015 are unlikely based on visual assessments from the public right of way. APN 510-132-031 was investigated for one-parameter wetlands only as a part of this study as a three-parameter wetland delineation for this parcel had been previously conducted by GHD in 2021 as detailed in the L&A Enterprises Project Aquatic Resources Delineation Report (GHD 2021).

2.2 Regulatory Background

2.2.1 Federal

Waters of the United States

The Code of Federal Regulations (CFR), 40 CFR § 230.3 states the following:

The term waters of the United States are defined as:

> *(1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;*
>
> *(2) All interstate waters including interstate wetlands;*
>
> *(3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:*
>
> > *(i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or*
> >
> > *(ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or*
> >
> > *(iii) Which are used or could be used for industrial purposes by industries in interstate commerce;*

(4) All impoundments of waters otherwise defined as waters of the United States under this definition;

(5) Tributaries of waters identified in paragraphs (s)(1) through (4) of this section;

(6) The territorial sea;

(7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (s)(1) through (6) of this section; waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the criteria of this definition) are not waters of the United States. (40 CFR § 230.3).

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

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.

2.2.3 McKinleyville Community Plan

The McKinleyville Community Plan (2002, updated 2017) section 3422 defines wetland areas using a one-parameter definition as follows (p. 49):

> Item 7*. 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:*
>
> – The presence of at least periodic predominance of hydrophytic vegetation; or,
>
> – predominately hydric soils; or,
>
> – periodic inundation for seven (7) consecutive days.
>
> Item 12*. For purposes of these requirements, wetlands and wetland buffer standards shall not apply to watercourses consisting entirely of a drainage ditch, or other man-made drainage device, construction or system.*

For this study "one-parameter wetlands" are areas that meet the definition of wetlands under the McKinleyville Community Plan detailed above.

2.2.4 Sensitive Natural Communities

California Department of Fish and Wildlife (CDFW) has jurisdiction over the conservation, protection, and management of wildlife, native plants, and habitat necessary to maintain biologically sustainable populations (Fish & G. Code, § 1802). CDFW, as trustee agency under CEQA Guidelines section 15386, provides expertise in reviewing and commenting on environmental documents and provides protocols regarding potential negative impacts to those resources held in trust for the people of California.

CDFW maintains a list of Sensitive Natural Communities (SNC's) that must be considered during the CEQA process (CDFW 2023). SNC's include those that are tracked in the California Natural Diversity Database (CNDDB) as well as *A Manual of California Vegetation Second Edition* (MCV2) alliances or associations with NatureServe State Ranks of S1 to S3. Sources for assessing SNC's *include Preliminary Descriptions of the*

Terrestrial Natural Communities of California (Holland 1986), *List of Vegetation Alliances* (CDFW 2023), and *A Manual of California Vegetation Online Edition* (CNPS 2023b).

3. Methodology

3.1 Wetland Delineation Approach

GHD senior wetland scientist, Misha Schwarz, conducted reconnaissance site visits (as viewed from public roads) on February 4 and February 5, 2023 to identify areas within the McKinleyville Town Center that had potentially unmapped one and three-parameter wetlands (excluding the Life Plan Humboldt property). GHD wetland scientists, Miles Hartnett and Christian Hernandez, conducted a wetland delineation within the identified areas on May 30, May 31, and August 2, 2023.

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). Areas outside of three-parameter wetlands that met one or two parameters were designated as one-parameter wetlands per the McKinleyville Community Plan definition of wetlands described in **Section 2.2.3.** The current standard field forms provided by the USACE (2010) were used to collect vegetation, soils, and hydrology data (**Appendix B, USACE Wetland Determination Data Forms**).

Wetland/upland boundaries and sample points were mapped in the field with an Eos Arrow 100 GNSS (submeter-accuracy) GPS and an iPad running ArcGIS Collector software. Wetland/upland boundaries and sample points were recorded with the GPS unit to map the wetland's spatial extent. The boundary points were connected in the office using ArcMap Pro software for figure creation and the boundaries were clipped to the extent of the PSB.

Each wetland area was designated with a numbered polygon (e.g., W1, W2, etc.). Each sample point was designated with their respective wetland/upland determination label (e.g., 1-W, 2-U, etc.). Sample points were collected in wetland and upland areas to confirm and document the presence/absence of wetland indicators (soils, hydrology, and vegetation). One-parameter wetland polygons that were also determined to be potential SNCs were noted for the purposes of this study. **Appendix B** contains all datasheets recorded during the delineation.

3.2 Botanical Methodology

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: USACE 2020 *National Wetland Plant List* (USACE 2020). This list classifies species based on the probability that they are found in wetlands as follows:

– Obligate (OBL): almost always in wetlands
– Facultative Wetland (FACW): usually occurring in wetlands
– Facultative (FAC): commonly occurring in wetlands and uplands

- Facultative Upland (FACU): usually occurring in uplands
- Upland (UPL): upland obligate, rarely in wetlands

Species that do not appear on the list are generally assumed to be in the upland category (USACE 2010). 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). **Appendix C** contains a list of all species observed and recorded within sample plots throughout the delineation.

Areas that had potential for false-positive indicators of hydrophytic vegetation (i.e. areas dominated by invasive and/or aggressive FAC species and/or areas with FAC tree species in the overstory, where wetland hydrology and hydric soil were not present) were further analyzed using the prevalence index, a weighted metric of all dominant and non-dominant species present. A prevalence index score greater than 3.0, where indicators of wetland soil and hydrology are not present, are indicative of upland vegetation. The sample points at locations that passed the dominance test with a prevalence of FAC species, did not pass the prevalence index test, and were not accompanied by indicators of wetland hydrology or hydric soils were not determined to consist of hydrophytic vegetation for the purposes of determining one-parameter wetlands under the McKinleyville Community Plan.

3.3 Soils Methodology

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 18 inches or to the depth otherwise required to confirm hydric soil indicators. Data on soil color, texture, and redoximorphic features were recorded. Any observed redoximorphic features were noted along with their percentage within the soil matrix, and care was taken to distinguish chromas of 1 and 2 that are indicative of an iron-depleted soil within 12 inches of the soil surface (USACE 2010; USDA/NRCS 2018). Soil pits were not dug at some sample points on APN 510-132-031 in areas where soils and hydrology had been sufficiently assessed in L&A Enterprises Project Aquatic Resources Delineation Report (GHD 2021).

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 two main soil units within the PSB (**Appendix A, Figure 4**). A brief map unit description, as generated by the NRCS, is provided for each soil unit below (NRCS 2023). Although NRCS soil mapping is informative, the scale is generally too broad to definitively accurately characterize potential wetlands/uplands boundaries.

Soil map units identified by NRCS within the PSB include Soil Map Unit 145: Halfbluff-Tepona-Urban Land, 0 to 2 percent slopes, Soil Map Unit 225: Arcata and Candymountain soils, 0 to 2 percent slopes, and Soil Map Unit 226: Arcata and Candymountain soils, 2 to 9 percent slopes These soil map units are described below:

Soil Map Unit 145: Halfbluff-Tepona-Urban Land, 0 to 2 percent slopes.

The map unit composition is as follows: 35 percent Halfbluff and similar soils, 30 percent Tepona and similar soils, 25 percent Urban Land, and 10 percent minor components. The Halfbluff-Tepona soil type setting includes marine terraces, backslopes or tread of marine deposits derived from sedimentary rock parent material. The Urban Land soil setting includes alluvial fans.

The Halfbluff soil series is classified as an Oxyaquic Humudepts. The depth to a restrictive feature is more than 80 inches. The natural drainage class is moderately well-drained. The depth to the water table is approximately 30 to 39 inches. There is no inherent ponding or flooding frequency. The available water storage in a soil profile is moderate, or about 7.9 inches, and the capacity of the most limiting layer to transmit water is moderately high to high, or about 0.60 to 2.00 inches per hour. Irrigated land capability classification is 1, and non-irrigated land capability classification is 2s. The hydrologic soil group is C. The soil series unit is inherently not hydric.

The Tepona soil series is classified as an Oxyaquic Humudepts, The depth to a restrictive feature is more than 80 inches. The natural drainage class is moderately well-drained. The depth to the water table is approximately 30 to 39 inches. There is no inherent ponding or flooding frequency. The available water storage in a soil profile is high, or about 9.4 inches, and the capacity of the most limiting layer to transmit water is moderately high to high, or about 0.60 to 2.00 inches per hour. Irrigated land capability classification is not specified, and non-irrigated land capability classification is 2s. The hydrologic soil group is C. The soil series unit is inherently not hydric.

For the Urban Land portion of the soil complex, depth to a restrictive, drainage classes and frequency of ponding or flooding is not stated. Irrigated land capability classification is not specified, and non-irrigated land capability classification is 8. The hydrologic soil group is not stated. The soil series unit is not considered hydric.

The descriptions of the minor components are as follows: five percent Talawa (considered hydric), three percent Tillas (not considered hydric), and two percent Hookton (not considered hydric).

Soil Map Unit 225-226: Arcata and Candymountain soils, 0 to 2 and 2 to 9 percent slopes

The map unit composition is as follows: 50 percent Arcata and similar soils, 35 percent Candymountain and similar soils, and 15 percent minor components. The Arcata and Candymountain soil setting includes marine terraces, backslopes or tread of marine deposits derived from mixed sources of parent material.

The Arcata soil series is classified as a Pachic Humudepts. The depth to a restrictive feature is more than 80 inches. The natural drainage class is well-drained. The depth to the water table is more than 80 inches. There is no inherent frequency of ponding or flooding. The available water storage in a soil profile is moderate, or about 8.9 inches, and the capacity of the most limiting layer to transmit water is moderately high to high, or about 0.60 to 2.00 inches per hour. Irrigated land capability classification is 1 and non-irrigated land capability classification is 2s. The hydrologic soil group is B. The soil series unit is inherently not hydric.

The Candymountain soil series is classified as a Typic Humudept. The depth to a restrictive feature is more than 80 inches. The natural drainage class is well-drained. The depth to the water table is more than 80 inches. There is no inherent frequency of ponding or flooding. The available water storage in a soil profile is moderate, or about 8.9 inches, and the capacity of the most limiting layer to transmit water is moderately high to high, or about 0.60 to 2.00 inches per hour. Irrigated land capability classification is not specified and non-irrigated land capability classification is 2s. The hydrologic soil group is B. The soil series unit is inherently not hydric.

The descriptions of the minor components, which are mostly inherently not hydric except for the Talawa soil series, are as follows: four percent Urban land, three percent Timmons, three percent Halfbluff, three percent Megwil, and two percent Talawa.

Please refer to **Appendix E, NRCS Custom Soil Resources Report,** for further details on mapped soil units within the PSB.

3.4 Precipitation and Hydrology

Precipitation was within normal thresholds according to the NOAA Regional Climate Center WETS tables at the time fieldwork was conducted. A WETS table showing climatic data for the Arcata Eureka Airport, CA, Station is provided in **Appendix F, NOAA Regional Climate Center WETS Table** (NOAA 2023). Aerial imagery and the National Wetland Inventory (NWI) Mapper were referenced before conducting fieldwork (**Appendix A, Figure 5**) (NWI 2023). The closest stream or water body is Widow White Creek, approximately 2,050 feet north of the PSB. The PSB is located outside of the 100-year flood zone according to the FEMA National Flood Hazard Layer (NFHL) (**Appendix A, Figure 6**) (FEMA 2023). Wetland hydrology indicators, such as drainage patterns, material deposits, soil saturation, high water table, or surface water presence, were recorded in the field. Subsurface hydrology indicators were not investigated at some sample points on APN 510-132-031 in areas where soils and hydrology had been sufficiently assessed in L&A Enterprises Project Aquatic Resources Delineation Report (GHD 2021).

3.5 One-parameter Wetlands and Sensitive Natural Communities

One-parameter wetland areas that could also qualify as Sensitive Natural Communities (SNC's) listed on the California Department of Fish and Wildlife (CDFW) *2023 Sensitive Natural Communities List* (CDFW 2023) were noted for the purposes of this report. Seasonally appropriate protocol level botanical studies, which typically include identification and mapping of SNCs, have not been conducted within the PSB at the time of this report.

4. Results

The PSB contains two three-parameter wetlands, comprising of 0.08 acres, which are artificially created and regularly maintained stormwater detention facilities on APN 508-251-061 and are likely not jurisdictional to the USACE, RWQCB jurisdictional and/or McKinleyville Community Plan. Additionally, the PSB contains four one-parameter wetlands on APN 510-132-031, comprising a total of 0.62 acres, that may be regulated by the McKinleyville Community Plan. With regard to SNCs, 0.41 acres of the 0.62 acres of one-parameter wetlands are also potential SNCs. Details of each wetland and upland area investigated are discussed in the following subsections of this report. The total acreage of identified wetlands within the PSB are detailed below in **Table 4-1**.

Table 4-1. Wetland Areas Identified Within the PSB

Wetland ID	Wetland Type	Potential SNC (Y/N)	Area (acres)	APN	Coordinates (lat/long)
Wetland 1 (W1)	Three-parameter (Stormwater facility)	N	0.02	508-251-061	40.940907/-124.102534

Wetland ID	Wetland Type	Potential SNC (Y/N)	Area (acres)	APN	Coordinates (lat/long)
Wetland 2 (W2)	Three-parameter (Stormwater facility)	N	0.06	508-251-061	40.940715/-124.102567
Wetland 3 (W3)	One-parameter	Y	0.36	510-132-031	40.942528/-124.104277
Wetland 4 (W4)	One-parameter	Y	0.05	510-132-031	40.943697/-124.109315
Wetland 5 (W5)	One-parameter	N	0.15	510-132-031	40.944031/-124.106622
Wetland 6 (W6)	One-Parameter	N	0.06	510-132-031	40.943581/-124.106592
Totals	Area (acres)				
Three-Parameter Wetlands	0.08				
One-Parameter Wetlands	0.62				
One-Parameter Wetlands also Potential SNCs	0.41				

Please see **Appendix A, Figure 3** for a map of sample point locations and delineated wetlands within the PSB. **Appendix B**, **USACE Wetland Determination Data Forms**, contains further details regarding data collected at each sample point location.

4.1 Three-Parameter Wetlands

Two three-parameter wetlands were mapped within the PSB. Wetland 1 (W1) and Wetland 2 (W2) are both artificially created stormwater detention basins associated with development on APN 508-251-061 and are described below.

Wetland 1 (W1)

Wetland 1 is an artificially created and regularly maintained stormwater detention basin totaling 0.02 acres and is not likely jurisdictional to the USACE, RWQCB, or McKinleyville Community Plan (**Appendix D, Photo 1**). Historical imagery accessed through Google Earth Pro shows earthwork for the stormwater basin being completed in 2019. Wetland 1 is an artificial wetland less than one acre in size and does not 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 1 is not hydrologically connected by surface flows to any other waters.

Dominant vegetation within Wetland 1 consisted primarily of meadow barley (*Hordeum brachyantherum*, FACW). Sample points within Wetland 1 passed the dominance test and prevalence index for hydrophytic vegetation.

Soils within Wetland 1 were disturbed and showed evidence of excavation, mixing, and compaction with most of the topsoil likely removed or altered during excavation. The existing soils consisted of silt loams with a 10YR 3/2 compacted upper horizon from 0-4 inches with 2% 5YR 5/8 redoximorphic features in the matrix. The upper horizon was underlain by a 2.5Y 6/4 horizon from 4-12 inches with 15% 10YR 6/8 redoximorphic features in the matrix. Sample points within Wetland 1 met hydric soil indicator Redox Dark Surface (F6).

Observations of wetland hydrology within Wetland 1 included evidence of recent inundation as well as landscape and vegetation characteristics that indicate contemporary wet conditions. Sample points within Wetland 1 met primary wetland hydrology indicator Algal Mat or Crust (B4), as well as secondary indicators Geomorphic Position (D2) and FAC-Neutral Test (D5). Surface water, groundwater, and soil saturation were not observed at sample points within Wetland 1.

<u>Wetland 2 (W2)</u>

Wetland 2 is an artificially created and regularly maintained stormwater detention basin totaling 0.06 acres and is not likely jurisdictional to the USACE, RWQCB, or McKinleyville Community Plan (**Appendix D, Photo 2**). Wetland 2 is slightly higher in elevation than Wetland 1 and has a rocked outflow to Wetland 1. These two wetland features were likely created at the same time and historical imagery accessed through Google Earth Pro shows earthwork for the stormwater basins being completed in 2019. Wetland 2 is an artificial wetland less than one acre in size and does not 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 2 is not hydrologically connected by surface flows to any other waters.

Dominant vegetation within Wetland 2 consisted primarily of meadow barley (*Hordeum brachyantherum*, FACW), reed fescue (*Festuca arundinacea*, FAC), Italian rye grass (Festuca perennis, FAC), and hairy cat's ear (*Hypochaeris radicata*, FACU). Sample points within Wetland 2 passed the dominance test and prevalence index for hydrophytic vegetation.

Soils within Wetland 2 were disturbed and showed evidence of excavation, mixing, and compaction with most of the topsoil likely removed or altered during excavation. The existing soils consisted of silt loams with a 10YR 3/1 compacted upper horizon from 0-4 inches with 5% 5YR 5/8 redoximorphic features in the matrix. The upper horizon was underlain by a 2.5Y 5/4 horizon from 4-10 inches with 20% 10YR 5/8 redoximorphic features in the matrix. Sample points within Wetland 2 met hydric soil indicator Redox Dark Surface (F6).

Observations of wetland hydrology within Wetland 2 included evidence of recent inundation as well as landscape and vegetation characteristics that indicate contemporary wet conditions. Sample points within Wetland 6 met primary wetland hydrology indicator Algal Mat or Crust (B4), as well as secondary indicator Geomorphic Position (D2). Surface water, groundwater, and soil saturation were not observed at sample points within Wetland 6.

Sample points were taken within each three-parameter wetland area identified within the PSB. Three-parameter wetland sample points are detailed below in **Table 4-2**:

Table 4-2. Three-Parameter Wetland Sampling Points within the PSB

Sample Point ID	Wetland ID	Dominance Test	Prevalence Index	Hydrophytic Vegetation (Y/N)	Hydric Soil (Y/N)	Wetland Hydrology (Y/N)	Coordinates (lat/long)
127-w	W1: 3-Parameter (Stormwater Facility)	Pass	Pass (2.16)	Y	Y	Y	40.940911/-124.102562
129-w	W2: 3-Parameter (Stormwater Facility)	Pass	Pass (2.31)	Y	Y	Y	40.940716/-124.102567

Please see **Appendix A, Figure 3** for a map of sample point locations and delineated wetlands within the PSB. **Appendix B**, **USACE Wetland Determination Data Forms**, contains further details regarding data collected at each sample point location.

4.2 One-Parameter Wetlands and Potential SNCs

Four separate one-parameter wetlands were mapped within the PSB. Wetland 3 (W3) through Wetland 6 (W6) do not meet the definition to wetlands under the USACE or RWQCB but do meet the definition of wetlands under the McKinleyville Community Plan. These areas showed indications of wetland vegetation, wetland soils, and/or wetland hydrology, but lacked the indicators necessary to meet all three wetland parameters. Sample points that met one or two wetland parameters were classified and mapped as one-parameter wetlands for the purposes and regulatory framework guiding this study. One-parameter wetland areas that could also qualify as SNCs were also noted for the purposes of this report. Three-parameter wetlands on APN 510-132-031 were assessed in L&A Enterprises Project Aquatic Resources Delineation Report (GHD 2021).

<u>Wetland 3 (W3)</u>

Wetland 3 met one wetland parameter, is comprised of 0.36 acres, and is adjacent to a previously mapped three-parameter wetland on APN 510-132-031 (GHD 2021) (**Appendix D, Photo 3**). There was evidence of mixed soil horizons in Wetland 3 indicating some level of grading, mechanical disturbance, or excavation. Wetland 3 is a potential willow SNC.

Dominant vegetation within Wetland 3 consisted primarily of coastal willow (*Salix hookeriana,* FACW), Sitka willow (*Salix sitchensis,* FACW), creeping buttercup (*Ranunculus repens,* FAC), common velvetgrass (*Holcus lanatus*, FAC), and sweet vernal grass (*Anthoxanthum odoratum,* FACU). Sample points within Wetland 3 passed the dominance test and prevalence index for hydrophytic vegetation.

Soils within Wetland 3 showed some signs of earthwork, disturbance and/or the mixing of horizons. Observed soils consisted of silt loams with a 10YR 3/2 upper horizon from 0-8 inches and no visible redoximorphic features underlain by a potentially buried or mixed 10YR 5/6 horizon from 8-12 inches with 7% 7.5YR 5/8 redoximorphic features in the matrix and a 10YR 2/2 horizon from 12-23 inches with no visible redoximorphic features. Sample points within Wetland 3 did not meet any hydric soil indicators.

There were no observations of wetland hydrology indicators within Wetland 3. Surface water, groundwater, and soil saturation were not observed.

<u>Wetland 4 (W4)</u>

Wetland 4 met one wetland parameter, is comprised of 0.05 acres, and is adjacent to a previously mapped three-parameter wetland on 510-132-031 (GHD 2021) (**Appendix D, Photo 4**). Sample points within Wetland 4 included vegetation plots and surface level observations of hydrology. Soil pits were not dug within sample points at Wetland 4. Wetland 4 is a potential willow SNC.

Dominant vegetation within Wetland 4 consisted primarily of coastal willow (*Salix hookeriana,* FACW), Rose spirea (*Spirea douglasii,* FACW), common velvetgrass (*Holcus lanatus*, FAC), and sweet vernal grass (*Anthoxanthum odoratum,* FACU). Sample points within Wetland 4 passed the dominance test and prevalence index for hydrophytic vegetation.

There were no observations of surface water or other surface level indicators of wetland hydrology.

<u>Wetland 5 (W5)</u>

Wetland 5 met one wetland parameter, is comprised of 0.15 acres, and is adjacent to a previously mapped three-parameter wetland on 510-132-031 (GHD 2021) (**Appendix D, Photo 5**).

Dominant vegetation within Wetland 5 consisted primarily of creeping buttercup (*Ranunculus repens,* FAC), and common velvetgrass (*Holcus lanatus*, FAC). Sample points within Wetland 5 passed the dominance test and prevalence index for hydrophytic vegetation.

Soils within Wetland 5 consisted of silt loams with a 10YR 3/1 upper horizon from 0-5 inches and no visible redoximorphic features underlain by a 10YR 3/2 horizon from 5-14 inches with no visible redoximorphic features. Sample points within Wetland 5 did not meet any hydric soil indicators.

There were no observations of wetland hydrology indicators within Wetland 5. Surface water, groundwater, and soil saturation were not observed.

<u>Wetland 6 (W6)</u>

Wetland 6 met one wetland parameter, is comprised of 0.06 acres, and is adjacent to a previously mapped three-parameter wetland on 510-132-031 (GHD 2021) (**Appendix D, Photo 6**). Sample points within Wetland 6 included vegetation plots and surface level observations of hydrology. Soil pits were not dug within sample points at Wetland 6.

Dominant vegetation within Wetland 6 consisted primarily of common velvetgrass (*Holcus lanatus*, FAC), sweet vernal grass (*Anthoxanthum odoratum,* FACU), California golden eyed grass (*Sisyrinchium californicum,* FACW), and common toad rush (*Juncus bufonius*, FACW). Sample points within Wetland 6 passed the dominance test and prevalence index for hydrophytic vegetation.

There were no observations of surface water or other surface level primary indicators of wetland hydrology. Wetland 6 met one secondary indicator for wetland hydrology, FAC-Neutral Test (D5).

Sample points were taken within each one-parameter wetland area identified within the PSB. One-parameter wetland sample points are detailed below in **Table 4-3**:

Table 4-3. One-Parameter Wetland Sampling Points within the PSB

Sample Point ID	Wetland ID/ Type	Dominance Test (Pass/Fail)	Prevalence Index (Pass/Fail)	Hydrophytic Vegetation (Y/N)	Hydric Soil[1] (Y/N)	Wetland Hydrology[1] (Y/N)	Coordinates (lat/long)
100-w	W3: 1-Parameter	Pass	Pass (3.0)	Y	N	N	40.942515/-124.104384
111-w	W4: 1-Parameter	Pass	Pass (2.96)	Y	-	-	40.943697/-124.109342
121-w	W5: 1-Parameter	Pass	Pass (2.93)	Y	N	N	40.944093/-124.106565
122-w	W5: 1-Parameter	Pass	Pass (2.80)	Y	-	-	40.943969/-124.106755
124-w	W6: 1-Parameter	Pass	Pass (2.72)	Y	-	-	40.943522/-124.106592
126-w	W3: 1-Parameter	Pass	Pass (2.71)	Y	-	-	40.942849/-124.104548

Footnotes:

1. (-) indicates sample points on APN 510-132-031 *where soils and hydrology were not assessed.*

Please see **Appendix A, Figure 3** for a map of sample point locations and delineated wetlands within the PSB. **Appendix B**, **USACE Wetland Determination Data Forms**, contains further details regarding data collected at each sample point location.

4.3 Uplands

Twenty-four upland sampling points were collected at intuitive and strategic locations throughout the PSB to characterize the nature and extent of upland areas present (**Appendix A, Figure 3**; **Appendix D, Photo 6-19).** Areas in close proximity to waters and wetlands, depressional areas, and areas where potential hydrophytes were observed were investigated for wetland indicators. Sample points taken in upland areas did not meet the requirements necessary to satisfy any one of the three parameters for wetland determination.

Dominant vegetation in upland areas were typically comprised of sweet vernal grass (*Anthoxanthum odoratum*, FACU), common velvetgrass (*Holcus lanatus*, FAC), reed fescue (*Festuca arundinacea*, FAC), creeping buttercup (*Ranunculus repens,* FAC), California blackberry (*Rubus ursinus*, FACU), Scotch broom (*Cytisus scoparius*, UPL), coastal willow *(Salix hookeriana*, FACW), red alder (*Alnus rubra*, FAC), Sitka spruce (*Picea sitchensis*, FAC), and/or shore pine (*Pinus contorta ssp. contorta*, FAC). Soils in upland areas were typically comprised of 10YR 3/3 horizons in the upper substrate (0-12 inches) with no visible redoximorphic features in the matrix and/or pore linings. Soils in upland areas in closer proximity to wetland typically had darker 10YR 3/2 horizons in the upper substrate (0-12 inches) with no visible redoximorphic features in the matrix and/or pore linings and did not meet any hydric soil indicators. Wetland hydrology indicators including surface water, ground water and saturation within 12 inches of the soil surface were not observed at any upland sample point.

Four upland sample points (101-u,104-u,120-u, and 128-u) passed the dominance test for hydrophytic vegetation but failed the prevalence index, a weighted metric of total coverage of all dominant and non-dominant species present. The lack of wetland hydrology and hydric soil at these sample points in addition to the prevalence of upland vegetation suggests that these areas do not represent a predominance of hydrophytic vegetation but are rather being dominated by aggressive FAC species unassociated with wetland hydrology and are producing a false-positive indicator for hydrophytic vegetation by passing the dominance test in some cases. The sample points at these locations were not determined to consist of hydrophytic vegetation for the purposes of determining one-parameter wetlands under the McKinleyville Community Plan.

Upland sample points are detailed below in **Table 4-4**:

Table 4-4 Upland Sampling Points within the PSB

Sample Point ID	Type	Dominance Test (Pass/Fail)	Prevalence Index (Pass/Fail)	Hydrophytic Vegetation (Y/N)	Hydric Soil[1] (Y/N)	Wetland Hydrology [1] (Y/N)	Coordinates (lat/long)
101-u	Upland	Pass	Fail (3.34)	N	N	N	40.943298/-124.105157
102-u	Upland	Fail	Fail (3.80)	N	-	-	40.942820/-124.107773

Sample Point ID	Type	Dominance Test (Pass/Fail)	Prevalence Index (Pass/Fail)	Hydrophytic Vegetation (Y/N)	Hydric Soil[1] (Y/N)	Wetland Hydrology [1] (Y/N)	Coordinates (lat/long)
103-u	Upland	Fail	Fail (3.54)	N	-	-	40.942480/-124.105190
104-u	Upland	Pass	Fail (3.24)	N	-	-	40.942606/-124.109109
106-u	Upland	Fail	Fail (3.78)	N	-	-	40.942132/-124.110240
107-u	Upland	Fail	Fail (3.09)	N	N	N	40.943107/-124.109236
108-u	Upland	Fail	Fail (4.15)	N	-	-	40.942765/-124.109910
109-u	Upland	Fail	Fail (3.85)	N	-	-	40.943607/-124.110190
110-u	Upland	Fail	Fail (4.74)	N	N	N	40.943919/-124.109601
112-u	Upland	Fail	Fail (3.64)	N	N	N	40.943910/-124.108171
113-u	Upland	Fail	Fail (3.50)	N	-	-	40.944604/-124.101576
114-u	Upland	Fail	Fail (3.76)	N	N	N	40.943953/-124.107255
115-u	Upland	Fail	Fail (3.43)	N	-	-	40.944724/-124.107060
116-u	Upland	Fail	Fail (3.93)	N	N	N	40.944810/-124.105960
117-u	Upland	Fail	Fail (3.77)	N	-	-	40.944522/-124.104995
118-u	Upland	Fail	Fail (3.76)	N	N	N	40.944799/-124.103648
119-u	Upland	Fail	Fail (3.88)	N	-	-	40.943779/-124.104443
120-u	Upland	Pass	Fail (3.10)	N	N	N	40.944168/-124.105953
123-u	Upland	Fail	Fail (3.52)	N	-	-	40.943545/-124.106330
125-u	Upland	Fail	Fail (3.57)	N	-	-	40.943340/-124.105809
128-u	Upland	Pass	Fail (3.46)	N	N	N	40.940807/-124.102504
130-u	Upland	Fail	Fail (3.79)	N	N	N	40.940586/-124.102481

Sample Point ID	Type	Dominance Test (Pass/Fail)	Prevalence Index (Pass/Fail)	Hydrophytic Vegetation (Y/N)	Hydric Soil[1] (Y/N)	Wetland Hydrology [1] (Y/N)	Coordinates (lat/long)
131-u	Upland	Fail	Fail (3.53)	N	N	N	40.945204/-124.102190
132-u	Upland	Fail	Fail (3.57)	N	N	N	40.945238/-124.101806
Footnotes: *1. (-) indicates sample points on* APN 510-132-031 *where soils and hydrology were not assessed.*							

Please see **Appendix A, Figure 3** for a map of sample point locations and delineated wetlands within the PSB. **Appendix B**, **USACE Wetland Determination Data Forms**, contains further details regarding data collected at each sample point location.

4.4 Other Waters, Streams, and Lakes

Other waters such as rivers, streams, and lakes were not observed within the PSB.

5. Conclusions

The wetland delineation prepared for the County of Humboldt , conducted on undeveloped or partially developed parcels within the McKinleyville Town Center, determined the extent of three-parameter wetlands and/or one-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). One-parameter wetlands that qualified as SNCs were also noted for the purposes of the report.

Three-parameter wetlands investigated within the PSB totaled 0.08 acres and were entirely comprised of small artificially created, and regularly maintained, stormwater detention facilities on APN 508-251-061 and are likely not jurisdictional to the USACE, RWQCB jurisdictional or McKinleyville Community Plan. One-parameter wetlands mapped within the PSB totaled 0.62 acres and are likely regulated under Section 3422 of the McKinleyville Community Plan. With regard to SNCs 0.41 acres of 0.62 acres of one-parameter wetlands are also potential SNCs. Other waters such as rivers, streams, and lakes, were not observed within the PSB.

A map of all sample point locations and delineated wetlands within the PSB is included in **Appendix A, Figure 3**. USACE Wetland Determination Data Forms detailing all data collected at sample point locations is provided in **Appendix B**.

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 on in 2023.

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 point.

7. References

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

8. Report Preparers

8.1 Client

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8.2 GHD

This report was prepared by the following GHD staff:

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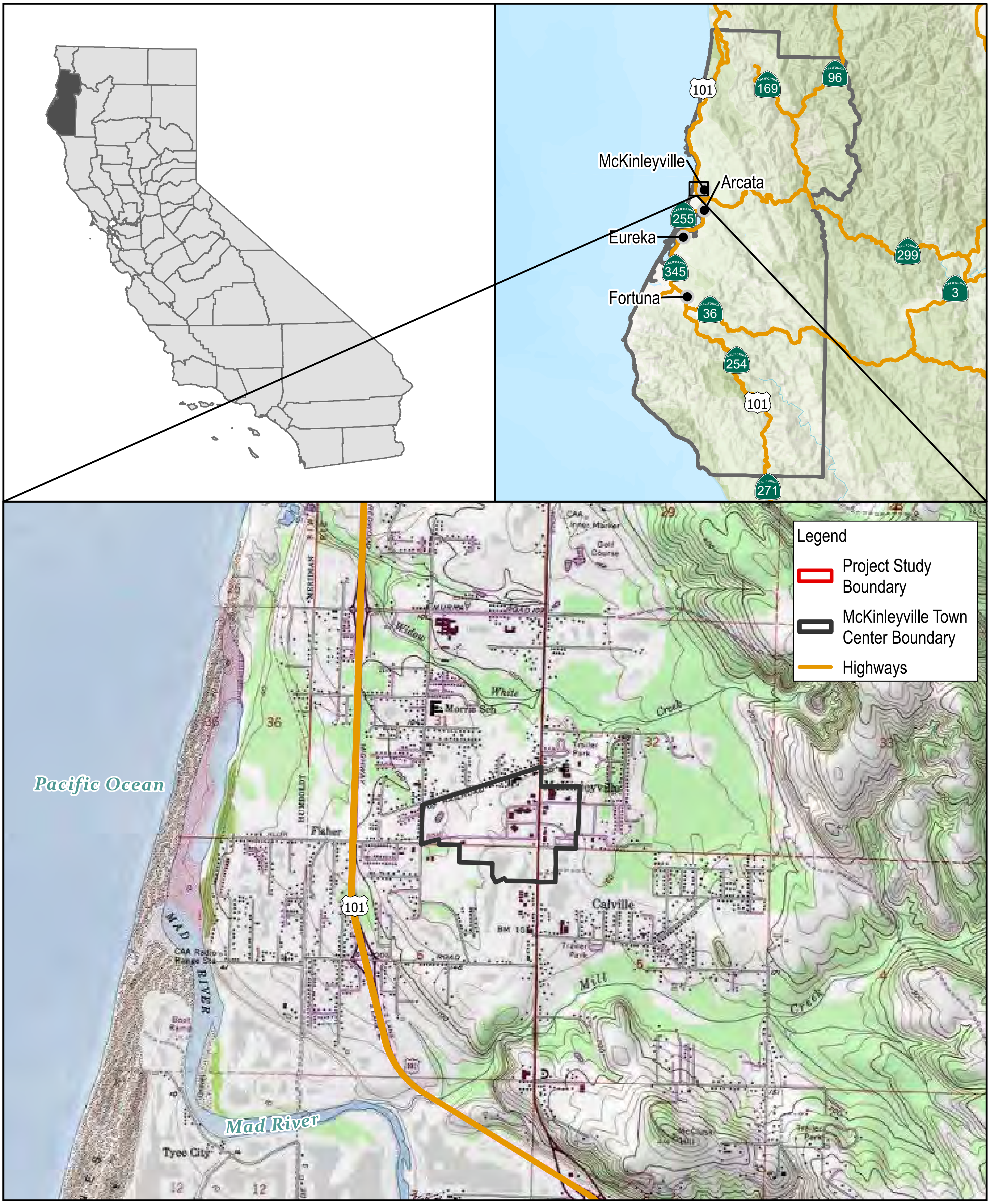
Zach Porteous, GIS Specialist – Maps and Figures

Misha Schwarz, Senior Wetland Scientist – Project Manager, Reviewer

Appendix A

Figures



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Map Projection: Lambert Conformal Conic
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McKinleyville Town Center
Wetlands Mapping Project

Project No. **12607030**
Revision No. **-**
Date **Aug 2023**

Vicinity Map

FIGURE 1

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Paper Size ANSI A

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Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

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McKinleyville Town Center
Wetlands Mapping Project

Preliminary Results

Project No. **12607030**
Revision No. **-**
Date **8/10/2023**

FIGURE 2

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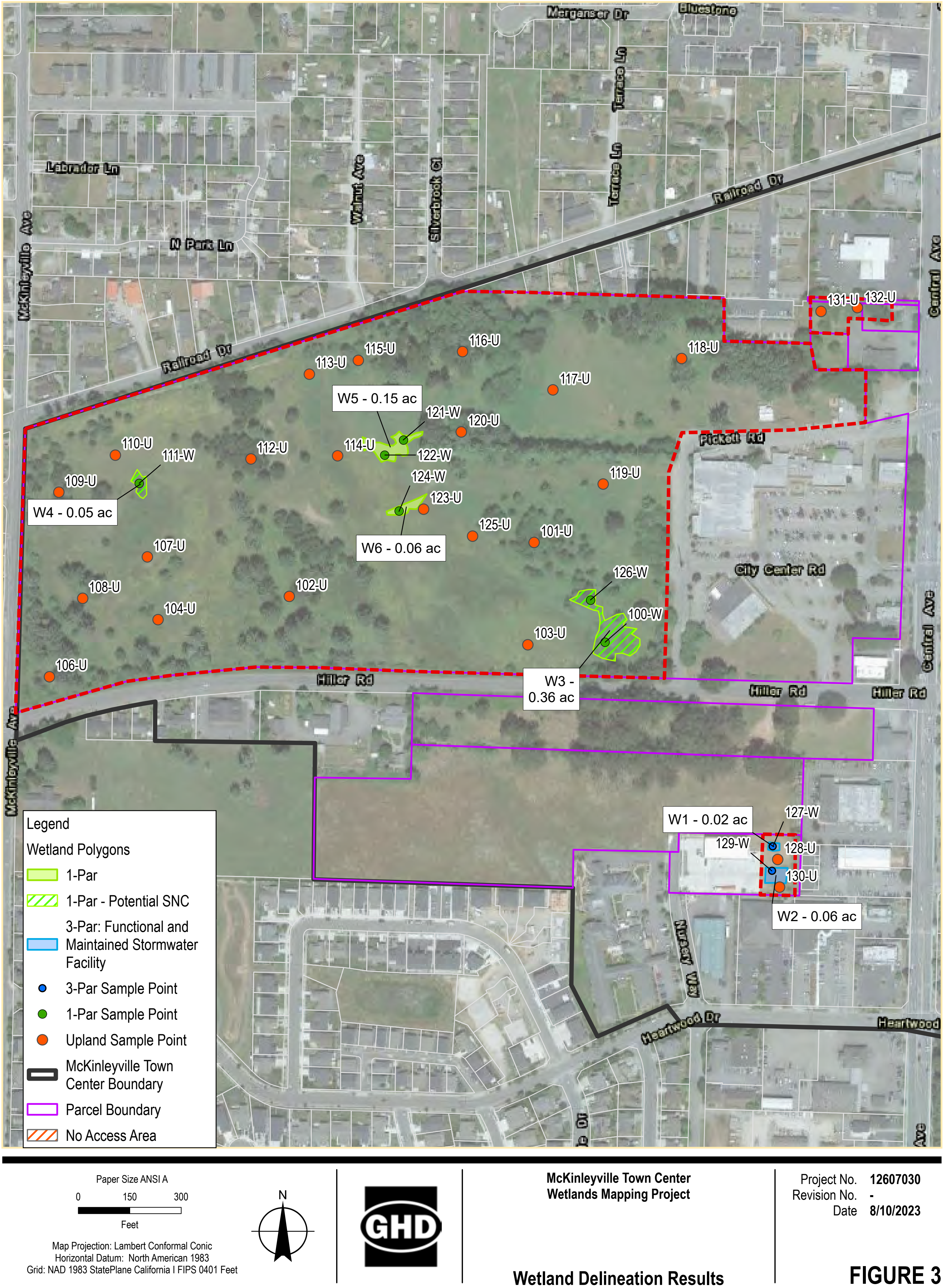
Print date: 10 Aug 2023 - 13:50

Data source: World_Transportation: Esri, HERE, iPC;Tiled service layer: © OpenStreetMap (and) contributors, CC-BY-SA;World Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community.
Created by: zporteous



Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

McKinleyville Town Center
Wetlands Mapping Project

Wetland Delineation Results

Project No. **12607030**
Revision No. **-**
Date **8/10/2023**

FIGURE 3

G:\561\12607030\GIS\Maps\Deliverables\WetlandDelineation\12607030_WetDel_FullFigureRequest.aprx - 12607030_003_CityCenterWetlands
Print date: 10 Aug 2023 - 13:52

Data source: World_Transportation: Esri, HERE, iPC;Tiled service layer: © OpenStreetMap (and) contributors, CC-BY-SA;World Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community.
Created by: zporteous

Paper Size ANSI A

0 150 300 450 600

Feet

N

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

GHD

McKinleyville Town Center Wetlands Mapping Project

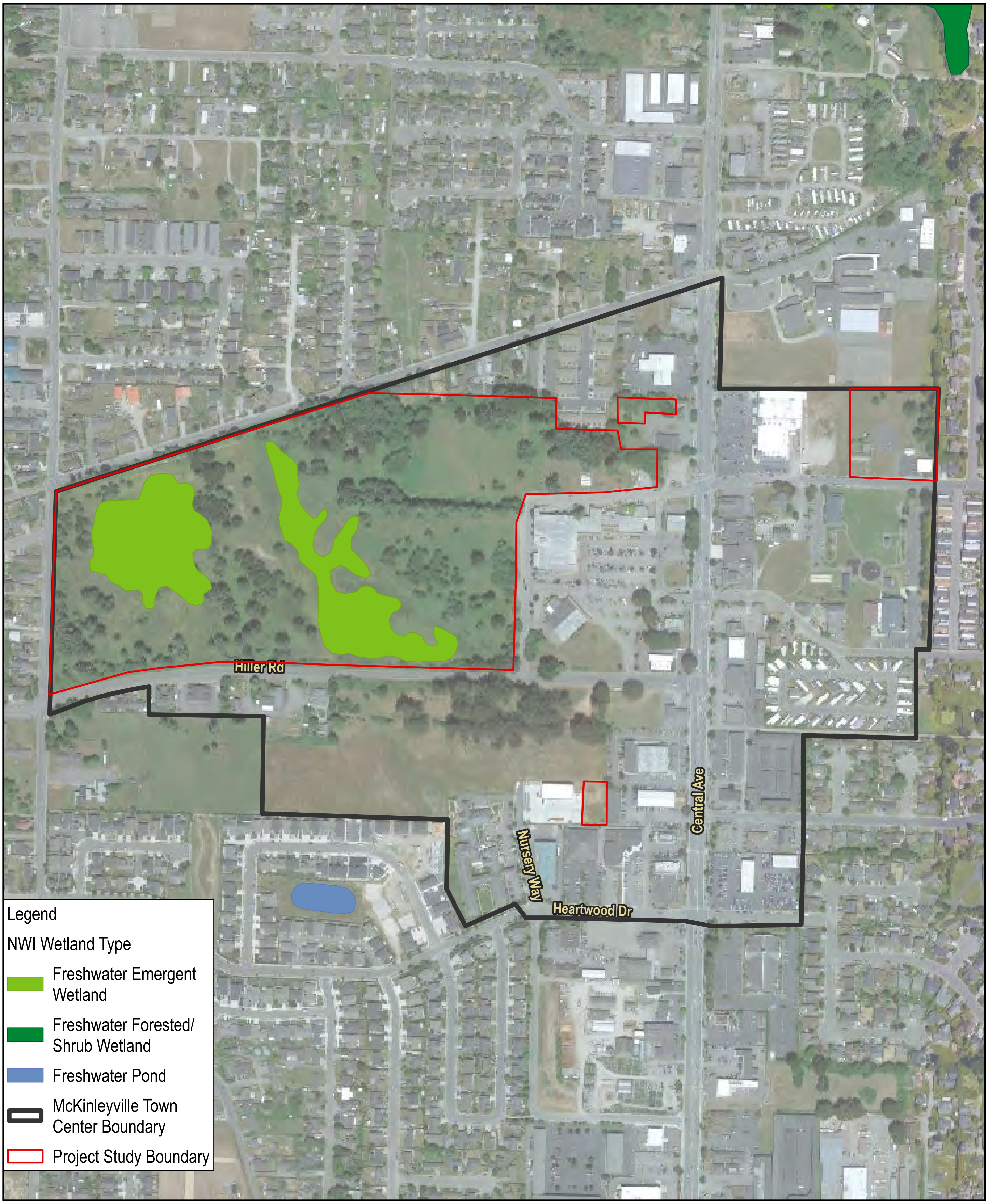
Project No. **12603187**
Revision No. **-**
Date **Aug 2023**

NRCS Soil Survey

FIGURE 4

G:\561\12607030\GIS\Maps\Deliverables\WetlandDelineation\12607030_WetDel_FullFigureRequest.aprx
Print date: 10 Aug 2023 - 13:51

Data source: Humboldt County GIS, USFWS National Wetlands Inventory,Tiled service layer: © OpenStreetMap (and) contributors, CC-BY-SA. Created by: zporteous



Paper Size ANSI A

0 150 300 450 600

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

N

GHD

McKinleyville Town Center Wetlands Mapping Project

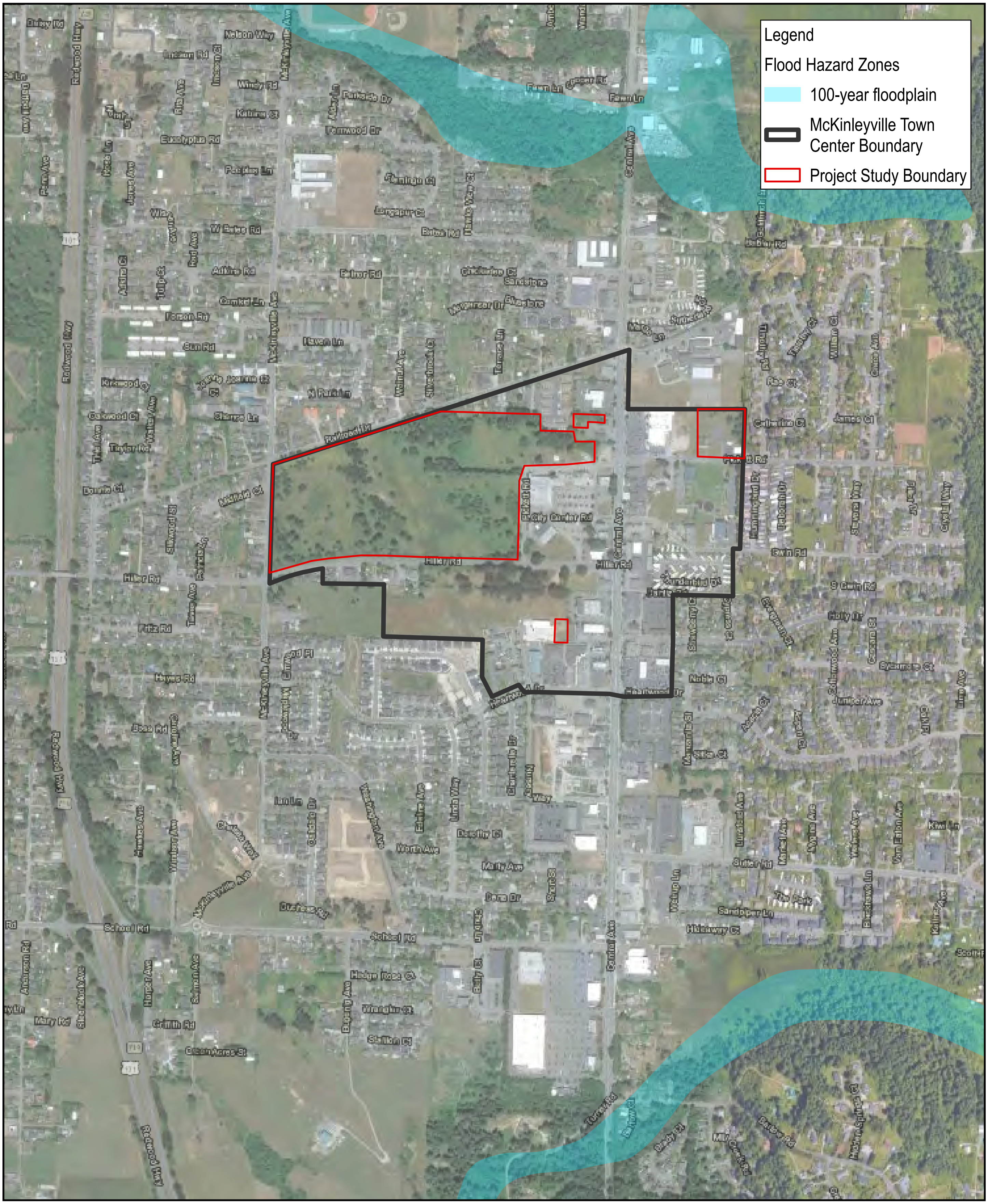
National Wetland Inventory (NWI)

Project No. **12603187**
Revision No. **-**
Date **Aug 2023**

FIGURE 5

G:\561\12607030\GIS\Maps\Deliverables\WetlandDelineation\12607030_WetDel_FullFigureRequest.aprx
Print date: 10 Aug 2023 - 13:51

Data source: Humboldt County GIS, USFWS National Wetlands Inventory,Tiled service layer: © OpenStreetMap (and) contributors, CC-BY-SA. Created by: zporteous



Paper Size ANSI A

0 280 560 840 1,120

Feet

N

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

GHD

McKinleyville Town Center Wetlands Mapping Project

FEMA 100-year Flood Zone

Project No. **12603187**
Revision No. **-**
Date **Aug 2023**

FIGURE 6

G:\561\12607030\GIS\Maps\Deliverables\WetlandDelineation\12607030_WetDel_FullFigureRequest.aprx
Print date: 10 Aug 2023 - 13:51

Data source: Humboldt County GIS, USFWS National Wetlands Inventory,World_Transportation: Esri, HERE, iPC
Tiled service layer: © OpenStreetMap (and) contributors, CC-BY-SA. Created by: zporteous

Appendix B

USACE Wetland Determination Data Forms

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

Project/Site: McKinleyville Town Center City/County: McKinleyville/HUM Sampling Date: 5/30/2023
Applicant/Owner: County of Humboldt State: CA Sampling Point: 10G-W
Investigator(s): Miles Hartnett(MH) Christa Hernandez(CH) Section, Township, Range: S31, T07N, R01E
Landform (hillslope, terrace, etc.): marine terrace Local relief (concave, convex, none): grade top Slope (%): 5-10
Subregion (LRR): A Lat: 40.942515 Long: -124.104564 Datum: NAD83
Soil Map Unit Name: 145: Halfbluff-Tepona-Urban land 0-2% slopes NWI classification: —
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)
Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No ___
Hydric Soil Present?	Yes ___	No X
Wetland Hydrology Present?	Yes ___	No X

Is the Sampled Area within a Wetland? Yes 1-par No ___

Remarks:
W3-1-par 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: r=15')			
1. Salix lasiolepis	20	yes	FACW
2.			
3.			
4.			
5.			
= Total Cover	15		
Herb Stratum (Plot size: r=5')			
1. Ranunculus repens	25	yes	FAC
2. Anthoxanthum odoratum	20	yes	FACU
3. Hosackia gracilis	10		FACW
4. Holcus lanatus	25	yes	FAC
5. Rumex acetosella	8		FAC
6. Hypochaeris radicata	3		FACU
7. Trifolium repens	2		FAC
8. Geranium dissectum	1		UPL
9.			
10.			
11.			
= Total Cover	94	50%=47, 20%=18.8	
Woody Vine Stratum (Plot size: r=15)			
1. Rubus ursinus	5	yes	FACU
2.			
= Total Cover	5		

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 60% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	30	x 2 = 60
FAC species	60	x 3 = 180
FACU species	28	x 4 = 112
UPL species	1	x 5 = 5
Column Totals:	119 (A)	357 (B)

Prevalence Index = B/A = 3.0

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes X No ___

Remarks:

Fails FAC neutral

May 30
100

SOIL

Sampling Point: 100-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 %	Type[1]	Loc[2]	Texture	Remarks
0-8	10 YR 3/2	100					Silt-loam	Roots
8-12	10YR 5/6	93	7.5YR 5/6	7	C	M	Silt-loam	Buried Horizon
12-23	10YR 2/2						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 ✓

Remarks:

8-12" may be buried horizon/earthwork related

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ____ No ✓

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

Remarks: Top of swale, ~~[illegible]~~ transition zone.

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

Project/Site: McKinleyville Town Center City/County: McKinleyville / Hum Sampling Date: MAY 30

Applicant/Owner: County of Humboldt State: CA Sampling Point: 101-U

Investigator(s): Miles Haitnes, Christian Hernandez Section, Township, Range: S31 | T07N | R01E

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

Subregion (LRR): A Lat: 40.94330 Long: -124.105157 Datum: NA83

Soil Map Unit Name: 145- Halfbluff-Typic-Urban land 0-2% slopes NWI classification: —

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 10 m)			
1. Alnus Rubra	93	Y	FAC
2.			
3.			
4.			
		= Total Cover	
Sapling/Shrub Stratum (Plot size: 5 m)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	
Herb Stratum (Plot size: 1 m)			
1. ~~Rubus ursinus~~	~~32~~	~~Y~~	~~FACU~~
2. Holcus lanatus	19	N	FAC
3. Ranunculus repens	20	Y	FAC
4. Vicia sativa	12	N	UPL
5. Lotus pedunculatus	15	N	FAC
6. Poa pratensis	29	Y	FAC
7. Anthoxanthum odoratum	25	Y	FACU
8.			
9.			
10.			
11.			
	110	= Total Cover	
Woody Vine Stratum (Plot size: 5 m)			
1. Rubus ursinus	30	Y	FACU
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: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	—	x 1 =
FACW species	—	x 2 =
FAC species	166	x 3 = 498
FACU species	55	x 4 = 220
UPL species	12	x 5 = 60
Column Totals:	233 (A)	778 (B)

Prevalence Index = B/A = 3.34

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1] Fail: 3.34
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:
• Veg dominated by FAC sp strongly associated w/ FACU + UPL sp (PI=3.34), Veg is not influenced by wetland hydrology and is not hydrophytic.

SOIL

Sampling Point: 101-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 %	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5YR 3/3	100	—				S.Lt 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) Fail
- ___ 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:

Fails FAC Neutral test

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

Project/Site: McKinleyville Town Center City/County: McKinleyville Sampling Date: 5/30/23

Applicant/Owner: County of Humboldt State: CA Sampling Point: 102-4

Investigator(s): MH / CH Section, Township, Range: S31/T07N/R01E

Landform (hillslope, terrace, etc.): Marine terrace Local relief (concave, convex, none): Flat Slope (%): 0-5

Subregion (LRR): A Lat: 40.942020 Long: -124.107725 Datum: NAD83

Soil Map Unit Name: -- NWI classification: —

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

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

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

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

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

Remarks:

veg plot only - no surface level observations of hydrology.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Sitka spruce	51	Y	FAC
2. Alnus rubra	7	N	FAC
3.			
4.			
	58 = Total Cover		
Sapling/Shrub Stratum (Plot size: 5 m)			
1. ~~Rubus ursinus~~			
2. ~~None~~ ~~Cytisus scoparius~~	~~25~~	~~Y~~	~~UPL~~
3.			
4.			
5.			
	~~25~~ = Total Cover		
Herb Stratum (Plot size: 1 m)			
1. Holcus lanatus	17	Y	FAC
2. Anthoxanthum odoratum	16	Y	FACU
3. Plantago lanceolata	12	Y	FACU
4. Taraxacum officinale	10	Y	FACU
5. Ranunculus repens	7	N	FAC
6. Cytisus scoparius	20	Y	UPL
7.			
8.			
9.			
10.			
11.			
	82 = Total Cover		
Woody Vine Stratum (Plot size: 5 m)			
1. Rubus ursinus	29	Y	FACU
2.			
	29 = 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: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 29 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	82	x 3 = 246
FACU species	67	x 4 = 268
UPL species	43	x 5 = 215
Column Totals:	192 (A)	729 (B)

Prevalence Index = B/A = 3.80

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50% Fail
___ 3 - Prevalence Index is ≤3.0[1] Fail
___ 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:

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

Project/Site: McKinleyville Town Center City/County: McKinleyville / Humboldt Sampling Date: 5/30/2023
Applicant/Owner: County of Humboldt State: CA Sampling Point: UP103-U
Investigator(s): MH, CH Section, Township, Range:
Landform (hillslope, terrace, etc.): marine terrace Local relief (concave, convex, none): Convex Slope (%): 3-5
Subregion (LRR): A Lat: 40.94248 Long: -124.10519 Datum: NAD83
Soil Map Unit Name: — NWI classification: —
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)
Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ___ No X		Is the Sampled Area within a Wetland? Yes ___ No X
Hydric Soil Present? ~~Yes ___ No ___~~		
Wetland Hydrology Present? ~~Yes ___ No ___~~		

Remarks:
Veg only - No surface level observations of hydrology

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: r=15')			
1. Cytisus scoparius	3	Y	UPL
2. Rubus parviflorus	3	Y	FACU
3. Salix hookeriana	3	Y	FACW
4.			
5.			
	9	= Total Cover	
Herb Stratum (Plot size: r=5')			
1. Anthoxanthum odoratum	50	yes	FACU
2. Holcus lanatus	30	yes	FAC
3. Rumex acetosella	10		FAC
4. Plantago lanceolata	3		FACU
5. Hordeum brachyantherum	3		FACW
6. Ranunculus repens	3		FAC
7. Hypochaeris radicata	3		FACU
8. Poa pratensis	8		FAC
9. Trifolium pratense	3		FACU
10. Fragaria chiloensis	3		FACU
11. Cirsium ...	3		FACU
	119	= Total Cover 50%: 59.5, 20%: 23.8	
Woody Vine Stratum (Plot size: r=15')			
1. Rubus ursinus	5	Y	FACU
2. Rubus armeniacus	5	Y	FAC
		= Total Cover	

% Bare Ground in Herb Stratum ___

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 7 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0.43 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	6	x 2 = 12
FAC species	53	x 3 = 159
FACU species	73	x 4 = 292
UPL species	3	x 5 = 15
Column Totals:	135 (A)	478 (B)

Prevalence Index = B/A = 3.54

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

Hydrophytic Vegetation Present? Yes ___ No X

Remarks:

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

Project/Site: McKinleyville Town Center City/County: McKinleyville / Humboldt Sampling Date: 5/30/2022

Applicant/Owner: County of Humboldt State: CA Sampling Point: 10-14

Investigator(s): MH, CH Section, Township, Range: —

Landform (hillslope, terrace, etc.): marine terrace Local relief (concave, convex, none): Flat Slope (%): 3-8

Subregion (LRR): A Lat: 40.942606 Long: -124.109104 Datum: NAD-83

Soil Map Unit Name: — NWI classification: —

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

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

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

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

- Hydrophytic Vegetation Present? Yes ____ No X
- Hydric Soil Present? ~~Yes ____ No ____~~
- Wetland Hydrology Present? ~~Yes ____ No ____~~
- Is the Sampled Area within a Wetland? Yes — No X

Remarks: Veg plot only, No surface level indicators of hydrology

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix sitchensis	3	yes	FACW
2. Alnus rubra	3	yes	FAC
3.			
4.			
		= Total Cover	
Sapling/Shrub Stratum (Plot size: ____)			
1. Salix lasiolepis	20	yes	FACW
2. Spiraea douglasii	15	yes	FACW
3.			
4.			
5.			
	35	= Total Cover	
Herb Stratum (Plot size: ____)			
1. Anthoxanthum odoratum	20	yes	FACU
2. Holcus lanatus	20	yes	FAC
3. Lotus uliginosus	5		FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	45	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1. Rubus ursinus	50	y	FACU
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 5%

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:	85%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	38	x 2 = 76
FAC species	28	x 3 = 84
FACU species	70	x 4 = 280
UPL species	0	x 5 = 0
Column Totals:	136 (A)	440 (B)

Prevalence Index = B/A = 3.24

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: → Bare ground calc includes R. ursinus

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

Project/Site: McKinleyville Town Ctr City/County: McKinleyville Sampling Date: 5/30/23

Applicant/Owner: County of Humboldt State: CA Sampling Point: 106-4

Investigator(s): KM MH, CH Section, Township, Range: –

Landform (hillslope, terrace, etc.): marine terrace Local relief (concave, convex, none): None Slope (%): 0-4

Subregion (LRR): A Lat: 40.94713205 Long: -124.1102025 Datum: NAD83

Soil Map Unit Name: – NWI classification: –

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

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

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

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

Hydrophytic Vegetation Present? Yes ___ No X	Is the Sampled Area within a Wetland?	Yes ___ No X
~~Hydric Soil Present? Yes ___ No ___~~		
~~Wetland Hydrology Present? Yes ___ No ___~~		

Remarks: Veg plot only - No surface level indicators of hydrology

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus rubra	25	Y	FAC
2. Picea sitchensis	25	Y	FAC
3.			
4.			
	50 = Total Cover		
Sapling/Shrub Stratum (Plot size: 5m)			
1. Cytisus scoparius	18	Y	UPL
2. Ilex aquifolium	11	Y	FACU
3. Rosa gymnocarpa	1	N	FACU
4.			
5.			
	29 = Total Cover		
Herb Stratum (Plot size: 1m)			
1. ~~Rubus ursinus~~			
2. Anthoxanthum odoratum	27	Y	FACU
3. Hypochaeris radicata	7	N	FACU
4. ~~Hedera helix~~			
5. Meadow ch. dilchtch	2	N	FACU
6. Holcus lanatus	19	Y	FAC
7.			
8.			
9.			
10.			
11.			
	= Total Cover		
Woody Vine Stratum (Plot size: 5m)			
1. Rubus ursinus	63	Y	FACU
2. Hedera helix	12	Y	FACU
	75 = Total Cover		

% Bare Ground in Herb Stratum ___

Remarks:

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 38% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 =
FACW species	0	x 2 =
FAC species	69	x 3 = 207
FACU species	123	x 4 = 492
UPL species	18	x 5 = 90
Column Totals:	210 (A)	789 (B)

Prevalence Index = B/A = 3.78

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50% Fail

___ 3 - Prevalence Index is ≤3.0[1] Fail

___ 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 ✓

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

Project/Site: McKinleyville Town Ctr City/County: McKinleyville Sampling Date: 5/30/23

Applicant/Owner: County of Humboldt State: CA Sampling Point: 107-up

Investigator(s): ML, CH Section, Township, Range: —

Landform (hillslope, terrace, etc.): marine terrace Local relief (concave, convex, none): concave Slope (%): 3-8

Subregion (LRR): A Lat: 40.94310713 Long: -124.10923597 Datum: NAD88

Soil Map Unit Name: — NWI classification: —

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 10 m)			
1.			
2.			
3.			
4.			
		= Total Cover	
Sapling/Shrub Stratum (Plot size: 5 m)			
1. Salix hookeriana	27	Y	FACW
2. Alnus rubra	2	N	FAC
3. Spiraea douglasii	20	Y	FACW
4.			
5.			
	49	= Total Cover	50
Herb Stratum (Plot size: 1 m)			20
1. Anthoxanthum odoratum	37	Y	FACU
2. Holcus lanatus	12	Y	FAC
3. Hypochaeris radicata	18	Y	FACU
4. Holcus gracilis	7	N	FACW
5. Plantago lanceolata	1	N	FACU
6. Luzula comosa	3	N	FAC
7.			
8.			
9.			
10.			
11.			
	77	= Total Cover	
Woody Vine Stratum (Plot size: 5m)			
1. Rubus ursinus	12	Y	FACU
2.			
	12	= Total Cover	

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 6 (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	54	x 2 = 108
FAC species	17	x 3 = 51
FACU species	67	x 4 = 268
UPL species	0	x 5 = 0
Column Totals:	138 (A)	427 (B)

Prevalence Index = B/A = 3.09

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50% Fail
- ___ 3 - Prevalence Index is ≤3.0[1] Fail
- ___ 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

Sampling Point: #107-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
0-14	10yr 2/1	100					loam	
14-17	10yr 3/3	95	5yr 5/8	5	C	M	silt loam	
END								

[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) Fail
- __ 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: McKinleyville Town Center City/County: McKinleyville Sampling Date: 5/10/23

Applicant/Owner: County of Humboldt State: CA Sampling Point: 10X-U

Investigator(s): CH Section, Township, Range: //

Landform (hillslope, terrace, etc.): Marine terrace Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR): A Lat: 40.942765 Long: -124.109910 Datum: NAD83

Soil Map Unit Name: // NWI classification: —

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

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

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

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

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

Remarks:

Veg plot only - No surface hydrology indicators of hydrology

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10m)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
		= Total Cover	
Sapling/Shrub Stratum (Plot size: 5m)			
1. Cytisus scoparius	68	Y	UPL
2. Spiraea douglasii	12	N	FACW
3.			
4.			
5.			
	80	= Total Cover	50 20
Herb Stratum (Plot size: 1m)			
1. Anthoxanthum odoratum	37	Y	FACU
2. Hypochaeris radicata	9	N	FACU
3. Iris douglasiana	5	N	UPL
4. Holcus lanatus	11	Y	FAC
5. Rumex acetosella	10	Y	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	72	= Total Cover	
Woody Vine Stratum (Plot size: 5m)			
1. Rubus ursinus	77	Y	FACU
2.			
	77	= Total Cover	
% Bare Ground in Herb Stratum ____			

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 20% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	12	x 2 =	24
FAC species	11	x 3 =	33
FACU species	133	x 4 =	532
UPL species	68	x 5 =	340
Column Totals:	224 (A)		929 (B)

Prevalence Index = B/A = 4.15

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50% Fail
- ___ 3 - Prevalence Index is ≤3.0[1] Fail
- ___ 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: Plot is linear

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

Project/Site: McKinleyville Town Center City/County: McKinleyville / Hum Sampling Date: 5/30/2023

Applicant/Owner: County of Humboldt State: CA Sampling Point: 109-U

Investigator(s): HNH Section, Township, Range: —

Landform (hillslope, terrace, etc.): Marine terrace Local relief (concave, convex, none): gentle slope Slope (%): 3-5

Subregion (LRR): A Lat: 40.943607 Long: -124.116190 Datum: NAD88

Soil Map Unit Name: — NWI classification: —

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

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

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

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

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

Remarks:

veg plot only – No surface level indicators of hydrology.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus radiata	8	Y	UPL
2. Picea sitchensis	8	Y	FAC
3.			
4.			
	16 = Total Cover		
Sapling/Shrub Stratum (Plot size: r=15')			
1. Spiraea douglasii	5	Y	FACW
2. Cytisus scoparius	3	Y	UPL
3. Cotoneaster franchetii	3	Y	UPL
4. Ilex aquifolium	1		UPL
5.			
	12 = Total Cover	50% = 6, 20% = 2.4	
Herb Stratum (Plot size: r=5')			
1. Pteridium aquilinum	35	yes	FACU
2. Anthoxanthum odoratum	25	yes	FACU
3. Holcus lanatus	15		FAC
4. Luzula comosa	3		FAC
5. Erica lusitanica	3		UPL
6. Cerastium fontanum	3		FACU
7.			
8.			
9.			
10.			
11.			
	84 = Total Cover	50% = 42, 20% = 16.8	
Woody Vine Stratum (Plot size: r=15')			
1. Rubus ursinus	5	Y	FACU
2.			
	= Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 12.5 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 0	x 1 =
FACW species 5	x 2 = 10
FAC species 26	x 3 = 78
FACU species 75	x 4 = 310
UPL species 18	x 5 = 90
Column Totals: 124 (A)	478 (B)

Prevalence Index = B/A = 3.85

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

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

Project/Site: McKinleyville Town Center City/County: McKinleyville Sampling Date: 5/30/23

Applicant/Owner: County of Humboldt State: CA Sampling Point: 110-U

Investigator(s): MH/CH Section, Township, Range: —

Landform (hillslope, terrace, etc.): marine terrace Local relief (concave, convex, none): none Slope (%): 0-5

Subregion (LRR): A Lat: 40.94391905 Long: -124.10960068 Datum: NAD83

Soil Map Unit Name: — NWI classification: —

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 10m)			
1. —			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 5m)			
1. Cytisus scoparius	47	Y	UPL
2. Vaccinium ovatum	4	Y	FACU
3. Cotoneaster coriaceus	2	N	UPL
4.			
5.			
= Total Cover	53		
Herb Stratum (Plot size: 1m)			
1. Pteridium aquilinum	27	Y	FACU
2. Anthoxanthum odoratum	15	Y	FACU
3. Hypochaeris radicata	13	Y	FACU
4. Holcus lanatus	7	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	62		
Woody Vine Stratum (Plot size: 5m)			
1. Rubus ursinus	11	Y	FACU
2.			
= Total Cover	11		

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	7	x 3 = 21
FACU species	68	x 4 = 272
UPL species	49	x 5 = 245
Column Totals:	124 (A)	588 (B)

Prevalence Index = B/A = 4.74

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50% Fail
- ___ 3 - Prevalence Index is ≤3.0[1] Fail
- ___ 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

Sampling Point: W, 11aU

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 3/3	100					Silt loam	< roots
8-14	10YR 3/4	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)
- __ Depleted Below Dark Surface (A11)
- __ Thick Dark Surface (A12)
- __ Sandy Mucky Mineral (S1)
- __ Sandy Gleyed Matrix (S4)
- __ Sandy Redox (S5)
- __ Stripped Matrix (S6)
- __ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- __ Loamy Gleyed Matrix (F2)
- __ Depleted Matrix (F3)
- __ Redox Dark Surface (F6)
- __ Depleted Dark Surface (F7)
- __ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ____________

Depth (inches): ____________

Hydric Soil Present? Yes ______ No ✓

Remarks:

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 ✓

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: McKinleyville Town Center City/County: McKinleyville / Humboldt Sampling Date: 5/30/2023

Applicant/Owner: County of Humboldt State: CA Sampling Point: 111-W

Investigator(s): MH, [illegible] Section, Township, Range: –

Landform (hillslope, terrace, etc.): marine terrace Local relief (concave, convex, none): [illegible] Slope (%): 3-5

Subregion (LRR): A Lat: 40.943657 Long: -124.109347 Datum: NAVD88

Soil Map Unit Name: – NWI classification: –

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

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

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

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

Hydrophytic Vegetation Present?	Yes X No ____	Is the Sampled Area within a Wetland?	Yes 1 par No –
Hydric Soil Present?	~~Yes ____ No ____~~		
Wetland Hydrology Present?	~~Yes ____ No ____~~		

Remarks: WM, 1 parameter wetland

Veg plot only – No surface level indicators of wetland hydrology

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: r=15')			
1. Salix hookeriana	25	yes	FACW
2. Spiraea douglasiana	20	yes	FACW
3.			
4.			
5.			
	45	= Total Cover	50%=22.5 20%=9
Herb Stratum (Plot size: r=5')			
1. Anthoxanthum odoratum	30	yes	FACU
2. Holcus lanatus	20	yes	FAC
3. Hypochaeris radicata	5		FACU
4. Trifolium pratense	3		FACU
5. Juncus hesperius	3		FACW
6. Hosackia gracilis	5		FACW
7. Ranunculus repens	15		FAC
8. Rumex acetosella	5		FACU
9.			
10.			
11.			
	81	= Total Cover	50%=40.5 20%=16.2
Woody Vine Stratum (Plot size: ____)			
1. Rubus ursinus	5	yes	FACU
2.			
	5	= Total Cover	

% Bare Ground in Herb Stratum 19

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	53	x 2 = 106
FAC species	35	x 3 = 105
FACU species	48	x 4 = 192
UPL species	0	x 5 = 0
Column Totals:	136 (A)	403 (B)

Prevalence Index = B/A = 2.96

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1] =2.96 PASS
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks: PASSES Dom-Test and PI

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

Project/Site: McKinleyville City Center City/County: McKinleyville/Hum Sampling Date: 5/30/2022

Applicant/Owner: County of Humboldt State: CA Sampling Point: 1/2-U

Investigator(s): MH Section, Township, Range: --

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

Subregion (LRR): A Lat: 40.943910 Long: -124.108171 Datum: NAD83

Soil Map Unit Name: -- NWI classification: --

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus contorta	40	yes	FAC
2.			
3.			
4.			
	40	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=15)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	
Herb Stratum (Plot size: r=5)			
1. Polystichum aquifolium	20	yes	FACU
2. Anthoxanthum odoratum	8	yes	FACU
3. Holcus lanatus	5		FAC
4. Hypochaeris radicata	3		FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	36	= Total Cover 50%=18 20%=7.2	
Woody Vine Stratum (Plot size: r=15)			
1. Rubus ursinus	55	yes	FACU
2.			
	55	= Total Cover	

% Bare Ground in Herb Stratum: Duff

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 25% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	45	x 3 = 135
FACU species	81	x 4 = 324
UPL species	0	x 5 = 0
Column Totals:	126 (A)	459 (B)

Prevalence Index = B/A = 3.64

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: 112-U1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14"	10yr 3/3	100					loam	
END								

[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** XX

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: McKinleyville Civic Center City/County: McKinleyville/Humboldt Sampling Date: 5/30/23
Applicant/Owner: County of Humboldt State: CA Sampling Point: 113-U
Investigator(s): MH, TH Section, Township, Range: —
Landform (hillslope, terrace, etc.): marine terrace Local relief (concave, convex, none): none Slope (%): 0-2
Subregion (LRR): A Lat: 40.944604 Long: -124.101576 Datum: NAD83
Soil Map Unit Name: — NWI classification: —
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)
Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ___ No X	Is the Sampled Area within a Wetland? Yes ___ No X
~~Hydric Soil Present? Yes ___ No ___~~	
~~Wetland Hydrology Present? Yes ___ No ___~~	

Remarks: Veg plot only, no surface indicators of hydrology

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 10 m)			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 5 m)			
1. Salix hookeriana	20	Y	FACW
2. Cytisus scoparius	2	N	UPL
3.			
4.			
5.			
= Total Cover	22		
Herb Stratum (Plot size: 1 m)			
1. Anthoxanthum odoratum	27	Y	FACU
2. Holcus lanatus	25	Y	FAC
3. Dactylis glomerata	3	N	FAC
4. Hypochaeris radicata	8	N	FACU
5. Trifolium repens	10	N	FAC
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	73		
Woody Vine Stratum (Plot size: 5 m)			
1. Rubus ursinus	58	Y	FACU
2.			
= Total Cover	58		

% 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: 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	20	x 2 = 40
FAC species	38	x 3 = 114
FACU species	93	x 4 = 372
UPL species	2	x 5 = 10
Column Totals:	153 (A)	536 (B)

Prevalence Index = B/A = 3.50

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50% Fail
___ 3 - Prevalence Index is ≤3.0[1] Fail
___ 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:

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

Project/Site: McKinleyville City Center City/County: McKinleyville / HUM Sampling Date: 5/30/2023

Applicant/Owner: County of Humboldt State: CA Sampling Point: 114-1141

Investigator(s): MH, CH Section, Township, Range: //

Landform (hillslope, terrace, etc.): marine terrace Local relief (concave, convex, none): slope Slope (%): 3-8

Subregion (LRR): A Lat: 40.943953 Long: -124.107255 Datum: NAD83

Soil Map Unit Name: // NWI classification: —

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: r=30)			
1.			
2.			
3.			
4.			
		= Total Cover	
Sapling/Shrub Stratum (Plot size: r=15')			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	
Herb Stratum (Plot size: r=5')			
1. Anthoxanthum odoratum	60	yes	FACU
2. Holcus lanatus	20	yes	FAC
3. Plantago lanceolata	3		FACU
4. Hypochaeris radicata	5		FACU
5. Lolium [illegible]	3		UPL
6. Cerastium fontanum	3		FACU
7. Lotus pedunculatus	5		FAC
8.			
9.			
10.			
11.			
	99	= Total Cover 50%=49.5 20%=19.8	
Woody Vine Stratum (Plot size: r=15')			
1. Rubus ursinus	30	yes	FACU
2.			
	30	= 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: 3 (B)

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 =
FACW species	5	x 2 = 10
FAC species	25	x 3 = 75
FACU species	101	x 4 = 404
UPL species	3	x 5 = 15
Column Totals:	134 (A)	504 (B)

Prevalence Index = B/A = 3.76

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50% Fail

___ 3 - Prevalence Index is ≤3.0[1] Fail

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

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ___ No X

Remarks:

SOIL

Sampling Point: 11Y-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
0-14	10yr 3/3	100					loam	
END								

[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: Mckinleyville City Center City/County: Mckinleyville/Hum Sampling Date: 5/30/23

Applicant/Owner: County of Humboldt State: CA Sampling Point: 115-U

Investigator(s): MH, CH Section, Township, Range: —

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

Subregion (LRR): A Lat: 40.944724 Long: -124.107060 Datum: NAD83

Soil Map Unit Name: // NWI classification: —

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

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

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

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

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

Remarks:

veg plot only. No surface level indicators of hydrology

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus rubra	93	Y	FAC
2. Pinus contorta	4	N	FAC
3.			
4.			
	97	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5m)			
1. Rubus spectabilis	27	Y	FAC
2.			
3.			
4.			
5.			
	27	= Total Cover	
Herb Stratum (Plot size: 1m)			
1. Anthoxanthum odoratum	33	Y	FACU
2. Hypochaeris radicata	7	Y	FACU
3. Plantago lanceolata	3	N	FACU
4. Trifolium repens	1	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	44	= Total Cover	
Woody Vine Stratum (Plot size: 5m)			
1. Rubus ursinus	53	Y	FACU
2.			
	53	= 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: 5 (B)

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	125	x 3 = 375
FACU species	93	x 4 = 372
UPL species	0	x 5 = 0
Column Totals:	218 (A)	747 (B)

Prevalence Index = B/A = 3.43

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50% Fail
- ___ 3 - Prevalence Index is ≤3.0[1] Fail
- ___ 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:

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

Project/Site: Mckinleyville City Center City/County: Mckinleyville/Hum Sampling Date: 5/30/2023

Applicant/Owner: County of Humboldt State: CA Sampling Point: [illegible]

Investigator(s): [illegible] Section, Township, Range: --

Landform (hillslope, terrace, etc.): marine terrace Local relief (concave, convex, none): flat Slope (%): 3-8

Subregion (LRR): A Lat: 40.946810 Long: -124.105600 Datum: NAD83

Soil Map Unit Name: -- NWI classification: --

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus radiata	15	yes	UPL
2. Alnus rubra	3		FAC
3.			
4.			
	18 = Total Cover	50=9 20=3.6	

Sapling/Shrub Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1. Sambucus racemosa	1		FACU
2.			
3.			
4.			
5.			
	___ = Total Cover		

Herb Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1. Anthoxanthum odoratum	30%	yes	FACU
2. Holcus lanatus	10		FAC
3. Cynosurus [illegible]	15	yes	UPL
4. Galium [illegible]	5		FACU
5. Geranium dissectum	3		UPL
6. Geranium robertianum	3		FACU
7. Rumex crispus	1		FAC
8. Pteridium aquilinum	5		FACU
9. Ranunculus spp	15	yes	FAC
10. Poa pratensis	8		FAC
11.			
	95 = Total Cover	50%=47.5 20%=19	

Woody Vine Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1. Rubus ursinus	40	yes	FACU
2. Rubus armeniacus	8		FAC
	48 = Total Cover	50%=24 20%=9.6	

% 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: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	45	x 3 = 135
FACU species	84	x 4 = 336
UPL species	33	x 5 = 165
Column Totals:	162 (A)	636 (B)

Prevalence Index = B/A = 3.93

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50% Fail

___ 3 - Prevalence Index is ≤3.0[1] Fail

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

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ___ No X

Remarks:

SOIL

Sampling Point: 116 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 %	Type[1]	Loc[2]	Texture	Remarks
0-12"	10YR 3/3	100					Loam	
END								

[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: McKinleyville Ctr, Center City/County: Hum Sampling Date: 5/30/23

Applicant/Owner: County of Humboldt State: CA Sampling Point: 117 up

Investigator(s): MH, CH Section, Township, Range: —

Landform (hillslope, terrace, etc.): Marine terrace Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR): A Lat: 40.944522 Long: -124.104995 Datum: NAD88

Soil Map Unit Name: — NWI classification: —

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

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

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

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

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

Remarks: Veg plot only – No surface wet indicators of hydrology.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10m)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 5m)			
1.			
2.			
3.			
4.			
5.			
= Total Cover	50 20		
Herb Stratum (Plot size: 1m)			
1. Anthoxanthum odoratum	33	Y	FACU
2. Trifolium repens	21	Y	FAC
3. Plantago lanceolata	9	N	FACU
4. Trifolium arvense	5	N	FACU
5. Hypochaeris radicata	5	N	FACU
6. Holcus lanatus	5	N	FAC
7. Bromus sitchensis	5	N	FACU
8.			
9.			
10.			
11.			
= Total Cover	83		
Woody Vine Stratum (Plot size: 5m)			
1. Rubus ursinus	12	Y	FACU
2.			
= Total Cover	12		

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 =
FACW species	0	x 2 =
FAC species	26	x 3 = 78
FACU species	86	x 4 = ~~40~~ 344
UPL species	0	x 5 = 0
Column Totals:	112 (A)	422 (B)

Prevalence Index = B/A = 3.77

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50% Fail

___ 3 - Prevalence Index is ≤3.0[1] Fail

___ 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:

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

Project/Site: McKinley City Center City/County: HUM Sampling Date: 5/30/2023
Applicant/Owner: County of Humboldt State: CA Sampling Point: 11S-1N
Investigator(s): MH, CH Section, Township, Range: --
Landform (hillslope, terrace, etc.): Marine terrace Local relief (concave, convex, none): flat Slope (%): 0-2
Subregion (LRR): A Lat: 40.944799 Long: -124.103648 Datum: NAD83
Soil Map Unit Name: 11 NWI classification: --
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Is the Sampled Area within a Wetland? Yes ____ No ✓

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea sitchensis	39	Y	FAC
2.			
3.			
4.			
	39 = Total Cover		

Sapling/Shrub Stratum (Plot size: 5m)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50 / 20

Herb Stratum (Plot size: 1m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Anthoxanthum odoratum	27	Y	FACU
2. Hypochaeris radicata	9	N	FACU
3. Holcus lanatus	17	Y	FAC
4. Bellis perennis	15	Y	UPL
5. Geranium oreganum	5	N	UPL
6. Cerastium fontanum	5	N	FACU
7. Plantago lanceolata	10	N	FACU
8. Luzula comosa	3	N	FAC
9. Vicia sativa	7	N	UPL
10.			
11.			
	96 = Total Cover		

Woody Vine Stratum (Plot size: 5m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Rubus ursinus	7	Y	FACU
2.			
	7 = 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: 5 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	~~58~~ 59	x 3 = 177
FACU species	58	x 4 = 232
UPL species	25	x 5 = 125
Column Totals:	142 (A)	534 (B)

Prevalence Index = B/A = 3.76

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50% Fail
___ 3 - Prevalence Index is ≤3.0[1] Fail
___ 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

Sampling Point: 11118-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 %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/3						Gravelly 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 ✓

Remarks: Gravel fill.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ___ No ✓

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

Remarks:

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

Project/Site: McKinleyville City Center City/County: McKinleyville / Hum Sampling Date: 5/30/2023

Applicant/Owner: County of Humboldt State: CA Sampling Point: 1 NG-U

Investigator(s): MH Section, Township, Range: —

Landform (hillslope, terrace, etc.): Marine terrace Local relief (concave, convex, none): gentle slope Slope (%): 0-5

Subregion (LRR): A Lat: 40.943779 Long: -124.104492 Datum: 3-5

Soil Map Unit Name: — NWI classification: —

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

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

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

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

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

Remarks:

Veg only. No surface indicators of hydrology

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: 5-5')			
1. Raphanus sativus	20	yes	UPL
2. Ranunculus repens	20	yes	FAC
3. Anthoxanthum odoratum	25	yes	FACU
4. Dactylis glomerata	15		FACU
5. Poa pratensis	5		FAC
6. Rumex crispus	3		FAC
7. Hypochaeris radicata	3		FACU
8. Taraxacum officinale	3		FACU
9.			
10.			
11.			
	94	= Total Cover 50%=47 20%=18.8	
Woody Vine Stratum (Plot size: 5-15')			
1. Rubus ursinus	25	y	FACU
2.			
	25	= 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: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 =
FACW species	3	x 2 = 6
FAC species	28	x 3 = 84
FACU species	68	x 4 = 272
UPL species	20	x 5 = 100
Column Totals:	119 (A)	462 (B)

Prevalence Index = B/A = 3.88

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50% Fail

___ 3 - Prevalence Index is ≤3.0[1] Fail

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

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

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

Project/Site: McKinleyville City Center City/County: HUM Sampling Date: 5/30/23

Applicant/Owner: County of Humboldt State: CA Sampling Point: 120-U

Investigator(s): MH, CH Section, Township, Range: //

Landform (hillslope, terrace, etc.): marine terrace Local relief (concave, convex, none): undulating Slope (%): 0-4

Subregion (LRR): A Lat: 40.944108 Long: -124.105953 Datum: NA88

Soil Map Unit Name: // NWI classification: —

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 10m)			
1. Picea sitchensis	45	Y	FAC
2. Alnus rubra	45	Y	FAC
3.			
4.			
	90	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5m)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	
Herb Stratum (Plot size: 1m)			
1. Ranunculus repens	76	Y	FAC
2. Holcus lanatus	9	N	FAC
3. Athyrium filix-femina	2	N	FAC
4. Anthoxanthum odoratum	2	N	FACU
5. Holcus lanatus	2	N	FAC
6.			
7.			
8.			
9.			
10.			
11.			
	91	= Total Cover	
Woody Vine Stratum (Plot size: 5m)			
1. Rubus ursinus	18	Y	FACU
2.			
	18	= Total Cover	
% Bare Ground in Herb Stratum ___			

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 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	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	177	x 3 = 531
FACU species	20	x 4 = 80
UPL species	0	x 5 = 0
Column Totals:	197 (A)	611 (B)

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] Fail
- ___ 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: Veg dominated by FAC sp. associated with FACU sp (PI = 3.10) PI Fails FAC Neutral
Veg is not influenced by wetland hydrology and is not hydrophytic

SOIL

Sampling Point: 120-4

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR2/1	100					Silt loam	Heavy Roots
14-26	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 ✓

Remarks: very carbon rich

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) Fail
- __ Raised Ant Mounds (D6) **(LRR A)**
- __ Frost-Heave Hummocks (D7)

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ____ No ✓

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

Remarks:

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

Project/Site: McKinleyville City Center City/County: HUM Sampling Date: 5/31/2023

Applicant/Owner: County of Humboldt State: CA Sampling Point: W12-W

Investigator(s): M. [illegible] Section, Township, Range: —

Landform (hillslope, terrace, etc.): Marine terrace Local relief (concave, convex, none): gentle slope Slope (%): 5-8

Subregion (LRR): A Lat: 40.944093 Long: -124.106565 Datum: NAD83

Soil Map Unit Name: // NWI classification: —

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No ____	Is the Sampled Area within a Wetland? Yes 1 par No ____
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:

W5 - 1 par Wetland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: r=15')			
1. Salix hookeriana	5	yes	FACW
2.			
3.			
4.			
5.			
= Total Cover	5		
Herb Stratum (Plot size: r=5')			
1. Juncus hesperius	8		FACW
2. Danthonia [illegible]	35	yes	FAC
3. Trifolium repens	5		FAC
4. Holcus lanatus	20	yes	FAC
5. Anthoxanthum odoratum	15		FACU
6. Poa pratensis	12		FAC
7. Rumex crispus	3		FACW
8. Juncus bufonius	4		FACW
9. Hosackia gracilis	8		FACW
10.			
11.			
= Total Cover	110		
Woody Vine Stratum (Plot size: ____)			
1. Rubus ursinus	5	yes	FACU
2.			
= Total Cover	5		

50%: 56 20%: 22

% 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: 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	0	x 1 = 0
FACW species	28	x 2 = 56
FAC species	72	x 3 = 216
FACU species	20	x 4 = 80
UPL species	0	x 5 = 0
Column Totals:	120 (A)	352 (B)

Prevalence Index = B/A = 2.93

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

3) Pass P.I. [illegible] FAC Neutral

SOIL

Sampling Point: 121-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 3/1	100					Silt loam	
5-14	10YR 3/2	100					Silt loam	
END								

[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) fail
- ___ 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: McKinleyville City Center City/County: Hum Sampling Date: 5/31/2025

Applicant/Owner: County of Humboldt State: CA Sampling Point: 122-W

Investigator(s): MH Section, Township, Range: //

Landform (hillslope, terrace, etc.): [illegible] Local relief (concave, convex, none): [illegible] Slope (%): 3-5

Subregion (LRR): A Lat: 40.943969 Long: -124.106755 Datum: NAD83

Soil Map Unit Name: -- NWI classification: --

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No ___
Hydric Soil Present?	~~Yes~~	No ___
Wetland Hydrology Present?	~~Yes~~	No ___

Is the Sampled Area within a Wetland? Yes 1 par No ___

Remarks: 1 par wetland. WS - veg plot only - No surface level indicators of hydrology

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r-30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: r-15)			
1. Salix hookeriana	5	y	FACW
2.			
3.			
4.			
5.			
= Total Cover	5		
Herb Stratum (Plot size: ___)			
1. Potentilla anserina	8		OBL
2. Juncus bufonius	5		FACW
3. Juncus hesperius	10		FACW
4. Ranunculus repens	25	yes	FAC
5. Hosackia gracilis	8		FACW
6. Anthoxanthum odoratum	20	yes	FACU
7. Holcus lanatus	15	yes	FAC
8. Trifolium repens	5		FAC
9. Plantago lanceolata	1		FAC
10. Hypochaeris radicata	1		FACU
11. Linum bienne	1		UPL
= Total Cover	99	50%=49.5 20%=19.8	
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: 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	8	x 1 = 8
FACW species	28	x 2 = 56
FAC species	46	x 3 = 138
FACU species	21	x 4 = 84
UPL species	1	x 5 = 5
Column Totals:	104 (A)	291 (B)

Prevalence Index = B/A = 2.80

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes X No ___

Remarks:

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

Project/Site: McKinleyville Civic Center City/County: McKinleyville/Humb Sampling Date: 5/31/2023

Applicant/Owner: County of Humboldt State: CA Sampling Point: 123-W

Investigator(s): MH Section, Township, Range: --

Landform (hillslope, terrace, etc.): Marine terrace Local relief (concave, convex, none): slope Slope (%): 3-5

Subregion (LRR): A Lat: 40.943545 Long: -124.100330 Datum: NAD83

Soil Map Unit Name: -- NWI classification: --

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

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

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

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

Hydrophytic Vegetation Present? Yes ____ No X Hydric Soil Present? ~~Yes ____ No ____~~ Wetland Hydrology Present? ~~Yes ____ No ____~~	Is the Sampled Area within a Wetland? Yes ____ No X
Remarks: Veg only - No surface level indicators of hydrology.	

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. Anthoxanthum odoratum	45	yes	FACU
2. Hypochaeris radicata	5		FACU
3. Lotus uliginosus	3		FAC
4. Holcus lanatus	35	yes	FAC
5. Ranunculus repens	5		FAC
6. Potentilla anserina	1		OBL
7. Plantago lanceolata	3		FAC
8.			
9.			
10.			
11.			
	97	= Total Cover 50%=48.5 20%=19.4	
Woody Vine Stratum (Plot size: ____)			
1. Rubus ursinus	8	yes	FACU
2.			
	8	= Total Cover	

% Bare Ground in Herb Stratum 3

Remarks:

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	1	x 1 = 1
FACW species	0	x 2 = 0
FAC species	46	x 3 = 138
FACU species	58	x 4 = 232
UPL species	0	x 5 = 0
Column Totals:	105 (A)	370 (B)

Prevalence Index = B/A = 3.52

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ____ No X

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

Project/Site: McKinleyville City Center City/County: HUM Sampling Date: 5/31/2023
Applicant/Owner: County of Humboldt State: CA Sampling Point: 124-w
Investigator(s): ~~Tde~~ MH, Section, Township, Range: —
Landform (hillslope, terrace, etc.): marine terrace Local relief (concave, convex, none): flat Slope (%): 0-5
Subregion (LRR): A Lat: 40.943522 Long: -124.106592 Datum: NAD83
Soil Map Unit Name: — NWI classification: —
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes X No ____	Is the Sampled Area within a Wetland?	Yes 1 par No ____
Hydric Soil Present? ~~Yes ____ No ____~~		
Wetland Hydrology Present? ~~Yes ____ No ____~~		

Remarks: W6 1 par wetland
• veg only - no surface level indicators of hydrology.

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: 5-5)			
1. Anthoxanthum odoratum	20	yes	FACU
2. Holcus lanatus	20	yes	FAC
3. Juncus hesperius	8		FACW
4. Hosackia gracilis	8		FACW
5. Rumex acetosella	1		FAC
6. Hypochaeris radicata	3		FACU
7. Vicia tetrasperma/Lotus? [illegible]	8		FAC/W
8. Sisyrinchium californicum	12	yes	FACW
9. Juncus bufonius	12	yes	FACW
10.			
11.			
92 = Total Cover	50=41, 20=18.4		
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: 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	0	x 1 = 0
FACW species	48	x 2 = 96
FAC species	21	x 3 = 63
FACU species	23	x 4 = 92
UPL species	0	x 5 = 0
Column Totals:	92 (A)	251 (B)

Prevalence Index = B/A = 2.72

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
X 3 - Prevalence Index is ≤3.0[1] =2.72
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
Pass dom test + P.I. vs PASS Fac-Neutral

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

Project/Site: Mckinleyville Civic Center City/County: Hum Sampling Date: 5/31/2023

Applicant/Owner: County of Humboldt State: CA Sampling Point: UP 54

Investigator(s): MH Section, Township, Range: //

Landform (hillslope, terrace, etc.): marine terrace Local relief (concave, convex, none): Slope Slope (%): 15-20

Subregion (LRR): A Lat: 40.943340 Long: -124.105809 Datum: NAD88

Soil Map Unit Name: — NWI classification: —

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

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

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

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

Hydrophytic Vegetation Present? Yes ___ No X	Is the Sampled Area within a Wetland?	Yes ___ No X
Hydric Soil Present? ~~Yes ___ No ___~~		
Wetland Hydrology Present? ~~Yes ___ No ___~~		

Remarks:

Veg only - No surface level indicators of hydrology.

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: r=5)			
1. Anthoxanthum odoratum	40	yes	FACU
2. Holcus lanatus	30	yes	FAC
3. Lotus uliginosus	10		FAC
4. Hypochaeris radicata	5		FACU
5. Plantago lanceolata	5		FAC
6. Ranunculus repens	5		FAC
7.			
8.			
9.			
10.			
11.			
	95	= Total Cover	50=47.5 20=19
Woody Vine Stratum (Plot size: r=5)			
1. Rubus ursinus	20	yes	FACU
2.			
	20	= Total Cover	

% Bare Ground in Herb Stratum ~~10~~ 5

Remarks:

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	50	x 3 = 150
FACU species	65	x 4 = 260
UPL species	0	x 5 = 0
Column Totals:	115 (A)	410 (B)

Prevalence Index = B/A = 3.57

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ___ No X

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

Project/Site: McKinleyville City Center | City/County: McKinleyville/Humboldt | Sampling Date: 3/31/2023

Applicant/Owner: County of Humboldt | State: CA | Sampling Point: W12a-W

Investigator(s): MH | Section, Township, Range: —

Landform (hillslope, terrace, etc.): marine terrace | Local relief (concave, convex, none): slight | Slope (%): 5-15

Subregion (LRR): A | Lat: 40.942849 | Long: -124.104548 | Datum: NAD 83

Soil Map Unit Name: — | NWI classification: —

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

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

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

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

Hydrophytic Vegetation Present?	Yes X No ____	Is the Sampled Area within a Wetland? Yes 1par No ____
Hydric Soil Present?	~~Yes ____ No ____~~	
Wetland Hydrology Present?	~~Yes ____ No ____~~	

Remarks:
W3-1par Wetland veg only - No surface level indicators of hydrology

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix hookeriana	35	Y	FACW
2.			
3.			
4.			
= Total Cover	35		
Sapling/Shrub Stratum (Plot size: r=15')			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: r=5')			
1. Holcus lanatus	10	Y	FAC
2. Ranunculus repens	25	Y	FAC
3. Galium aparine	3	/	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	38	50=19 20=7.6	
Woody Vine Stratum (Plot size: r=15)			
1. Rubus ursinus	5		FACU
2. Rubus armeniacus	15	yes	FAC
= Total Cover	20	50=10 20=4	

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	35	x 2 = 70
FAC species	50	x 3 = 150
FACU species	8	x 4 = 32
UPL species	0	x 5 = 0
Column Totals:	93 (A)	252 (B)

Prevalence Index = B/A = 2.71

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50% =50%
- X 3 - Prevalence Index is ≤3.0[1] =2.71
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

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

Project/Site: McKinley City Center City/County: McKinleyville/HUM Sampling Date: 5/31/2023

Applicant/Owner: County of Humboldt State: CA Sampling Point: 127-W

Investigator(s): Miles Herbert Section, Township, Range: S6, 06N, 01E

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

Subregion (LRR): A Lat: 40.940911 Long: -124.102562 Datum: NAD83

Soil Map Unit Name: -- NWI classification: PUBKx

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

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

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

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

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

Remarks: W13-pasture wetland
Excavated Stormwater detention pond

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. Hordeum brachyantherum	50	Y	FACW
2. Ranunculus repens	10		FAC
3. Rumex crispus	1		FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	61	50%=30.5, 20%=12.2	
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 39

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	51	x 2 = 102
FAC species	10	x 3 = 30
FACU species	0	x 4 = 0
UPL species	0	x 5 = 0
Column Totals:	61 (A)	132 (B)

Prevalence Index = B/A = 2.16

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1] =2.16
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No ___

Remarks:

SOIL

Sampling Point: 127-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 %	Type[1]	Loc[2]	Texture	Remarks
0-9	10yr 3/2	98	5yr 5/8	2	C	M	S. loam	
9-12	2.5y 6/4	85	10yr 6/8	15	C	M	S. loam	

;-12

[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)
- X 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)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5) Pass
- ___ 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:

D2) Excavated concave depression
B4) Algal crust

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

Project/Site: McKinleyville City Center City/County: Hum Sampling Date: 5/31/2023

Applicant/Owner: County of Humboldt State: CA Sampling Point: 125-UP

Investigator(s): MH Section, Township, Range: 56, 06N, 01E

Landform (hillslope, terrace, etc.): Marine terrace Local relief (concave, convex, none): convex Slope (%): 0-5

Subregion (LRR): A Lat: 40.946807 Long: -124.107504 Datum: NAD 83

Soil Map Unit Name: -- NWI classification: --

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			

Sapling/Shrub Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
= Total Cover			

Herb Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1. Anthoxanthum odoratum	25	yes	FACU
2. Festuca arundinacea	30	yes	FAC
3. Dactylis glomerata	10		FACU
4. Holcus lanatus	30	yes	FAC
5. Vicia hirsuta	5		UPL
6. Plantago lanceolata	3		FAC
7. Festuca perennis	5		FAC
8. Galium parisiense	2		UPL
9. Leucanthemum vulgare	2		FACU
10.			
11.			
= Total Cover	112	50%=55, 20%=22.4	

Woody Vine Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
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: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	68	x 3 = 204
FACU species	37	x 4 = 148
UPL species	7	x 5 = 35
Column Totals:	112 (A)	387 (B)

Prevalence Index = B/A = 3.46

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50% Pass
- ___ 3 - Prevalence Index is ≤3.0[1] = 3.46 - Fail
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ___ No X

DT Fails FAC Neutral test

Remarks:
- Dominated by FAC spp associated with FACU + UPL spp (P.I. = 3.46)
- FAC sp are not associated w/ hydrology or soil and are not acting as hydrophytes

SOIL

Sampling Point: 128-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 %	Type[1]	Loc[2]	Texture	Remarks
0-8	10yr 4/3	100					cobbly loam	likely Fill, cobble
Fill								+ gravel

[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:

cobble made it difficult to dig deeper than 8"
- likely Fill

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5) Fail
- ___ 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:

D5) Fails FAC Neutral Test

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

Project/Site: McKinleyville City Center City/County: HUM Sampling Date: 5/31/2023

Applicant/Owner: County of Humboldt State: CA Sampling Point: 129-W

Investigator(s): MH Section, Township, Range: 36 06N 01E

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

Subregion (LRR): A Lat: 40.9407116 Long: -124.102567 Datum: NAD83

Soil Map Unit Name: " NWI classification: PUBKx

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

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

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

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

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

Remarks: - Higher elevation than point 127 with rocked overflow to 127. Sample point in excavated depression for stormwater runoff.

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: r=5)			
1. Hordeum brachyantherum	25	Y	FACW
2. Festuca arundinacea	8	Y	FAC
3. Festuca perennis	8	Y	FAC
4. Hypochaeris radicata	8	Y	FACU
5. Ranunculus repens	3		FAC
6. Plantago lanceolata	3		FAC
7. Cyperus eragrostis	3		FACW
8.			
9.			
10.			
11.			
= Total Cover	58		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
= Total Cover			

50/20: 29, 11.6

% Bare Ground in Herb Stratum 42

Remarks: D5) Fails FAC neutral test

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	0	x 1 = 0
FACW species	28	x 2 = 56
FAC species	22	x 3 = 66
FACU species	8	x 4 = 12
UPL species	0	x 5 = 0
Column Totals:	58 (A)	134 (B)

Prevalence Index = B/A = 2.31

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes X No ____

SOIL

Sampling Point: T29-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 %	Type[1]	Loc[2]	Texture	Remarks
0-4	10yr 3/1	95	7.5yr 5/8	5	C	M	silt loam	
4-12	2.5y 5/4	80	7.5yr 5/8	20			silt loam	
END								

[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:

- excavated depression
- very compacted at 4".

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)
- X 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)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5) FAC'
- ___ 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:

- D5) Fail FAC neutral test
- D2 excavated depression for stormwater runoff

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

Project/Site: McKinleyville Cty Center City/County: McKinleyville / Hum Sampling Date: 5/31/2022
Applicant/Owner: County of Humboldt State: CA Sampling Point: 130-4
Investigator(s): MH Section, Township, Range: S6 06N 01E
Landform (hillslope, terrace, etc.): marine terrace Local relief (concave, convex, none): convex Slope (%): 0-5
Subregion (LRR): A Lat: 40.940586 Long: -124.107481 Datum: NAD88
Soil Map Unit Name: — NWI classification: —
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Is the Sampled Area within a Wetland? Yes ____ No X

Remarks:

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. Anthoxanthum odoratum	40	Y	FACU
2. Bromus hordeaceus	28	Y	FACU
3. Holcus lanatus	25	Y	FAC
4. Aira barbata	5		UPL
5. Festuca perennis	5		FAC
6. Sherardia arvensis	1		UPL
7. Geranium dissectum	3		UPL
8. Erodium moschatum	1		UPL
9. Plantago lanceolata	3		FAC
10.			
11.			
= Total Cover	108		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum ____			

50%=54
20%=20.6

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	33	x 3 = 99
FACU species	65	x 4 = 260
UPL species	10	x 5 = 50
Column Totals:	108 (A)	409 (B)

Prevalence Index = B/A = 3.79

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: 130-4

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-14	10yr 3/3	100	—				loam	
END								

[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: McKinleyville Cty Center City/County: McKinleyville Sampling Date Aug-02-2023

Applicant/Owner: County of Humboldt State: CA Sampling Point L 13-U

Investigator(s): MH, CH Section, Township, Range S31 67N 01E

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

Subregion (LRR): A Lat: 40.945204 Long -124.102190 Datum NAD83

Soil Map Unit Name: — NWI classification —

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

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

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

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

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

Remarks: Old spoils mound, man made. Actively managed with recent veg removal. Localized man-made depression and spoils mounds.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus rubra	83	Y	FAC
2. Sitka spruce	12	N	FAC
3.			
4.			
	95 = Total Cover		
Sapling/Shrub Stratum (Plot size: 5m)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 1m)			
1. Briza maxima	30	Y	UPL
2. Anthoxanthum odoratum	25	Y	FACU
3. Holcus lanatus	20	Y	FAC
4. Cortaderia selloana	7	N	FACU
5. Rubus ursinus	5	N	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	87 = Total Cover		
Woody Vine Stratum (Plot size: 5m)			
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: 4 (B)

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	—	x 1 = —
FACW species	—	x 2 =
FAC species	115	x 3 = 345
FACU species	37	x 4 = 148
UPL species	30	x 5 = 150
Column Totals:	182 (A)	643 (B)

Prevalence Index = B/A = 3.53

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50% Fail

___ 3 - Prevalence Index is ≤3.0[1] Fail

___ 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: Very recently (~1-2 weeks) veg mowed.

8/2/2023
131-U

SOIL

Sampling Point: [illegible]

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

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

[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)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5) Fail
- ___ 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:

D5) Fails FAC-Neutral

D2) localized depression (likely anthropogenic)

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

Project/Site: McKinleyville City Center City/County: HUM Sampling Date: Aug-02-2023

Applicant/Owner: County of Humboldt State: CA Sampling Point: 132-U

Investigator(s): Mills Hartness, Christian Hernandez Section, Township, Range: S31 07N 01E

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

Subregion (LRR): A Lat: 40.945238 Long: -124.101806 Datum: NAD83

Soil Map Unit Name: // NWI classification: —

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

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

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

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

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

Remarks: Small strip (~13m) between parking lots. Actively mowed.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus rubra	82	Y	FAC
2.			
3.			
4.			
	82 = Total Cover		
Sapling/Shrub Stratum (Plot size: 5m)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 1m)			
1. Rumex acetosella	12	N	FACU
2. Briza maxima	28	Y	UPL
3. Anthoxanthum odoratum	24	Y	FACU
4. Holcus lanatus	20	Y	FAC
5. Cortaderia selloana	2	N	FACU
6. Prunella vulgaris	4	N	FACU
7.			
8.			
9.			
10.			
11.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: 5m)			
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: 4 (B)

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	—	x 1 = —
FACW species	—	x 2 =
FAC species	102	x 3 = 306
FACU species	42	x 4 = 168
UPL species	28	x 5 = 140
Column Totals:	172 (A)	614 (B)

Prevalence Index = B/A = 3.57

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: Recently mowed.

8/2/2021

SOIL

Sampling Point: B2-4

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10yr3/3	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) Fail
- ___ 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:

D5) Fail FAC Neutral

Appendix C

Plant Species Observed within Sample Plots

Scientific Name	Common Name	Family	NWPL Indicator Status (WMVC)
Alnus rubra	red alder	Betulaceae	FAC
Anthoxanthum odoratum	sweet vernal grass	Poaceae	FACU
Avena barbata	slim oat	Poaceae	UPL
Bellis perennis	English daisy	Asteraceae	UPL
Briza maxima	rattlesnake grass	Poaceae	UPL
Bromus hordeaceus	soft chess	Poaceae	FACU
Cerastrium fontanum	common chickweed	Caryophyllaceae	FACU
Cortaderia selloana	pampas grass	Poaceae	FACU
Cotoneaster franchetii	cotoneaster	Rosaceae	UPL
Cyperus eragrostis	flat sedge	Cyperaceae	FACW
Cytisus scoparius	Scotch broom	Fabaceae	UPL
Dactylus glomeratus	orchard grass	Poaceae	FACU
Erica lusitanica	Sapnish heather	Rosaceae	UPL
Erodium moschatum	whitestem filaree	Geraniaceae	UPL
Festuca arundinacea	reed fescue	Poaceae	FAC
Festuca perennis	Italian rye grass	Poaceae	FAC
Fragaria vesca	wild strawberry	Rosaceae	FACU
Gallium aparine	cleavers	Rubiaceae	FACU
Geranium dissectum	cutleaf geranium	Geraniaceae	UPL
Gernanium robertianum	Rpobert geranium	Geraniaceae	FACU
Hedera helix	English ivy	Araliaceae	FACU
Holcus lanatus	common velvetgrass	Poaceae	FAC
Hordeum brachyantherum	meadow barley	Poaceae	FACW
Hosackia gracilis	harlequin lotus	Fabacea	FACW
Hypochaeris radicata	hairy cats ear	Asteraceae	FACU
Ilex aquifolium	holly	Aquifoliaceae	FACU
Iris douglasii	Douglas iris	Iridaceae	UPL
Juncus bufonious	toad rush	Juncaceae	FACW
Juncus ensifolius	swordleaf rush	Juncaceae	FACW
Juncus hesperius	coast rush	Juncaceae	FACW
Leucanthemum vulgare	oxe eye daisy	Asteraceae	FACU
Linum bienne	flax	Linaceae	UPL
Lotus corniculatus	bird's foot trefoil	Fabaceae	FAC
Lotus ulginosus	marsh lotus	Fabaceae	FAC
Luzula comosa	wood rush	Juncaceae	FAC
Maianthemum dilatatum	false lily of the valley	Ruscaceae	FAC
Picea sitchensis	Sitka spruce	Pinaceae	FAC
Pinus contorta ssp. Contorta	shore pine	Pinaceae	FAC
Pinus radiata	Montery pine	Pinaceae	UPL
Plantago lanceolata	ribwort	Plantaginaceae	FACU

Scientific Name	Common Name	Family	NWPL Indicator Status (WMVC)
Poa pratensis	Kentucky bluegrass	Poaceae	FAC
Potentilla anserina	silverweed	Rosaceae	OBL
Prunella vulgaris	selfheal	Laminaceae	FACU
Pteridium aquilinum	bracken fern	Dennstaedtiaceae	FACU
Ranunculus repens	creeping buttercup	Ranunculaceae	FAC
Raphanus sativus	wild radish	Brassicaceae	UPL
Rosa gymnocarpa	dwarf rose	Rosaceae	FACU
Rubus armeniacus	Himalayan blackberry	Rosaceae	FAC
Rubus parviflorus	thimbleberry	Rosaceae	FACU
Rubus spectabilis	salmon berry	Rosaceae	FAC
Rubus ursinus	California blackberry	Rosaceae	FACU
Rumex acetosella	sheep sorrel	Polygonaceae	FACU
Rumex crispus	curley dock	Polygonaceae	FAC
Salix hookeriana	coastal willow	Salicaceae	FACW
Salix sitchensis	Sitka willow	Salicaceae	FACW
Sambucus racemosa	red elderberry	Viburnaceae	FACU
Sisyrichium californicum	golden blue eyed grass	Iridaceae	FACW
Sonchus asper	prickly sow thistle	Asteraceae	UPL
Spirea douglasii	Rose spirea	Rosaceae	FACW
Taraxacum officinale	common dandelion	Asteraceae	FACU
Trifoliem pratensis	red clover	Fabacea	FACU
Trifolium repens	white clover	Fabaceae	FAC
Vaccinium ovatum	evergreen huckleberry	Ericaceae	FACU
Vicia hirsuta	hairy vetch	Fabaceae	UPL
Vicia sativa	spring vetch	Fabaceae	UPL

Appendix D

Site Photographs

Photo 1: Description: Wetland 1 (W1) Sample Point 127-w APN: 508-251-061 Representative photo of W1, a three-parameter wetland comprising 0.02 acres. W1 is a regularly maintined stormwater detetion facility not likley juristictional to USACE, RWQCB, or the McKinleyville Communty Plan. Location: 40.940911,-124.102562 Date: May 31, 2023	
Photo 2: Description: Wetland 2 (W2) Sample Point 129-w APN: 508-251-061 Representative photo of W2, a three-parameter wetland comprising 0.06 acres. W2 is a regularly maintined stormwater detetion facility not likley juristictional to USACE, RWQCB, or the McKinleyville Communty Plan. Location: 40.940715,-124.102566 Date: May 31, 2023	

Photo 3: Description: Wetland 3 (W3) Sample Point 100-w APN: 510-132-031 Representative photo of W3, a one-parameter wetland comprising 0.36 acres. W3 is also a potential SNC. Location: 40.942515,-124.104384 Date: May 30, 2023	
Photo 4: Description: Wetland 4 (W4) Sample Point 111-w APN: 510-132-031 Representative photo of W4, a one-parameter wetland comprising 0.05 acres. W4 is also a potential SNC. Location: 40.943697,-124.109342 Date: May 30, 2023	

Photo 5:

Description:

Wetland 5 (W5)

Sample Point 122-w

APN: 510-132-031

Representative photo of W5, a one-parameter wetland comprising 0.15 acres.

Location:

40.943969,-124.106756

Date:

May 31, 2023

Photo 6:

Description:

Wetland 6 (W6)

Sample Point 124-w

APN: 510-132-031

Representative photo of W6, a one-parameter wetland comprising 0.06 acres.

Location:

40.943522,-124.106592

Date:

May 31, 2023

Photo 7: Description: Upland Sample Point 101-u APN: 510-132-031 Representative photo of upland areas at sample point 101-u. Location: 40.943298, -124.105157 Date: May 30, 2023	
Photo 8: Description: Upland Sample Point 102-u APN: 510-132-031 Representative photo of upland areas at sample point 102-u. Location: 40.942820, -124.107772 Date: May 30, 2023	

Photo 9: Description: Upland Sample Point 103-u APN: 510-132-031 Representative photo of upland areas at sample point 103-u. Location: 40.942480, -124.105190 Date: May 30, 2023	
Photo 10: Description: Upland Sample Point 104-u APN: 510-132-031 Representative photo of upland areas at sample point 104-u. Location: 40.942606, -124.109109 Date: May 30, 2023	

Photo 11: Description: Upland Sample Point 108-u APN: 510-132-031 Representative photo of upland areas at sample point 108-u. Location: 40.9427856, -124.109910 Date: May 30, 2023	
Photo 12: Description: Upland Sample Point 109-u APN: 510-132-031 Representative photo of upland areas at sample point 109-u. Location: 40.943607, -124.110190 Date: May 30, 2023	

Photo 13: Description: Upland Sample Point 112-u APN: 510-132-031 Representative photo of upland areas at sample point 112-u. Location: 40.943910, -124.108171 Date: May 30, 2023	
Photo 14: Description: Upland Sample Point 114-u APN: 510-132-031 Representative photo of upland areas at sample point 114-u. Location: 40.942820, -124.107772 Date: May 30, 2023	

Photo 15: Description: Upland Sample Point 116-u APN: 510-132-031 Representative photo of upland areas at sample point 116-u. Location: 40.944810, -124.105960 Date: May 30, 2023	
Photo 16: Description: Upland Sample Point 119-u APN: 510-132-031 Representative photo of upland areas at sample point 119-u. Location: 40.943779, -124.104443 Date: May 30, 2023	

<u>Photo 17:</u> <u>Description:</u> Upland Sample Point 120-u APN: 510-132-031 Representative photo of upland areas at sample point 120-u. <u>Location:</u> 40.944168, -124.105953 <u>Date:</u> May 30, 2023	
<u>Photo 18:</u> <u>Description:</u> Upland Sample Point 128-u APN: 508-251-061 Representative photo of upland areas at sample point 128-u. <u>Location:</u> 40.940807, -124.102504 <u>Date:</u> May 31, 2023	

Photo 19: Description: Upland Sample Point 131-u APN: 510-132-032 Representative photo of upland areas at sample point 131-u. Location: 40.945204, -124.102190 Date: August 2, 2023	

Appendix E

NRCS Custom Soil Resources Report

United States Department of Agriculture

NRCS

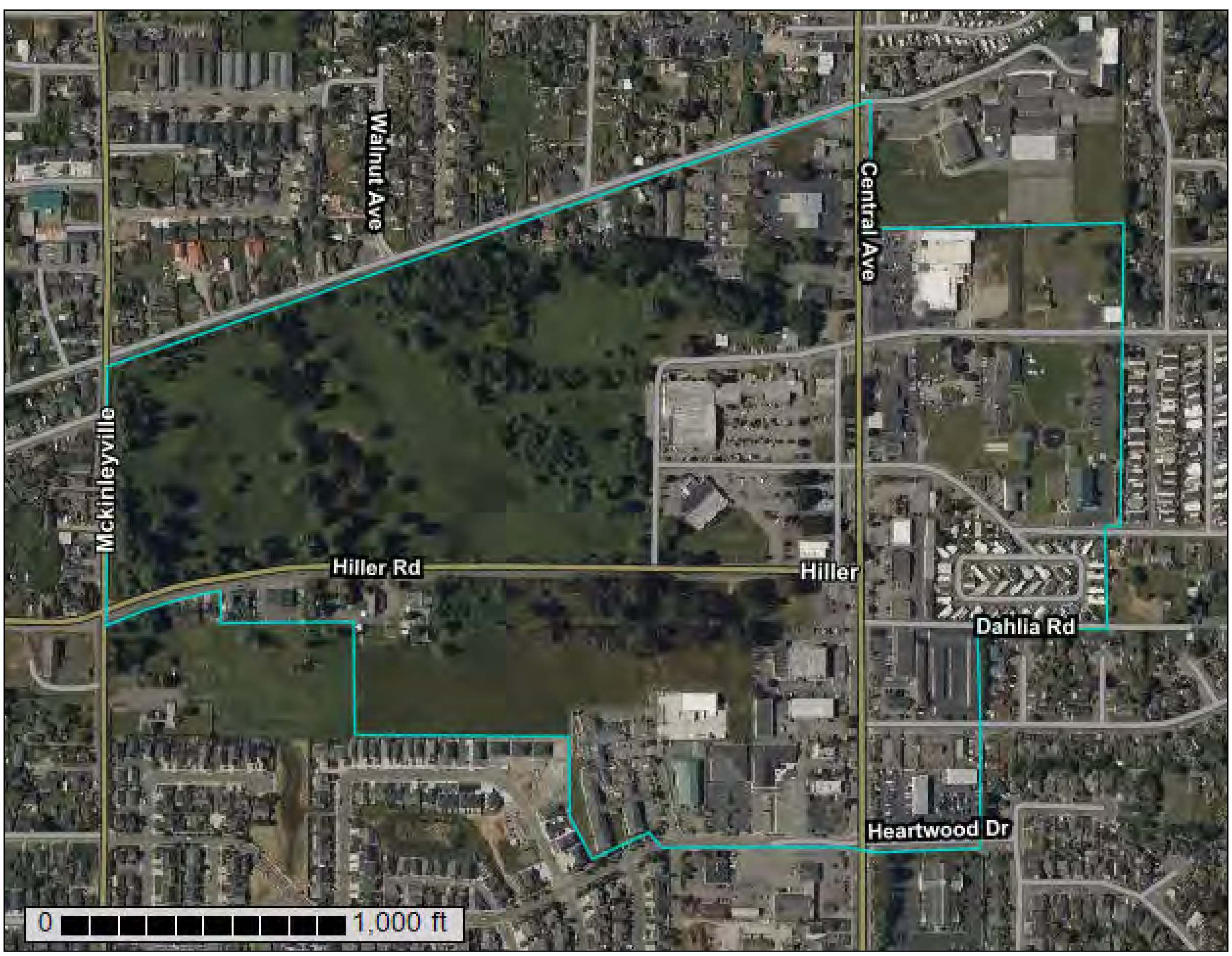
Natural Resources Conservation Service

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

Custom Soil Resource Report for

Humboldt County, Central Part, California

12607030-McKinleyville Town Center Soils



August 10, 2023

Preface

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

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

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

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

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

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

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How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

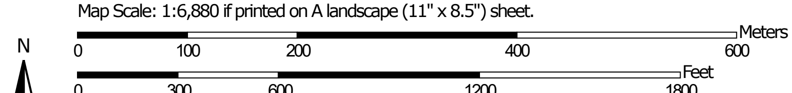
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in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

Soil Map

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

Soil Map

Map Scale: 1:6,880 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Unit Polygons

Soil Map Unit Lines

Soil Map Unit Points

Special Point Features

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

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

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

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Humboldt County, Central Part, California
Survey Area Data: Version 9, Sep 1, 2022

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

Date(s) aerial images were photographed: Jun 1, 2022—Jun 19, 2022

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
145	Halfbluff-Tepona-Urban Land, 0 to 2 percent slopes	82.4	56.7%
225	Arcata and Candymountain soils, 0 to 2 percent slopes	58.1	39.9%
226	Arcata and Candymountain soils, 2 to 9 percent slopes	5.0	3.4%
Totals for Area of Interest		**145.5**	**100.0%**

Map Unit Descriptions

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

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

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

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

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

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

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

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

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

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

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

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

Humboldt County, Central Part, California

145—Halfbluff-Tepona-Urban Land, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 23d0g
Elevation: 10 to 120 feet
Mean annual precipitation: 35 to 90 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 275 to 325 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Halfbluff and similar soils: 35 percent
Tepona and similar soils: 30 percent
Urban land, residential: 25 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Halfbluff

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 11 inches: fine sandy loam
BA - 11 to 18 inches: fine sandy loam
Bw - 18 to 35 inches: sandy loam
CB - 35 to 43 inches: sandy loam
2C1 - 43 to 55 inches: loamy sand
2C2 - 55 to 60 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately 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: About 30 to 39 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 7.9 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: C
Ecological site: F004BX118CA - Sitka spruce-redwood/salal/western brackenfern, marine terraces, marine deposits, fine sandy loam

Hydric soil rating: No

Description of Tepona

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

Oi - 0 to 2 inches: slightly decomposed plant material
A1 - 2 to 12 inches: loam
A2 - 12 to 25 inches: very fine sandy loam
Bw1 - 25 to 35 inches: sandy loam
Bw2 - 35 to 41 inches: sandy loam
C1 - 41 to 49 inches: sandy loam
C2 - 49 to 60 inches: sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately 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: About 30 to 39 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 9.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: C
Ecological site: F004BX118CA - Sitka spruce-redwood/salal/western brackenfern, marine terraces, marine deposits, fine sandy loam
Hydric soil rating: No

Description of Urban Land, Residential

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Convex

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: No

Minor Components

Talawa

Percent of map unit: 5 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

Tillas

Percent of map unit: 3 percent
Landform: Alluvial fans
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Hookton

Percent of map unit: 2 percent
Landform: Erosion remnants
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
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

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: 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

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

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

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

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Appendix F

NOAA Regional Climate Center WETS Table

WETS Table

WETS Station: ARCATA EUREKA AP, CA								
Requested years: 1993 - 2023								
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	56.0	40.2	48.1	6.91	4.53	8.30	12	-
Feb	55.6	39.5	47.6	6.50	3.54	7.93	11	-
Mar	56.0	40.5	48.3	6.52	4.46	7.78	12	-
Apr	57.0	42.1	49.5	3.95	2.54	4.75	9	-
May	59.3	45.7	52.5	1.93	0.91	2.36	5	-
Jun	62.2	48.3	55.3	0.95	0.31	1.09	2	-
Jul	63.2	51.2	57.2	0.17	0.04	0.17	0	-
Aug	64.2	51.2	57.7	0.19	0.05	0.20	0	-
Sep	64.7	48.4	56.6	0.93	0.29	1.06	2	-
Oct	62.8	44.9	53.8	2.97	1.03	3.57	5	-
Nov	58.5	41.8	50.2	5.90	3.96	7.06	10	-
Dec	55.5	39.6	47.5	8.84	5.40	10.70	13	-
Annual:					38.77	49.95		
Average	59.6	44.4	52.0	-	-	-	-	-
Total	-	-	-	45.75			80	-

GROWING SEASON DATES

Years with missing data:	24 deg = 0	28 deg = 1	32 deg = 2
Years with no occurrence:	24 deg = 30	28 deg = 10	32 deg = 0
Data years used:	24 deg = 31	28 deg = 30	32 deg = 29
Probability	24 F or higher	28 F or higher	32 F or higher
50 percent *	No occurrence	1/11 to 1/17: 371 days	3/28 to 11/26: 243 days
70 percent *	No occurrence	No occurrence	3/19 to 12/6: 262 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													
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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	M0.00					27.09
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: 2023-08-11													

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→ The Power of Commitment

Aquatic Resources Delineation Report

L&A Enterprises Project

Prepared for the Pierson Company

GHD | 718 Third Street, Eureka, California, 95501 USA

11203183 | 03 | Report No 1 | August 4, 2021

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1. Introduction

On behalf of the Pierson Company, GHD prepared this Aquatic Resources Delineation Report (also known as a wetland delineation report), and accompanying appendices, in support of the L&A Enterprises Project (Project) in McKinleyville, Humboldt County, CA. This report provides an investigation into whether wetlands and/or other aquatic resources are present in the Project Study Boundary (PSB), and can support future environmental documentation, permitting, and construction planning for the Project as deemed appropriate. The proposed PSB totals approximately 57.5 acres and includes the entirety of Assessor Parcel Number (APN) 510-132-031. The PSB includes the ditch along McKinleyville Avenue as this ditch is within the property boundary. The ditch along Hiller Road is not on the property and at this time has not been mapped as part of this delineation effort. Once access points to the proposed development are identified across the Hiller Road ditch, these areas will be mapped and a determination made if those sections of the Hiller Road ditch are wetlands or uplands. This report is subject to, and must be read in conjunction with, the limitations set out in Section 4, Special Terms and Conditions, and the assumptions and qualifications contained throughout the report.

Previous wetland delineations have been completed on the site. A reconnaciance wetland delineation was completed in 2019 and a map created. This GHD 2021 wetland and aquatic resurce delineation superceeds all previously prepared wetlands mapping of the site.

1.1 Site Description and History

The PSB consists of grassy and vegetated open space and a shopping center to the east of the parcel. The PSB is surrounded by Railroad Drive to the north, the McKinleyville Shopping Center to the east, Hiller Road to the south, and McKinleyville Avenue to the west. The property is generally flat, however a depression exists in the center of the PSB, which spans generally south east to north east from Hiller Road to Railroad Drive. The site has been used for grazing, but no grazing was taking place during the field investigations.

1.2 Project Description

The Project is an investigation of uplands and wetlands on the parcel to inform future development.

1.3 Regulatory Background

1.3.1 Federal

Waters of the United States

The Code of Federal Regulations (CFR), 40 CFR § 120.2 states, "Waters of the United States means:

1. **Jurisdictional waters.** For purposes of the Clean Water Act, 33 U.S.C. 1251 et seq. and its implementing regulations, subject to the exclusion in paragraph (2) of this section, the term "waters of the United States" means:

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

ii) Tributaries;

iii) Lakes and ponds, and impoundments of jurisdictional waters; and

iv) Adjacent wetlands.

2. **Non-jurisdictional waters.** The following are not “waters of the United States”:

i) Waters or water features that are not identified in paragraph (1)(i, ii, iii, iv) of this definition;

ii) Groundwater, including groundwater drained through subsurface drainage systems;

iii) Ephemeral features, including ephemeral streams, swales, gullies, rills and pools;

iv) Diffuse stormwater run-off and directional sheet flow over upland;

v) Ditches that are not waters identified in paragraph (1)(i or ii), and those portions of ditches that occur adjacent to wetlands that do not satisfy the conditions of paragraph (3)(i) of this definition;

vi) Prior converted cropland;

vii) Artificially irrigated areas, including fields flooded for agriculture production, that would revert to upland should application of irrigation water to that area cease;

viii) Artificial lakes and ponds, including water storage reservoirs and farm, irrigation, stock watering, and log cleaning ponds, constructed or excavated in upland or in non-jurisdictional waters, so long as those artificial lakes and ponds are not impoundments of jurisdictional water that meet the conditions of paragraphs (3) (vi) of this definition;

ix) Water-filled depressions constructed or excavated in upland or in non-jurisdictional waters incidental to mining or construction activity, and pits excavated in upland or in non-jurisdicional waters for the purpose of obtaining fill, sand, or gravel;

x) Stormwater control features constructed or excavated in upland or in non-jurisdictional waters to convey, treat, infiltrate, or store stormwater run-off;

xi) Groundwater recharge, water reuse, and wastewater recycling structures, including detention, retention, and infiltration basins and ponds, constructed or excavated in upland or in non-jurisdictional waters; and

xii) Waste treatment systems.

3. **Definitions.** Below is an excerpt of some definitions from 40 CFR § 120.2 related to this Project.

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

ii) *Upland.* The term upland means any land area that under normal cicrumstances does not satisfy all three wetland factors (i.e. hydrology, hydrophytic vegetation, hydric soils) identified in the wetlands definition, and does not lie below the ordinary high water mark or the high tide line of a jurisdictional water.

iii) *Wetlands.* The term wetlands means 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.

Wetlands Delineation Manual

In addition, the 1987 Corps of Engineers- Wetlands Delineation Manual states, “If hydrophytic vegetation is being maintained only because of (hu)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).

1.3.2 State

The State Water Resources Control Board’s (SWRCB) April 2019 *Procedures for Discharges of Dredged or Fill Material to Waters of the State* says, “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 April 2020 *Implementation Guidance for the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* further clarifies, "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 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). None of the state documents from 2019 or 2020 address ditches.

1.4 Summary

GHD conducted the aquatic resources delineation fieldwork on July 16th, July 31st (only upland soil pits dug, no data sheets collected), August 9th (only upland soil pits dug, no data sheets collected), August 11th, August 12th 2020 and on March 11th, March 25th, and March 26th, 2021. The delineation was conducted within the approximately 57.5-acre PSB, as shown in Figure 1 (Summer Wetland Delineation) and Figure 2 (Winter Wetland Delineation) of Appendix A. GHD field staff walked throughout the PSB to observe indications of potential United States (U.S.) Army Corps of Engineers (USACE) three-parameters wetlands (based on wetland indicative vegetation, hydric soils, and wetland hydrology), and top of bank boundaries of observed ditches. Six distinct three-parameter wetlands were observed and delineated using a three-parameter wetlands approach (further described below in Methodology), and a ditch (parallel to McKinleyville Avenue) was observed and its top of bank and flowline were delineated (mapped) based upon physical indicators.

Figure Set 1 in Appendix A shows the results of the summer deliniation. Figures 1.0, and 1.1 through 1.5, in Appendix A, show the specific areas investigated during the summer delination of 2020. Figures 2.0, and 2.1 through 2.5 in Appendix A, present the results of the winter investigation. Figures 2.1 through 2.5 in Appendix A show the specific locations and results of the 2021 winter groundwater monitoring at the site. Monitoring pits were dug by hand and depth to saturation was measured in order to make the wet/dry determinination. Where water saturation was found to be less than 12-inches below the surface, the pit was determined to be wet. If water was greater 12-inches below the surface, the pit was dry. Figure set 3 in Appendix A shows the difference between the summer and winter deliniations. Figures 3.0 and 3.1 through 3.5 in Appendix A show where Wetland 3 and Wetland 6 expanded in size, as well as the areas in which Wetland 3 decreased in size based on winter 2021 hydrology data.

Figure set 4 in Appendix A, Figures 4.0, and 4.1 through 4.5, present the final wetland delineation based on analysis of the data collected in the summer and winter investigations.Datasheets documenting conditions observed during the investigations are provided in Appendix B. Climatological data for 2020 can be found in Appendix C.

2. Methodology

2.1 Aquatic resources delineation approach

Two GHD staff (one botanist and one soil scientist) conducted the aquatic resources delineation. To define a wetland, the USACE requires that vegetation, soil, and hydrology (three-parameters) all show wetland attributes (USACE 1987; USACE 2010). The aquatic resources delineation used USACE criteria from the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region* (USACE 2010), and *A Guide to Ordinary High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States* (USACE 2014). The SWRCB also requires soils, vegetation and hydrology (three-parameters) to be present to be considered a State wetland.

Typically, vegetation, soil, and hydrology data are collected in a transect across the upland/wetland boundary with two plots (upland/wetland) per transect. In general, the naming convention used on datasheets to designate upland or wetland plots associated with a transect is -U or -W, respectively, along with the designaged wetlands (i.e. W1). Top of bank data is typically collected via visual indicators showcasing shelving, and/or the presence of litter and debris at a particular elevation.

Observed three-parameter wetland/upland boundaries and plots, and top of bank boundaries, are typically mapped in the field with a Trimble Geo 7X Handheld Global Positioning System (GPS) with the Global Navigation Satellite System (GNSS) capability running ArcPad geographic information system (GIS) software, which is attached to an external antenna to establish sub-meter accuracy.

Collected data is post-processed using GPS Pathfinder office, which referenced UNAVCO base stations. The points were then connected in the office using elevation data and ArcMap software for figure creation. Appendix B contains all datasheets recorded during the aquatic resources delineation mapping.

2.2 Botanical methodology

Vegetation data collection consisted of listing the dominant species in the herbaceous, shrub, and tree layer observed throughout the PSB. The species' wetland indicator status for the Western

Mountains, Valleys, and Coast Region was then denoted in the respective column, using the standard reference: *State of California 2016 Wetland Plant List* (Lichvar et al. 2016). This list classifies species based on the probability that they are found in wetlands (USACE 1987), ranging from Obligate (almost always in wetlands) [OBL], Facultative/wet (67% to 99% in wetlands) [FACW], Facultative (34% to 66% in wetlands) [FAC], Facultative/up (1% to 33% in wetlands) [FACU], or Uplands (less than 1% in wetlands) [UP]. Species that do not appear on the list are considered to be in the upland category (Lichvar et al. 2016). 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). At some transects the prevalence indices were calculated.

2.3 Soils methodology

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). Soil pits were dug to an approximate depth of between 13 and 17 inches in various locations to confirm uplands or hydric soils. 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 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).

2.3.1 Existing Soils Information

The U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) identifies two soil units within the PSB: Halfbluff-Tepona-Urban Land(0 to 2 percent slopes), and Arcata and Candymountain soils (0 to 2 percent slopes), (see Figure 5 in Appendix A). A brief map unit description, as generated by the NRCS, is provided for each soil unit below (NRCS 2020).

While the soil units are informative, the mapping scales are usually too broad to characterize the small scale of the PSB features accurately.

Halfbluff-Tepona-Urban Land, 0 to 2 percent slopes

The map unit composition is as follows: 35 percent Halfbluff and similar soils, 30 percent Tepona and similar soils, 25 percent Urban Land, residential and 10 percent minor components. The Halfbluff-Tepona soil type setting includes marine terraces, backslopes or tread of marine deposits derived from sedimentary rock parent material. The Urban Land soil setting includes alluvial fans.

For the Halfbluff portion of the soil complex, depth to a restrictive feature is more than 80 inches. The natural drainage class is moderately well-drained. The depth to the water table is approximately 30 to 39 inches. There is no inherent ponding or flooding frequency. The available water storage in a soil profile is moderate, or about 7.9 inches, and the capacity of the most limiting layer to transmit water is moderately high to high, or about 0.60 to 2.00 inches per hour. Irrigated land capability classification is 1, and non-irrigated land capability classification is 2s1. The hydrologic soil group is C. The soil series unit is inherently not hydric.

For the Tepona portion of the soil complex, depth to a restrictive feature is more than 80 inches. The natural drainage class is moderately well-drained. The depth to the water table is approximately 30 to 39 inches. There is no inherent ponding or flooding frequency. The available water storage in a soil profile is high, or about 9.4 inches, and the capacity of the most limiting layer to transmit water is moderately high to high, or about 0.60 to 2.00 inches per hour. Irrigated land capability classification is not specified, and non-irrigated land capability classification is 2s. The hydrologic soil group is C. The soil series unit is inherently not hydric.

For the Urban Land portion of the soil complex, depth to a restrictive, drainage classes and frequency of ponding or flooding is not stated. Irrigated land capability classification is not specified, and non-irrigated land capability classification is 8. The hydrologic soil group is not stated. The soil series unit is not considered hydric.

The descriptions of the minor components are as follows: five percent Talawa (considered hydric), three percent Tillas (not considered hydric), and two percent Hookton (not considered hydric) (NRCS 2020).

Arcata and Candymountain soils, 0 to 2 percent slopes

The map unit composition is as follows: 50 percent Arcata and similar soils, 35 percent Candymountain and similar soils, and 15 percent minor components. The Arcata and Candymountain soil setting includes marine terraces, backslopes or tread of marine deposits derived from mixed sources of parent material.

For Arcata soil, depth to a restrictive feature is more than 80 inches. The natural drainage class is well-drained. The depth to the water table is more than 80 inches. There is no inherent frequency of ponding or flooding. The available water storage in a soil profile is moderate, or about 8.9 inches, and the capacity of the most limiting layer to transmit water is moderately high to high, or about 0.60 to 2.00 inches per hour. Irrigated land capability classification is 1 and non-irrigated land capability classification is 2s. The hydrologic soil group is B. The soil series unit is inherently not hydric.

For Candymountain soil, depth to a restrictive feature is more than 80 inches. The natural drainage class is well-drained. The depth to the water table is more than 80 inches. There is no inherent frequency of ponding or flooding. The available water storage in a soil profile is moderate, or about 8.9 inches, and the capacity of the most limiting layer to transmit water is moderately high to high, or about 0.60 to 2.00 inches per hour. Irrigated land capability classification is not specified and non-irrigated land capability classification is 2s. The hydrologic soil group is B. The soil series unit is inherently not hydric.

The descriptions of the minor components, which are mostly inherently not hydric except for the Talawa soil series, are as follows: four percent Urban land, three percent Timmons, three percent Halfbluff, three percent Megwil, and two percent Talawa (NRCS 2020).

2.3.2 Precipitation and Hydrology

GHD performed the investigation on July 16th, July 31st, August 9th, August 11th, and August 12th 2020. A National Environmental Satellite (NES) station exists approximately one mile south of the Project, and the record of climateological observation for 2020 (NCEI 2020) is provided in Appendix C. Weather data from the McKinleyville 2.7 SE NES station recorded: zero inches of precipitation to have fallen in the last 14-days, and zero precipitation falling the day of the July 16th 2020 survey; and : 0.17-inches of precipitation to have fallen in the last 14-days, and trace precipitation falling the day of the August 11th 2020 survey and zero precipitation falling the day of the August 12th 2020 survey (Appendix C NCEI 2020).

GHD returned on March 11th, March 25th, and March 26th, 2021 for additional delineation investigations. Precipitation data recorded at the McKinleyville 2.7 SE NES station for the 2021 monitoring dates are provided in Table 1, including total rainfall accumulation to that date in the 2021 water year (WY), from October 1, 2020 to September 30, 2021. GHD's monitoring started on March 11th, and precipitation for WY 2021 was 53.79% of annual average (46.25-inches).

Table 1. McKinleyville Precipitation for WY 2021

Date	Daily Rainfall (inches)	Cummulative WY Rainfall to Date (inches)	Percent of Annual Average (46.25")
2/18/2021	0.74	21.34	46.14%
2/26/2021	0.02	21.97	47.50%
3/11/2021	**0.00**	**24.88**	**53.79%**
3/25/2021	**Trace**	**26.26**	**56.78%**
3/26/2021	**0.00**	**26.26**	**56.78%**

Table 2 presents NRCS WETS table data for the years 1998-2021. The NRCS WETS data includes the mean monthly below normal, normal, and above normal precipitation values for the period of 1998-2021 (AgACIS 2021).

Table 2. McKinleyville CA WETS table 1998-2021

Average Precipitation (inches)			
Month	30% Chance to be Below Normal	Normal (Average)	30% Chance to be Above Normal
January	4.65	7.11	8.54
February	4.00	6.75	8.2
March	4.58	6.58	7.82
April	2.47	3.92	4.73
May	0.88	1.94	2.36
June	0.29	0.87	1.00
July	0.04	0.16	0.16
August	0.06	0.20	0.23
September	0.27	0.91	1.02
October	1.09	2.99	3.6
November	3.94	5.96	7.15
December	5.28	8.86	10.75
Total	**27.55**	**46.25**	**55.56**

McKinleyville precipitation data for for the 2021 WY is shown in Figure 2.3.2. Below normal, normal, and above normal rainfall data from the WETS Table for McKinleyville, are shown for comparison.

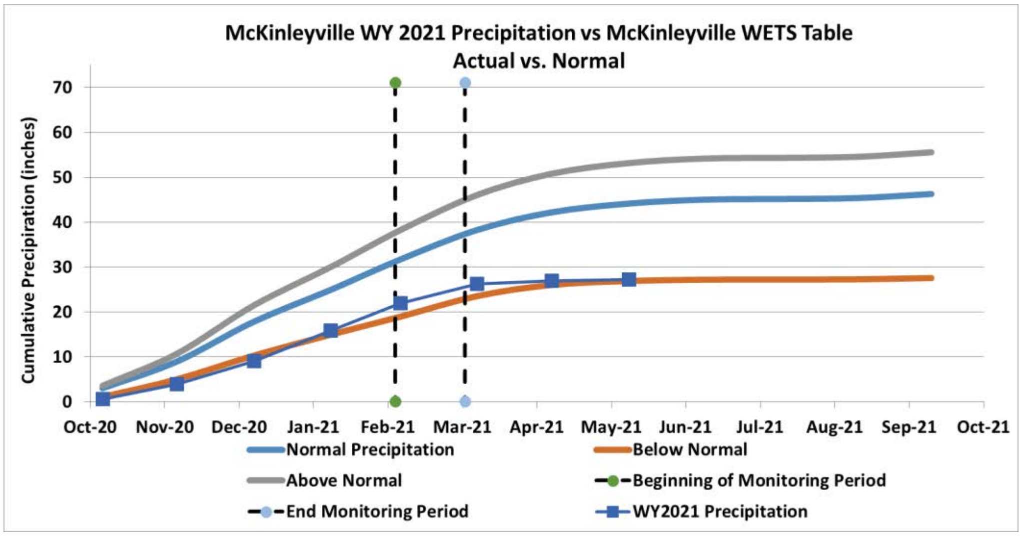

Figure 2.3.2. McKinleyville CA WY 2021 Precipitation and WETS graph

The National Wetland Inventory Mapper and aerial impagery were referenced before conducting fieldwork and is included as Figure 6 in Appendix A (NWI 2020). According to the National Wetland Invetory Mapper, palustrine emergent wetlands exist in the central and western portions of the PSB. The Project is located outside of the 100-year (or 1%) flood zone, and the FEMA flood hazard map is also included as Figure 7 in Appendix A. Observed primary and secondary wetland hydrology indicators, such as sediment deposits (primary indicator), and geomorphic position and FAC-Neutral test (secondary indicators), were recorded on the data sheets in the field.

Hydrology within the PSB includes an intermittent ditch along the western property boundary. An additional intermittent ditch exists adjacent to the property boundary along Hiller Road. The site hydrology is affected by surface runoff from the shopping center and ditch and surface runoff from Hiller Road.

3. Results

The PSB was surveyed, and six three-parameter wetlands (W1 through W6), and one aqaquatic resources (a ditch) was observed (see Figure set 1, 2, 3, and 4 in Appendix A). A total of 18 upland, and 16 wetland plots were observed for hydrophytic vegetation, hydric soils and wetland hydrology. Six wetlands were observed, three of which are isolated wetlands (W1, W2 and W4). The ditch located along McKinleyville Avenue is likely regulated as an aquatic resources by USACE, and is likely regulated by the Regional Water Quality Control Board. Consultation with agencies is necessary to determine jurisdictional status. Acreages of aquatic resources are presented below in Table 3.

An upland pit was dug in conjunction with each wetland plot to determine the extent of wetland influence and boundary of upland areas. Two additional upland plots were dug along Railroad Avenue (northern property boundary is a ditch) to determine soil characteristics, which yielded upland soils. Throughout the PSB, the upland pits generally have chromas greater than 2 with the majority containing chromas of 3, and a few areas containing soils with chromas of 4. Some upland pits exhibited redoximorphic features, however the soil chromas were greater than 2 and therefore the upland pits are not considered hydric soils, or three-parameter wetlands. Typical soil colors in upland plots were observed as 10 YR 3/2, 10 YR 3/3 and 10 YR 2/2. Common vegetation observed at upland plots include: *Rubus ursinus* (California blackberry), *Holcus lanatus* (velvet grass), *Anthoxanthum odoratum* (sweet vernal grass), *Agrostis stolonifera* (creeping bentgrass), and *Lotus corniculatus* (bird's-foot trefoil).

Wetland plots generally had chromas of 2 or less, and contained redoximorphic features. Typical soil colors in wetland plots were observed as 10 YR 3/2, 10 YR 2/1, and 10 YR 2/2. The colors of redoximorphic features were typically observed as 7.5 YR 4/6, 7.5 YR 3/4, and 7.5 YR 4/4. Common vegetation observed at wetland plots include: *Agrostis stolonifera* (creeping bentgrass), *Lotus corniculatus* (bird's-foot trefoil), *Juncus hesperius* (coast rush), *Ranunculus repens* (creeping buttercup), and *Holcus lanatus* (velvet grass). Wetland hydrology was present in the wetland plots, due to either primary indicators including sediment deposits, or more commonly due to secondary indicators including geomorphic position, or a FAC-Neutral Test.

Table 3. Acreages of Aquatic Resources in PSB

Aquatic Resource	Summer Delineation 2020 (Acreage)	Final Delineation 2021 (Acreage)
Wetland 1 (W1)	0.12	0.12
Wetland 2 (W2)	0.03	0.03
Wetland 3 (W3)	4.48	3.69
Wetland 4 (W4)	0.04	0.04
Wetland 5 (W5)	0.65	0.75
Wetland 6 (W6)	0.21	0.21
Top of Bank (TOB)	0.15	0.15

Wetland 1 is entirely resultant of runoff from the shopping center to the east. Drainage from the center flows into drop inlets and into a stormwater system. This culvert discharges onto the property about 110 feet west of the easterly property boundary. This wetland is entirely fed from stormwater runoff, containing debris and refuse and appears to be dug per it's linear shape. Stormwater infiltration occurs within this wetland area. Vegetation in this wetland is predominantly nonnative species. Wetland 1 does not reach Wetland 3, and is not continuous. The quality of Wetland 1 is considered low.

Wetlands 2 and 4 are isolated wetlands with no apparent inlet or outlet and do not appear to be hydrologically connected to other wetlands on the property (no obvious topographic low area, channel, etc.). Vegetation in these wetlands is predominantly nonnative species. The quality of these wetlands is considered low to medium.

Wetland 3 is a south east to north west trending swale, that appears to take surface runoff from the east, and ditch road (Hiller) runoff from the south. The ditch on the north side of Hiller road is intermittent and not continuous. The ditch exists east of the commencement of Wetland 3, but then ceases to exist. The westerly flowing water in the existing ditch, and likely stormwater runoff from Hiller Road, discharges onto the site. Wetland 3 appears to be significantly affected by the ditch and road stormwater runoff. Humboldt County (the County) is responsible for the ditch maintenance on the ditches associated with Railroad Drive, McKinleyville Avenue and Hiller Road. In Fall 2020, the County conducted maintenance on the ditch along Hiller Road, potentially resulting in decreased flows running across the PSB causing Wetland 3 to shrink in some areas and expand in others. Vegetation in this wetland is predominantly nonnative species. The quality of Wetland 3 is considered to be medium.

Allegedly Wetlands 5 and 6 were dug out to collect surface water from the site into a low area prior to discharge into the McKinleyville Avenue ditch. Areas of these wetlands do appear to have been excavated as some of the wetlands are very linear (portion of Wetland 5). These wetlands connect prior to discharge into the McKinleyville Avenue ditch. Vegetation in these wetlands is predominantly nonnative species. The quality of Wetlands 5 and 6 is considered low to medium.

4. Special Terms and Conditions

4.1 Purpose of this Report

GHD prepared this report for the Pierson Company, and the Pierson Company may only use and rely on this report for the purpose agreed upon between GHD and the Pierson Company, 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 Pierson Company arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

4.1 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, agency-stamped, delineation map, and a jurisdictional approval letter are 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 on July 16th, July 31st, August 9th, August 11th and August 12th, 2020 and on March 11th, March 25th, and March 26th, 2021. 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.

5. References

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Appendices

Appendix A – Figures

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Feet

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Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

Pierson Company
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Summer Wetland Delineation Overview

Project No. **11203183**
Revision No. **-**
Date **05/18/2021**

FIGURE 1.0

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Map Projection: Lambert Conformal Conic
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Revision No. **-**
Date **5/18/2021**

Summer Wetland Delineation

FIGURE 1.1

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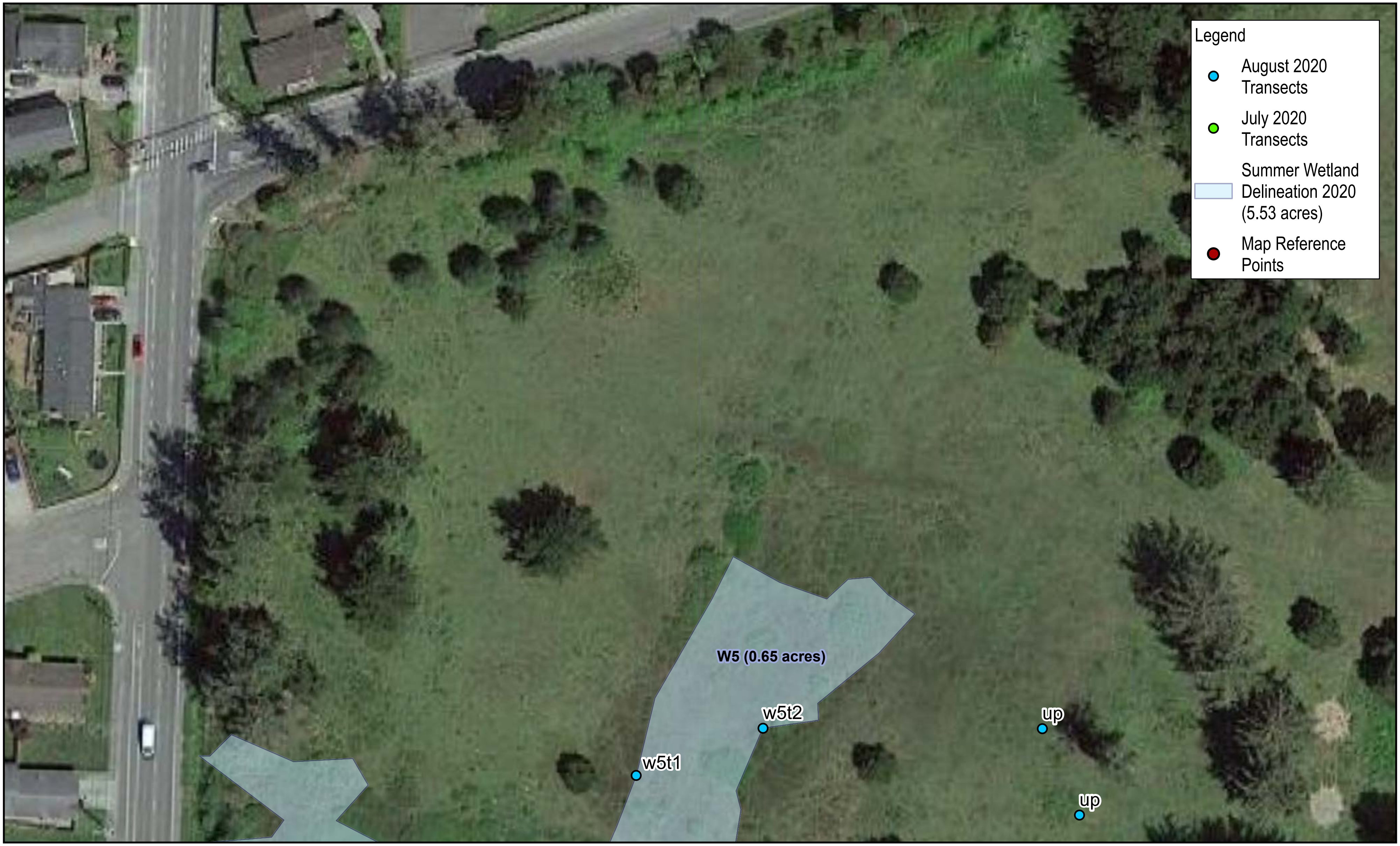

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Summer Wetland Delineation

Project No. **11203183**
Revision No. **-**
Date **5/18/2021**

FIGURE 1.2

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Revision No. **-**
Date **5/18/2021**

Summer Wetland Delineation

FIGURE 1.3

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Revision No. **-**
Date **5/18/2021**

Summer Wetland Delineation

FIGURE 1.4

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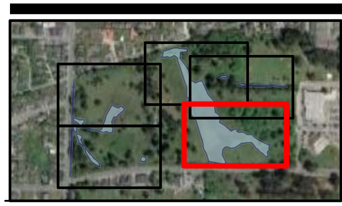

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Revision No. **-**
Date **5/18/2021**

Summer Wetland Delineation

FIGURE 1.5

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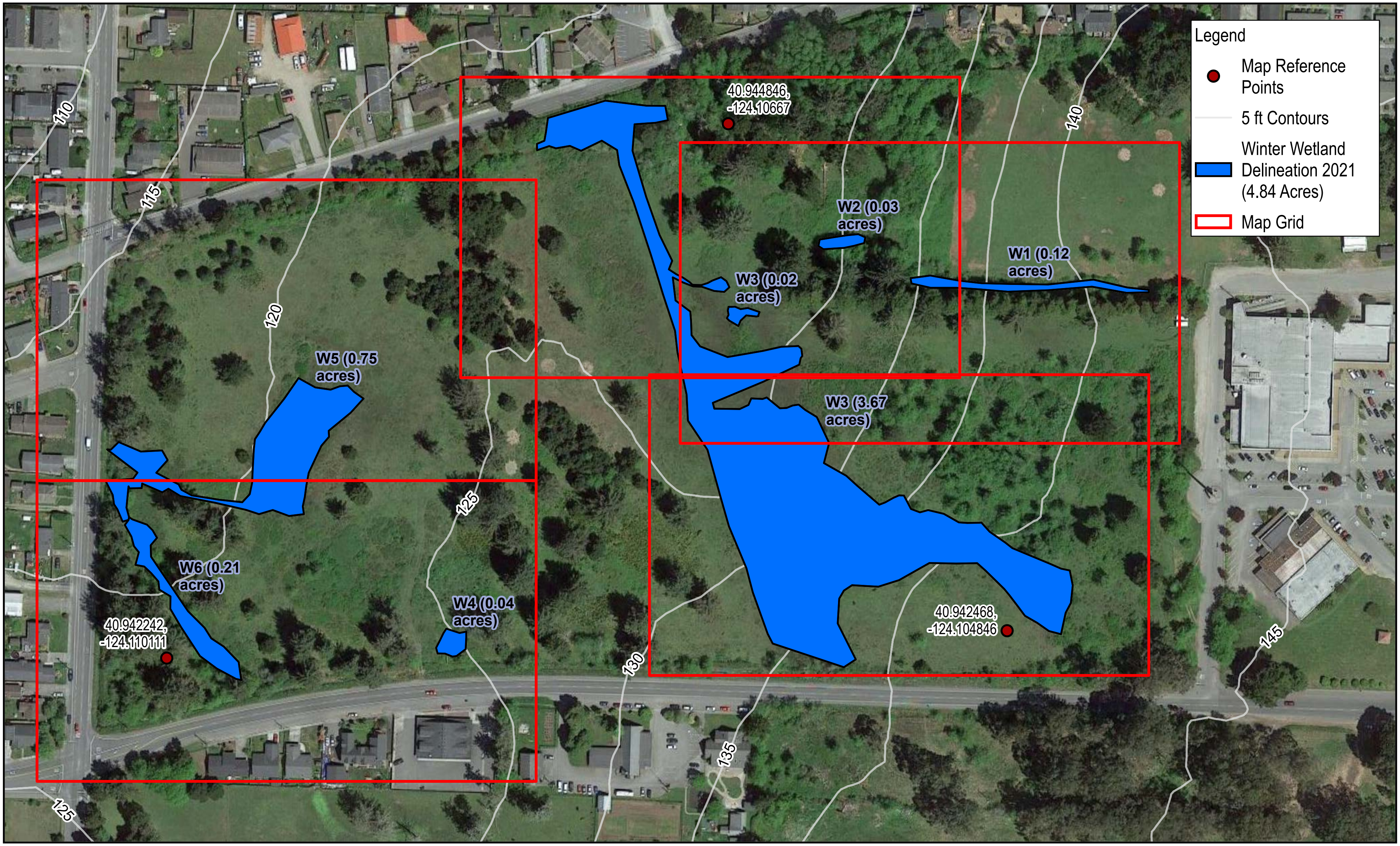

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Winter Wetland Delineation Overview

Project No. **11203183**
Revision No. **-**
Date **05/18/2021**

FIGURE 2.0

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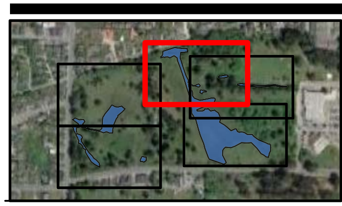

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Winter Wetland Delineation

Project No. **11203183**
Revision No. **-**
Date **05/18/2021**

FIGURE 2.1

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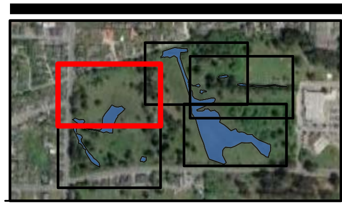

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Winter Wetland Delineation

Project No. **11203183**
Revision No. **-**
Date **05/18/2021**

FIGURE 2.2

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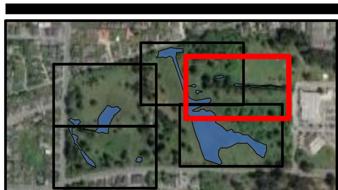

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Project No. **11203183**
Revision No. **-**
Date **05/18/2021**

Winter Wetland Delineation

FIGURE 2.3

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Winter Wetland Delineation

Project No. **11203183**
Revision No. **-**
Date **05/18/2021**

FIGURE 2.4

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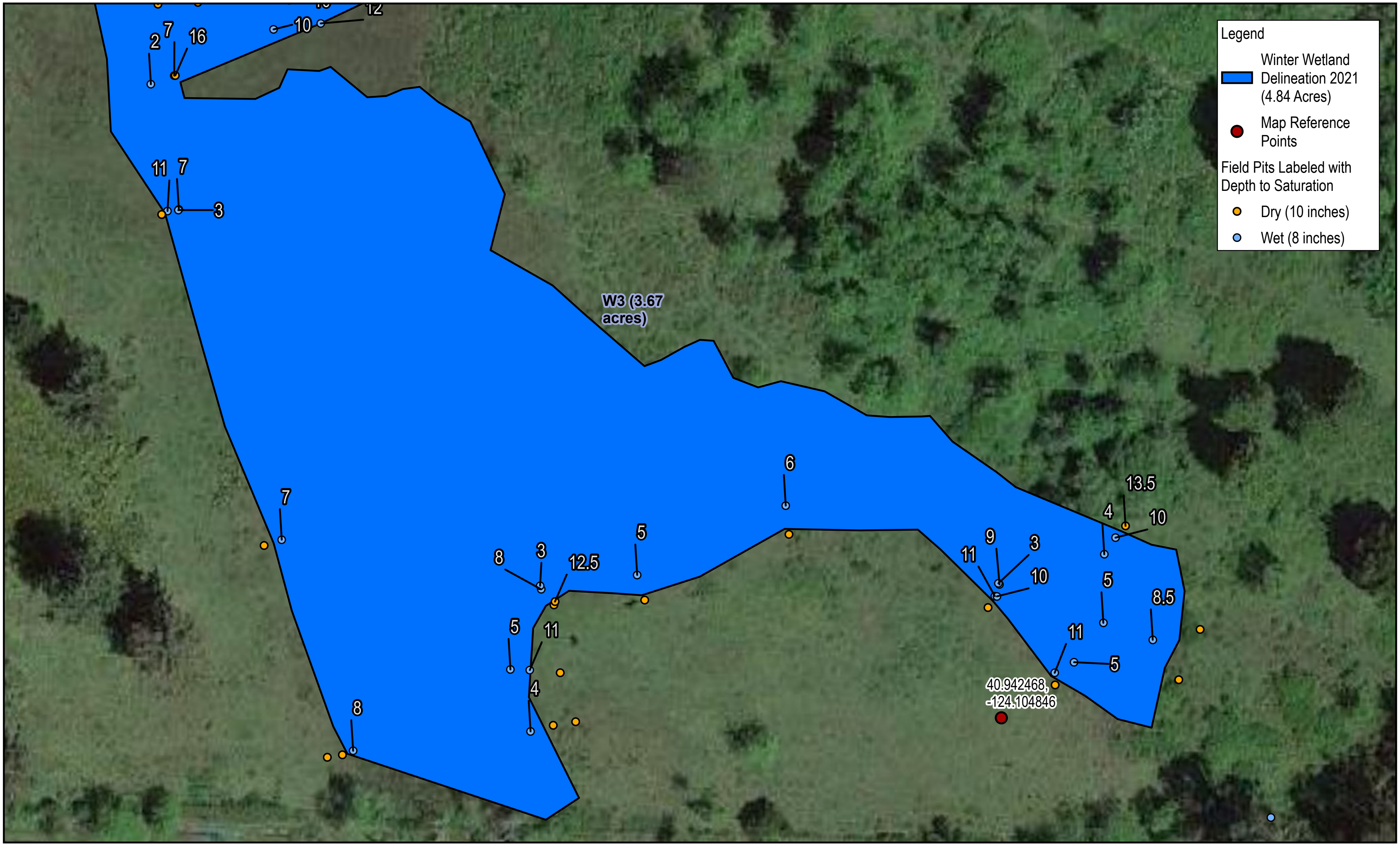

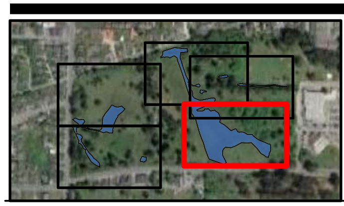

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Project No. **11203183**
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Date **05/18/2021**

Winter Wetland Delineation

FIGURE 2.5

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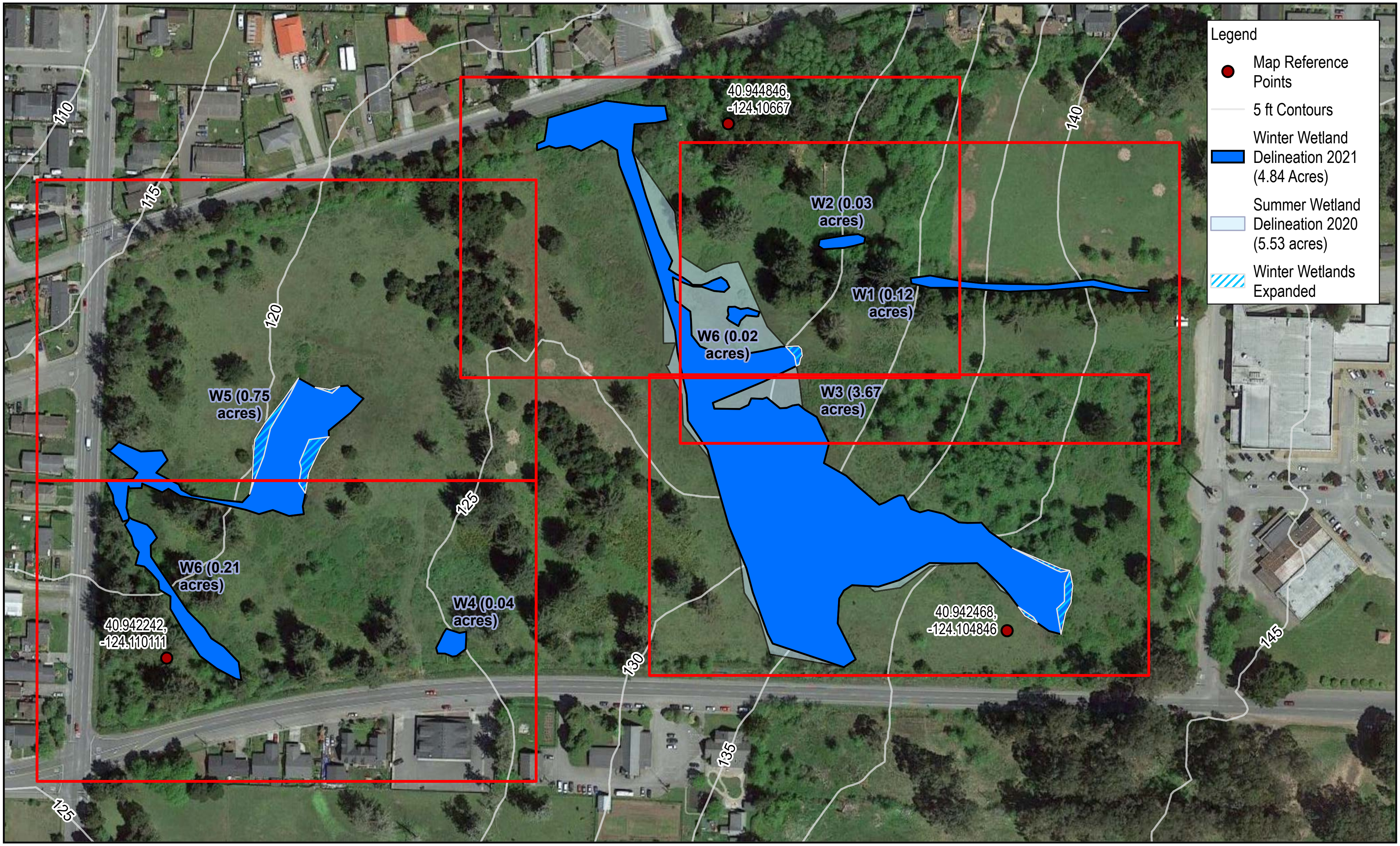

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Difference Between Summer and Winter Wetland Delineations

Project No. **11203183**
Revision No. **-**
Date **05/18/2021**

FIGURE 3.0

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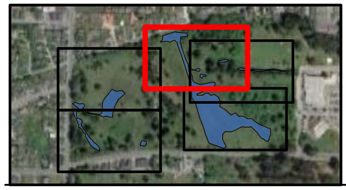

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Pierson Consulting As Requested

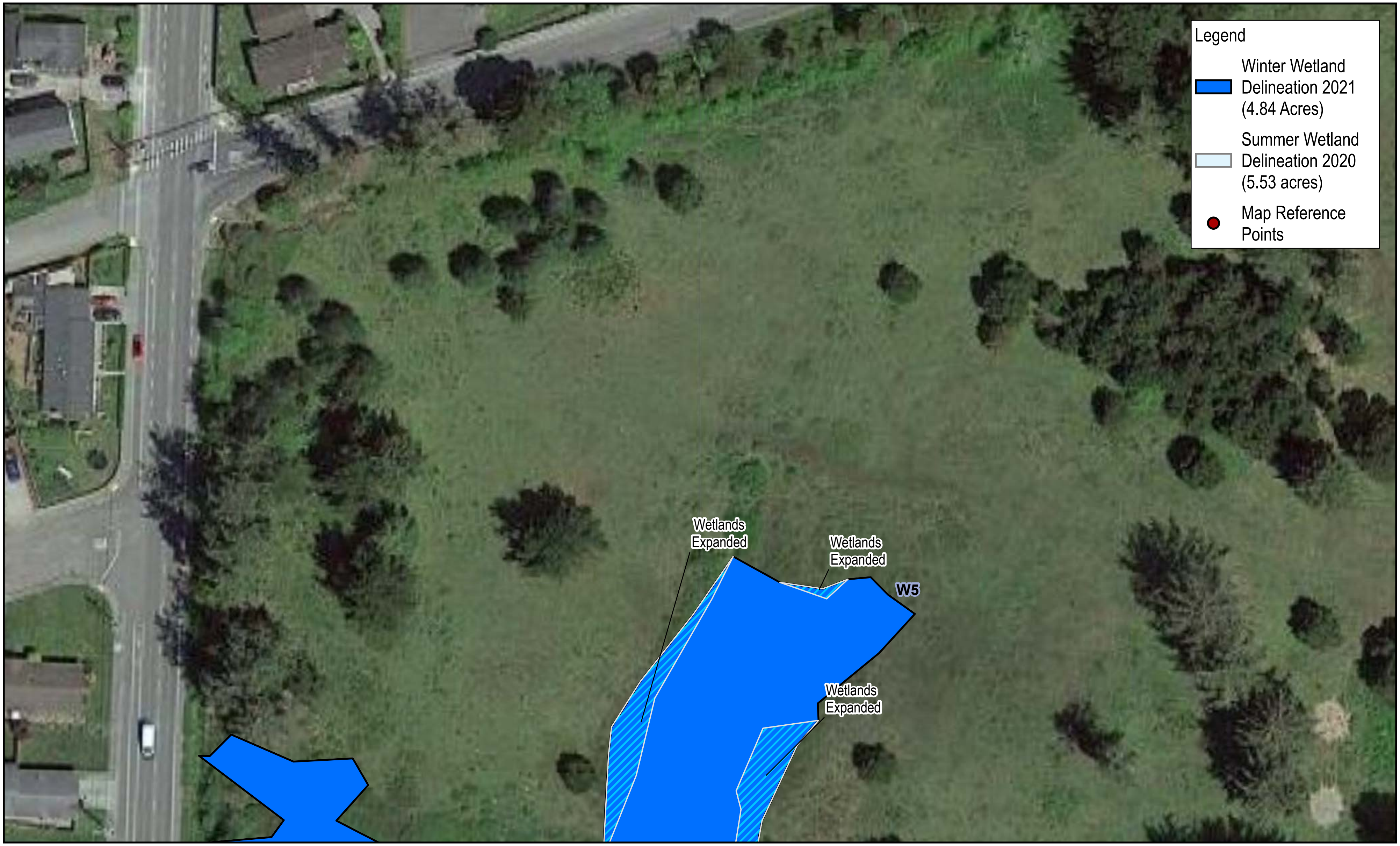
Difference Between Summer and Winter Wetland Delineations

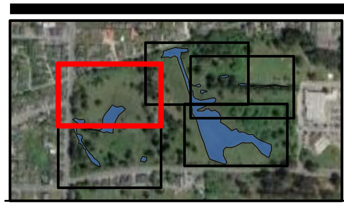
Project No. **11203183**
Revision No. **-**
Date **04/14/2021**

FIGURE 3.1

G:\561\11203183\GIS\Maps\Deliverables\11203183_Piersons_WetDel\11203183_WetDelFigures_May.aprx
Print date: 19 May 2021 - 10:11

Data source: Google Maps Sat: © OpenStreetMap (and) contributors, CC-BY-SA. Created by: zporteous





Paper Size ANSI A

0 20 40 60 80

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

N

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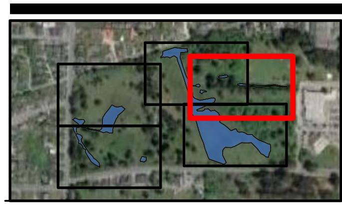
Pierson Company
Pierson Consulting As Requested

Difference Between Summer and Winter Wetland Delineations

Project No. **11203183**
Revision No. **-**
Date **04/14/2021**

FIGURE 3.2

G:\561\11203183\GIS\Maps\Deliverables\11203183_Piersons_WetDel\11203183_WetDelFigures_May.aprx
Print date: 19 May 2021 - 10:11



Paper Size ANSI A

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Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

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Pierson Company
Pierson Consulting As Requested

Project No. 11203183
Revision No. -
Date 04/14/2021

Difference Between Summer and Winter Wetland Delineations

FIGURE 3.3

G:\561\11203183\GIS\Maps\Deliverables\11203183_Piersons_WetDel\11203183_WetDelFigures_May.aprx
Print date: 19 May 2021 - 10:11

Data source: Google Maps Sat: © OpenStreetMap (and) contributors, CC-BY-SA. Created by: zporteous

Paper Size ANSI A

0 20 40 60 80

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

N

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Pierson Company
Pierson Consulting As Requested

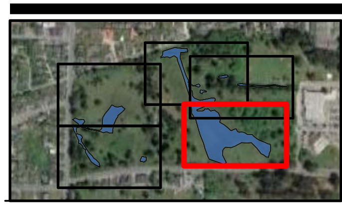
Difference Between Summer and Winter Wetland Delineations

Project No. **11203183**
Revision No. **-**
Date **04/14/2021**

FIGURE 3.4

G:\561\11203183\GIS\Maps\Deliverables\11203183_Piersons_WetDel\11203183_WetDelFigures_May.aprx
Print date: 19 May 2021 - 10:11

Data source: Google Maps Sat: © OpenStreetMap (and) contributors, CC-BY-SA. Created by: zporteous



Paper Size ANSI A

0 20 40 60 80

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

N

Pierson Company
Pierson Consulting As Requested

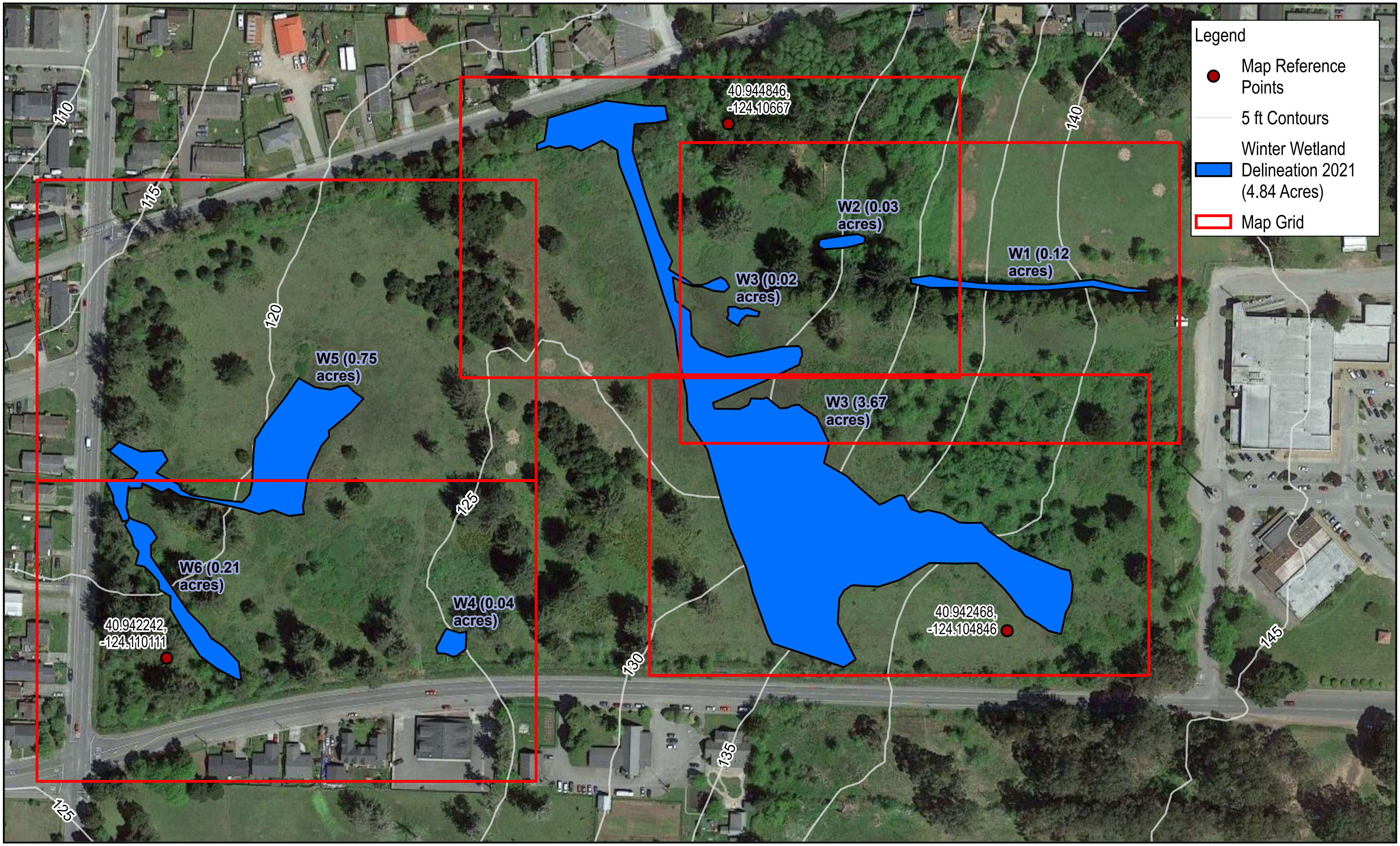
Difference Between Summer and Winter Wetland Delineations

Project No. **11203183**
Revision No. **-**
Date **04/14/2021**

FIGURE 3.5

G:\561\11203183\GIS\Maps\Deliverables\11203183_Piersons_WetDel\11203183_WetDelFigures_May.aprx
Print date: 19 May 2021 - 10:12

Data source: Google Maps Sat: © OpenStreetMap (and) contributors, CC-BY-SA. Created by: zporteous



Paper Size ANSI A

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Feet

N

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

GHD

Pierson Company
Pierson Consulting As Requested

Final Wetland Delineation Overview

Project No. **11203183**
Revision No. **-**
Date **05/18/2021**

FIGURE 4.0

G:\561\11203183\GIS\Maps\Deliverables\11203183_Piersons_WetDel\11203183_WetDelFigures_May.aprx
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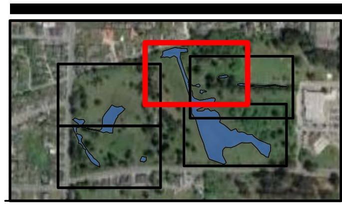


Paper Size ANSI A

0 20 40 60 80

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

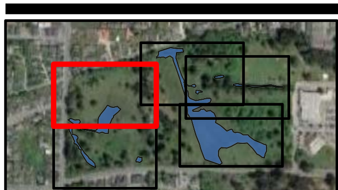
N

Pierson Company
Pierson Consulting As Requested

Final Wetland Delineation

Project No. **11203183**
Revision No. **-**
Date **05/14/2021**

FIGURE 4.1



Paper Size ANSI A

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Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

N

Pierson Company
Pierson Consulting As Requested

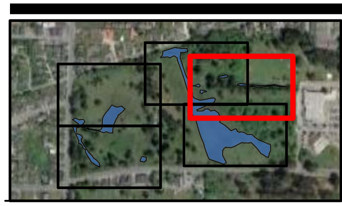
Final Wetland Delineation

Project No. **11203183**
Revision No. **-**
Date **05/14/2021**

FIGURE 4.2

G:\561\11203183\GIS\Maps\Deliverables\11203183_Piersons_WetDel\11203183_WetDelFigures_May.aprx
Print date: 19 May 2021 - 10:20

Data source: Google Maps Sat: © OpenStreetMap (and) contributors, CC-BY-SA. Created by: zporteous



Paper Size ANSI A

0 20 40 60 80

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

N

GHD

Pierson Company
Pierson Consulting As Requested

Final Wetland Delineation

Project No. **11203183**
Revision No. **-**
Date **05/14/2021**

FIGURE 4.3

G:\561\11203183\GIS\Maps\Deliverables\11203183_Piersons_WetDel\11203183_WetDelFigures_May.aprx
Print date: 19 May 2021 - 10:20

Data source: Google Maps Sat: © OpenStreetMap (and) contributors, CC-BY-SA. Created by: zporteous

Paper Size ANSI A

0 20 40 60 80

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

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Pierson Company
Pierson Consulting As Requested

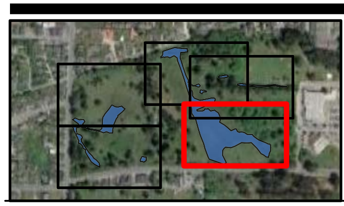
Final Wetland Delineation

Project No. **11203183**
Revision No. **-**
Date **05/14/2021**

FIGURE 4.4

G:\561\11203183\GIS\Maps\Deliverables\11203183_Piersons_WetDel\11203183_WetDelFigures_May.aprx
Print date: 19 May 2021 - 10:20

Data source: Google Maps Sat: © OpenStreetMap (and) contributors, CC-BY-SA. Created by: zporteous



Paper Size ANSI A
0 20 40 60 80
Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

N

Pierson Company
Pierson Consulting As Requested

Final Wetland Delineation

Project No. **11203183**
Revision No. **-**
Date **05/14/2021**

FIGURE 4.5

G:\561\11203183\GIS\Maps\Deliverables\11203183_Piersons_WetDel\11203183_WetDelFigures_May.aprx
Print date: 19 May 2021 - 10:20

Data source: Google Maps Sat: © OpenStreetMap (and) contributors, CC-BY-SA. Created by: zporteous

Paper Size ANSI A

0 100 200 300

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

N

Pierson Company
Consulting As-Requested

Project No. **11203183**
Revision No. **-**
Date **Sept 2020**

Soil Map Units

FIGURE 5

G:\561\11203183\GIS\Maps\Deliverables\11203183_Piersons_WetDel\11203183_Piersons_WetDel.aprx - 11203183_005_Soils
Print date: 01 Jul 2021 - 09:52

Data source: World Imagery (Clarity): Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community;World_Transportation: Esri, HERE, iPC.
Created by: zporteous

Paper Size ANSI A

0 100 200 300

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

N

Pierson Company
Consulting As-Requested

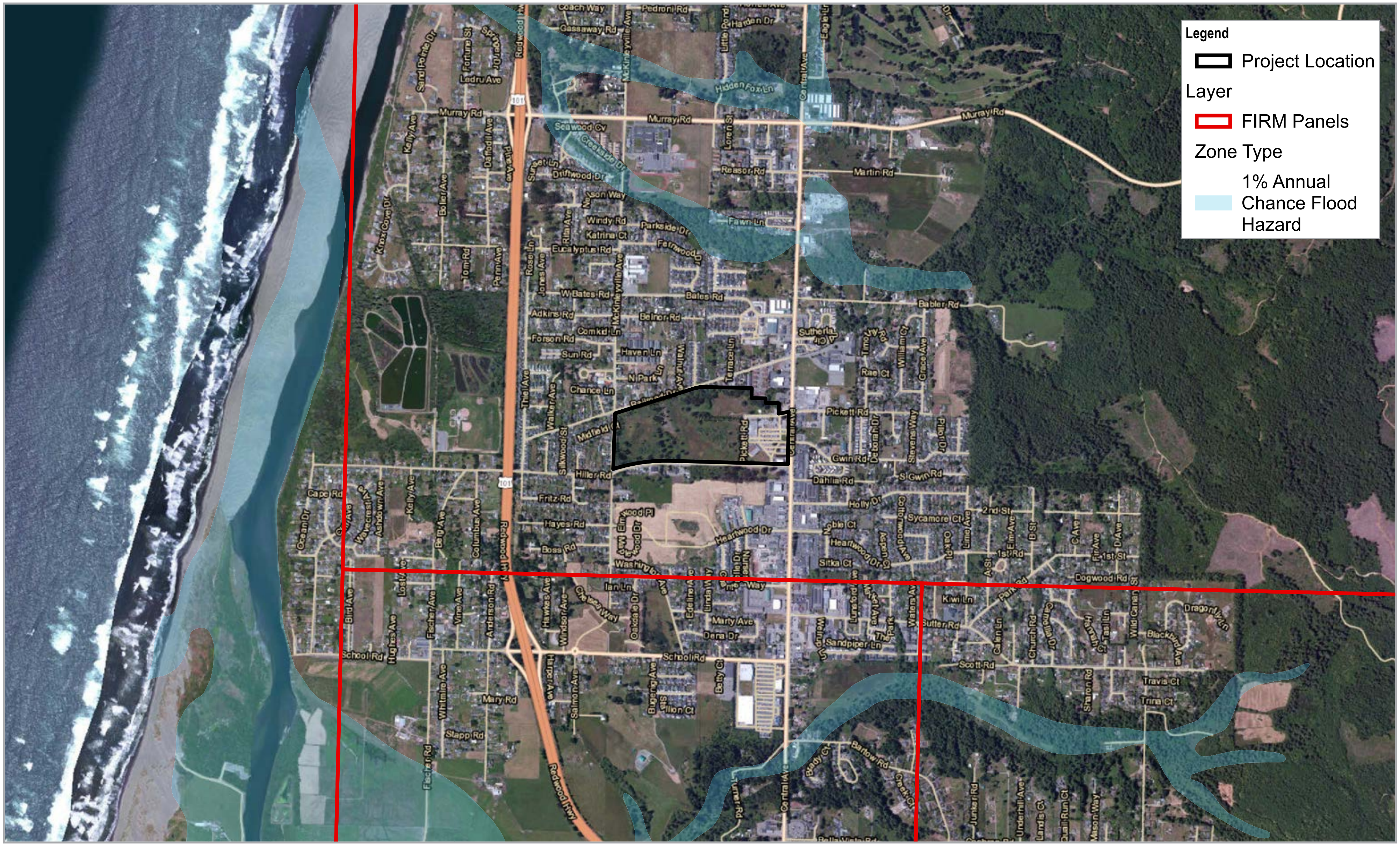
Project No. **11203183**
Revision No. **-**
Date **Sept 2020**

National Wetland Inventory

FIGURE 6

G:\561\11203183\GIS\Maps\Deliverables\11203183_Piersons_WetDel\11203183_Piersons_WetDel.aprx - 11203183_006_NWI
Print date: 01 Jul 2021 - 09:55

Data source: World Imagery (Clarity): Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community;World_Transportation: Esri, HERE, iPC;USA Wetlands: This work is licensed under the Esri Master License Agreement. View Summary | View Terms of Use Important Note: This item requires an ArcGIS Online organizational subscription or an ArcGIS Developer account and does not consume credits. To access this



Paper Size ANSI A

0 500 1,000 1,500 2,000

Feet

N

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

Pierson Company
Consulting As-Requested

Project No. **11203183**
Revision No. **-**
Date **Sept 2020**

FEMA Flood Map

FIGURE 7

G:\561\11203183\GIS\Maps\Deliverables\11203183_Piersons_WetDel\11203183_Piersons_WetDel.aprx - 11203183_007_FEMA
Print date: 01 Jul 2021 - 09:55

Data source: World Imagery (Clarity): Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community;World_Transportation: Esri, HERE, iPC.
Created by: zporteous

Appendix B – Data Sheets

1

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

Project/Site: Pierson City/County: McKinleyville Sampling Date: 7/16/20

Applicant/Owner: ______ State: CA Sampling Point: W1T1Up

Investigator(s): Misha Schwarz, Kelsey McDonald Section, Township, Range: ______

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

Subregion (LRR): A Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: ______ NWI classification: ______

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

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

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

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

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

Remarks: Upland plot 5ft from wetland edge

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 m²)			
1. Rubus ursinus	45	Y	FACU
2. Rubus armeniacus	10		FAC
3.			
4.			
5.			
	55	= Total Cover	
Herb Stratum (Plot size: 1 m²)			
1. Raphanus raphanistrum	5		UPL
2. Leucanthemum vulgare	6		FACU
3. Holcus lanatus	30	Y	FAC
4. Crepis capillaris	2		FACU
5. Ranunculus repens	5		FAC
6.			
7.			
8.			
9.			
10.			
11.			
	48	= Total Cover	
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	103	= Total Cover	
% Bare Ground in Herb Stratum Ø			

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: Does not pass Dominance Test. Does not pass FAC-Neutral.

SOIL

McK 7/16/20 Sampling Point: WIT1-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 %	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR3/3	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: Pierson City/County: McKinleyville Sampling Date: 7/16/20
Applicant/Owner: ______ State: CA Sampling Point: W1T1Wet
Investigator(s): M. Schwarz, K. McDonald Section, Township, Range: ______
Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): concave Slope (%): <2
Subregion (LRR): A Lat: ______ Long: ______ Datum: ______
Soil Map Unit Name: ______ NWI classification: ______
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)
Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___
Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Plot 5ft from wetland edge

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: 1m²)			
1. Rubus ursinus	5	Y	FACU
2.			
3.			
4.			
5.			
= Total Cover	5		
Herb Stratum (Plot size: 1m²)			
1. Agrostis stolonifera	40	Y	FAC
2. Potentilla anserina	10		OBL
3. Rumex crispus	8		FAC
4. Trifolium repens	2		FAC
5. Plantago major	5		FAC
6. Holcus lanatus	5		FAC
7. Cyperus eragrostis	4		FACW
8. Ranunculus repens	30	Y	FAC
9.			
10.			
11.			
= Total Cover	104		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum Ø			

Dominance Test worksheet:

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

___ 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 Dominance Test. Does not pass FAC-Neutral.

SOIL

M ck 7/16/20 Sampling Point: WTI-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
0-3	10YR3/2	100	—	—	—		loam	↑ Organics
3-14	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)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- X 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 ___ Depth (inches): ______

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

Saturation Present? (includes capillary fringe) Yes ___ No ___ 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: Pierson City/County: McKinleyville Sampling Date: 7/16/20
Applicant/Owner: ______ State: CA Sampling Point: WIT2UP
Investigator(s): Misha Shwarz, Kelsey McDonald Section, Township, Range: ______
Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): concave Slope (%): ≤5
Subregion (LRR): A Lat: ______ Long: ______ Datum: ______
Soil Map Unit Name: ______ NWI classification: ______
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: 3ft from wetland edge

VEGETATION – Use scientific names of plants.

Stratum / Species	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
		= Total Cover	
Sapling/Shrub Stratum (Plot size: 1m²)			
1. Rubus armeniacus	8		FAC
2. Rubus ursinus	35	Y	FACU
3.			
4.			
5.			
	43	= Total Cover	
Herb Stratum (Plot size: 1m²)			
1. Holcus lanatus	30	Y	FAC
2. Lotus corniculatus	15	Y	FAC
3. Ranunculus repens	10		FAC
4. Agrostis stolonifera	10		FAC
5. Anthoxanthum odoratum	5		FACU
6. Crepis capillaris	5		FACU
7. Plantago lanceolata	2		FACU
8.			
9.			
10.			
11.			
	77	= Total Cover	
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
	120	= Total Cover	
% Bare Ground in Herb Stratum Ø			

Dominance Test worksheet:

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	Ø	x 1 =
FACW species	Ø	x 2 =
FAC species	73	x 3 = 219
FACU species	47	x 4 = 188
UPL species	Ø	x 5 =
Column Totals:	120 (A)	407 (B)

Prevalence Index = B/A = 3.392

Hydrophytic Vegetation Indicators:

- __ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- No 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 dominance test, but vegetation not strongly hydrophytic, as shown by Prevalence Index. Does not pass FAC-Neutral.

SOIL

M ch 7/16/20 Sampling Point: W1T2-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 %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR2/2	100	—	—	—	—	Loam/Silt Loam	
10-16	10YR 5/6	100	—	—	—	—	Loam	Some Soil Mixing

[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: Pierson City/County: McKinleyville Sampling Date: 7/16/20

Applicant/Owner: ______ State: CA Sampling Point: W1T2Wet

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

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

Subregion (LRR): A Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: ______ NWI classification: ______

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

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

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

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

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

Remarks: 5ft from wetland edge

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: 1m²)			
1. Juncus hesperius	25	Y	FACW
2. Ranunculus repens	35	Y	FAC
3. Holcus lanatus	5	N	FAC
4. Cyperus eragrostis	4	N	FACW
5. Alopecurus geniculatus	20	Y	OBL
6. Agrostis stolonifera	10	N	FAC
7. Rumex crispus	1	N	FAC
8.			
9.			
10.			
11.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
		= Total Cover	
% Bare Ground in Herb Stratum Ø			

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 Dominance Test. Passes FAC-Neutral.

SOIL

Mck 7/16/20 Sampling Point: W1T2-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 %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/1	100	—	—	—	—	Siltloam	↑ organic matter
3-14	10YR 2/1	90	7.5YR 3/4	100	c	m	Siltloam	

[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)
- X 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)
- 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: Pierson City/County: McKinleyville Sampling Date: 7/16/20
Applicant/Owner: ______ State: CA Sampling Point: W2T1Up
Investigator(s): M. Schwarz, K. McDonald Section, Township, Range: ______
Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): ~5
Subregion (LRR): A Lat: ______ Long: ______ Datum: ______
Soil Map Unit Name: ______ NWI classification: ______
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
		= Total Cover	
Sapling/Shrub Stratum (Plot size: 1m²)			
1. Rubus armeniacus	8	Y	FAC
2.			
3.			
4.			
5.			
	8	= Total Cover	
Herb Stratum (Plot size: 1m²)			
1. Ranunculus repens	60	Y	FAC
2. Holcus lanatus	20	Y	FAC
3. Rumex crispus	5		FAC
4. Vicia sativa	2		UPL
5. Lotus corniculatus	3		FAC
6. Anthoxanthum odoratum	1		FACU
7. Festuca perennis	2		FAC
8.			
9.			
10.			
11.			
	93	= Total Cover	
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
	101	= Total Cover	
% Bare Ground in Herb Stratum ______			

Dominance Test worksheet:

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	Ø	x 1 =
FACW species	Ø	x 2 =
FAC species	98	x 3 = 294
FACU species	1	x 4 = 4
UPL species	2	x 5 = 10
Column Totals:	101 (A)	308 (B)

Prevalence Index = B/A = 3.05

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
Y 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: 8ft from wetland edge. Passes dominance test, but not prevalence index—Not strongly hydrophytic. Does not pass FAC-Neutral Test.

SOIL

Mck 7/16/20 Sampling Point: W2T1-U

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

Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]		
0-14	10YR3/2	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: Pierson City/County: Mckinleyville Sampling Date: 7/16/20

Applicant/Owner: ______ State: CA Sampling Point: W2T1Wet

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

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

Subregion (LRR): A Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: ______ NWI classification: ______

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	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. Ranunculus repens	70	Y	FAC
2. Holcus lanatus	10		FAC
3. Agrostis stolonifera	6		FAC
4. Veronica americana	2		OBL
5. Geranium dissectum	1		UPL
6. Alopecurus geniculatus	4		OBL
7. Rumex crispus	7		FAC
8.			
9.			
10.			
11.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum ______			

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 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: 8ft from wetland edge. Passes FAC-Neutral, Passes Dominance Test.

SOIL

md 7/16/70 Sampling Point: W2T1-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
0-13	10YR2/1	95	7.5YR3/4	5	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) ?
- __ 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:

7

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

Project/Site: Pierson City/County: McKinleyville Sampling Date: 7/16/20

Applicant/Owner: ______ State: CA Sampling Point: Up1

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

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

Subregion (LRR): A Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: ______ NWI classification: ______

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

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

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

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

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

Remarks: Point in center of ditch to determine if wetland. Appears to be well-drained sandy loam.

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: 1m²)			
1. Rubus ursinus	5	Y	FACU
2.			
3.			
4.			
5.			
= Total Cover	5		
Herb Stratum (Plot size: 1m²)			
1. Lotus corniculatus	70	Y	FAC
2. Agrostis stolonifera	10		FAC
3. Festuca perennis	15		FAC
4. Rumex crispus	3		FAC
5. Holcus lanatus	5		FAC
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	103		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover	108		
% Bare Ground in Herb Stratum Ø			

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: Does not pass Dominance Test, Does not pass FAC-Neutral.

SOIL

Sampling Point: Up1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8"	10YR3/2	100	—	—	—	—	Loam	
8-14"	10YR4/6	85	5YR4/6	15	C	M	Loamy Sand	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ___ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ___ No ✓

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

Remarks:

8

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

Project/Site: Pierson City/County: McKinleyville, CA Sampling Date: 7/16/20

Applicant/Owner: ______ State: ______ Sampling Point: Up2

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

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 12

Subregion (LRR): A Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: ______ NWI classification: ______

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

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

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

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

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

Remarks: Point upstream in ditch from Up1

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 13m radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus rubra	8		FAC
2. Pinus radiata	35	Y	UPL
3. Sequoia sempervirens	20	Y	UPL
4.			
	63 = Total Cover		
Sapling/Shrub Stratum (Plot size: 1m²)			
1. Rubus ursinus	35	Y	FACU
2. Lonicera involucrata	35		FAC
3.			
4.			
5.			
	40 = Total Cover		
Herb Stratum (Plot size: 1m²)			
1. Holcus lanatus	2	Y	FAC
2. Leucanthemum vulgare	2	Y	FACU
3. Hypochaeris radicata	1		FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	5 = Total Cover		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
	___ = Total Cover		

% Bare Ground in Herb Stratum 95%

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 20% (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: Does not pass Dominance Test. Does not pass FAC-neutral test.

SOIL

Sampling Point: Up2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-9"	10YR3/4	100	—	—	—	—	sandy loam	
9-13"	10YR 5/6	90	5YR4/4	10	C	M	loamy sand	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):
Type: ______
Depth (inches): ______

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

__ Surface Water (A1)
__ High Water Table (A2)
__ Saturation (A3)
__ Water Marks (B1)
__ Sediment Deposits (B2)
__ Drift Deposits (B3)
__ Algal Mat or Crust (B4)
__ Iron Deposits (B5)
__ Surface Soil Cracks (B6)
__ Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
__ Salt Crust (B11)
__ Aquatic Invertebrates (B13)
__ Hydrogen Sulfide Odor (C1)
__ Oxidized Rhizospheres along Living Roots (C3)
__ Presence of Reduced Iron (C4)
__ Recent Iron Reduction in Tilled Soils (C6)
__ Stunted or Stressed Plants (D1) (**LRR A**)
__ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ____
Water Table Present? Yes ___ No ✓ Depth (inches): ____
Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ____

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

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

Remarks: appears to be depositional, high leaf litter cover

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

Project/Site: Pierson City/County: McKinleyville Sampling Date: 7/16/20
Applicant/Owner: State: CA Sampling Point: W3T1Up
Investigator(s): M. Schwarz, K. McDonald Section, Township, Range:
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 2
Subregion (LRR): A Lat: Long: Datum:
Soil Map Unit Name: NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)
Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___
Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 3m radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Malus fusca	35	Y	FACW
2. Alnus rubra	20	Y	FAC
3. Sequoia sempervirens	1		UPL
4.			
	56 = Total Cover		
Sapling/Shrub Stratum (Plot size: 1m²)			
1. Lonicera involucrata	15	Y	FAC
2. Rubus ursinus	15	Y	FACU
3. Rubus armeniacus	5		FAC
4.			
5.			
	35 = Total Cover		
Herb Stratum (Plot size: 1m²)			
1. Galium aparine	20	Y	FACU
2. Holcus lanatus	35	Y	FAC
3. Festuca perennis	5		FAC
4. Ranunculus repens	15		FAC
5. Sonchus oleraceus	1		UPL
6. Stachys rigida	1		FACW
7.			
8.			
9.			
10.			
11.			
	77 = 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: 4 (A)
Total Number of Dominant Species Across All Strata: 6 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 66% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	Ø	x 1 =
FACW species	36	x 2 = 72
FAC species	95	x 3 = 285
FACU species	35	x 4 = 140
UPL species	2	x 5 = 20
Column Totals:	168 (A)	517 (B)

Prevalence Index = B/A = 3.077

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- Y 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: 6ft from wetland edge. Passes Dominance Test, but not Prevalence Index - Not strongly hydrophytic. Does not pass FAC-Neutral Test.

SOIL

Mck 7/16/20 Sampling Point: W3T1-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
0-6	10YR2/2	100	—	—	—	—	Loam/Silt Loam	-low chroma a-m
6-14	10YR3/2	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:

9

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

Project/Site: Pierson City/County: McKinleyville Sampling Date: 7/16/20
Applicant/Owner: State: CA Sampling Point: W3T1 Wet
Investigator(s): M. Schwarz, K McDonald Section, Township, Range:
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): <2
Subregion (LRR): A Lat: Long: Datum:
Soil Map Unit Name: NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
		= Total Cover	
Sapling/Shrub Stratum (Plot size: 1m²)			
1. Rubus ursinus	5	Y	FACU
2. Lonicera involucrata	2		FAC
3.			
4.			
5.			
	7	= Total Cover	
Herb Stratum (Plot size: 1m²)			
1. Poa pratensis	15	Y	FAC
2. Ranunculus repens	20	Y	FAC
3. Alopecurus geniculatus	18	Y	OBL
4. Rumex conglomeratus	10		FACW
5. Galium trifidum	1		FACW
6. Lotus corniculatus	10		FAC
7. Veronica scutellata	1		OBL
8. Agrostis stolonifera	10		FAC
9. Cyperus eragrostis	5		FACW
10. Stachys rigida	3		FACW
11.			
	98	= 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: 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		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: 7ft from wetland edge. Passes Dominance Test. Passes FAC-Neutral

SOIL

MCU 7/16/20 Sampling Point: W3T1-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
0-3	10YR2/1	100	—	—	—	—	Loam	
3-14	10YR2/1	90	7.5YR3/4	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)
- ___ 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) Depression
- ___ 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: Pierson City/County: McKinleyville Sampling Date: 7/16/20
Applicant/Owner: State: CA Sampling Point: WST2UP
Investigator(s): Misha Schwarz, Kelsey McDonald Section, Township, Range:
Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): none Slope (%): <2
Subregion (LRR): A Lat: Long: Datum:
Soil Map Unit Name: NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)
Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___
Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ___)			
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	65	Y	FAC
2. Trifolium repens	15		FAC
3. Rumex conglomeratus	4		FACW
4. Agrostis stolonifera	5		FAC
5. Ranunculus repens	5		FAC
6. Anthoxanthum odoratum	1		FACU
7. Plantago lanceolata	1		FACU
8. Crepis capillaris	5		FACU
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: 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	4	x 2 = 8
FAC species	85	x 3 = 255
FACU species	7	x 4 = 28
UPL species	∅	x 5 =
Column Totals:	96 (A)	291 (B)

Prevalence Index = B/A = 3.03

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
Y 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: 5ft from wetland edge. Center of swale 10-12 ft from wetland edge. Passes Dominance Test, but Not Prevalence Index. Does not pass FAC-Neutral Test. Not strongly hydrophytic.

SOIL Mck 7/16/20 Sampling Point: W3T2-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
0-3	10YR3/3	100	—	—	—		Loam	
3-15	10YR3/2	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 ____

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: Pierson City/County: McKinleyville Sampling Date: 7/16/20
Applicant/Owner: ______ State: CA Sampling Point: W3T2Wet
Investigator(s): M. Schwarz, K. McDonald Section, Township, Range: ______
Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 2-5%
Subregion (LRR): A Lat: ______ Long: ______ Datum: ______
Soil Map Unit Name: ______ NWI classification: ______
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)
Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___
Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
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	60	Y	FAC
2. Trifolium repens	20	Y	FAC
3. Rumex conglomeratus	8		FACW
4. Parentucellia viscosa	1		FAC
5. Agrostis stolonifera	8		FAC
6. Holcus lanatus	3		FAC
7. Festuca perennis	5		FAC
8. Ranunculus repens	3		FAC
9. Crepis capillaris	1		FACU
10.			
11.			
= Total Cover	109		
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	______	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
Y 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: 5ft from wetland edge. Passes Dominance Test.

SOIL

Mcl 7/16/20 Sampling Point: W3 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
0-4	10YR 2/2	90	7.5YR 4/6	10	C	M	Loam	
4-14	10YR 2/2	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 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:

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

Project/Site: Pierson City/County: McKinleyville Sampling Date: 7/20/20

Applicant/Owner: ______ State: CA Sampling Point: W3T3UP

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

Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): concave Slope (%): 5-10

Subregion (LRR): A Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: ______ NWI classification: ______

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

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

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

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

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

Remarks: 6ft from wetland edge

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: 1m²)			
1. Rubus ursinus	55	Y	FACU
2.			
3.			
4.			
5.			
	55	= Total Cover	
Herb Stratum (Plot size: 1m²)			
1. Agrostis stolonifera	25	Y	FAC
2. Anthoxanthum odoratum	10	Y	FACU
3. Parentucellia viscosa	10	Y	FAC
4. Lotus corniculatus	8		FAC
5. Hypochaeris radicata	9		FACU
6. Potentilla anserina	1		OBL
7. Symphotrichum chilense	1		FAC
8.			
9.			
10.			
11.			
	64	= Total Cover	
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
		= Total Cover	
% Bare Ground in Herb Stratum Ø			

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- 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: Does not pass Dominance test, Does not pass FAC-Neutral

SOIL 7/20/20 McK Sampling Point: W3T3-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
0-12	10YR3/2.5	85	7.5YR 4/6	15	C	M	Sandy loam - chroma Too high	
12-16	10YR2/1	90	7.5Y 4/6	15	C	M	Sand loam	Appears to be a buried A horizon

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ No X

Remarks:

Soil chroma of 2.5 in 0-10" horizon Too high to make a hydric Soil indicator

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: Presson City/County: McKinleyville Sampling Date: 7/20/20
Applicant/Owner: State: CA Sampling Point: W3T3wet
Investigator(s): M. Schwarz, K. McDonald Section, Township, Range:
Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): concave Slope (%): 5-10
Subregion (LRR): A Lat: Long: Datum:
Soil Map Unit Name: NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: 6ft from wetland edge

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	40	Y	FAC
2. Hypochaeris radicata	16	Y	FACU
3. Parentucellia viscosa	8		FAC
4. Lotus corniculatus	6		FAC
5. Holcus lanatus	2		FAC
6. Anthoxanthum odoratum	1		FACU
7. Plantago lanceolata	2		FACU
8. Potentilla anserina	6		OBL
9. Eleocharis acicularis	2		OBL
10. Hypericum anagalloides	10		OBL
11. Juncus ensifolius	3		FACW
= Total Cover	97		
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: 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	18	x 1 = 18
FACW species	3	x 2 = 6
FAC species	56	x 3 = 168
FACU species	19	x 4 = 76
UPL species	Ø	x 5 =
Column Totals:	96 (A)	268 (B)

Prevalence Index = B/A = 2.79

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation
N 2 - Dominance Test is >50%
Y 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 dominance test, or FAC-Neutral. Passes Prevalence index. Small but notable presence of obligate plants.

SOIL

7/20/20 Mck Sampling Point: W3T3-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 %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR2/2	90	7.5YR4/4	10	C	m	Loam/Sandy Loam	
8-14	10YR2/2	85	7.5YR4/4	15			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: Wetlands hydrology assumed based on strongly hydric Soil

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

Project/Site: Pierson City/County: Mckinleyville Sampling Date: 7/20/20

Applicant/Owner: ______ State: CA Sampling Point: W3T4up

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

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

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

Soil Map Unit Name: ______ NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ______ 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: 7 ft from wetland edge

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: 1m²)			
1. Rubus ursinus	10	Y	FACU
2.			
3.			
4.			
5.			
	10 = Total Cover		
Herb Stratum (Plot size: 1m²)			
1. Lotus corniculatus	50	Y	FAC
2. Holcus lanatus	10		FAC
3. Leucanthemum vulgare	5		FACU
4. Anthoxanthum odoratum	10		FACU
5. Hypochaeris radicata	8		FACU
6. Agrostis stolonifera	5		FAC
7. Rumex acetosella	3		FACU
8.			
9.			
10.			
11.			
	91 = 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: 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: Does not pass dominance test, does not pass FAC-neutral

SOIL 7/20/20 McK Sampling Point: W3 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
0-8	10YR 3/2.5	95	7.5YR 4/4	5	C	M	Loam	Chroma Too high
8-16	10YR 3/2.5	90	7.5YR 4/4	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)
- ___ 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:

Chroma Too high be met hydric soil indicator

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: Pierson City/County: McKinleyville Sampling Date: 7/20/20

Applicant/Owner: ______ State: CA Sampling Point: W3T4 wet

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

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

Subregion (LRR): A Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: ______ NWI classification: ______

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

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

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

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

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

Remarks: 8 ft from wetland edge

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 hesperius	10		
2. Lotus corniculatus	18	Y	FAC
3. Juncus bufonius	15	Y	FACW
4. Agrostis stolonifera	15	Y	FAC
5. Glyceria declinata	9		
6. Equisetum telmateia	2		
7. Holcus lanatus	8		
8. Anthoxanthum odoratum	1		
9. Eleocharis acicularis	12		OBL
10.			
11.			
	90 = Total Cover		
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: 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
- Y 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 Dominance, Passes FAC Neutral

SOIL

7/20/20 McU

Sampling Point: W3T4-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	7.5YR 4/6	10	C	M	Loam	
6-15	10YR2/2	85	" " "	15	C	M	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)
- 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 ____

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
- No FAC-Neutral Test (D5)
- __ Raised Ant Mounds (D6) (**LRR A**)
- __ Frost-Heave Hummocks (D7)

Field Observations:

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

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks: Assumed based on hydric Soil

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

Project/Site: Pierson City/County: McKinleyville Sampling Date: 7/2020

Applicant/Owner: ______ State: ______ Sampling Point: W3TSup

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

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 10-15

Subregion (LRR): A Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: ______ NWI classification: ______

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

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

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

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

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

Remarks: 3ft from wetland edge

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: 1m²)			
1. Rubus armeniacus	35	Y	FAC
2. Salix hookeriana	5		FACW
3.			
4.			
5.			
= Total Cover	40		
Herb Stratum (Plot size: 1m²)			
1. Raphanus sativus	20	Y	UPL
2. Cirsium vulgare	5		FACU
3. Trifolium repens	15	Y	FAC
4. Lotus corniculatus	15	Y	FAC
5. Ranunculus repens	20	Y	FAC
6. Agrostis stolonifera	10		FAC
7. Vicia sativa	3		UPL
8. Rumex crispus	3		FAC
9. Holcus lanatus	4		FAC
10. Anthoxanthum odoratum	2		FACU
11.			
= Total Cover	97		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum Ø

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 80% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	Ø	x 1 = 0
FACW species	5	x 2 = 10
FAC species	102	x 3 = 306
FACU species	7	x 4 = 28
UPL species	23	x 5 = 115
Column Totals:	137 (A)	449 (B)

Prevalence Index = B/A = 3.28

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- Y 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: Passes Dominance Test. Does not pass FAC-Neutral. Does not pass Prevalence Index. Not strongly hydrophytic

SOIL

7/20/20 MCL   Sampling Point: W3T5-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 %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR3/3	100	—	—	—	—	Loam	
8-15	10YR3/3	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: Pierson City/County: McKinleyville Sampling Date: 7/20/20
Applicant/Owner: ______ State: ______ Sampling Point: WSTSWet
Investigator(s): M. Schwarz, K. McDonald Section, Township, Range: ______
Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 10
Subregion (LRR): A Lat: ______ Long: ______ Datum: ______
Soil Map Unit Name: ______ NWI classification: ______
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)
Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___
Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: 8ft from wetland edge

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	40	Y	FAC
2. Holcus lanatus	10		FAC
3. Juncus bufonius	10		FACW
4. Ranunculus repens	35	Y	FAC
5. Glyceria declinata	4		FACW
6. Anthoxanthum odoratum	1		FACU
7.			
8.			
9.			
10.			
11.			
	___ = 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 ___	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
- Y 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 Dominance test. Passes FAC-Neutral

SOIL 7/20/20 MCK Sampling Point: W3T5-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
0-8	10YR 2/1	75	7.5YR 3/4	25	C	M	Loam	
8-14	10YR 2/1	80	" " "	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) 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:

Based on hydric soil

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

Project/Site: McKinleyville-Pierson City/County: McKinleyville Sampling Date: 8/11/20

Applicant/Owner: ______ State: CA Sampling Point: (W)3T(Up)

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

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 5-10

Subregion (LRR): A Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: ______ NWI classification: ______

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: —)	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. Hypochaeris radicata	15	Y	FACU
2. Parentucellia viscosa	3		FAC
3. Lotus corniculatus	15	Y	FAC
4. Anthoxanthum odoratum	8		FACU
5. Carex obnupta	6		OBL
6. Plantago lanceolata	15	Y	FACU
7. Rubus armeniacus	4		FAC
8. Holcus lanatus	12		FAC
9. Agrostis stolonifera	25	Y	FAC
10.			
11.			
	103	= Total Cover	
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
		= Total Cover	
% Bare Ground in Herb Stratum Ø			

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

- __ 1 - Rapid Test for Hydrophytic Vegetation
- 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: 2ft from wetland edge. Does not pass Dominance Test, Does not pass FAC-Neutral.

SOIL

8/11/2020 McK Sampling Point W3-T6U

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/2	100	—	—	—	—	Loam	
3-16	10YR 3/2.5	90	7.5YR 4/6	10	C	M	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: Chroma Too high for hydric Soil

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No 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: Pierson City/County: McKinleyville Sampling Date: 8/11/20

Applicant/Owner: ______ State: CA Sampling Point: W3T6wet

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

Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): concave Slope (%): 5-10

Subregion (LRR): A Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: ______ NWI classification: ______

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	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 effusus	27	Y	FACW
2. Potentilla anserina	10		OBL
3. Hypericum anagalloides	20	Y	OBL
4. Agrostis stolonifera	20	Y	FAC
5. Hypochaeris radicata	5		FACU
6. Lotus corniculatus	10		FAC
7. Holcus lanatus	3		FAC
8. Anthoxanthum odoratum	1		FACU
9. Rubus armeniacus	2		FAC
10. Parentucellia viscosa	2		FAC
11. Sisyrinchium californicum	1		FACW
= Total Cover	101		
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: 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
- Y 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: 7ft from wetland edge. Passes dominance test passes FAC-Neutral

SOIL

8/11/20 Mck Sampling Point: W3-T6W

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR3/2	85	7.5YR 4/4	15	C	M		
3-14	10YR 2/2	80	7.5YR 4/4	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)
- ___ 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)
- 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: Assumed base on hydric soil & geomorphic position.

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

Project/Site: Pierson City/County: McKinleyville Sampling Date: 8/11/20

Applicant/Owner: ______ State: CA Sampling Point: W3T7Up

Investigator(s): M. Schwarz Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): concave Slope (%): 5-10%

Subregion (LRR): A Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: ______ NWI classification: ______

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
		= Total Cover	
Sapling/Shrub Stratum (Plot size: 1 m²)			
1. Rubus spectabilis	25	Y	FACU
2. Rubus ursinus	10		
3.			
4.			
5.			
	35	= Total Cover	
Herb Stratum (Plot size: ___)			
1. Anthoxanthum odoratum	10		FACU
2. Hypochaeris radicata	15	Y	FACU
3. Lotus corniculatus	45	Y	FAC
4. Holcus lanatus	12		FAC
5. Sonchus asper	6		FACU
6. Agrostis stolonifera	3		FAC
7.			
8.			
9.			
10.			
11.			
	91	= 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: 3 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- 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: 6 ft from wetland boundary. Does not pass Dominance Test, Does not pass FAC-Neutral.

SOIL

8/11/20 McH Sampling Point: W3-T7-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 %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR3/2	100	—	—	—	—	Loam	
3-16	10YR3/3	100	—	—	—	—	Loam/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: Pierson City/County: McKinleyville Sampling Date: 8/11/20
Applicant/Owner: ____ State: CA Sampling Point: W3T7wet
Investigator(s): M. Schwarz, K. McDonald Section, Township, Range: ____
Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): Concave Slope (%): 5-10
Subregion (LRR): A Lat: ____ Long: ____ Datum: ____
Soil Map Unit Name: ____ NWI classification: ____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ____)			
1. Salix hookeriana	6	Y	FACW
2. Rubus ursinus	5		FACU
3.			
4.			
5.			
= Total Cover	11		
Herb Stratum (Plot size: ____)			
1. Juncus hesperius	25	Y	FACW
2. Lotus corniculatus	22	Y	FAC
3. Ranunculus repens	20	Y	FAC
4. Agrostis stolonifera	20	Y	FAC
5. Hypochaeris radicata	3		FACU
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	90		
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: 5 (A)
Total Number of Dominant Species Across All Strata: 5 (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
- Y 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 Dominance test, passes FAC-Neutral
5ft from wetland boundary

SOIL 8/1/20 Sampling Point: W3-T7-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 %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR3/2	100	—	—	–	–	Loam	
3-17	10YR3/2	95	7.5YR 4/6	5	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**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ 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: Pierson City/County: McKinleyville Sampling Date: 8/11/20

Applicant/Owner: ______ State: CA Sampling Point: L24T1up

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

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): concave Slope (%): 5-10

Subregion (LRR): A Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: ______ NWI classification: ______

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
		= Total Cover	
Sapling/Shrub Stratum (Plot size: 1m²)			
1. Rubus ursinus	30	Y	FACU
2.			
3.			
4.			
5.			
	30	= Total Cover	
Herb Stratum (Plot size: 1m²)			
1. Hypochaeris radicata	18	Y	FACU
2. Lotus corniculatus	8		FAC
3. Agrostis stolonifera	25	Y	FAC
4. Holcus lanatus	15		FAC
5. Anthoxanthum odoratum	5		FACU
6.			
7.			
8.			
9.			
10.			
11.			
	71	= 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: 3 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- 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: 7.1ft from wetland edge. Does not pass Dominance Test, Does not pass FAC-Neutral.

SOIL

8/11/20 McH Sampling Point: W4-T1U

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR3/2	90	7.5YR 4/6	10	C	M	Loam	From Compaction
2-15	10YR3/2	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: Pierson City/County: McKinleyville Sampling Date: 8/11/20

Applicant/Owner: ______ State: CA Sampling Point: W4T1 wet

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

Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): concave Slope (%): 5-10

Subregion (LRR): A Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: ______ NWI classification: ______

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 1m²)			
1. Salix hookeriana	10	Y	FACW
2. Rubus ursinus	10	Y	FACU
3.			
4.			
5.			
= Total Cover	20		
Herb Stratum (Plot size: 1m²)			
1. Juncus hesperius	45	Y	FACW
2. Agrostis stolonifera	20	Y	FAC
3. Lotus corniculatus	30	Y	FAC
4. Holcus lanatus	4		FAC
5. Anthoxanthum odoratum	1		FACU
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	100		
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: 4 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 80% (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
Y 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: 5ft from wetland edge. Passes Dominance Test, Passes FAC-Neutral.

SOIL

8/11/20

Sampling Point: W4-T1W

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/2	90	7.5YR 4/4	10	C	M	Loam	
3-14	10YR 2/1	85	7.5YR 4/6	15	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)
- ___ 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) Depression
- ___ 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: Assumed based on hydric soil & Topographic position

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

Project/Site: Pierson City/County: McKinleyville Sampling Date: 8/12/20

Applicant/Owner: ______ State: ______ Sampling Point: WST 1 UP

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

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

Subregion (LRR): A Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: ______ NWI classification: ______

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 1m²)			
1. Rubus ursinus	65	Y	FACU
2.			
3.			
4.			
5.			
= Total Cover	65		
Herb Stratum (Plot size: 1m²)			
1. Lotus corniculatus	35	Y	FAC
2. Holcus lanatus	15		FAC
3. Anthoxanthum odoratum	20	Y	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	70		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum Ø			

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- 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: Does not pass Dominance Test
4ft from wetland boundary

SOIL

8/12/20 McG Sampling Point: WST1U

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR3/3	100	—	—	—	—	Loam	
3-16	10YR 2/2.5	95	7.5YR 4/6	5	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)
- ___ 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:

chromo of soil high ≠ hydric

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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: Pierson City/County: McKinleyville Sampling Date: 8/12/20
Applicant/Owner: ______ State: CA Sampling Point: WST1wet
Investigator(s): M. Schwarz, K. McDonald Section, Township, Range: ______
Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): concave Slope (%): 2-5%
Subregion (LRR): A Lat: ______ Long: ______ Datum: ______
Soil Map Unit Name: ______ NWI classification: ______
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)
Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___
Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
		= Total Cover	
Sapling/Shrub Stratum (Plot size: 1m²)			
1. Rubus ursinus	30	Y	FACU
2.			
3.			
4.			
5.			
	30	= Total Cover	
Herb Stratum (Plot size: 1m²)			
1. Juncus hesperius	20	Y	FACW
2. Agrostis stolonifera	25	Y	FAC
3. Holcus lanatus	15		FAC
4. Anthoxanthum odoratum	4		FACU
5. Lotus corniculatus	15		FAC
6.			
7.			
8.			
9.			
10.			
11.			
	79	= 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: 2 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 66% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- Y 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 Dominance Test, but not FAC-Neutral
2ft from boundary

SOIL

8/12/2020 MCh Sampling Point: WST1-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 %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR2/2	85	10YR 4/4	15	C	m	Loam	
4-14	10YR2/2	75	10YR 4/4	25	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 Y 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 Y Depth (inches): ____
Water Table Present? Yes __ No Y Depth (inches): ____
Saturation Present? (includes capillary fringe) Yes __ No X Depth (inches): ____

Wetland Hydrology Present? Yes Y No __

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

Remarks: Assumed bak on hydric soil + topographic position

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

Project/Site: Pierson City/County: McKinleyville Sampling Date: 8/12/20

Applicant/Owner: ______ State: CA Sampling Point: WST2UP

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

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): concave Slope (%): 5-10

Subregion (LRR): A Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: ______ NWI classification: ______

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 1m²)			
1. Rubus ursinus	60	Y	FACU
2.			
3.			
4.			
5.			
= Total Cover	60		
Herb Stratum (Plot size: 1m²)			
1. Anthoxanthum odoratum	20	Y	FACU
2. Lotus corniculatus	20	Y	FAC
3. Holcus lanatus	10		FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	50		
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: 3 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

- __ 1 - Rapid Test for Hydrophytic Vegetation
- 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: Does not pass dominance test
5ft from wetland edge.

SOIL

8/12/2020 Mch Sampling Point: WST2-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
0-3	10YR3/2	100	—	—	–	—	Loamy	
3-17	10YR 3/3	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 Y

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 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: Pierson City/County: McKinleyville Sampling Date: 8/12/20

Applicant/Owner: ______ State: CA Sampling Point: WST2wet

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

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): concave Slope (%): 2-5

Subregion (LRR): A Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: ______ NWI classification: ______

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 1m²)			
1. Rubus ursinus	25	Y	FACU
2.			
3.			
4.			
5.			
= Total Cover	25		
Herb Stratum (Plot size: ______)			
1. Agrostis stolonifera	20	Y	FAC
2. Lotus corniculatus	20	Y	FAC
3. Juncus hesperius	20	Y	FACW
4. Juncus ensifolius	5		FACW
5. Potentilla anserina	6		OBL
6. Parentucellia viscosa	15		FAC
7. Hypochaeris radicata	1		FACU
8. Holcus lanatus	5		FAC
9. Anthoxanthum odoratum	8		FACU
10.			
11.			
= Total Cover	100		
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: 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	______	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
- Y 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 dominance, does not pass FAC-Neutral

4ft from wetland edge.

SOIL

8/12/20 MC4 Sampling Point: WST2-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 %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR2/2	100	–	–	–	–	Loam	
3-14	10YR3/2	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 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 Y No ____

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

Remarks: Assumed base on hydric Soil + Topographic position

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

Project/Site: Pierson City/County: McKinleyville Sampling Date: 8/12/20

Applicant/Owner: ______ State: CA Sampling Point: WST3up

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

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

Subregion (LRR): A Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: ______ NWI classification: ______

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 1m²)			
1. Rubus ursinus	45	Y	FACU
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 1m²)			
1. Anthoxanthum odoratum	20	Y	FACU
2. Holcus lanatus	25	Y	FAC
3. Lotus corniculatus	10		FAC
4. Crepis capillaris	8		FACU
5. Parentucellia viscosa	1		FAC
6.			
7.			
8.			
9.			
10.			
11.			
	= 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: 3 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- 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: 8ft from wetland edge. Does not pass Dominance Test.

SOIL

8/12/20 MCL

Sampling Point: WST3-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 %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR3/2	100	—	—	—	—	Loam	
4-17	10YR 3/2.5	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: Pierson City/County: McKinleyville Sampling Date: 8/17/20
Applicant/Owner: State: CA Sampling Point: WST3we
Investigator(s): M. Schwarz, K. McDonald Section, Township, Range:
Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 10-20
Subregion (LRR): A Lat: Long: Datum:
Soil Map Unit Name: NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)
Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___
Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
		= Total Cover	
Sapling/Shrub Stratum (Plot size: 1m²)			
1. Rubus ursinus	20	Y	FACU
2.			
3.			
4.			
5.			
	20	= Total Cover	
Herb Stratum (Plot size: 1m²)			
1. Juncus hesperius	15	Y	FACW
2. Juncus bufonius	10		FACW
3. Agrostis stolonifera	30	Y	FAC
4. Lotus corniculatus	10	Y	FAC
5. Parentucellia viscosa	10		FAC
6. Hypochaeris radicata	7		FACU
7. Plantago lanceolata	6		FACU
8. Holcus lanatus	5		FAC
9. Anthoxanthum odoratum	2		FACU
10. Potentilla anserina	1		OBL
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: 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 ___	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
- Y 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: 3ft from wetland edge. Passes Dominance Test. Does not pass FAC-Neutral.

SOIL

9/12/20

Sampling Point: W5T3-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 %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR2/2	100	—	—	—	—	Loam	
3-14	10YR3/2	80	7.5YR4/4	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) 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: Assumed based on hydric Soil + Topographic position

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

Project/Site: Pierson City/County: Mckinleyville Sampling Date: 8/12/20

Applicant/Owner: ______ State: CA Sampling Point: WGT1up

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

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

Subregion (LRR): A Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: ______ NWI classification: ______

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

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

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

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

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

Remarks:

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: 1m²)			
1. Rubus spectabilis	40	Y	FACU
2. Rubus ursinus	25	Y	FACU
3.			
4.			
5.			
= Total Cover	65		
Herb Stratum (Plot size: ______)			
1. Holcus lanatus	35	Y	FAC
2. Carex obnupta	2		OBL
3. Anthoxanthum odoratum	1		FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	38		
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: 3 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ___ No ✓

Remarks: Does not pass dominance test
4ft from wetland edge

SOIL

2/12/20 MC4 Sampling Point: WbT1-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
0-4	10YR3/3	100	—	—	—	—	Loam	↑ O.M.
4-8	10YR3/2	100	—	—	-	-	Loam	
8-16	10YR3/2.5	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: Pierson City/County: McKinleyville Sampling Date: 8/12/20

Applicant/Owner: ______ State: CA Sampling Point: LYGT1, wet

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

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

Subregion (LRR): A Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: ______ NWI classification: ______

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 1m²)			
1. ~~Rubus ursinus~~ added to Herbs because <5%	~~2~~		
2.			
3.			
4.			
5.			
= Total Cover	∅		
Herb Stratum (Plot size: 1m²)			
1. Juncus hesperius	12		FACW
2. Juncus bufonius	20	Y	FACW
3. Lotus corniculatus	30	Y	FAC
4. Agrostis stolonifera	15		FAC
5. Holcus lanatus	10		FAC
6. Anthoxanthum odoratum	1		FACU
7. Ranunculus repens	10		FAC
8. Rubus ursinus	2		FACU
9.			
10.			
11.			
= Total Cover	100		
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: 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: Passes dominance, Passes FAC-Neutral
4ft from wetland edge

SOIL

8/12/20 McG Sampling Point: W6T1-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 %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/2	100	—	—	—	—	Loam	
2-16	2.5Y 3/2	80	7.5YR 3/4	20	—	-	Loam	Some Fe depletions Too

[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)
- 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: Pierson McKinleyville City/County: McKinleyville Sampling Date: 8/12/20
Applicant/Owner: ______ State: CA Sampling Point: W6T2up
Investigator(s): M. Schwarz, K. McDonald Section, Township, Range: ______
Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): concave Slope (%): 5
Subregion (LRR): A Lat: ______ Long: ______ Datum: ______
Soil Map Unit Name: ______ NWI classification: ______
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ______ (If no, explain in Remarks.)
Are Vegetation ______, Soil ______, or Hydrology ______ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ______
Are Vegetation ______, Soil ______, or Hydrology ______ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 1m²)			
1. Alnus rubra (overhanging)	60	Y	FAC
2.			
3.			
4.			
	60	= Total Cover	
Sapling/Shrub Stratum (Plot size: 1m²)			
1. Rubus ursinus	55	Y	FACU
2.			
3.			
4.			
5.			
		= Total Cover	
Herb Stratum (Plot size: 1m²)			
1. Lotus corniculatus	8		FAC
2. Holcus lanatus	25	Y	FAC
3. Anthoxanthum odoratum	10	Y	FACU
4. Agrostis stolonifera	5		FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	48	= Total Cover	
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
		= Total Cover	
% Bare Ground in Herb Stratum 41			

Dominance Test worksheet:

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- 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: 6ft from wetland edge. Does not pass Dominance Test.

SOIL

8/12/20 McK

Sampling Point: WGT2-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
0-2	10YR2/2	100	–	–	–	–	Loam	
2-8	10YR2/2	100	–	–	–	–	Loam	
8-15	10YR3/2	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: Pierson City/County: McKinleyville Sampling Date: 8/12/20

Applicant/Owner: ______ State: CA Sampling Point: WGT2wet

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

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

Subregion (LRR): A Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: ______ NWI classification: ______

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
		= Total Cover	
Sapling/Shrub Stratum (Plot size: 1m²)			
1. Rubus ursinus	8	Y	FACU
2.			
3.			
4.			
5.			
	8	= Total Cover	
Herb Stratum (Plot size: 1m²)			
1. Juncus hesperius	10		FACW
2. Juncus ensifolius	5		FACW
3. Agrostis stolonifera	55	Y	FAC
4. Holcus lanatus	20	Y	FAC
5. Juncus bufonius	8		FACW
6.			
7.			
8.			
9.			
10.			
11.			
	98	= 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: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 66% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

Y 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: 6ft from wetland edge. Passes dominance test. Does not pass FAC-Neutral.

SOIL 8/12/26 Mck Sampling Point: W6 TZ-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 %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/1	100	—	—	—	—	Loam	
3-13	10YR 2/2	80	7.5YR 3/4	20	—	—	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: Assumed based on hydric Soil & Topographic position

Appendix C – Record of Climatological Observations 2020

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data, and Information Service

Record of Climatological Observations

These data are quality controlled and may not be identical to the original observations.

Generated on 09/06/2020

National Centers for Environmental Information
151 Patton Avenue
Asheville, North Carolina 28801

Current Location: Elev: 325 ft. Lat: 40.9231° N Lon: -124.0840° W

Station: **MCKINLEYVILLE 2.7 SE, CA US US1CAHM0004**

Observation Time Temperature: Unknown Observation Time Precipitation: Unknown

Year	Month	Day	Temperature (F)			Precipitation					Evaporation		Soil Temperature (F)					
			24 Hrs. Ending at Observation Time		At Obs.	24 Hour Amounts Ending at Observation Time				At Obs. Time	24 Hour Wind Movement (mi)	Amount of Evap. (in)	4 in. Depth			8 in. Depth		
			Max.	Min.		Rain, Melted Snow, Etc. (in)	Flag	Snow, Ice Pellets, Hail (in)	Flag	Snow, Ice Pellets, Hail, Ice on Ground (in)			Ground Cover (see *)	Max.	Min.	Ground Cover (see *)	Max.	Min.
2020	07	01																
2020	07	02				0.00												
2020	07	03				0.00												
2020	07	04				0.00												
2020	07	05				0.00		0.0										
2020	07	06				0.00		0.0										
2020	07	07				0.00		0.0										
2020	07	08				0.00		0.0										
2020	07	09				0.00		0.0										
2020	07	10				0.00		0.0										
2020	07	11				T												
2020	07	12				0.00		0.0										
2020	07	13				0.00												
2020	07	14				0.00												
2020	07	15				0.00												
2020	07	16				0.00		0.0										
2020	07	17				0.00		0.0										
2020	07	18				0.00												
2020	07	19				0.00		0.0										
2020	07	20				0.01												
2020	07	21				0.01												
2020	07	22				0.00		0.0										
2020	07	23				0.02												
2020	07	24				0.00												
2020	07	25				0.00												
2020	07	26				0.00		0.0										
2020	07	27				T												
2020	07	28				0.01												
2020	07	29				0.01												
2020	07	30				0.01												
2020	07	31				0.02												
		Summary				0.09		0.0										

Empty, or blank, cells indicate that a data observation was not reported.

*Ground Cover: 1=Grass; 2=Fallow; 3=Bare Ground; 4=Brome grass; 5=Sod; 6=Straw mulch; 7=Grass muck; 8=Bare muck; 0=Unknown

"s" This data value failed one of NCDC's quality control tests. "At Obs." = Temperature at time of observation

"T" values in the Precipitation or Snow category above indicate a "trace" value was recorded.

"A" values in the Precipitation Flag or the Snow Flag column indicate a multiday total, accumulated since last measurement, is being used.

Data value inconsistency may be present due to rounding calculations during the conversion process from SI metric units to standard imperial units.

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data, and Information Service

Record of Climatological Observations

These data are quality controlled and may not be identical to the original observations.

Generated on 09/06/2020

National Centers for Environmental Information
151 Patton Avenue
Asheville, North Carolina 28801

Current Location: Elev: 325 ft. Lat: 40.9231° N Lon: -124.0840° W

Station: **MCKINLEYVILLE 2.7 SE, CA US US1CAHM0004**

Observation Time Temperature: Unknown Observation Time Precipitation: Unknown

Year	Month	Day	Temperature (F) 24 Hrs. Ending at Observation Time Max.	Temperature (F) 24 Hrs. Ending at Observation Time Min.	Temperature (F) At Obs.	Precipitation 24 Hour Amounts Ending at Observation Time Rain, Melted Snow, Etc. (in)	Flag	Snow, Ice Pellets, Hail (in)	Flag	At Obs. Time Snow, Ice Pellets, Hail, Ice on Ground (in)	Evaporation 24 Hour Wind Movement (mi)	Amount of Evap. (in)	Soil Temperature (F) 4 in. Depth Ground Cover (see *)	4 in. Max.	4 in. Min.	8 in. Depth Ground Cover (see *)	8 in. Max.	8 in. Min.
2020	08	01				0.01												
2020	08	02				0.01												
2020	08	03				T												
2020	08	04				0.02												
2020	08	05				0.06												
2020	08	06				0.02												
2020	08	07				0.00		0.0										
2020	08	08				0.00												
2020	08	09				0.00												
2020	08	10				0.00												
2020	08	11				T												
2020	08	12				0.00												
2020	08	13																
2020	08	14																
2020	08	15																
2020	08	16																
2020	08	17																
2020	08	18																
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2020	08	21																
2020	08	22																
2020	08	23																
2020	08	24																
2020	08	25																
2020	08	26																
2020	08	27																
2020	08	28																
2020	08	29																
2020	08	30																
2020	08	31																
		Summary				0.12		0.0										

Empty, or blank, cells indicate that a data observation was not reported.

*Ground Cover: 1=Grass; 2=Fallow; 3=Bare Ground; 4=Brome grass; 5=Sod; 6=Straw mulch; 7=Grass muck; 8=Bare muck; 0=Unknown

"s" This data value failed one of NCDC's quality control tests. "At Obs." = Temperature at time of observation

"T" values in the Precipitation or Snow category above indicate a "trace" value was recorded.

"A" values in the Precipitation Flag or the Snow Flag column indicate a multiday total, accumulated since last measurement, is being used.

Data value inconsistency may be present due to rounding calculations during the conversion process from SI metric units to standard imperial units.

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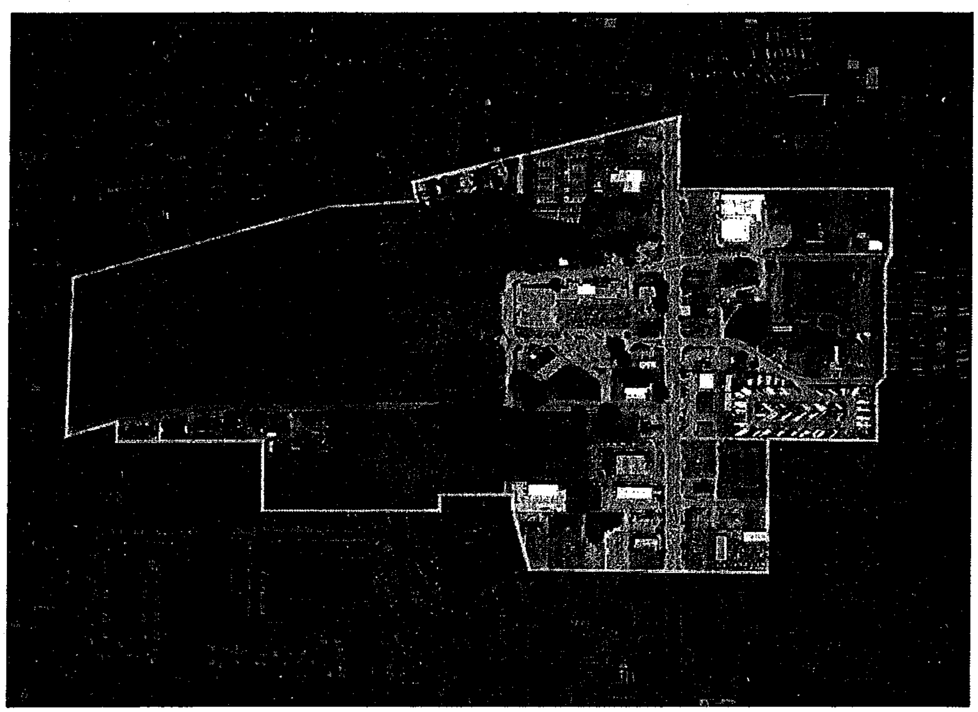
Traffic Operations Study for the McKinleyville Town Center Project



Prepared for the County of Humboldt

Submitted by
W-Trans

March 25, 2025

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A. Intersection Level of Service Calculations

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Executive Summary

The *Humboldt County General Plan* and *McKinleyville Community Plan* both envision the development of the McKinleyville Town Center, featuring a mix of land uses supported by multimodal transportation infrastructure. The proposed rezoning of the project site would lay the groundwork to achieve this vision. The purpose of this study is to analyze the effects on traffic operations associated with the potential development that would be permitted based on the proposed zoning changes and modifications to the transportation network.

The McKinleyville Town Center consists of an area of 134 acres, including 106 developable acres and 28 acres of wetland restoration/mitigation. The project would intensify the development pattern in the area and includes up to 2,650 residential units, 271,200 square feet of office space, and 632,800 square feet of commercial/retail space. To enable this development to occur, the project site would be rezoned to Mixed-Use Urban (MU1) and a "Q-Zone" combining zone would be adopted as an overlay to modify the MU1 zone. Central Avenue, the main north-south roadway through the site, would be modified by reducing the number of travel lanes to allow for enhanced bicycle facilities and facilitate pedestrian crossings.

There are no specific developments proposed for this project, with the exception of the Life Plan Humboldt project. As a result, the locations of the remaining future potential development were assigned based on availability of currently undeveloped land; future traffic volumes were estimated using the *Humboldt County Travel Demand Model* and were assigned to project area roadways based on existing travel patterns. The study area includes eight intersections, all of which are operating acceptably under Existing Conditions during the a.m. and p.m. peak periods. All eight study intersections are expected to operate acceptably under projected future volumes based on the current *General Plan* and travel demand model projections. With the addition of project trips associated with the buildout of the proposed Town Center in addition to estimated regional growth, six of the eight study intersections are expected to operate deficiently. Recommendations were developed for each of the intersections with deficient operations; with the inclusion of these improvements, all study intersections are expected to operate acceptably.

Introduction

This report presents an analysis of the potential adverse operational effects that would be associated with the rezoning of the McKinleyville Town Center to allow denser and pedestrian- and bicycle-friendly development on approximately 134 acres on 45 parcels. The study area is generally bounded by Railroad Drive to the North, Holly and Heartwood Drives to the south, McKinleyville Avenue to the west and Central Avenue and Hummingbird Drive to the east in the community of McKinleyville. The traffic study was completed in accordance with the criteria established by the County of Humboldt and is consistent with standard traffic engineering techniques.

Prelude

The purpose of a traffic operations study is to provide County staff and policy makers with data that they can use to make an informed decision regarding the potential transportation effects of a proposal, and any associated improvements that would be required to reduce these effects to an acceptable level under the County's General Plan or other policies. This report provides an analysis of vehicular traffic service levels at key intersections for consistency with General Plan policies by determining the number of new trips that the proposed Town Center development would be expected to generate, distributing these trips to the surrounding street system based on anticipated travel patterns specific to the proposed project, then analyzing the effect the new traffic would be expected to have on the study intersections and need for improvements to maintain acceptable operation.

Transportation Setting

Study Area and Periods

The study area for the operational analysis consists of the following intersections.

1. Murray Road/McKinleyville Avenue
2. Murray Road/Central Avenue
3. Railroad Drive/McKinleyville Avenue
4. Railroad Drive/Central Avenue
5. Hiller Road/McKinleyville Avenue
6. Hiller Road/Central Avenue
7. Heartwood Drive-Hayes Road/McKinleyville Avenue
8. Heartwood Drive/Central Avenue

Operating conditions during the a.m. and p.m. peak periods were evaluated to capture the highest potential impacts for the proposed project as well as the highest volumes on the local transportation network. The morning peak hour occurs between 7:00 and 9:00 a.m. and reflects conditions during the home to work or school commute, while the p.m. peak hour occurs between 4:00 and 6:00 p.m. and typically reflects the highest level of congestion during the homeward bound commute. Counts were obtained for the study intersections in February 2024 when local schools were in session.

Study Intersections

Murray Road/McKinleyville Avenue is a four-legged intersection with all-way stop control. Crosswalks are marked on the south and west legs of the intersection, and there are curb ramps at the southeast and southwest corners of the intersection. Class II bicycle lanes are striped on all legs except for the north leg where there is only a bicycle lane in the southbound direction.

Murray Road/Central Avenue is an all-way stop-controlled, four-legged intersection with overhead-mounted flashing red indications facing all approaches. There are marked crosswalks on the south and east legs as well as a curb ramp at the southwest corner of the intersection. Bicycle lanes exist on the west (Murray Road) leg of the intersection.

Railroad Drive/McKinleyville Avenue is an unsignalized four-legged intersection with stop controls on the eastbound and westbound Railroad Drive approaches. A high-visibility crosswalk is marked across the north leg and a standard crosswalk is marked across the west leg. There are curb ramps at each corner of the intersection and bicycle lanes along McKinleyville Avenue.

Railroad Drive/Central Avenue is a signalized intersection with four legs and protected left-turn phasing on the northbound and southbound Central Avenue approaches. Bicycle lanes are striped on the north and south legs, and curb ramps are provided on each corner. High-visibility crosswalks are marked across all intersection legs.

Hiller Road/McKinleyville Avenue is a four-legged intersection with all-way stop control with Class II bicycle lanes striped on the north (McKinleyville Avenue) leg. The eastbound Hiller Road approach has a flared right-turn lane with space for approximately two right-turning vehicles while another vehicle continues straight, and the westbound approach has a flared right-turn lane with space for one right-turning vehicle.

Hiller Road/Central Avenue is a four-legged intersection with signal control and protected left-turn phasing on both Central Avenue approaches. There are bicycle lanes along Central Avenue at the intersection, high-visibility crosswalks across all legs except the east leg, and curb ramps on each corner.

Heartwood Drive-Hayes Road/McKinleyville Avenue is an all-way stop-controlled intersection with four legs. Class II bicycle lanes are striped on the east (Heartwood Drive) leg. Curb ramps are located at the northeast and northwest corners of the intersection.

Heartwood Drive/Central Avenue is a signalized four-legged intersection with protected left-turn phasing on the northbound and southbound approaches. There are high-visibility crosswalks on all legs and curb ramps on each corner. Bicycle lanes exist on the north and south legs.

The locations of the study intersections and the existing lane configurations and controls are shown in Figure 1.

Roadway Network

The main roadways in the project site are and their function are summarized here to provide context for the circulation characteristics.

Central Avenue, also known as Business 101, is a north-south minor collector lined primarily with commercial land uses. It parallels US 101 within the project site and is the primary access route between the project site and communities to the south via an interchange at US 101. There are two lanes in each direction with a two-way left turn lane and the posted speed limit is 35 miles per hour (mph).

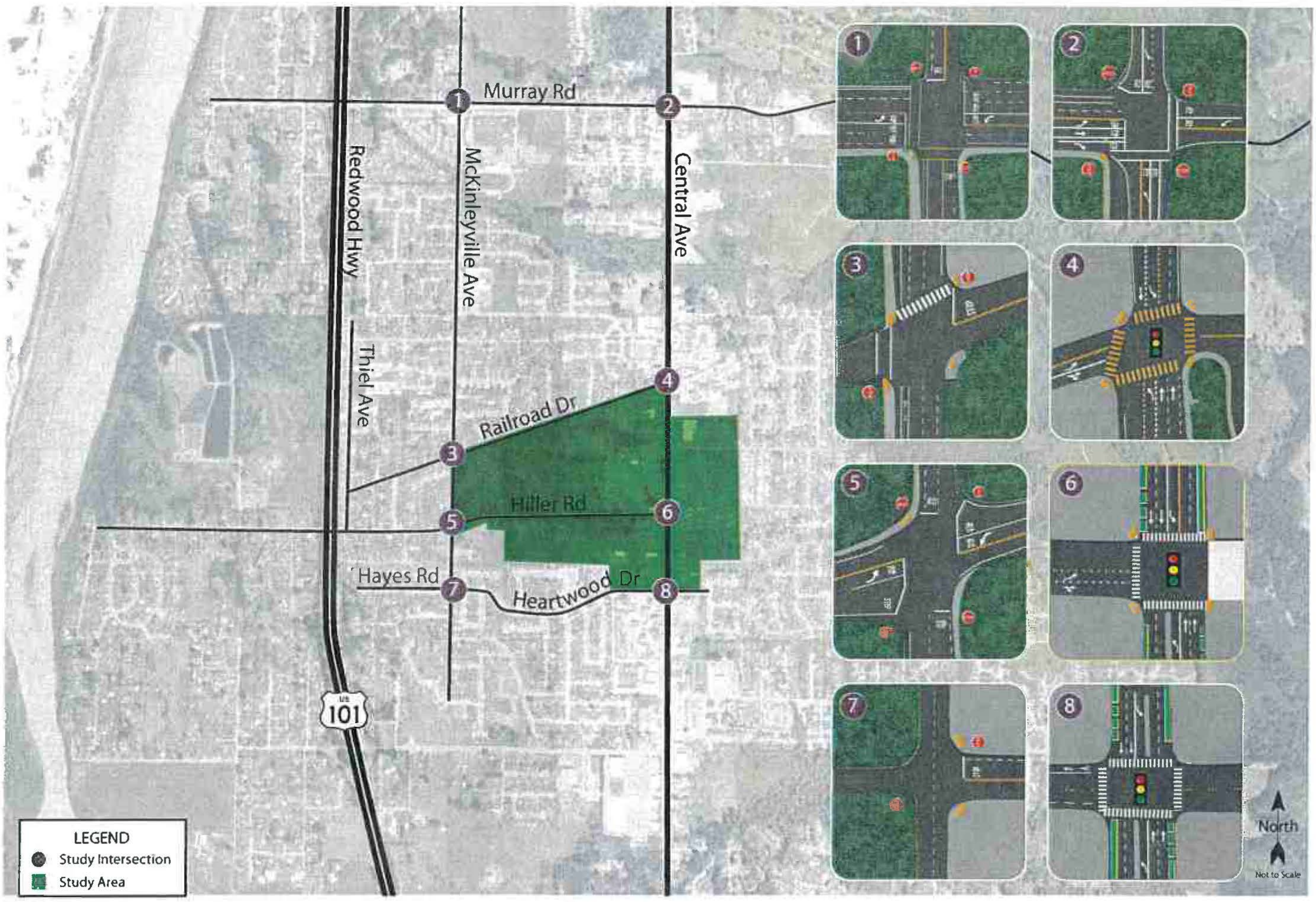
Railroad Drive is a local road located along the northern boundary of the project site, connecting Central Avenue with McKinleyville Avenue. It includes one lane in each direction and has a speed limit of 25 mph. On-street parking is available along the south side of the street and part of the north side. Portions of the frontage along the south side are currently undeveloped.

McKinleyville Avenue is a minor collector running north-south and parallel to US 101 and Central Avenue along the western boundary of the project site; it provides access to US 101 via interchanges at Murray Road to the north and Washington Avenue and School Road to the south. It is a two-lane roadway with a 25-mph speed limit with on-street parking available along the west side of the street.

Hiller Road is a local road running east-west connecting to Central Avenue and extending west across US 101, terminating near the Hammond Trail. While there is a grade-separated crossing of Hiller Road over US 101, there is no direct connection between the two roadways. Hiller Road has one lane in each direction with a speed limit of 35 mph. Much of the frontage is currently undeveloped, with on-street parking available along the frontages of the developed sections.

Murray Road is classified as a minor collector that runs east-west, with an interchange at US 101, connecting to Central Avenue, and linking McKinleyville to communities to the east. Between US 101 and Central Avenue there are four travel lanes and a two-way left turn lane, and the speed limit is 35 mph. West of US 101 and east of Central Avenue, there is one lane in each direction.

Heartwood Drive is a minor collector, running east-west and connecting to McKinleyville Avenue and Central Avenue. There is one lane in each direction, with a speed limit of 25 mph, and the corridor is characterized by residential and commercial land uses.



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McKinleyville Town Center

Figure 1 – Study Area and Existing Lane Configurations

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Project Data

Project Description

The project consists of modifications to existing zoning of the McKinleyville Town Center site to allow for the mix of land uses envisioned in the *Humboldt County General Plan* and *McKinleyville Community Plan*. This would include a mix of residential, commercial, and other uses. In addition, "complete streets" improvements are proposed along primary project area roadways to support multimodal transportation options for travel to, from and within the Town Center. The rezoning includes the establishment of a Q-Zone, an overlay zoning designation that would expand the permitted uses in the mixed-use zone to support the larger vision. The boundaries of the Town Center are shown in Figure 2.

Land Use

The Plan would allow for the addition of up to 2,650 residential units, 632,800 square feet of retail/ commercial uses, and 271,200 square feet of office uses at the Town Center site. This includes the Life Plan Humboldt project, which as proposed consists of 144 independent living residential units, 24 assisted living/ memory care units, 50 affordable residential units, plus common areas and support facilities. The remainder of the potential development is not assigned to specific sites, so the approximate distribution of those uses was determined through consultation with County staff.

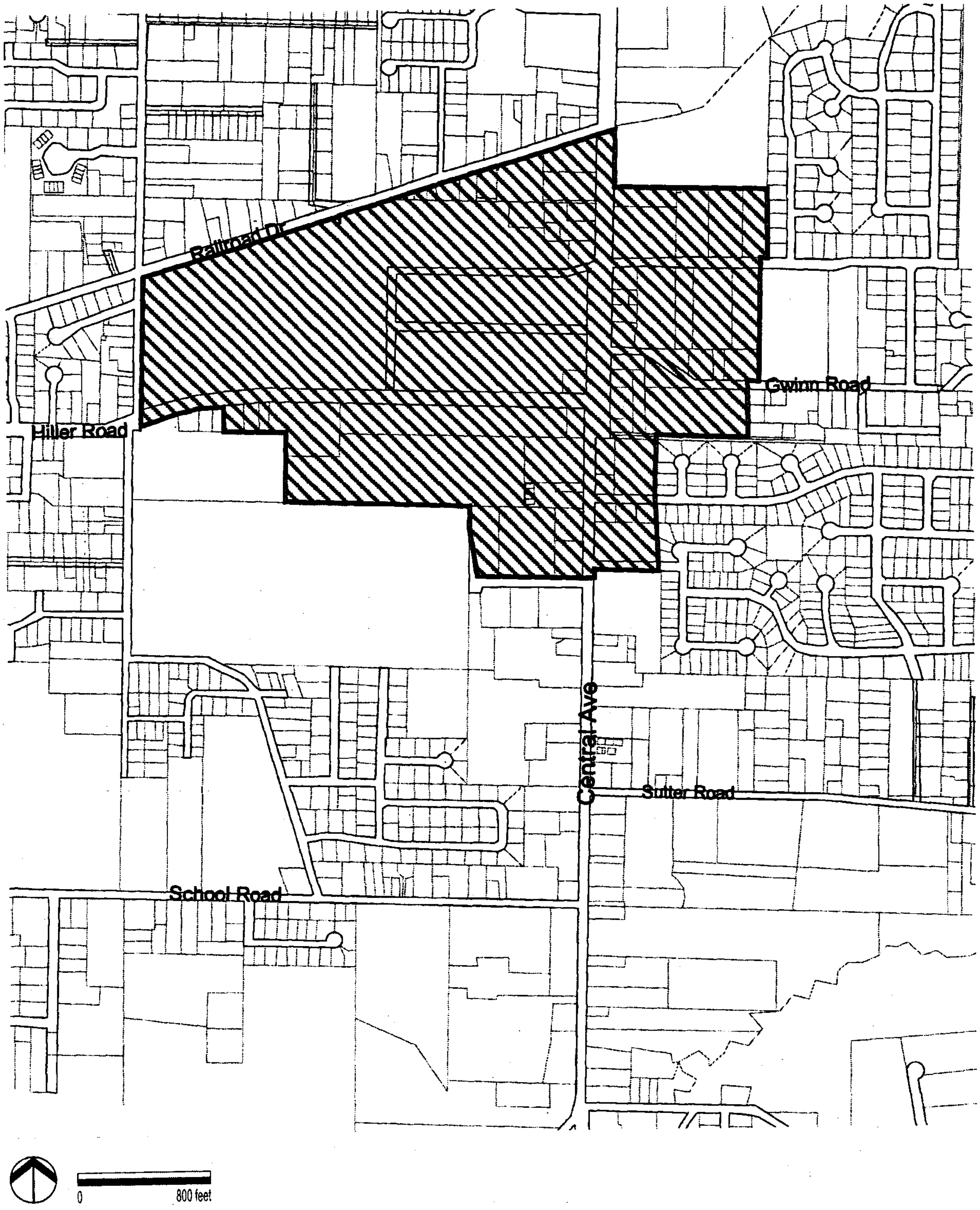
Roadway Configurations

The project includes roadway modifications to support multimodal access and circulation, including facilities for bicyclists, and pedestrians. On Central Avenue between Railroad Drive and Heartwood Drive, there are currently two through lanes in each direction and a two-way left-turn lane. The proposed project includes a "road diet" on this segment of Central Avenue, with a proposed configuration of one through lane in each direction and a median that would become a left-turn lane in advance of each intersection. On Hiller Road, the Plan as proposed includes one through lane in each direction and a median that would become left-turn pockets at intersections.

Trip Generation

The vehicular trip generation associated with the potential intensification of land uses allowed by the Plan was determined using the *Humboldt County Travel Demand Model (HCTDM)*. HCTDM uses a traditional four-step travel demand modeling process relying on land use inputs to determine trip productions and attractions, trip distribution, mode choice, and assignment to the regional network. The model breaks the County down into smaller geographic areas referred to as traffic analysis zones, or TAZs. The Town Center site spans four TAZs, though the majority of development activity would be in one zone (TAZ 191), which is generally bound by Central Avenue, Railroad Drive, McKinley Avenue, and Hiller Road. The largest development site outside of TAZ 191 is the McKinleyville Shopping Center.

The additional development potential associated with the Plan was added to the HCTDM land use inputs. For modeling purposes, the portion of the potential development defined as "commercial/retail" was assumed to be entirely retail to produce a more conservative trip generation estimate. Model runs including the added development were then performed, and the increment, or "delta," in vehicular trips entering and exiting the TAZs tabulated by comparing "no project" and "plus project" model scenarios. The resulting increase in vehicular trips constitutes the project's total trip generation. Note that this process accounts for the anticipated internalization of trips within TAZs. Such internal trips are typically associated with non-auto travel so do not result in added vehicle trips on the surrounding roadway network; this type of trip is what makes a mixed-use urban or semi-urban environment such as that envisioned in the Town Center desirable from a transportation perspective.



Source: Humboldt County, mcKinleyville Community Plan 2017

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McKinleyville Town Center
Figure 2 – Project Area Boundary

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The expected trip generation potential for Town Center at full buildout is indicated in Table 1. The project is expected to generate an average of 35,883 trips per day, including 2,083 trips during the a.m. peak hour and 3,115 during the p.m. peak hour.

Table 1 – Trip Generation Summary

Daily	AM Peak Hour			PM Peak Hour		
Total	Total	In	Out	Total	In	Out
35,883	2,083	1,164	919	3,115	1,335	1,780

Note: Trip generation estimates obtained from HCTDM

Trip Distribution

The pattern used to allocate the added trips associated with buildout of the Town Center to the surrounding street network was based on "select zone" runs of the HCTDM, which show the peak hour volumes added to the roadway links coded in the model. From a regional perspective, HCTDM projects that approximately 14 percent of trips would be oriented to and from areas north of McKinleyville, 37 percent would be oriented to and from areas south of McKinleyville, including Eureka, four percent would be oriented to and from areas east of McKinleyville, and 45 percent would remain within McKinleyville.

Like most regional travel demand models, the roadway network contained in HCTDM is fairly coarse, primarily including major facilities such as freeways, arterials, and key collectors. The model is somewhat insensitive to roadway design and context, intersection configurations and delays, and the influences of smaller streets on prevailing travel patterns. Refinement of the HCTDM distribution patterns was therefore required to develop volume estimates for the local circulation network and intersections analyzed in this study, ensuring that the regional distribution projections noted above are preserved.

The distribution of added trips also presumes the completion of the extension of McKinleyville Avenue to the roundabout at the School Road/Salmon Avenue intersection. This roadway extension is planned as part of an approved development project and should be completed well before traffic associated with Town Center development projects occurs. This extension of McKinleyville Avenue provides a more efficient connection to the US 101 freeway interchange at School Road than presently exists.

The resulting distribution assumptions applied to the analysis of study intersections within, and surrounding Town Center are shown in Table 2.

Table 2 – Trip Distribution Assumptions	
Route	**Percent**
Central Ave - south of Heartwood Dr	22%
McKinleyville Ave – south to School Rd and US 101	20%
McKinleyville Neighborhoods north of Town Center	20%
McKinleyville Neighborhoods south of Town Center	11%
Murray Rd - west of McKinleyville Ave	9%
Central Ave - north of Murray Rd	7%
Heartwood Dr - east of Central Ave	4%
Murray Rd - east of Central Ave	3%
McKinleyville Ave - north of Murray Rd	2%
Hiller Rd - west of McKinleyville Ave	2%
TOTAL	**100%**

Capacity Analysis

Intersection Level of Service Methodologies

Level of Service (LOS) is used to rank traffic operation on various types of facilities based on traffic volumes and roadway capacity using a series of letter designations ranging from A to F. Generally, Level of Service A represents free flow conditions and Level of Service F represents forced flow or breakdown conditions. A unit of measure that indicates a level of delay generally accompanies the LOS designation.

The study intersections were analyzed using methodologies published in the *Highway Capacity Manual* (HCM) *Sixth Edition*, Transportation Research Board, 2018. This source contains methodologies for various types of intersection control, all of which are related to a measurement of delay in average number of seconds per vehicle.

The Levels of Service for the intersections with side street stop controls, or those which are unsignalized and have one or two approaches stop controlled, were analyzed using the "Two-Way Stop-Controlled" intersection capacity method from the HCM. This methodology determines a level of service for each minor turning movement by estimating the level of average delay in seconds per vehicle. Results are presented for individual movements together with the weighted overall average delay for the intersection.

The study intersections with stop signs on all approaches were analyzed using the "All-Way Stop-Controlled" Intersection methodology from the HCM. This methodology evaluates delay for each approach based on turning movements, opposing and conflicting traffic volumes, and the number of lanes. Average vehicle delay is computed for the intersection as a whole and is then related to a Level of Service.

The study intersections that are currently controlled by a traffic signal, or may be in the future, were evaluated using the signalized methodology from the HCM. This methodology is based on factors including traffic volumes, green time for each movement, phasing, whether the signals are coordinated or not, truck traffic, and pedestrian activity. Average stopped delay per vehicle in seconds is used as the basis for evaluation in this LOS methodology. For purposes of this study, delays were calculated using signal timing obtained from the County.

The ranges of delay associated with the various levels of service are indicated in Table 3.

Table 3 – Intersection Level of Service Criteria			
LOS	**Two-Way Stop-Controlled**	**All-Way Stop-Controlled**	**Signalized**
A	Delay of 0 to 10 seconds. Gaps in traffic are readily available for drivers exiting the minor street.	Delay of 0 to 10 seconds. Upon stopping, drivers are immediately able to proceed.	Delay of 0 to 10 seconds. Most vehicles arrive during the green phase, so do not stop at all.
B	Delay of 10 to 15 seconds. Gaps in traffic are somewhat less readily available than with LOS A, but no queuing occurs on the minor street.	Delay of 10 to 15 seconds. Drivers may wait for one or two vehicles to clear the intersection before proceeding from a stop.	Delay of 10 to 20 seconds. More vehicles stop than with LOS A, but many drivers still do not have to stop.
C	Delay of 15 to 25 seconds. Acceptable gaps in traffic are less frequent, and drivers may approach while another vehicle is already waiting to exit the side street.	Delay of 15 to 25 seconds. Drivers will enter a queue of one or two vehicles on the same approach and wait for vehicle to clear from one or more approaches prior to entering the intersection.	Delay of 20 to 35 seconds. The number of vehicles stopping is significant, although many still pass through without stopping.
D	Delay of 25 to 35 seconds. There are fewer acceptable gaps in traffic, and drivers may enter a queue of one or two vehicles on the side street.	Delay of 25 to 35 seconds. Queues of more than two vehicles are encountered on one or more approaches.	Delay of 35 to 55 seconds. The influence of congestion is noticeable, and most vehicles have to stop.
E	Delay of 35 to 50 seconds. Few acceptable gaps in traffic are available, and longer queues may form on the side street.	Delay of 35 to 50 seconds. Longer queues are encountered on more than one approach to the intersection.	Delay of 55 to 80 seconds. Most, if not all, vehicles must stop, and drivers consider the delay excessive.
F	Delay of more than 50 seconds. Drivers may wait for long periods before there is an acceptable gap in traffic for exiting the side streets, creating long queues.	Delay of more than 50 seconds. Drivers enter long queues on all approaches.	Delay of more than 80 seconds. Vehicles may wait through more than one cycle to clear the intersection.

Reference: *Highway Capacity Manual*, Transportation Research Board, 2018

Traffic Operation Standards

The County of Humboldt's LOS standard is specified in Policy C-P5 of the *Humboldt County General Plan*, which states that the County shall strive to maintain LOS C operation on all roadway segments and intersections except for US 101 where LOS D is considered acceptable. For the purposes of this analysis, the standard was applied to the overall operation of the intersection, not any single movement or approach. The policy also states that LOS improvements for automobiles should not adversely affect the LOS or quality of service for other modes of transportation, if possible.

Existing Conditions

The Existing Conditions scenario provides an evaluation of current operation based on existing traffic volumes during the a.m. and p.m. peak periods. This condition does not include project-generated traffic volumes or any changes to the transportation network. Volume data was collected in February 2024 while local schools were in session.

Under existing volumes, all study intersections operate acceptably at LOS C or better. The existing traffic volumes are shown in Figure 3. A summary of the intersection Level of Service calculations is contained in Table 4, and copies of the calculations are provided in Appendix A.

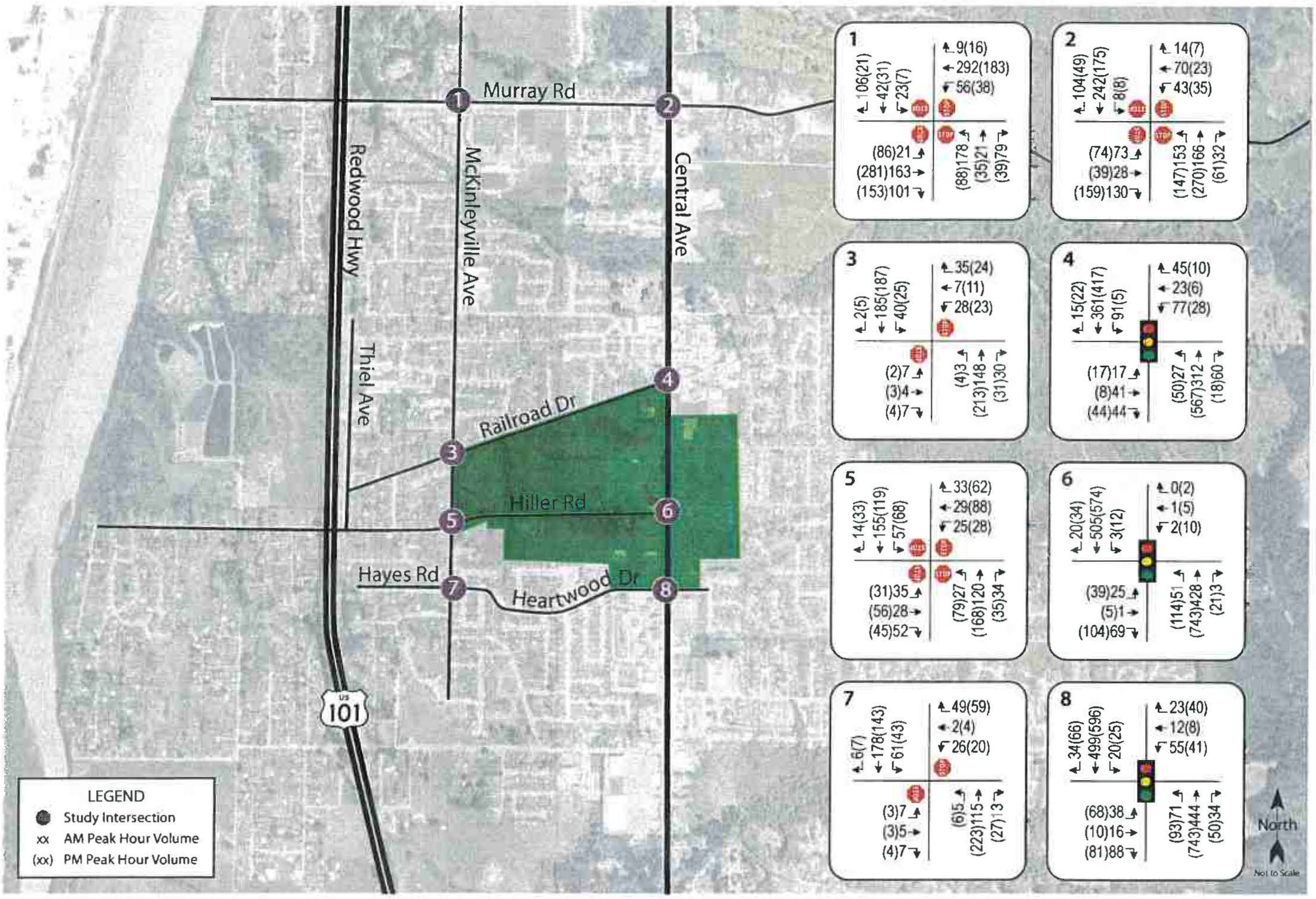
Table 4 – Existing Peak Hour Intersection Levels of Service				
Study Intersection *Approach*	**Existing Conditions**			
	AM Peak		**PM Peak**	
	Delay	**LOS**	**Delay**	**LOS**
1. Murray Rd/McKinleyville Ave	16.4	C	10.9	B
2. Murray Rd/Central Ave	14.5	B	13.7	B
3. Railroad Dr/McKinleyville Ave	2.9	A	2.0	A
EB (Railroad Dr) Approach	*12.5*	*B*	*12.0*	*B*
WB (Railroad Dr) Approach	*12.5*	*B*	*12.8*	*B*
4. Railroad Dr/Central Ave	13.3	B	8.8	A
5 Hiller Rd/McKinleyville Ave	10.6	B	12.2	B
6. Hiller Rd/Central Ave	6.6	A	8.1	A
7. Heartwood Dr-Hayes Rd/McKinleyville Ave	3.4	A	2.8	A
EB (Hayes Rd) Approach	*12.5*	*B*	*12.4*	*B*
WB (Heartwood Dr) Approach	*11.5*	*B*	*11.9*	*B*
8. Heartwood Dr/Central Ave	8.7	A	9.5	A

Note: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics*

Future Conditions

Segment volumes for the horizon year of 2045 were obtained from the HCTDM runs performed for the Town Center project and translated to turning movement volumes at each of the study intersections using the "Furness" method. The Furness procedure is a commonly used iterative factoring algorithm that employs existing turning movement data, base year model link volumes, and future year model link volumes to estimate likely future turning movement volumes at intersections. Future "no project" traffic volumes assume no changes to the year 2045 land use estimates contained in the HCTDM. When analyzing "plus project" conditions with Town Center, the projected buildout traffic volumes associated with Town Center are added to these future "no project" volumes. For purposes of all model scenarios, the HCTDM network was updated to include the existing Heartwood Drive connection between McKinleyville Avenue and Central Avenue.

The anticipated future volumes at the study intersections (without Town Center) generally show modest growth. Review of HCTDM output indicates that other roadways in the region, including US 101, are anticipated to encounter more substantial growth by 2045. Under Year 2045 conditions without the Town Center the study intersections are expected to continue operating acceptably at LOS C or better during both the a.m. and p.m. peak hours, meeting the County's LOS targets. Future volumes are shown in Figure 4 and operating conditions are summarized in Table 5.



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McKinleyville Town Center

Figure 3 – Existing Traffic Volumes

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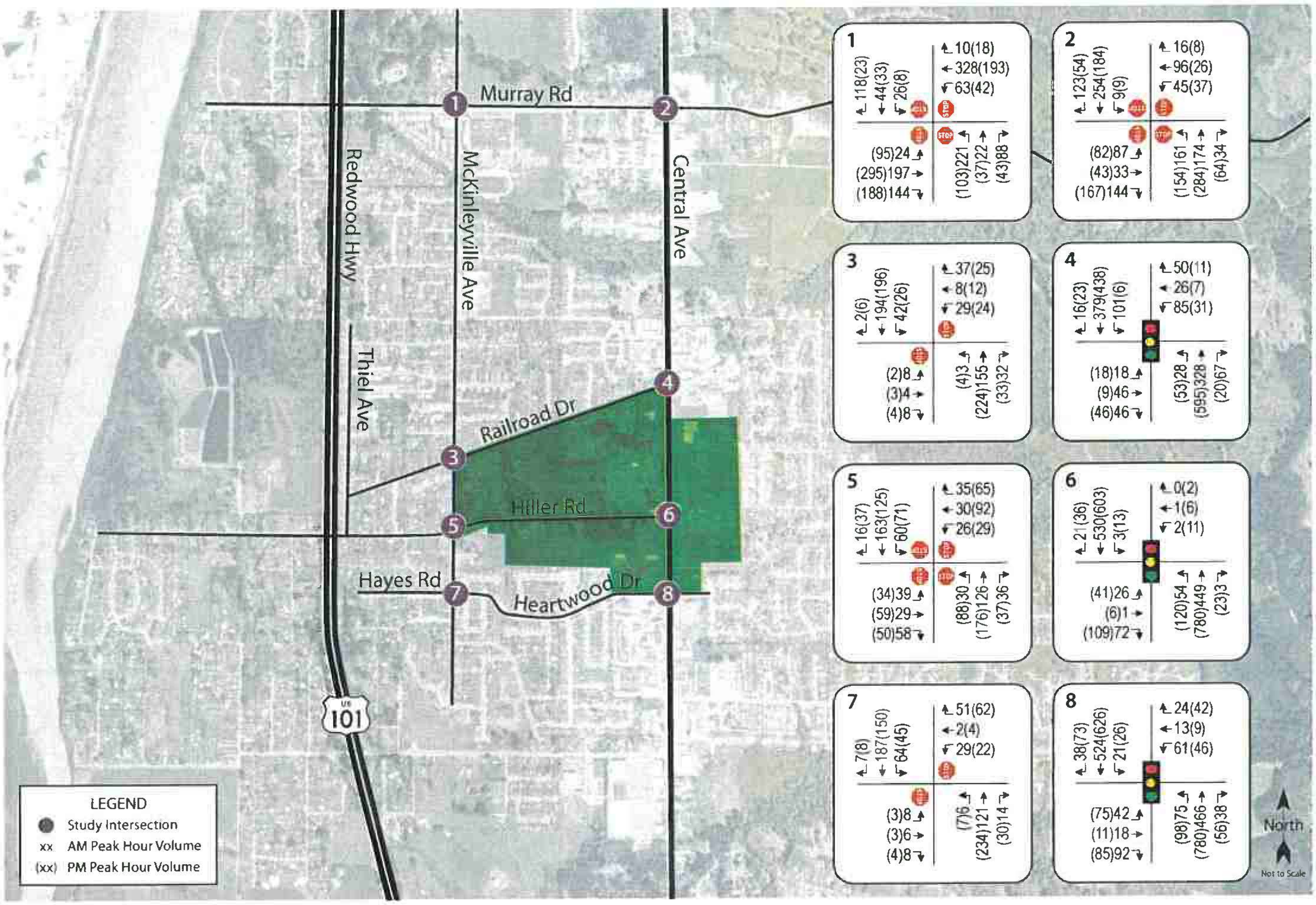

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Figure 4 – Future Traffic Volumes

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Table 5 – Future Peak Hour Intersection Levels of Service				
Study Intersection	**AM Peak**		**PM Peak**	
Approach	**Delay**	**LOS**	**Delay**	**LOS**
1. Murray Ave/McKinleyville Ave	20.9	C	11.8	B
2. Murray Ave/Central Ave	16.4	C	14.7	B
3. Railroad Dr/McKinleyville Ave	3.0	A	2.1	A
Eastbound (Railroad Dr) Approach	*12.8*	*B*	*12.3*	*B*
Westbound (Railroad Dr) Approach	*12.8*	*B*	*13.2*	*B*
4. Railroad Dr/Central Ave	13.8	B	9.2	A
5 Hiller Rd/McKinleyville Ave	11.1	B	13.0	B
6. Hiller Rd/Central Ave	6.7	A	8.3	A
7. Heartwood Dr/McKinleyville Ave	3.6	A	2.8	A
Eastbound (Heartwood Dr) Approach	*12.9*	*B*	*12.7*	*B*
Westbound (Heartwood Dr) Approach	*11.9*	*B*	*12.2*	*B*
8. Heartwood Dr/Central Ave	9.0	A	10.0	B

Note: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics*

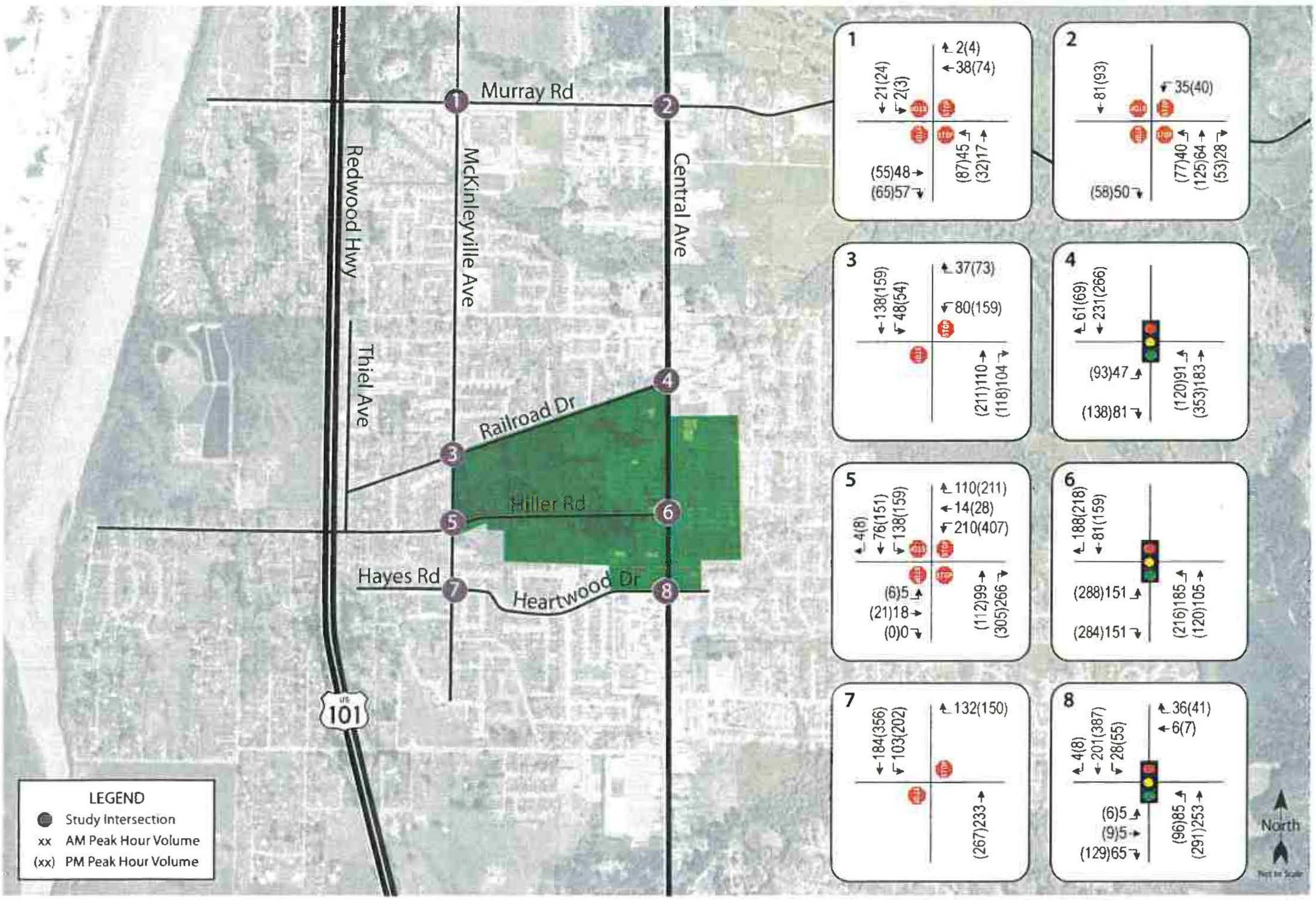
Project Conditions

Future plus Project Conditions

As the proposed project is a long-range plan that would not be built out for many years, the effects of project traffic on intersection operation were analyzed under a future year condition assuming project buildout. It should be noted that while the future scenario corresponds to the Humboldt County travel demand model's forecast year of 2045, actual buildout of the project is likely to occur well beyond this date.

The Future plus Project traffic analysis includes the proposed road diet on Central Avenue between Railroad Drive and Heartwood Drive, which would remove one through lane in each direction. The analysis also includes the widening of Hiller Road to include a median with turn pockets. There are also network improvements that were assumed such as the extension of McKinleyville Avenue to the south, where it will connect to the existing roundabout on School Road. Volumes associated with project-generated trips are presented in Figure 5.

Upon the addition of project-generated traffic to the anticipated future volumes along with the proposed roadway modifications, six of the eight study intersections would be expected to operate at a worse Level of Service than the County's LOS C target. The Future plus Project operating conditions are summarized in Table 6, and copies of the calculations are contained in Appendix A.



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McKinleyville Town Center

Figure 5 – Project Traffic Volumes

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Table 6 – Future and Future plus Project Peak Hour Intersection Levels of Service									
Study Intersection		**Future Conditions**				**Future plus Project**			
Approach		**AM Peak**		**PM Peak**		**AM Peak**		**PM Peak**	
		Delay	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**
1.	Murray Ave/McKinleyville Ave	20.9	C	11.8	B	**32.9**	**D**	18.9	C
	Signalized	-	-	-	-	10.9	B	10.8	B
2.	Murray Ave/Central Ave	16.4	C	14.7	B	**26.2**	**D**	**55.4**	**F**
	Signalized	-	-	-	-	25.5	C	24.9	C
	Roundabout	-	-	-	-	9.2	A	10.5	B
3.	Railroad Dr/McKinleyville Ave	3.0	A	2.1	A	8.0	A	**57.1**	**F**
	EB (Railroad Dr) Approach	*12.8*	*B*	*12.3*	*B*	*19.4*	*C*	*22.3*	*C*
	WB (Railroad Dr) Approach	*12.8*	*B*	*13.2*	*B*	*37.2*	*E**	**	***F***
	Add AWSC and turn pockets[1]	-	-	-	-	13.0	B	21.8	C
	Roundabout	-	-	-	-	6.3	A	8.3	A
4.	Railroad Dr/Central Ave	13.8	B	9.2	A	23.7	C	24.3	C
5	Hiller Rd/McKinleyville Ave	11.1	B	13.0	B	**80.7**	**F**	**	**F**
	Signalized, add SB left-turn pocket	-	-	-	-	10.2	B	30.4	C
	Roundabout with WB right-turn pocket	-	-	-	-	9.3	A	21.0	C
6.	Hiller Rd/Central Ave	6.7	A	8.3	A	34.5	C	**81.9**	**F**
	Add SB right-turn pocket, modify phasing[2]	-	-	-	-	19.9	B	**45.9**	**D**
	Close driveway on east leg[3]	-	-	-	-	15.4	B	33.3	C
7.	Heartwood Dr/McKinleyville Ave	3.6	A	2.8	A	6.0	A	13.4	B
	EB (Heartwood Dr) Approach	*12.9*	*B*	*12.7*	*B*	*31.7*	*D**	*77.4*	*F**
	WB (Heartwood Dr) Approach	*11.9*	*B*	*12.2*	*B*	*22.3*	*C*	*73.2*	*F**
8.	Heartwood Dr/Central Ave	9.0	A	10.0	B	18.0	B	**57.9**	**E**
	Resume 2 SB lanes 100-ft north of intersection, add EB right-turn pocket	-	-	-	-	14.2	B	29.4	C

Note: Delay is measured in average seconds per vehicle; LOS = Level of Service; AWSC = All-Way Stop Controls; EB = Eastbound; SB = Southbound; WB = Westbound; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics*; * = minor movements operating below LOS C considered acceptable if intersection operates acceptably overall; ** = delay greater than 120 seconds; **Bold** text = deficient operation; Shaded cells = conditions with recommended improvements

[1] add left-turn pockets southbound and eastbound, add right-turn pocket northbound

[2] split left-turn phasing eastbound and westbound, right-turn overlap phases southbound and eastbound

[3] includes SB right-turn pocket and phasing changes; access to east remains at driveways north and south of signal

Modifications Required to Address LOS Deficiencies

The following the intersection modifications would need to be implemented to achieve the County's LOS C target under future conditions with buildout of Town Center.

- **Murray Road/McKinleyville Avenue** – Signalize the intersection, resulting in LOS B operation.
- **Murray Road/Central Avenue** – Signalize the intersection, resulting in LOS C operation, or install a single-lane roundabout, which would result in LOS A or B operation.
- **Railroad Drive/McKinleyville Avenue** – Install all-way stop-controls. Add left-turn pockets on the southbound and eastbound approaches, as well as a right-turn pocket on the northbound approach. These modifications would result in LOS C or better operation. Alternatively, construct a single-lane roundabout at the intersection, which would result in LOS A operation.
- **Hiller Road/McKinleyville Avenue** – Install a traffic signal and add a southbound left-turn pocket, resulting in LOS C or better operation. Alternatively, install a single-lane roundabout with westbound right-turn slip lane, which would also result in LOS C or better operation.
- **Hiller Road/Central Avenue** – As part of the Central Avenue road diet implementation, maintain a southbound right-turn pocket at the intersection, restripe the eastbound Hiller Avenue approach to include through/left-turn and right-turn lanes, and modify the signal to include split phasing on the eastbound and westbound approaches plus right-turn overlap phasing on the southbound and eastbound approaches. These modifications are anticipated to improve future intersection operation from LOS F to LOS D during the p.m. peak hour with buildout of Town Center. While LOS D is not satisfactory compared to the operational target established by the County, auto operation in the LOS D range is common in downtown areas and locations where prioritization of non-auto modes is a community goal. It is recommended that the County consider allowing LOS D operation on Central Avenue in the Town Center area in recognition of the desire to balance traffic flow with the need to encourage and support non-auto travel. If the County and/or decision makers prefer to maintain the LOS C target in this area, LOS C operation could be achieved by closing the private driveway approach on the intersection's east leg, allowing the signal to operate more efficiently by allocating more "green time" to the three public street approaches. Access to the affected property on the east side of Central Avenue would remain at driveways to the north and south of the signal, though left-turn movements at these driveways would be difficult.
- **Heartwood Drive/Central Avenue** – As part of the Central Avenue road diet implementation, resume two southbound through lanes on the Central Avenue intersection approach beginning approximately 100 feet north of the intersection. This modification would improve efficiency of the signal and conform to the dual southbound lanes existing to the south of the intersection. The westbound Heartwood Drive approach should be restriped to provide a right-turn pocket. With these modifications, the intersection would operate acceptably at LOS C under future conditions with buildout of Town Center.

Finding – Under Future volumes with the addition of project traffic, six of the eight study intersections will operate at a level of service worse than LOS C during one or both peak hours. Recommendations were developed to improve traffic operations at these locations.

Recommendations – To achieve acceptable operation under Future plus Project volumes at the intersections expected to operate below County standards, the following improvements are recommended.

- Murray Road/McKinleyville Avenue: Install traffic signal.

- Murray Road/Central Avenue: Install traffic signal or a roundabout.

- Railroad Drive/McKinleyville Avenue: Install all-way stop controls with turn pockets or a roundabout.

- Hiller Road/McKinleyville Avenue: Install a traffic signal with a southbound left-turn pocket or install a roundabout with a westbound right-turn slip lane.

- Hiller Road/Central Avenue: Add a southbound right-turn pocket and modify the signal phasing. To achieve LOS C operation, the County would need to consider closing the driveway on the east leg of the intersection.

- Heartwood Drive/Central Avenue: Retain two southbound lanes beginning 100 feet north of the intersection, and add an eastbound right-turn pocket.

Conclusions and Recommendations

Conclusions

- Buildout of the proposed McKinleyville Town Center project would yield up to 2,650 housing units, 271,200 square feet of office space, and 632,800 square feet of retail/commercial development. The project is estimated to generate 35,883 daily trips, including 2,083 trips during the a.m. peak hour and 3,115 trips during the p.m. peak hour.
- Under existing volumes, all eight study intersections operate acceptably at LOS C or better during both peak hours.
- Under future "no project" volumes, all study intersections are expected to continue operating acceptably during both the a.m. and p.m. peak hours.
- Under future volumes, including trips associated with the buildout of Town Center, and with the proposed road diet along Central Avenue, six of the eight study intersections are expected to operate deficiently (worse than the County's target of LOS C) during the a.m. and/or p.m. peak hour. Recommendations were developed for these intersections, and the implementation of these recommendations would result in acceptable operations at all intersections.

Recommendations

To maintain a service level at or above the acceptable LOS C standard based on County policy, the following recommendations are proposed.

- Install a traffic signal at Murray Road/McKinleyville Avenue.
- Signalize the intersection of Murray Road/Central Avenue or install a single-lane roundabout.
- At Railroad Drive/McKinleyville Avenue, either install all-way stop control and turn pockets on three of the four approaches or construct a single-lane roundabout.
- Install a traffic signal at Hiller Road/McKinleyville Avenue with a southbound left-turn pocket or install a single-lane roundabout with a westbound right-turn slip lane.
- At Hiller Road/Central Avenue, maintain a southbound right-turn pocket at the intersection, restripe the eastbound approach to include through/left-turn and right-turn lanes, add east-west oriented split phasing, and provide right-turn overlap phasing on the southbound and eastbound approaches. These modifications would result in LOS D operation. The County may wish to consider allowing LOS D on Central Avenue in the Town Center area. Alternatively, LOS C operation could be achieved by closing the private driveway approach on the intersection's east leg.
- Add an eastbound right-turn pocket to the intersection of Heartwood Drive/Central Avenue and retain two southbound lanes beginning 100 feet north of the intersection.

Study Participants and References

Study Participants

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References

Highway Capacity Manual, 6th Edition, Transportation Research Board, 2016
Humboldt County General Plan, County of Humboldt, 2017
Humboldt County Travel Demand Model, Caltrans, District 1, 2022
McKinleyville Community Plan, County of Humboldt, 2002

HUX080

Appendix A

Intersection Level of Service Calculations

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Intersection	
Intersection Delay, s/veh	16.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	163	101	56	292	9	178	21	79	23	42	106
Future Vol, veh/h	21	163	101	56	292	9	178	21	79	23	42	106
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	25	192	119	66	344	11	209	25	93	27	49	125
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	13.1	14.3	23.6	14.8
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	64%	100%	0%	0%	100%	0%	0%	13%
Vol Thru, %	8%	0%	100%	35%	0%	100%	92%	25%
Vol Right, %	28%	0%	0%	65%	0%	0%	8%	62%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	278	21	109	155	56	195	106	171
LT Vol	178	21	0	0	56	0	0	23
Through Vol	21	0	109	54	0	195	97	42
RT Vol	79	0	0	101	0	0	9	106
Lane Flow Rate	327	25	128	183	66	229	125	201
Geometry Grp	5	5	5	5	5	5	5	5
Degree of Util (X)	0.666	0.054	0.263	0.352	0.142	0.461	0.249	0.402
Departure Headway (Hd)	7.327	7.931	7.413	6.941	7.757	7.24	7.178	7.201
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	494	451	483	517	461	497	499	499
Service Time	5.082	5.695	5.177	4.705	5.518	5	4.939	4.965
HCM Lane V/C Ratio	0.662	0.055	0.265	0.354	0.143	0.461	0.251	0.403
HCM Control Delay	23.6	11.2	12.8	13.5	11.8	16.1	12.3	14.8
HCM Lane LOS	C	B	B	B	B	C	B	B
HCM 95th-tile Q	4.8	0.2	1	1.6	0.5	2.4	1	1.9

Intersection	
Intersection Delay, s/veh	14.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	73	28	130	43	70	14	153	166	32	8	242	104
Future Vol, veh/h	73	28	130	43	70	14	153	166	32	8	242	104
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	82	31	146	48	79	16	172	187	36	9	272	117
Number of Lanes	1	1	1	1	1	0	1	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	3	3	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	2	3	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	3	2	3
HCM Control Delay	12.4	12.5	15	16
HCM LOS	B	B	B	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	100%	0%	0%	100%	0%	100%	0%	0%
Vol Thru, %	0%	84%	0%	100%	0%	0%	83%	0%	100%	0%
Vol Right, %	0%	16%	0%	0%	100%	0%	17%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	153	198	73	28	130	43	84	8	242	104
LT Vol	153	0	73	0	0	43	0	8	0	0
Through Vol	0	166	0	28	0	0	70	0	242	0
RT Vol	0	32	0	0	130	0	14	0	0	104
Lane Flow Rate	172	222	82	31	146	48	94	9	272	117
Geometry Grp	6	6	6	6	6	6	6	6	6	6
Degree of Util (X)	0.366	0.435	0.187	0.067	0.283	0.114	0.206	0.019	0.545	0.211
Departure Headway (Hd)	7.664	7.043	8.206	7.697	6.985	8.484	7.855	7.724	7.216	6.506
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	469	512	437	465	514	422	457	464	500	552
Service Time	5.408	4.787	5.957	5.448	4.735	6.238	5.609	5.468	4.96	4.249
HCM Lane V/C Ratio	0.367	0.434	0.188	0.067	0.284	0.114	0.206	0.019	0.544	0.212
HCM Control Delay	14.8	15.1	12.8	11	12.5	12.3	12.6	10.6	18.3	11
HCM Lane LOS	B	C	B	B	B	B	B	B	C	B
HCM 95th-tile Q	1.7	2.2	0.7	0.2	1.2	0.4	0.8	0.1	3.2	0.8

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	4	7	28	7	35	3	148	30	40	185	2
Future Vol, veh/h	7	4	7	28	7	35	3	148	30	40	185	2
Conflicting Peds, #/hr	9	0	2	1	0	8	2	0	1	8	0	9
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	5	8	33	8	41	4	174	35	47	218	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	555	547	230	530	531	209	229	0	0	217	0	0
Stage 1	322	322	-	208	208	-	-	-	-	-	-	-
Stage 2	233	225	-	322	323	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	442	445	809	460	454	831	1339	-	-	1353	-	-
Stage 1	690	651	-	794	730	-	-	-	-	-	-	-
Stage 2	770	718	-	690	650	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	393	419	801	432	427	818	1326	-	-	1343	-	-
Mov Cap-2 Maneuver	393	419	-	432	427	-	-	-	-	-	-	-
Stage 1	682	619	-	785	722	-	-	-	-	-	-	-
Stage 2	715	710	-	649	618	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.5	12.5	0.1	1.4
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1328	-	-	499	565	1343	-	-
HCM Lane V/C Ratio	0.003	-	-	0.042	0.146	0.035	-	-
HCM Control Delay (s)	7.7	0	-	12.5	12.5	7.8	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.5	0.1	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	41	44	77	23	45	27	312	60	91	361	15
Future Volume (veh/h)	17	41	44	77	23	45	27	312	60	91	361	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		1.00	0.98		0.97	1.00		0.95	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	20	48	0	91	27	32	32	367	45	107	425	16
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	528	452	0	325	99	77	53	1067	130	142	691	26
Arrive On Green	0.24	0.24	0.00	0.24	0.24	0.24	0.03	0.34	0.34	0.08	0.39	0.39
Sat Flow, veh/h	1316	1870	0	762	409	318	1781	3170	385	1781	1788	67
Grp Volume(v), veh/h	20	48	0	150	0	0	32	204	208	107	0	441
Grp Sat Flow(s),veh/h/ln	1316	1870	0	1488	0	0	1781	1777	1778	1781	0	1856
Q Serve(g_s), s	0.0	0.8	0.0	2.0	0.0	0.0	0.7	3.5	3.6	2.4	0.0	7.8
Cycle Q Clear(g_c), s	0.4	0.8	0.0	3.3	0.0	0.0	0.7	3.5	3.6	2.4	0.0	7.8
Prop In Lane	1.00		0.00	0.61		0.21	1.00		0.22	1.00		0.04
Lane Grp Cap(c), veh/h	528	452	0	501	0	0	53	598	598	142	0	717
V/C Ratio(X)	0.04	0.11	0.00	0.30	0.00	0.00	0.60	0.34	0.35	0.75	0.00	0.61
Avail Cap(c_a), veh/h	1367	1645	0	1422	0	0	1045	2171	2173	1045	0	2267
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.9	12.1	0.0	12.9	0.0	0.0	19.6	10.2	10.2	18.4	0.0	10.1
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.0	0.0	10.5	0.6	0.6	7.8	0.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.3	0.0	1.0	0.0	0.0	0.4	1.1	1.1	1.1	0.0	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.9	12.1	0.0	13.1	0.0	0.0	30.1	10.8	10.8	26.2	0.0	11.6
LnGrp LOS	B	B	A	B	A	A	C	B	B	C	A	B
Approach Vol, veh/h		68			150			444			548	
Approach Delay, s/veh		12.1			13.1			12.2			14.4	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	4	5	6	8
Phs Duration (G+Y+Rc), s	7.8	18.3	14.9	5.7	20.3	14.9
Change Period (Y+Rc), s	4.5	4.5	5.0	4.5	4.5	5.0
Max Green Setting (Gmax), s	24.0	50.0	36.0	24.0	50.0	36.0
Max Q Clear Time (g_c+I1), s	4.4	5.6	2.8	2.7	9.8	5.3
Green Ext Time (p_c), s	0.2	4.5	0.2	0.0	5.2	0.6

Intersection Summary	
HCM 6th Ctrl Delay	13.3
HCM 6th LOS	B

Intersection	
Intersection Delay, s/veh	10.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	35	28	52	25	29	33	27	120	34	57	155	14
Future Vol, veh/h	35	28	52	25	29	33	27	120	34	57	155	14
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	41	33	61	29	34	39	32	141	40	67	182	16
Number of Lanes	1	1	1	1	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	9.1	9	10.7	11.9
HCM LOS	A	A	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	15%	100%	0%	0%	100%	0%	0%	25%
Vol Thru, %	66%	0%	100%	0%	0%	100%	0%	69%
Vol Right, %	19%	0%	0%	100%	0%	0%	100%	6%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	181	35	28	52	25	29	33	226
LT Vol	27	35	0	0	25	0	0	57
Through Vol	120	0	28	0	0	29	0	155
RT Vol	34	0	0	52	0	0	33	14
Lane Flow Rate	213	41	33	61	29	34	39	266
Geometry Grp	5	5	5	5	5	5	5	5
Degree of Util (X)	0.318	0.075	0.056	0.091	0.054	0.058	0.058	0.402
Departure Headway (Hd)	5.368	6.582	6.072	5.358	6.635	6.124	5.41	5.443
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	662	547	593	672	543	588	665	654
Service Time	3.165	4.285	3.775	3.061	4.339	3.829	3.114	3.236
HCM Lane V/C Ratio	0.322	0.075	0.056	0.091	0.053	0.058	0.059	0.407
HCM Control Delay	10.7	9.8	9.1	8.6	9.7	9.2	8.4	11.9
HCM Lane LOS	B	A	A	A	A	A	A	B
HCM 95th-tile Q	1.4	0.2	0.2	0.3	0.2	0.2	0.2	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	1	69	2	1	0	51	428	3	3	505	20
Future Volume (veh/h)	25	1	69	2	1	0	51	428	3	3	505	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		1.00	0.98		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	1	0	2	1	0	55	465	2	3	549	18
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	320	90	0	258	24	0	88	1665	7	6	1448	47
Arrive On Green	0.05	0.05	0.00	0.05	0.05	0.00	0.05	0.46	0.46	0.00	0.41	0.41
Sat Flow, veh/h	1391	1870	0	1003	501	0	1781	3629	16	1781	3509	115
Grp Volume(v), veh/h	27	1	0	3	0	0	55	228	239	3	278	289
Grp Sat Flow(s),veh/h/ln	1391	1870	0	1504	0	0	1781	1777	1867	1781	1777	1847
Q Serve(g_s), s	0.5	0.0	0.0	0.1	0.0	0.0	0.9	2.3	2.3	0.0	3.1	3.1
Cycle Q Clear(g_c), s	0.5	0.0	0.0	0.1	0.0	0.0	0.9	2.3	2.3	0.0	3.1	3.1
Prop In Lane	1.00		0.00	0.67		0.00	1.00		0.01	1.00		0.06
Lane Grp Cap(c), veh/h	320	90	0	282	0	0	88	815	857	6	733	762
V/C Ratio(X)	0.08	0.01	0.00	0.01	0.00	0.00	0.62	0.28	0.28	0.48	0.38	0.38
Avail Cap(c_a), veh/h	1906	2224	0	2016	0	0	1806	3106	3265	1806	3106	3229
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.2	13.0	0.0	13.0	0.0	0.0	13.3	4.8	4.8	14.2	5.8	5.8
Incr Delay (d2), s/veh	0.2	0.1	0.0	0.0	0.0	0.0	2.7	0.3	0.3	19.9	0.6	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.4	0.0	0.6	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.4	13.0	0.0	13.0	0.0	0.0	16.0	5.1	5.1	34.1	6.4	6.4
LnGrp LOS	B	B	A	B	A	A	B	A	A	C	A	A
Approach Vol, veh/h		28			3			522			570	
Approach Delay, s/veh		13.3			13.0			6.3			6.5	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	1	2	4	5	6	8
Phs Duration (G+Y+Rc), s	4.6	17.6	8.4	5.9	16.3	6.4
Change Period (Y+Rc), s	4.5	4.5	5.0	4.5	4.5	5.0
Max Green Setting (Gmax), s	29.0	50.0	34.0	29.0	50.0	34.0
Max Q Clear Time (g_c+I1), s	2.0	4.3	2.5	2.9	5.1	2.1
Green Ext Time (p_c), s	0.0	5.2	0.1	0.1	5.6	0.0

Intersection Summary	
HCM 6th Ctrl Delay	6.6
HCM 6th LOS	A

Intersection												
Int Delay, s/veh	3.4											
Movement	**EBL**	**EBT**	**EBR**	**WBL**	**WBT**	**WBR**	**NBL**	**NBT**	**NBR**	**SBL**	**SBT**	**SBR**
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	7	5	7	26	2	49	5	115	13	61	178	6
Future Vol, veh/h	7	5	7	26	2	49	5	115	13	61	178	6
Conflicting Peds, #/hr	0	0	0	3	0	3	0	0	3	3	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	6	8	31	2	58	6	135	15	72	209	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	545	522	216	525	518	149	216	0	0	153	0	0
Stage 1	357	357	-	158	158	-	-	-	-	-	-	-
Stage 2	188	165	-	367	360	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	449	459	824	463	462	898	1354	-	-	1428	-	-
Stage 1	661	628	-	844	767	-	-	-	-	-	-	-
Stage 2	814	762	-	653	626	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	397	429	822	429	432	893	1354	-	-	1424	-	-
Mov Cap-2 Maneuver	397	429	-	429	432	-	-	-	-	-	-	-
Stage 1	658	592	-	637	761	-	-	-	-	-	-	-
Stage 2	753	756	-	601	590	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.5	11.5	0.3	1.9
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1354	-	-	503	641	1424	-	-
HCM Lane V/C Ratio	0.004	-	-	0.044	0.141	0.05	-	
HCM Control Delay (s)	7.7	0	-	12.5	11.5	7.7	0	-
HCM Lane LOS	A	A	-	B	B	A	A	
HCM 95th %tile Q(veh)	0	-	-	0.1	0.5	0.2	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣		↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	38	16	88	55	12	23	71	444	34	20	499	34
Future Volume (veh/h)	38	16	88	55	12	23	71	444	34	20	499	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	40	17	0	57	12	8	74	462	27	21	520	28
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	297	43	0	303	22	14	108	1514	88	38	1387	75
Arrive On Green	0.09	0.09	0.00	0.09	0.09	0.09	0.06	0.44	0.44	0.02	0.41	0.41
Sat Flow, veh/h	1161	494	0	1173	247	165	1781	3407	198	1781	3425	184
Grp Volume(v), veh/h	57	0	0	77	0	0	74	240	249	21	269	279
Grp Sat Flow(s),veh/h/ln	1655	0	0	1584	0	0	1781	1777	1829	1781	1777	1832
Q Serve(g_s), s	0.0	0.0	0.0	0.4	0.0	0.0	1.3	2.7	2.7	0.4	3.3	3.3
Cycle Q Clear(g_c), s	0.9	0.0	0.0	1.4	0.0	0.0	1.3	2.7	2.7	0.4	3.3	3.3
Prop In Lane	0.70		0.00	0.74		0.10	1.00		0.11	1.00		0.10
Lane Grp Cap(c), veh/h	341	0	0	339	0	0	108	789	812	38	720	742
V/C Ratio(X)	0.17	0.00	0.00	0.23	0.00	0.00	0.69	0.30	0.31	0.55	0.37	0.38
Avail Cap(c_a), veh/h	1602	0	0	1571	0	0	1363	2493	2566	1363	2493	2571
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.5	0.0	0.0	13.6	0.0	0.0	14.4	5.6	5.6	15.2	6.5	6.5
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.5	0.0	0.0	7.5	0.5	0.5	11.9	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	0.5	0.0	0.0	0.6	0.6	0.6	0.2	0.8	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.8	0.0	0.0	14.1	0.0	0.0	21.9	6.1	6.1	27.1	7.2	7.2
LnGrp LOS	B	A	A	B	A	A	C	A	A	C	A	A
Approach Vol, veh/h		57			77			563			569	
Approach Delay, s/veh		13.8			14.1			8.1			8.0	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	1	2	4	5	6	8
Phs Duration (G+Y+Rc), s	5.2	18.9	7.3	6.4	17.7	7.3
Change Period (Y+Rc), s	4.5	5.0	4.5	4.5	5.0	4.5
Max Green Setting (Gmax), s	24.0	44.0	29.0	24.0	44.0	29.0
Max Q Clear Time (g_c+I1), s	2.4	4.7	2.9	3.3	5.3	3.4
Green Ext Time (p_c), s	0.0	6.3	0.3	0.1	7.2	0.5

Intersection Summary	
HCM 6th Ctrl Delay	8.7
HCM 6th LOS	A

Intersection	
Intersection Delay, s/veh	10.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱			✥			✥	
Traffic Vol, veh/h	86	281	153	38	183	16	88	35	39	7	31	21
Future Vol, veh/h	86	281	153	38	183	16	88	35	39	7	31	21
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	91	299	163	40	195	17	94	37	41	7	33	22
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	10.9	10.1	12.4	10.2
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	54%	100%	0%	0%	100%	0%	0%	12%
Vol Thru, %	22%	0%	100%	38%	0%	100%	79%	53%
Vol Right, %	24%	0%	0%	62%	0%	0%	21%	36%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	162	86	187	247	38	122	77	59
LT Vol	88	86	0	0	38	0	0	7
Through Vol	35	0	187	94	0	122	61	31
RT Vol	39	0	0	153	0	0	16	21
Lane Flow Rate	172	91	199	262	40	130	82	63
Geometry Grp	5	5	5	5	5	5	5	5
Degree of Util (X)	0.316	0.158	0.315	0.383	0.074	0.218	0.134	0.114
Departure Headway (Hd)	6.603	6.205	5.698	5.268	6.548	6.04	5.892	6.559
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	545	578	632	685	547	594	608	546
Service Time	4.342	3.938	3.431	2.991	4.287	3.779	3.631	4.307
HCM Lane V/C Ratio	0.316	0.157	0.315	0.382	0.073	0.219	0.135	0.115
HCM Control Delay	12.4	10.1	11	11.2	9.8	10.5	9.5	10.2
HCM Lane LOS	B	B	B	B	A	B	A	B
HCM 95th-tile Q	1.3	0.6	1.3	1.8	0.2	0.8	0.5	0.4

Intersection	
Intersection Delay, s/veh	13.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑↱		↰	↑		↰	↑	↱
Traffic Vol, veh/h	74	39	159	35	23	7	147	270	61	8	175	49
Future Vol, veh/h	74	39	159	35	23	7	147	270	61	8	175	49
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	76	40	162	36	23	7	150	276	62	8	179	50
Number of Lanes	1	1	1	1	1	0	1	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	3	3	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	2	3	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	3	2	3
HCM Control Delay	11.5	11.1	15.9	12.4
HCM LOS	B	B	C	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	100%	0%	0%	100%	0%	100%	0%	0%
Vol Thru, %	0%	82%	0%	100%	0%	0%	77%	0%	100%	0%
Vol Right, %	0%	18%	0%	0%	100%	0%	23%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	147	331	74	39	159	35	30	8	175	49
LT Vol	147	0	74	0	0	35	0	8	0	0
Through Vol	0	270	0	39	0	0	23	0	175	0
RT Vol	0	61	0	0	159	0	7	0	0	49
Lane Flow Rate	150	338	76	40	162	36	31	8	179	50
Geometry Grp	6	6	6	6	6	6	6	6	6	6
Degree of Util (X)	0.285	0.583	0.157	0.077	0.283	0.081	0.063	0.017	0.343	0.086
Departure Headway (Hd)	6.846	6.212	7.489	6.984	6.276	8.118	7.443	7.411	6.905	6.196
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	522	578	478	509	568	444	484	480	518	574
Service Time	4.621	3.986	5.279	4.773	4.065	5.818	5.143	5.2	4.694	3.985
HCM Lane V/C Ratio	0.287	0.585	0.16	0.079	0.285	0.081	0.064	0.017	0.346	0.087
HCM Control Delay	12.4	17.4	11.7	10.4	11.6	11.5	10.6	10.3	13.3	9.6
HCM Lane LOS	B	C	B	B	B	B	B	B	B	A
HCM 95th-tile Q	1.2	3.7	0.6	0.2	1.2	0.3	0.2	0.1	1.5	0.3

HCM 6th TWSC
3 McKinleyville Ave & Railroad Dr 08/21/2024

Intersection												
Int Delay, s/veh	2											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	3	4	23	11	24	4	213	31	25	187	5
Future Vol, veh/h	2	3	4	23	11	24	4	213	31	25	187	5
Conflicting Peds, #/hr	8	0	7	1	0	2	7	0	1	2	0	8
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	3	4	26	12	27	4	239	35	28	210	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	569	561	228	547	547	267	224	0	0	276	0	0
Stage 1	277	277	-	267	267	-	-	-	-	-	-	-
Stage 2	292	284	-	280	280	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	433	436	811	448	445	772	1345	-	-	1287	-	-
Stage 1	729	681	-	738	688	-	-	-	-	-	-	-
Stage 2	716	676	-	727	679	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	394	419	798	429	428	765	1335	-	-	1285	-	-
Mov Cap-2 Maneuver	394	419	-	429	428	-	-	-	-	-	-	-
Stage 1	720	659	-	734	684	-	-	-	-	-	-	-
Stage 2	670	672	-	697	657	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12	12.8	0.1	0.9
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1335	-	-	522	574	1285	-	-
HCM Lane V/C Ratio	0.003	-	-	0.019	0.124	0.022	-	-
HCM Control Delay (s)	7.7	0	-	12	12.8	7.9	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.4	0.1	-	-

HCM 6th Signalized Intersection Summary
4 Central Ave & Railroad Dr 08/21/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	8	44	28	6	10	50	567	18	5	417	22
Future Volume (veh/h)	17	8	44	28	6	10	50	567	18	5	417	22
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		1.00	0.98		1.00	1.00		0.97	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	19	9	0	31	7	0	55	623	17	5	458	21
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	387	241	0	321	54	0	84	1674	46	10	766	35
Arrive On Green	0.13	0.13	0.00	0.13	0.13	0.00	0.05	0.47	0.47	0.01	0.43	0.43
Sat Flow, veh/h	1385	1870	0	1070	421	0	1781	3531	96	1781	1771	81
Grp Volume(v), veh/h	19	9	0	38	0	0	55	313	327	5	0	479
Grp Sat Flow(s),veh/h/ln	1385	1870	0	1491	0	0	1781	1777	1850	1781	0	1852
Q Serve(g_s), s	0.0	0.2	0.0	0.3	0.0	0.0	1.1	4.0	4.0	0.1	0.0	7.1
Cycle Q Clear(g_c), s	0.3	0.2	0.0	0.7	0.0	0.0	1.1	4.0	4.0	0.1	0.0	7.1
Prop In Lane	1.00		0.00	0.82		0.00	1.00		0.05	1.00		0.04
Lane Grp Cap(c), veh/h	387	241	0	375	0	0	84	843	877	10	0	801
V/C Ratio(X)	0.05	0.04	0.00	0.10	0.00	0.00	0.66	0.37	0.37	0.52	0.00	0.60
Avail Cap(c_a), veh/h	1603	1883	0	1648	0	0	1196	2485	2587	1196	0	2590
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.7	13.6	0.0	13.9	0.0	0.0	16.8	6.0	6.0	17.7	0.0	7.8
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	8.4	0.5	0.5	37.0	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.1	0.0	0.2	0.0	0.0	0.6	0.9	1.0	0.1	0.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.7	13.7	0.0	13.9	0.0	0.0	25.1	6.5	6.5	54.7	0.0	9.0
LnGrp LOS	B	B	A	B	A	A	C	A	A	D	A	A
Approach Vol, veh/h		28			38			695			484	
Approach Delay, s/veh		13.7			13.9			7.9			9.5	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	1	2	4	5	6	8
Phs Duration (G+Y+Rc), s	4.7	21.5	9.6	6.2	20.0	9.6
Change Period (Y+Rc), s	4.5	4.5	5.0	4.5	4.5	5.0
Max Green Setting (Gmax), s	24.0	50.0	36.0	24.0	50.0	36.0
Max Q Clear Time (g_c+I1), s	2.1	6.0	2.3	3.1	9.1	2.7
Green Ext Time (p_c), s	0.0	7.6	0.0	0.1	5.8	0.1

Intersection Summary	
HCM 6th Ctrl Delay	8.8
HCM 6th LOS	A

Intersection	
Intersection Delay, s/veh	12.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱		✥			✥	
Traffic Vol, veh/h	31	56	45	28	88	62	79	168	35	68	119	33
Future Vol, veh/h	31	56	45	28	88	62	79	168	35	68	119	33
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	34	61	49	30	96	67	86	183	38	74	129	36
Number of Lanes	1	1	1	1	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	9.8	10	14.5	12.6
HCM LOS	A	A	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	28%	100%	0%	0%	100%	0%	0%	31%
Vol Thru, %	60%	0%	100%	0%	0%	100%	0%	54%
Vol Right, %	12%	0%	0%	100%	0%	0%	100%	15%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	282	31	56	45	28	88	62	220
LT Vol	79	31	0	0	28	0	0	68
Through Vol	168	0	56	0	0	88	0	119
RT Vol	35	0	0	45	0	0	62	33
Lane Flow Rate	307	34	61	49	30	96	67	239
Geometry Grp	5	5	5	5	5	5	5	5
Degree of Util (X)	0.502	0.066	0.111	0.079	0.059	0.171	0.107	0.397
Departure Headway (Hd)	5.891	7.055	6.543	5.825	6.966	6.454	5.737	5.983
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	613	507	547	613	513	555	623	600
Service Time	3.63	4.81	4.297	3.578	4.719	4.206	3.489	3.726
HCM Lane V/C Ratio	0.501	0.067	0.112	0.08	0.058	0.173	0.108	0.398
HCM Control Delay	14.5	10.3	10.1	9.1	10.2	10.5	9.2	12.6
HCM Lane LOS	B	B	B	A	B	B	A	B
HCM 95th-tile Q	2.8	0.2	0.4	0.3	0.2	0.6	0.4	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱			✥		↰	↑↑↱		↰	↑↑↱	
Traffic Volume (veh/h)	39	5	104	10	5	2	114	743	21	12	574	34
Future Volume (veh/h)	39	5	104	10	5	2	114	743	21	12	574	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		1.00	0.98		1.00	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	42	5	0	11	5	0	124	808	20	13	624	30
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	319	150	0	248	49	0	161	1795	44	24	1481	71
Arrive On Green	0.08	0.08	0.00	0.08	0.08	0.00	0.09	0.51	0.51	0.01	0.43	0.43
Sat Flow, veh/h	1386	1870	0	934	609	0	1781	3540	88	1781	3445	165
Grp Volume(v), veh/h	42	5	0	16	0	0	124	405	423	13	322	332
Grp Sat Flow(s),veh/h/ln	1386	1870	0	1543	0	0	1781	1777	1851	1781	1777	1834
Q Serve(g_s), s	0.7	0.1	0.0	0.0	0.0	0.0	2.4	5.1	5.1	0.3	4.4	4.4
Cycle Q Clear(g_c), s	0.9	0.1	0.0	0.3	0.0	0.0	2.4	5.1	5.1	0.3	4.4	4.4
Prop In Lane	1.00		0.00	0.69		0.00	1.00		0.05	1.00		0.09
Lane Grp Cap(c), veh/h	319	150	0	297	0	0	161	901	938	24	764	788
V/C Ratio(X)	0.13	0.03	0.00	0.05	0.00	0.00	0.77	0.45	0.45	0.54	0.42	0.42
Avail Cap(c_a), veh/h	1552	1814	0	1638	0	0	1473	2534	2638	1473	2534	2615
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.2	14.9	0.0	15.0	0.0	0.0	15.6	5.5	5.5	17.2	7.0	7.0
Incr Delay (d2), s/veh	0.3	0.1	0.0	0.1	0.0	0.0	2.9	0.6	0.6	6.7	0.6	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	0.1	0.0	0.0	0.9	1.0	1.1	0.1	1.1	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.5	15.0	0.0	15.1	0.0	0.0	18.5	6.1	6.1	23.9	7.6	7.6
LnGrp LOS	B	B	A	B	A	A	B	A	A	C	A	A
Approach Vol, veh/h		47			16			952			667	
Approach Delay, s/veh		15.4			15.1			7.7			7.9	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	1	2	4	5	6	8
Phs Duration (G+Y+Rc), s	5.0	22.3	7.8	7.7	19.6	7.8
Change Period (Y+Rc), s	4.5	4.5	5.0	4.5	4.5	5.0
Max Green Setting (Gmax), s	29.0	50.0	34.0	29.0	50.0	34.0
Max Q Clear Time (g_c+I1), s	2.3	7.1	2.9	4.4	6.4	2.3
Green Ext Time (p_c), s	0.0	10.7	0.2	0.1	7.8	0.1

Intersection Summary	
HCM 6th Ctrl Delay	8.1
HCM 6th LOS	A

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	3	4	20	4	59	6	223	27	43	143	7
Future Vol, veh/h	3	3	4	20	4	59	6	223	27	43	143	7
Conflicting Peds, #/hr	2	0	2	3	0	3	2	0	3	3	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	3	4	22	4	66	7	251	30	48	161	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	581	561	170	551	550	272	171	0	0	284	0	0
Stage 1	263	263	-	283	283	-	-	-	-	-	-	-
Stage 2	318	298	-	268	267	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	425	436	874	445	443	767	1406	-	-	1278	-	-
Stage 1	742	691	-	724	677	-	-	-	-	-	-	-
Stage 2	693	667	-	738	688	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	369	413	870	421	420	763	1403	-	-	1274	-	-
Mov Cap-2 Maneuver	369	413	-	421	420	-	-	-	-	-	-	-
Stage 1	736	661	-	717	671	-	-	-	-	-	-	-
Stage 2	623	661	-	698	658	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.4	11.9	0.2	1.8
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1403	-	-	500	616	1274	-	-
HCM Lane V/C Ratio	0.005	-	-	0.022	0.151	0.038	-	-
HCM Control Delay (s)	7.6	0	-	12.4	11.9	7.9	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.5	0.1	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	10	81	41	8	40	93	743	50	25	596	66
Future Volume (veh/h)	68	10	81	41	8	40	93	743	50	25	596	66
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	0.99		0.97	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	75	11	0	45	9	6	102	816	47	27	655	59
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	313	22	0	272	43	18	135	1757	101	46	1531	138
Arrive On Green	0.11	0.11	0.00	0.11	0.11	0.11	0.08	0.52	0.52	0.03	0.47	0.47
Sat Flow, veh/h	1334	200	0	1061	395	162	1781	3410	196	1781	3258	296
Grp Volume(v), veh/h	86	0	0	60	0	0	102	425	438	27	354	360
Grp Sat Flow(s),veh/h/ln	1534	0	0	1618	0	0	1781	1777	1829	1781	1777	1807
Q Serve(g_s), s	0.7	0.0	0.0	0.0	0.0	0.0	2.2	6.1	6.1	0.6	5.3	5.3
Cycle Q Clear(g_c), s	2.0	0.0	0.0	1.2	0.0	0.0	2.2	6.1	6.1	0.6	5.3	5.3
Prop In Lane	0.87		0.00	0.75		0.10	1.00		0.11	1.00		0.16
Lane Grp Cap(c), veh/h	335	0	0	333	0	0	135	916	943	46	827	841
V/C Ratio(X)	0.26	0.00	0.00	0.18	0.00	0.00	0.76	0.46	0.46	0.58	0.43	0.43
Avail Cap(c_a), veh/h	1222	0	0	1237	0	0	1070	1957	2014	1070	1957	1990
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.7	0.0	0.0	16.4	0.0	0.0	18.1	6.2	6.2	19.2	7.1	7.1
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.4	0.0	0.0	8.3	0.8	0.8	11.2	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.0	0.5	0.0	0.0	1.1	1.5	1.5	0.4	1.4	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.3	0.0	0.0	16.8	0.0	0.0	26.5	7.0	6.9	30.4	7.9	7.9
LnGrp LOS	B	A	A	B	A	A	C	A	A	C	A	A
Approach Vol, veh/h		86			60			965			741	
Approach Delay, s/veh		17.3			16.8			9.0			8.7	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	1	2	4	5	6	8
Phs Duration (G+Y+Rc), s	5.5	25.6	8.8	7.5	23.8	8.8
Change Period (Y+Rc), s	4.5	5.0	4.5	4.5	5.0	4.5
Max Green Setting (Gmax), s	24.0	44.0	29.0	24.0	44.0	29.0
Max Q Clear Time (g_c+I1), s	2.6	8.1	4.0	4.2	7.3	3.2
Green Ext Time (p_c), s	0.0	12.5	0.6	0.2	9.9	0.4

Intersection Summary	
HCM 6th Ctrl Delay	9.5
HCM 6th LOS	A

HCM 6th AWSC
1 McKinleyville Ave & Murray Rd

08/21/2024

Intersection	
Intersection Delay, s/veh	20 9
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	197	144	63	328	10	221	22	88	26	44	118
Future Vol, veh/h	24	197	144	63	328	10	221	22	88	26	44	118
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	219	160	70	384	11	246	24	98	29	49	131
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	15.6	16 3	34 6	16.9
HCM LOS	C	C	D	C

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	67%	100%	0%	0%	100%	0%	0%	14%
Vol Thru, %	7%	0%	100%	31%	0%	100%	92%	23%
Vol Right, %	27%	0%	0%	69%	0%	0%	8%	63%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	331	24	131	210	63	219	119	188
LT Vol	221	24	0	0	63	0	0	26
Through Vol	22	0	131	66	0	219	109	44
RT Vol	88	0	0	144	0	0	10	118
Lane Flow Rate	368	27	146	233	70	243	133	209
Geometry Grp	5	5	5	5	5	5	5	5
Degree of Util (X)	0.794	0.062	0.319	0.477	0.161	0.525	0.284	0.451
Departure Headway (Hd)	7.775	8.39	7.869	7.387	8.293	7.772	7.711	7.767
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	463	425	454	487	430	462	463	462
Service Time	5.559	6.186	5.664	5.163	6.088	5.567	5.505	5.565
HCM Lane V/C Ratio	0.795	0.064	0.322	0.478	0.163	0.526	0.287	0.452
HCM Control Delay	34.6	11.7	14.4	16.8	12.7	18.9	13.6	16.9
HCM Lane LOS	D	B	B	C	B	C	B	C
HCM 95th-tile Q	7.2	0.2	1.4	2.5	0.6	3	1.2	2.3

HCM 6th AWSC
2 Central Ave & Murray Rd

08/21/2024

Intersection	
Intersection Delay, s/veh	16.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	87	33	144	45	96	16	161	174	34	9	254	123
Future Vol, veh/h	87	33	144	45	96	16	161	174	34	9	254	123
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	98	37	162	51	108	18	181	196	38	10	285	138
Number of Lanes	1	1	1	1	1	0	1	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	3	3	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	2	3	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	3	2	3
HCM Control Delay	13 7	14 1	17	18.5
HCM LOS	B	B	C	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	100%	0%	0%	100%	0%	100%	0%	0%
Vol Thru, %	0%	84%	0%	100%	0%	0%	86%	0%	100%	0%
Vol Right, %	0%	16%	0%	0%	100%	0%	14%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	161	208	87	33	144	45	112	9	254	123
LT Vol	161	0	87	0	0	45	0	9	0	0
Through Vol	0	174	0	33	0	0	96	0	254	0
RT Vol	0	34	0	0	144	0	16	0	0	123
Lane Flow Rate	181	234	98	37	162	51	126	10	285	138
Geometry Grp	6	6	6	6	6	6	6	6	6	6
Degree of Util (X)	0.409	0.488	0.235	0.084	0.334	0.125	0.291	0.023	0.609	0.267
Departure Headway (Hd)	8.147	7.523	8.65	8.14	7.424	8.932	8.319	8.186	7.677	6.964
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	441	477	413	439	482	400	430	436	468	514
Service Time	5.921	5.297	6.43	5.919	5.203	6.717	6.103	5.958	5.448	4.734
HCM Lane V/C Ratio	0.41	0.491	0.237	0.084	0.336	0.128	0.293	0.023	0.609	0.268
HCM Control Delay	16.5	17.3	14.1	11.7	13.9	13	14.5	11.2	21.8	12.3
HCM Lane LOS	C	C	B	B	B	B	B	B	C	B
HCM 95th-tile Q	2	2.8	0.9	0.3	1.5	0.4	1.2	0.1	4	1.1

Intersection												
Int Delay, s/veh	3											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	4	8	29	8	37	3	155	32	42	194	2
Future Vol, veh/h	8	4	8	29	8	37	3	155	32	42	194	2
Conflicting Peds, #/hr	9	0	2	1	0	8	2	0	1	8	0	9
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	5	9	34	9	44	4	182	38	49	228	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	581	572	240	553	554	218	230	0	0	228	0	0
Stage 1	336	336	-	217	217	-	-	-	-	-	-	-
Stage 2	245	236	-	336	337	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	475	430	799	444	440	822	1328	-	-	1340	-	-
Stage 1	678	642	-	785	723	-	-	-	-	-	-	-
Stage 2	758	710	-	678	641	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	375	404	791	416	413	809	1317	-	-	1330	-	-
Mov Cap-2 Maneuver	375	404	-	416	413	-	-	-	-	-	-	-
Stage 1	670	609	-	776	715	-	-	-	-	-	-	-
Stage 2	701	702	-	636	608	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.8	12.8	0.1	1.4
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1317	-	-	484	549	1330	-	-
HCM Lane V/C Ratio	0.003	-	-	0.049	0.159	0.037	-	-
HCM Control Delay (s)	7.7	0	-	12.8	12.8	7.8	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.6	0.1	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	46	46	85	26	50	28	328	67	101	379	16
Future Volume (veh/h)	18	46	46	85	26	50	28	328	67	101	379	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.96	0.98		0.97	1.00		0.95	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	54	2	100	31	38	33	386	53	119	446	17
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	534	445	16	319	102	83	54	1043	142	159	703	27
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.03	0.33	0.33	0.09	0.39	0.39
Sat Flow, veh/h	1306	1789	66	744	408	334	1781	3121	425	1781	1787	68
Grp Volume(v), veh/h	21	0	56	169	0	0	33	218	221	119	0	463
Grp Sat Flow(s),veh/h/ln	1306	0	1855	1486	0	0	1781	1777	1769	1781	0	1856
Q Serve(g_s), s	0.0	0.0	1.0	2.5	0.0	0.0	0.8	4.0	4.1	2.8	0.0	8.6
Cycle Q Clear(g_c), s	0.4	0.0	1.0	3.9	0.0	0.0	0.8	4.0	4.1	2.8	0.0	8.6
Prop In Lane	1.00		0.04	0.59		0.22	1.00		0.24	1.00		0.04
Lane Grp Cap(c), veh/h	534	0	462	504	0	0	54	594	591	159	0	730
V/C Ratio(X)	0.04	0.00	0.12	0.34	0.00	0.00	0.61	0.37	0.37	0.75	0.00	0.63
Avail Cap(c_a), veh/h	1308	0	1502	1359	0	0	1000	2078	2069	1000	0	2170
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.2	0.0	12.4	13.4	0.0	0.0	20.5	10.8	10.8	19.0	0.0	10.5
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.0	0.0	10.6	0.7	0.7	6.8	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.4	1.2	0.0	0.0	0.4	1.3	1.3	1.3	0.0	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.2	0.0	12.5	13.6	0.0	0.0	31.1	11.5	11.5	25.8	0.0	12.1
LnGrp LOS	B	A	B	B	A	A	C	B	B	C	A	B
Approach Vol, veh/h		77			169			472			582	
Approach Delay, s/veh		12.4			13.6			12.8			14.9	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.3	18.8		15.6	5.8	21.3		15.6
Change Period (Y+Rc), s	4.5	4.5		5.0	4.5	4.5		5.0
Max Green Setting (Gmax), s	24.0	50.0		36.0	24.0	50.0		36.0
Max Q Clear Time (g_c+I1), s	4.8	6.1		3.0	2.8	10.6		5.9
Green Ext Time (p_c), s	0.3	4.9		0.2	0.0	5.5		0.7

Intersection Summary		
HCM 6th Ctrl Delay		13.8
HCM 6th LOS		B

Intersection	
Intersection Delay, s/veh	11.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	39	29	58	26	30	35	30	126	36	60	163	16
Future Vol, veh/h	39	29	58	26	30	35	30	126	36	60	163	16
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	46	34	68	31	35	41	35	148	42	71	192	19
Number of Lanes	1	1	1	1	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	9.3	9.2	11.2	12.6
HCM LOS	A	A	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	16%	100%	0%	0%	100%	0%	0%	25%
Vol Thru, %	66%	0%	100%	0%	0%	100%	0%	68%
Vol Right, %	19%	0%	0%	100%	0%	0%	100%	7%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	192	39	29	58	26	30	35	239
LT Vol	30	39	0	0	26	0	0	60
Through Vol	126	0	29	0	0	30	0	163
RT Vol	36	0	0	58	0	0	35	16
Lane Flow Rate	226	46	34	68	31	35	41	281
Geometry Grp	5	5	5	5	5	5	5	5
Degree of Util (X)	0.349	0.085	0.059	0.104	0.057	0.061	0.063	0.439
Departure Headway (Hd)	5.559	6.692	6.182	5.467	6.76	6.249	5.534	5.617
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	651	536	580	656	530	573	647	644
Service Time	3.267	4.426	3.915	3.2	4.497	3.986	3.271	3.323
HCM Lane V/C Ratio	0.347	0.086	0.059	0.104	0.058	0.061	0.063	0.436
HCM Control Delay	11.2	10	9.3	8.8	9.9	9.4	8.6	12.6
HCM Lane LOS	B	A	A	A	A	A	A	B
HCM 95th-tile Q	1.6	0.3	0.2	0.3	0.2	0.2	0.2	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	1	72	2	1	0	54	449	3	3	530	21
Future Volume (veh/h)	26	1	72	2	1	0	54	449	3	3	530	21
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.99	0.98		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	28	1	3	2	1	0	59	488	2	3	576	19
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	317	21	63	253	25	0	93	1707	7	6	1479	49
Arrive On Green	0.05	0.05	0.05	0.05	0.05	0.00	0.05	0.47	0.47	0.00	0.42	0.42
Sat Flow, veh/h	1393	410	1230	967	483	0	1781	3630	15	1781	3508	116
Grp Volume(v), veh/h	28	0	4	3	0	0	59	239	251	3	291	304
Grp Sat Flow(s),veh/h/ln	1393	0	1639	1450	0	0	1781	1777	1868	1781	1777	1847
Q Serve(g_s), s	0.4	0.0	0.1	0.1	0.0	0.0	1.0	2.4	2.4	0.0	3.3	3.4
Cycle Q Clear(g_c), s	0.5	0.0	0.1	0.1	0.0	0.0	1.0	2.4	2.4	0.0	3.3	3.4
Prop In Lane	1.00		0.75	0.67		0.00	1.00		0.01	1.00		0.06
Lane Grp Cap(c), veh/h	317	0	84	278	0	0	93	836	879	6	749	779
V/C Ratio(X)	0.09	0.00	0.05	0.01	0.00	0.00	0.64	0.29	0.29	0.50	0.39	0.39
Avail Cap(c_a), veh/h	1852	0	1891	1952	0	0	1752	3013	3167	1752	3013	3132
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.5	0.0	13.3	13.4	0.0	0.0	13.7	4.8	4.8	14.7	5.9	5.9
Incr Delay (d2), s/veh	0.2	0.0	0.3	0.0	0.0	0.0	2.7	0.3	0.3	21.5	0.6	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.1	0.7	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.7	0.0	13.6	13.4	0.0	0.0	16.4	5.1	5.1	36.2	6.5	6.4
LnGrp LOS	B	A	B	B	A	A	B	A	A	D	A	A
Approach Vol, veh/h		32			3			549			598	
Approach Delay, s/veh		13.7			13.4			6.3			6.6	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.6	18.4		6.5	6.0	16.9		6.5
Change Period (Y+Rc), s	4.5	4.5		5.0	4.5	4.5		5.0
Max Green Setting (Gmax), s	29.0	50.0		34.0	29.0	50.0		34.0
Max Q Clear Time (g_c+I1), s	[illegible]	4.4		2.5	3.0	5.4		2.1
Green Ext Time (p_c), s	0.0	5.5		0.1	0.1	7.0		0.0

Intersection Summary	
HCM 6th Ctrl Delay	6.7
HCM 6th LOS	A

Intersection												
Int Delay, s/veh	3.8											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	6	8	29	2	51	6	121	14	64	187	7
Future Vol, veh/h	8	6	8	29	2	51	6	121	14	64	187	7
Conflicting Peds, #/hr	0	0	0	3	0	3	0	0	3	3	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	7	9	34	2	60	7	142	16	75	220	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	572	549	227	552	545	156	228	0	0	161	0	0
Stage 1	374	374	-	167	167	-	-	-	-	-	-	-
Stage 2	198	175	-	385	378	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	431	443	812	444	446	890	1340	-	-	1418	-	-
Stage 1	647	618	-	835	760	-	-	-	-	-	-	-
Stage 2	804	754	-	638	615	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	378	412	810	409	415	885	1340	-	-	1414	-	-
Mov Cap-2 Maneuver	378	412	-	409	415	-	-	-	-	-	-	-
Stage 1	643	580	-	827	753	-	-	-	-	-	-	-
Stage 2	741	747	-	583	577	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.9	11.9	0.3	1.9
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1340	-	-	482	615	1414	-	-
HCM Lane V/C Ratio	0.005	-	-	0.054	0.157	0.053	-	-
HCM Control Delay (s)	7.7	0	-	12.9	11.9	7.7	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.6	0.2	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	18	92	61	13	24	75	466	38	21	524	38
Future Volume (veh/h)	42	18	92	61	13	24	75	466	38	21	524	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	44	19	4	64	14	9	78	485	32	22	546	33
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	288	45	10	304	25	16	111	1531	101	39	1405	85
Arrive On Green	0.10	0.10	0.10	0.10	0.10	0.10	0.06	0.45	0.45	0.02	0.41	0.41
Sat Flow, veh/h	1090	471	99	1169	256	164	1781	3378	222	1781	3400	205
Grp Volume(v), veh/h	67	0	0	87	0	0	78	254	263	22	285	294
Grp Sat Flow(s),veh/h/ln	1661	0	0	1589	0	0	1781	1777	1824	1781	1777	1828
Q Serve(g_s), s	0.0	0.0	0.0	0.4	0.0	0.0	1.4	3.0	3.0	0.4	3.7	3.7
Cycle Q Clear(g_c), s	1.1	0.0	0.0	1.6	0.0	0.0	1.4	3.0	3.0	0.4	3.7	3.7
Prop In Lane	0.66		0.06	0.74		0.10	1.00		0.12	1.00		0.11
Lane Grp Cap(c), veh/h	343	0	0	344	0	0	111	805	826	39	734	755
V/C Ratio(X)	0.20	0.00	0.00	0.25	0.00	0.00	0.71	0.32	0.32	0.56	0.39	0.39
Avail Cap(c_a), veh/h	1535	0	0	1505	0	0	1308	2391	2454	1308	2391	2460
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.9	0.0	0.0	14.0	0.0	0.0	15.0	5.7	5.7	15.8	6.7	6.7
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.5	0.0	0.0	7.9	0.5	0.5	11.7	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	0.6	0.0	0.0	0.7	0.7	0.7	0.3	0.9	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.2	0.0	0.0	14.6	0.0	0.0	23.0	6.2	6.2	27.5	7.4	7.4
LnGrp LOS	B	A	A	B	A	A	C	A	A	C	A	A
Approach Vol, veh/h		67			87			595			601	
Approach Delay, s/veh		14.2			14.6			8.4			8.2	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.2	19.8		7.7	6.5	18.5		7.7
Change Period (Y+Rc), s	4.5	5.0		4.5	4.5	5.0		4.5
Max Green Setting (Gmax), s	24.0	44.0		29.0	24.0	44.0		29.0
Max Q Clear Time (g_c+I1), s	2.4	5.0		3.1	3.4	5.7		3.6
Green Ext Time (p_c), s	0.0	6.7		0.4	0.2	7.7		0.6

Intersection Summary		
HCM 6th Ctrl Delay		9.0
HCM 6th LOS		A

Intersection	
Intersection Delay, s/veh	11.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	95	295	188	42	193	18	103	37	43	8	33	23
Future Vol, veh/h	95	295	188	42	193	18	103	37	43	8	33	23
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	101	314	200	45	205	19	110	39	46	9	35	24
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	12	10.5	13.5	10.6
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	56%	100%	0%	0%	100%	0%	0%	12%
Vol Thru, %	20%	0%	100%	34%	0%	100%	78%	52%
Vol Right, %	23%	0%	0%	66%	0%	0%	22%	36%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	183	95	197	286	42	129	82	64
LT Vol	103	95	0	0	42	0	0	8
Through Vol	37	0	197	98	0	129	64	33
RT Vol	43	0	0	188	0	0	18	23
Lane Flow Rate	195	101	209	305	45	137	88	68
Geometry Grp	5	5	5	5	5	5	5	5
Degree of Util (X)	0.369	0.179	0.341	0.457	0.084	0.239	0.149	0.129
Departure Headway (Hd)	6.817	6.38	5.872	5.405	6.786	6.276	6.121	6.819
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	526	562	611	664	527	571	584	524
Service Time	4.569	4.125	3.617	3.15	4.541	4.031	3.875	4.584
HCM Lane V/C Ratio	0.369	0.18	0.342	0.459	0.085	0.24	0.151	0.13
HCM Control Delay	13.5	10.5	11.6	12.7	10.2	11	10	10.6
HCM Lane LOS	B	B	B	B	B	B	A	B
HCM 95th-tile Q	1.7	0.6	1.5	2.4	0.3	0.9	0.5	0.4

Intersection	
Intersection Delay, s/veh	14.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	82	43	167	37	26	8	154	284	64	9	184	54
Future Vol, veh/h	82	43	167	37	26	8	154	284	64	9	184	54
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	84	44	170	38	27	8	157	290	65	9	188	55
Number of Lanes	1	1	1	1	1	0	1	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	3	3	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	2	3	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	3	2	3
HCM Control Delay	12	11.5	17.5	13.1
HCM LOS	B	B	C	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	100%	0%	0%	100%	0%	100%	0%	0%
Vol Thru, %	0%	82%	0%	100%	0%	0%	76%	0%	100%	0%
Vol Right, %	0%	18%	0%	0%	100%	0%	24%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	154	348	82	43	167	37	34	9	184	54
LT Vol	154	0	82	0	0	37	0	9	0	0
Through Vol	0	284	0	43	0	0	26	0	184	0
RT Vol	0	64	0	0	167	0	8	0	0	54
Lane Flow Rate	157	355	84	44	170	38	35	9	188	55
Geometry Grp	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.306	0.629	0.181	0.089	0.311	0.088	0.074	0.02	0.375	0.099
Departure Headway (Hd)	7.122	6.488	7.779	7.273	6.564	8.356	7.68	7.702	7.195	6.484
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	508	561	464	496	550	430	468	466	501	554
Service Time	4.822	4.188	5.479	4.973	4.264	6.083	5.406	5.426	4.919	4.208
HCM Lane V/C Ratio	0.309	0.633	0.181	0.089	0.309	0.088	0.075	0.019	0.375	0.099
HCM Control Delay	12.9	19.5	12.2	10.7	12.2	11.9	11	10.6	14.2	9.9
HCM Lane LOS	B	C	B	B	B	B	B	B	B	A
HCM 95th-tile Q	1.3	4.4	0.7	0.3	1.3	0.3	0.2	0.1	1.7	0.3

HCM 6th TWSC
3. McKinleyville Ave & Railroad Dr
08/21/2024

Intersection												
Int Delay, s/veh	2.1											
Movement	**EBL**	**EBT**	**EBR**	**WBL**	**WBT**	**WBR**	**NBL**	**NBT**	**NBR**	**SBL**	**SBT**	**SBR**
Lane Configurations												
Traffic Vol, veh/h	2	3	4	24	12	25	4	224	33	26	196	6
Future Vol, veh/h	2	3	4	24	12	25	4	224	33	26	196	6
Conflicting Peds, #/hr	8	0	7	1	0	2	7	0	1	2	0	8
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	3	4	27	13	28	4	252	37	29	220	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	597	589	239	573	574	281	235	0	0	291	0	0
Stage 1	290	290	-	281	281	-	-	-	-	-	-	-
Stage 2	307	299	-	292	293	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	415	421	800	430	429	758	1332	-	-	1271	-	-
Stage 1	718	672	-	726	678	-	-	-	-	-	-	-
Stage 2	703	666	-	716	670	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	375	404	789	412	412	751	1322	-	-	1269	-	-
Mov Cap-2 Maneuver	375	404	-	412	412	-	-	-	-	-	-	-
Stage 1	709	649	-	722	674	-	-	-	-	-	-	-
Stage 2	655	662	-	685	647	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.3	13.2	0.1	0.9
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1322	-	-	505	508	1269	-	-
HCM Lane V/C Ratio	0.003	-	-	0.02	0.135	0.023	-	-
HCM Control Delay (s)	7.7	0	-	12.3	13.2	7.9	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.5	0.1	-	-

HCM 6th Signalized Intersection Summary
4: Central Ave & Railroad Dr
08/21/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	9	46	31	7	11	53	595	20	6	438	23
Future Volume (veh/h)	18	9	46	31	7	11	53	595	20	6	438	23
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.98		0.99	1.00		0.97	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	20	10	3	34	8	1	58	654	19	7	481	22
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	388	185	55	312	58	5	86	1699	49	13	781	36
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.05	0.48	0.48	0.01	0.44	0.44
Sat Flow, veh/h	1383	1371	411	1030	430	35	1781	3523	102	1781	1771	81
Grp Volume(v), veh/h	20	0	13	43	0	0	58	330	343	7	0	503
Grp Sat Flow(s),veh/h/ln	1383	0	1782	1495	0	0	1781	1777	1849	1781	0	1852
Q Serve(g_s), s	0.0	0.0	0.2	0.3	0.0	0.0	1.2	4.4	4.4	0.1	0.0	7.8
Cycle Q Clear(g_c), s	0.4	0.0	0.2	0.8	0.0	0.0	1.2	4.4	4.4	0.1	0.0	7.8
Prop In Lane	1.00		0.23	0.79		0.02	1.00		0.06	1.00		0.04
Lane Grp Cap(c), veh/h	388	0	240	375	0	0	86	857	891	13	0	817
V/C Ratio(X)	0.05	0.00	0.05	0.11	0.00	0.00	0.67	0.38	0.39	0.52	0.00	0.62
Avail Cap(c_a), veh/h	1537	0	1721	1581	0	0	1147	2383	2479	1147	0	2484
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.1	0.0	14.1	14.3	0.0	0.0	17.4	6.1	6.1	18.4	0.0	8.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.0	0.0	8.7	0.5	0.5	28.3	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.1	0.3	0.0	0.0	0.6	1.0	1.1	0.2	0.0	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.1	0.0	14.1	14.3	0.0	0.0	26.2	6.6	6.6	46.7	0.0	9.3
LnGrp LOS	B	A	B	B	A	A	C	A	A	D	A	A
Approach Vol, veh/h		33			43			731			510	
Approach Delay, s/veh		14.1			14.3			8.2			9.8	
Approach LOS		B			B			A			A	
Timer - Assigned Phs	**1**	**2**		**4**	**5**	**6**		**8**				
Phs Duration (G+Y+Rc), s	4.8	22.5		10.0	8.3	21.0		10.0				
Change Period (Y+Rc), s	4.5	4.5		5.0	4.5	4.5		5.0				
Max Green Setting (Gmax), s	24.0	50.0		36.0	24.0	50.0		36.0				
Max Q Clear Time (g_c+I1), s	2.1	6.4		2.4	3.2	9.8		2.8				
Green Ext Time (p_c), s	0.0	8.1		0.1	0.1	6.2		0.1				
Intersection Summary												
HCM 6th Ctrl Delay			9.2									
HCM 6th LOS			A									

HCM 6th AWSC
5: McKinleyville Ave & Hiller Rd
08/21/2024

Intersection	
Intersection Delay, s/veh	13
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	34	59	50	29	92	65	88	176	37	71	125	37
Future Vol, veh/h	34	59	50	29	92	65	88	176	37	71	125	37
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	37	64	54	32	100	71	96	191	40	77	136	40
Number of Lanes	1	1	1	1	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	10.1	10.3	15.8	13.4
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	29%	100%	0%	0%	100%	0%	0%	30%
Vol Thru, %	58%	0%	100%	0%	0%	100%	0%	54%
Vol Right, %	12%	0%	0%	100%	0%	0%	100%	16%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	301	34	59	50	29	92	65	233
LT Vol	88	34	0	0	29	0	0	71
Through Vol	176	0	59	0	0	92	0	125
RT Vol	37	0	0	50	0	0	65	37
Lane Flow Rate	327	37	64	54	32	100	71	253
Geometry Grp	5	5	5	5	5	5	5	5
Degree of Util (X)	0.546	0.074	0.119	0.09	0.062	0.184	0.116	0.429
Departure Headway (Hd)	6.011	7.219	6.706	5.986	7.132	6.619	5.9	6.104
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	599	494	532	596	501	540	605	590
Service Time	3.757	4.986	4.472	3.752	4.894	4.38	3.661	3.852
HCM Lane V/C Ratio	0.546	0.075	0.12	0.091	0.064	0.185	0.117	0.429
HCM Control Delay	15.8	10.6	10.4	9.3	10.4	10.9	9.4	13.4
HCM Lane LOS	C	B	B	A	B	B	A	B
HCM 95th-tile Q	3.3	0.2	0.4	0.3	0.2	0.7	0.4	2.1

HCM 6th Signalized Intersection Summary
6: Central Ave & Hiller Rd
08/21/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	6	109	11	6	2	120	780	23	13	603	36
Future Volume (veh/h)	41	6	109	11	6	2	120	780	23	13	603	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.97	0.98		1.00	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	45	7	5	12	7	0	130	848	22	14	655	32
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	319	86	62	230	67	0	170	1830	47	26	1503	73
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.00	0.10	0.52	0.52	0.01	0.44	0.44
Sat Flow, veh/h	1386	1002	718	808	775	0	1781	3535	92	1781	3442	168
Grp Volume(v), veh/h	45	0	12	19	0	0	130	426	444	14	338	349
Grp Sat Flow(s),veh/h/ln	1386	0	1718	1583	0	0	1781	1777	1850	1781	1777	1833
Q Serve(g_s), s	0.7	0.0	0.2	0.0	0.0	0.0	2.6	5.6	5.6	0.3	4.9	4.9
Cycle Q Clear(g_c), s	1.0	0.0	0.2	0.3	0.0	0.0	2.6	5.6	5.6	0.3	4.9	4.9
Prop In Lane	1.00		0.42	0.63		0.00	1.00		0.05	1.00		0.09
Lane Grp Cap(c), veh/h	319	0	148	297	0	0	170	920	958	26	776	800
V/C Ratio(X)	0.14	0.00	0.08	0.06	0.00	0.00	0.76	0.46	0.46	0.54	0.44	0.44
Avail Cap(c_a), veh/h	1484	0	1592	1581	0	0	1409	2423	2523	1409	2423	2499
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.8	0.0	15.4	15.5	0.0	0.0	16.2	5.6	5.6	17.9	7.2	7.2
Incr Delay (d2), s/veh	0.3	0.0	0.3	0.1	0.0	0.0	2.7	0.6	0.6	6.4	0.7	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.1	0.1	0.0	0.0	1.0	1.2	1.2	0.1	1.2	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.0	0.0	15.8	15.6	0.0	0.0	18.9	6.2	6.2	24.4	7.8	7.8
LnGrp LOS	B	A	B	B	A	A	B	A	A	C	A	A
Approach Vol, veh/h		57			19			1000			701	
Approach Delay, s/veh		16.0			15.6			7.9			8.2	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	1	2	4	5	6	8
Phs Duration (G+Y+Rc), s	5.0	23.5	8.2	8.0	20.5	8.2
Change Period (Y+Rc), s	4.5	4.5	5.0	4.5	4.5	5.0
Max Green Setting (Gmax), s	29.0	50.0	34.0	29.0	50.0	34.0
Max Q Clear Time (g_c+I1), s	3.3	7.6	3.0	4.6	6.9	2.3
Green Ext Time (p_c), s	0.0	11.4	0.2	0.2	8.3	0.1

Intersection Summary		
HCM 6th Ctrl Delay		8.3
HCM 6th LOS		A

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	3	4	22	4	62	7	234	30	45	150	8
Future Vol, veh/h	3	3	4	22	4	62	7	234	30	45	150	8
Conflicting Peds, #/hr	2	0	2	3	0	3	2	0	3	3	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	3	4	25	4	70	8	263	34	51	169	9

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	614	594	179	581	581	286	180	0	0	300	0	0
Stage 1	278	278	-	299	299	-	-	-	-	-	-	-
Stage 2	336	316	-	282	282	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	404	418	864	425	425	753	1396	-	-	1261	-	-
Stage 1	728	680	-	710	666	-	-	-	-	-	-	-
Stage 2	678	655	-	725	678	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	347	395	860	401	401	749	1393	-	-	1257	-	-
Mov Cap-2 Maneuver	347	395	-	401	401	-	-	-	-	-	-	-
Stage 1	721	648	-	703	659	-	-	-	-	-	-	-
Stage 2	605	648	-	683	646	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.7	12.2	0.2	1.8
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1393	-	-	479	506	1257	-	-
HCM Lane V/C Ratio	0.006	-	-	0.023	0.166	0.04	-	-
HCM Control Delay (s)	7.6	0	-	12.7	12.2	8	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.6	0.1	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	11	85	46	9	42	98	780	56	26	626	73
Future Volume (veh/h)	75	11	85	46	9	42	98	780	56	26	626	73
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.97	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	12	4	51	10	8	108	857	54	29	688	66
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	303	28	7	268	50	22	144	1773	112	49	1535	147
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.08	0.52	0.52	0.03	0.47	0.47
Sat Flow, veh/h	1240	240	63	1015	418	188	1781	3389	214	1781	3267	313
Grp Volume(v), veh/h	98	0	0	69	0	0	108	449	462	29	374	380
Grp Sat Flow(s),veh/h/ln	1543	0	0	1621	0	0	1781	1777	1825	1781	1777	1803
Q Serve(g_s), s	0.9	0.0	0.0	0.0	0.0	0.0	2.5	6.8	6.8	0.7	6.0	6.0
Cycle Q Clear(g_c), s	2.3	0.0	0.0	1.5	0.0	0.0	2.5	6.8	6.8	0.7	6.0	6.0
Prop In Lane	0.84		0.04	0.74		0.12	1.00		0.12	1.00		0.17
Lane Grp Cap(c), veh/h	339	0	0	340	0	0	144	930	955	49	835	847
V/C Ratio(X)	0.29	0.00	0.00	0.20	0.00	0.00	0.75	0.48	0.48	0.60	0.45	0.45
Avail Cap(c_a), veh/h	1155	0	0	1168	0	0	1010	1848	1898	1010	1848	1875
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.4	0.0	0.0	17.1	0.0	0.0	19.0	6.4	6.4	20.3	7.5	7.5
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.4	0.0	0.0	7.7	0.8	0.8	11.1	0.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.0	0.6	0.0	0.0	1.2	1.7	1.8	0.4	1.7	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.1	0.0	0.0	17.5	0.0	0.0	26.7	7.3	7.2	31.5	8.3	8.3
LnGrp LOS	B	A	A	B	A	A	C	A	A	C	A	A
Approach Vol, veh/h		98			69			1019			783	
Approach Delay, s/veh		18.1			17.5			9.3			9.2	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.7	27.1		9.5	7.9	24.9		9.5
Change Period (Y+Rc), s	4.5	5.0		4.5	4.5	5.0		4.5
Max Green Setting (Gmax), s	24.0	44.0		29.0	24.0	44.0		29.0
Max Q Clear Time (g_c+I1), s	2.7	8.8		4.3	4.5	8.0		3.5
Green Ext Time (p_c), s	0.0	13.3		0.7	0.2	10.5		0.4

Intersection Summary	
HCM 6th Ctrl Delay	10.0
HCM 6th LOS	A

Intersection	
Intersection Delay, s/veh	32.9
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	245	201	63	366	12	266	39	88	28	65	118
Future Vol, veh/h	24	245	201	63	366	12	266	39	88	28	65	118
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	25	258	212	66	385	13	280	41	93	29	68	124
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	22.1	20.2	66.5	21.1
HCM LOS	C	C	F	C

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	68%	100%	0%	0%	100%	0%	0%	13%
Vol Thru, %	10%	0%	100%	29%	0%	100%	91%	31%
Vol Right, %	22%	0%	0%	71%	0%	0%	9%	56%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	393	24	163	283	63	244	134	211
LT Vol	266	24	0	0	63	0	0	28
Through Vol	39	0	163	82	0	244	122	65
RT Vol	88	0	0	201	0	0	12	118
Lane Flow Rate	414	25	172	298	66	257	141	222
Geometry Grp	5	5	5	5	5	5	5	5
Degree of Util (X)	0.973	0.064	0.41	0.667	0.169	0.616	0.336	0.535
Departure Headway (Hd)	8.464	9.119	8.592	8.068	9.157	8.63	8.564	8.675
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	430	392	418	446	391	419	419	415
Service Time	6.221	6.887	6.36	5.836	6.926	6.399	6.333	6.447
HCM Lane V/C Ratio	0.963	0.064	0.411	0.668	0.169	0.613	0.337	0.535
HCM Control Delay	66.5	12.5	17.2	25.7	13.8	24.4	15.6	21.1
HCM Lane LOS	F	B	C	D	B	C	C	C
HCM 95th-tile Q	11.7	0.2	2	4.8	0.6	4	1.5	3.1

Intersection	
Intersection Delay, s/veh	26.2
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	87	33	194	80	96	16	201	238	62	9	335	123
Future Vol, veh/h	87	33	194	80	96	16	201	238	62	9	335	123
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	92	35	204	84	101	17	212	251	65	9	353	129
Number of Lanes	1	1	1	1	1	0	1	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	3	3	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	2	3	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	3	2	3
HCM Control Delay	17.4	16.3	27	35.2
HCM LOS	C	C	D	E

Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	100%	0%	0%	100%	0%	100%	0%	0%
Vol Thru, %	0%	79%	0%	100%	0%	0%	86%	0%	100%	0%
Vol Right, %	0%	21%	0%	0%	100%	0%	14%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	201	300	87	33	194	80	112	9	335	123
LT Vol	201	0	87	0	0	80	0	9	0	0
Through Vol	0	238	0	33	0	0	96	0	335	0
RT Vol	0	62	0	0	194	0	16	0	0	123
Lane Flow Rate	212	316	92	35	204	84	118	9	353	129
Geometry Grp	6	6	6	6	6	6	6	6	6	6
Degree of Util (X)	0.529	0.731	0.248	0.089	0.483	0.236	0.31	0.024	0.845	0.285
Departure Headway (Hd)	8.998	8.339	9.745	9.23	8.507	10.083	9.463	9.144	8.631	7.912
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	400	433	368	388	423	356	380	391	420	453
Service Time	6.755	6.095	7.508	6.992	6.269	7.85	7.23	6.902	6.389	5.67
HCM Lane V/C Ratio	0.53	0.73	0.25	0.09	0.482	0.236	0.311	0.023	0.84	0.285
HCM Control Delay	21.5	30.7	15.7	12.9	18	16	16.5	12.1	43.7	13.8
HCM Lane LOS	C	D	C	B	C	C	C	B	E	B
HCM 95th-tile Q	3	5.8	1	0.3	2.6	0.9	1.3	0.1	8.1	1.2

Intersection	
Int Delay, s/veh	8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	4	8	109	8	74	3	265	136	90	332	2
Future Vol, veh/h	8	4	8	109	8	74	3	265	136	90	332	2
Conflicting Peds, #/hr	9	0	2	1	0	8	2	0	1	8	0	9
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	4	8	115	8	78	3	279	143	95	349	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	958	985	361	913	915	368	360	0	0	430	0	0
Stage 1	549	549	-	365	365	-	-	-	-	-	-	-
Stage 2	409	436	-	548	550	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	237	248	684	254	273	677	1199	-	-	1129	-	-
Stage 1	520	516	-	654	623	-	-	-	-	-	-	-
Stage 2	619	580	-	521	516	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	184	217	677	225	239	666	1189	-	-	1120	-	-
Mov Cap-2 Maneuver	184	217	-	225	239	-	-	-	-	-	-	-
Stage 1	514	458	-	647	616	-	-	-	-	-	-	-
Stage 2	533	574	-	455	458	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	19.4	37.2	0.1	1.8
HCM LOS	C	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1189	-	-	271	304	1120	-	-
HCM Lane V/C Ratio	0.003	-	-	0.078	0.661	0.085	-	-
HCM Control Delay (s)	8	0	-	19.4	37.2	8.5	0	-
HCM Lane LOS	A	A	-	C	E	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	4.4	0.3	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	46	127	85	26	50	119	511	67	101	610	77
Future Volume (veh/h)	65	46	127	85	26	50	119	511	67	101	610	77
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.93	0.97		0.97	1.00		0.96	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	68	48	88	89	27	34	125	538	48	106	642	79
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	418	138	254	229	72	63	159	797	71	136	748	92
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.09	0.47	0.47	0.08	0.46	0.46
Sat Flow, veh/h	1318	561	1029	579	292	255	1781	1686	150	1781	1627	200
Grp Volume(v), veh/h	68	0	136	150	0	0	125	0	586	106	0	721
Grp Sat Flow(s),veh/h/ln	1318	0	1590	1126	0	0	1781	0	1836	1781	0	1827
Q Serve(g_s), s	0.0	0.0	4.7	4.7	0.0	0.0	4.5	0.0	16.3	3.9	0.0	23.2
Cycle Q Clear(g_c), s	3.0	0.0	4.7	9.3	0.0	0.0	4.5	0.0	16.3	3.9	0.0	23.2
Prop In Lane	1.00		0.65	0.59		0.23	1.00		0.08	1.00		0.11
Lane Grp Cap(c), veh/h	418	0	392	384	0	0	159	0	868	136	0	841
V/C Ratio(X)	0.16	0.00	0.35	0.41	0.00	0.00	0.79	0.00	0.68	0.78	0.00	0.86
Avail Cap(c_a), veh/h	593	0	603	545	0	0	162	0	960	180	0	983
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.9	0.0	20.5	22.8	0.0	0.0	29.4	0.0	13.5	29.9	0.0	15.9
Incr Delay (d2), s/veh	0.1	0.0	0.2	0.3	0.0	0.0	22.0	0.0	2.2	12.9	0.0	7.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	1.7	2.0	0.0	0.0	2.8	0.0	6.2	2.0	0.0	9.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.9	0.0	20.7	23.1	0.0	0.0	51.5	0.0	15.6	42.8	0.0	23.6
LnGrp LOS	B	A	C	C	A	A	D	A	B	D	A	C
Approach Vol, veh/h		204			150			711			827	
Approach Delay, s/veh		20.4			23.1			21.9			26.0	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	4	5	6	8
Phs Duration (G+Y+Rc), s	9.0	35.7	21.3	9.9	34.9	21.3
Change Period (Y+Rc), s	4.0	4.5	5.0	4.0	4.5	5.0
Max Green Setting (Gmax), s	7.0	34.5	25.0	6.0	35.5	25.0
Max Q Clear Time (g_c+I1), s	5.9	18.3	6.7	6.5	25.2	11.3
Green Ext Time (p_c), s	0.0	5.4	0.6	0.0	5.1	0.5

Intersection Summary	
HCM 6th Ctrl Delay	23.7
HCM 6th LOS	C

Intersection	
Intersection Delay, s/veh	80.7
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	44	47	58	236	44	145	30	225	302	198	239	20
Future Vol, veh/h	44	47	58	236	44	145	30	225	302	198	239	20
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	46	49	61	248	46	153	32	237	318	208	252	21
Number of Lanes	1	1	1	1	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	14.1	20.8	138.6	87.5
HCM LOS	B	C	F	F

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	5%	100%	0%	0%	100%	0%	0%	43%
Vol Thru, %	40%	0%	100%	0%	0%	100%	0%	52%
Vol Right, %	54%	0%	0%	100%	0%	0%	100%	4%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	557	44	47	58	236	44	145	457
LT Vol	30	44	0	0	236	0	0	198
Through Vol	225	0	47	0	0	44	0	239
RT Vol	302	0	0	58	0	0	145	20
Lane Flow Rate	586	46	49	61	248	46	153	481
Geometry Grp	5	5	5	5	5	5	5	5
Degree of Util (X)	1.213	0.124	0.126	0.144	0.607	0.107	0.322	1.054
Departure Headway (Hd)	7.822	10.616	10.08	9.33	9.573	9.043	8.301	8.388
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	481	340	356	386	380	399	437	438
Service Time	5.322	8.316	7.78	7.03	7.273	6.743	6.001	6.088
HCM Lane V/C Ratio	1.218	0.135	0.137	0.158	0.653	0.115	0.35	1.098
HCM Control Delay	138.6	14.8	14.2	13.6	26	12.8	14.9	87.5
HCM Lane LOS	F	B	B	B	D	B	B	F
HCM 95th-tile Q	22.2	0.4	0.4	0.5	3.8	0.4	1.4	14.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	177	1	223	2	1	0	239	554	3	3	611	209
Future Volume (veh/h)	177	1	223	2	1	0	239	554	3	3	611	209
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	186	1	162	2	1	0	252	583	2	3	643	216
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	332	2	277	148	60	0	280	1211	4	6	660	222
Arrive On Green	0.18	0.18	0.18	0.18	0.18	0.00	0.16	0.65	0.65	0.00	0.50	0.50
Sat Flow, veh/h	1408	10	1564	425	340	0	1781	1863	6	1781	1331	447
Grp Volume(v), veh/h	186	0	163	3	0	0	252	0	585	3	0	859
Grp Sat Flow(s),veh/h/ln	1408	0	1573	766	0	0	1781	0	1869	1781	0	1779
Q Serve(g_s), s	2.8	0.0	7.9	0.0	0.0	0.0	11.5	0.0	13.2	0.1	0.0	38.9
Cycle Q Clear(g_c), s	10.5	0.0	7.9	7.9	0.0	0.0	11.5	0.0	13.2	0.1	0.0	38.9
Prop In Lane	1.00		0.99	0.67		0.00	1.00		0.00	1.00		0.25
Lane Grp Cap(c), veh/h	337	0	279	208	0	0	280	0	1215	6	0	882
V/C Ratio(X)	0.56	0.00	0.58	0.01	0.00	0.00	0.90	0.00	0.48	0.52	0.00	0.97
Avail Cap(c_a), veh/h	458	0	419	331	0	0	280	0	1215	86	0	883
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.4	0.0	31.2	28.3	0.0	0.0	34.2	0.0	7.4	41.1	0.0	20.3
Incr Delay (d2), s/veh	2.1	0.0	2.8	0.0	0.0	0.0	28.6	0.0	0.5	24.7	0.0	24.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.8	0.0	3.1	0.1	0.0	0.0	7.0	0.0	4.4	0.1	0.0	20.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.5	0.0	34.0	28.3	0.0	0.0	62.7	0.0	7.9	65.8	0.0	44.4
LnGrp LOS	C	A	C	C	A	A	E	A	A	E	A	D
Approach Vol, veh/h		349			3			837			862	
Approach Delay, s/veh		34.2			28.3			24.4			44.4	
Approach LOS		C			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.8	58.2		19.6	17.5	45.5		16.6
Change Period (Y+Rc), s	4.5	4.5		5.0	4.5	4.5		5.0
Max Green Setting (Gmax), s	[illegible]	50.0		22.0	13.0	41.0		22.0
Max Q Clear Time (g_c+I1), s	[illegible]	15.2		12.6	13.5	40.9		9.9
Green Ext Time (p_c), s	0.0	7.3		1.5	0.0	0.1		0.0

Intersection Summary	
HCM 6th Ctrl Delay	34.5
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	6	8	29	2	183	6	354	14	167	371	7
Future Vol, veh/h	8	6	8	29	2	183	6	354	14	167	371	7
Conflicting Peds, #/hr	0	0	0	3	0	3	0	0	3	3	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	6	8	31	2	193	6	373	15	176	391	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1240	1150	398	1153	1146	387	398	0	0	391	0	0
Stage 1	747	747	-	396	396	-	-	-	-	-	-	-
Stage 2	493	403	-	757	750	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	152	198	652	174	199	661	1161	-	-	1168	-	-
Stage 1	405	420	-	629	604	-	-	-	-	-	-	-
Stage 2	558	600	-	400	419	-	-	-	-	-	-	-
Platoon blocked, %								-				-
Mov Cap-1 Maneuver	90	158	650	140	159	657	1161	-	-	1165	-	-
Mov Cap-2 Maneuver	90	158	-	140	159	-	-	-	-	-	-	-
Stage 1	402	339	-	623	598	-	-	-	-	-	-	-
Stage 2	389	594	-	311	338	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	31.7	22.3	0.1	2.6
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1161	-	-	158	429	1165	-	-
HCM Lane V/C Ratio	0.005	-	-	0.147	0.525	0.151	-	-
HCM Control Delay (s)	8.1	0	-	31.7	22.3	8.6	0	-
HCM Lane LOS	A	A	-	D	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.5	3	0.5	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	23	157	61	19	60	160	719	38	49	725	42
Future Volume (veh/h)	47	23	157	61	19	60	160	719	38	49	725	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	49	24	72	64	20	47	168	757	32	52	763	37
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	133	49	104	173	48	76	211	1090	46	68	940	46
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.12	0.61	0.61	0.04	0.53	0.53
Sat Flow, veh/h	443	392	824	697	381	603	1781	1779	75	1781	1767	86
Grp Volume(v), veh/h	145	0	0	131	0	0	168	0	789	52	0	800
Grp Sat Flow(s),veh/h/ln	1659	0	0	1681	0	0	1781	0	1855	1781	0	1853
Q Serve(g_s), s	0.7	0.0	0.0	0.0	0.0	0.0	5.8	0.0	18.0	1.8	0.0	22.3
Cycle Q Clear(g_c), s	5.0	0.0	0.0	4.3	0.0	0.0	5.8	0.0	18.0	1.8	0.0	22.3
Prop In Lane	0.34		0.50	0.49		0.36	1.00		0.04	1.00		0.05
Lane Grp Cap(c), veh/h	286	0	0	297	0	0	211	0	1136	68	0	986
V/C Ratio(X)	0.51	0.00	0.00	0.44	0.00	0.00	0.79	0.00	0.69	0.77	0.00	0.81
Avail Cap(c_a), veh/h	676	0	0	675	0	0	298	0	1385	145	0	1224
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.1	0.0	0.0	25.8	0.0	0.0	26.9	0.0	8.2	29.9	0.0	12.1
Incr Delay (d2), s/veh	2.0	0.0	0.0	1.5	0.0	0.0	9.4	0.0	1.9	16.4	0.0	4.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	0.0	1.9	0.0	0.0	2.8	0.0	5.6	1.0	0.0	8.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.1	0.0	0.0	27.3	0.0	0.0	36.3	0.0	10.1	46.3	0.0	16.8
LnGrp LOS	C	A	A	C	A	A	D	A	B	D	A	B
Approach Vol, veh/h		145			131			957			852	
Approach Delay, s/veh		28.1			27.3			14.7			18.6	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	4	5	6	8
Phs Duration (G+Y+Rc), s	6.9	43.4	12.4	11.9	38.3	12.4
Change Period (Y+Rc), s	4.5	5.0	4.5	4.5	5.0	4.5
Max Green Setting (Gmax), s	5.1	46.8	24.1	10.5	41.4	24.1
Max Q Clear Time (g_c+I1), s	3.8	20.0	7.0	7.8	24.3	6.3
Green Ext Time (p_c), s	0.0	11.7	1.0	0.1	9.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	18.0
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary
1: McKinleyville Ave & Murray Rd 08/21/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	245	201	63	366	12	266	39	88	28	65	118
Future Volume (veh/h)	24	245	201	63	366	12	266	39	88	28	65	118
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.98	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	25	258	212	66	385	13	280	41	93	29	68	124
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	55	550	431	122	1170	39	0	117	265	0	138	252
Arrive On Green	0.03	0.30	0.30	0.07	0.33	0.33	0.00	0.24	0.24	0.00	0.24	0.24
Sat Flow, veh/h	1781	1856	1454	1781	3504	118	0	497	1127	0	586	1072
Grp Volume(v), veh/h	25	247	223	66	195	203	0	0	134	0	0	192
Grp Sat Flow(s),veh/h/ln	1781	1777	1533	1781	1777	1846	0	0	1624	0	0	1659
Q Serve(g_s), s	0.5	3.8	4.1	1.2	2.8	2.8	0.0	0.0	2.3	0.0	0.0	3.4
Cycle Q Clear(g_c), s	0.5	3.8	4.1	1.2	2.8	2.8	0.0	0.0	2.3	0.0	0.0	3.4
Prop In Lane	1.00		0.95	1.00		0.06	0.00		0.69	0.00		0.65
Lane Grp Cap(c), veh/h	55	527	454	122	593	618	0	0	382	0	0	391
V/C Ratio(X)	0.45	0.47	0.49	0.54	0.33	0.33	0.00	0.00	0.35	0.00	0.00	0.49
Avail Cap(c_a), veh/h	264	947	817	290	974	1011	0	0	890	0	0	909
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	16.1	9.7	9.8	15.2	8.4	8.4	0.0	0.0	10.8	0.0	0.0	11.2
Incr Delay (d2), s/veh	5.7	0.6	0.8	3.7	0.3	0.3	0.0	0.0	0.5	0.0	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.1	1.0	0.5	0.7	0.8	0.0	0.0	0.7	0.0	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.8	10.4	10.6	18.9	8.7	8.7	0.0	0.0	11.3	0.0	0.0	12.1
LnGrp LOS	C	B	B	B	A	A	A	A	B	A	A	B
Approach Vol, veh/h		495			464			134			192	
Approach Delay, s/veh		11.0			10.2			11.3			12.1	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	0.0	12.4	6.8	14.5	0.0	12.4	5.5	15.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	18.5	5.5	18.0	5.0	18.5	5.0	18.5
Max Q Clear Time (g_c+I1), s	0.0	4.3	3.2	6.1	0.0	5.4	2.5	4.8
Green Ext Time (p_c), s	0.0	0.6	0.0	2.2	0.0	0.9	0.0	1.8

Intersection Summary		
HCM 6th Ctrl Delay		10.9
HCM 6th LOS		B

HCM 6th Signalized Intersection Summary
2: Central Ave & Murray Rd 08/21/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	33	194	80	96	16	201	238	62	9	335	123
Future Volume (veh/h)	87	33	194	80	96	16	201	238	62	9	335	123
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	92	35	204	84	101	17	212	251	65	9	353	129
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	118	325	274	112	265	45	262	647	168	21	414	151
Arrive On Green	0.07	0.17	0.17	0.06	0.17	0.17	0.15	0.45	0.45	0.01	0.32	0.32
Sat Flow, veh/h	1781	1870	1576	1781	1556	262	1781	1430	370	1781	1305	477
Grp Volume(v), veh/h	92	35	204	84	0	118	212	0	316	9	0	482
Grp Sat Flow(s),veh/h/ln	1781	1870	1576	1781	0	1818	1781	0	1801	1781	0	1782
Q Serve(g_s), s	3.1	0.9	7.4	2.8	0.0	3.5	6.9	0.0	7.0	0.3	0.0	15.2
Cycle Q Clear(g_c), s	3.1	0.9	7.4	2.8	0.0	3.5	6.9	0.0	7.0	0.3	0.0	15.2
Prop In Lane	1.00		1.00	1.00		0.14	1.00		0.21	1.00		0.27
Lane Grp Cap(c), veh/h	118	325	274	112	0	309	262	0	815	21	0	565
V/C Ratio(X)	0.78	0.11	0.75	0.75	0.00	0.38	0.81	0.00	0.39	0.44	0.00	0.85
Avail Cap(c_a), veh/h	193	560	472	193	0	544	370	0	973	148	0	741
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.6	20.9	23.6	27.7	0.0	22.1	24.8	0.0	10.9	29.5	0.0	19.2
Incr Delay (d2), s/veh	10.5	0.1	4.0	9.7	0.0	0.8	8.7	0.0	0.3	13.8	0.0	7.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.4	2.8	1.4	0.0	1.4	3.3	0.0	2.4	0.2	0.0	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.1	21.1	27.6	37.4	0.0	22.9	33.5	0.0	11.2	43.3	0.0	26.7
LnGrp LOS	D	C	C	D	A	C	C	A	B	D	A	C
Approach Vol, veh/h		331			202			528			491	
Approach Delay, s/veh		29.8			29.0			20.2			27.0	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.2	31.7	8.3	14.9	13.4	23.8	8.6	14.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	[illegible]	32.5	6.5	18.0	12.5	25.0	6.5	16.0
Max Q Clear Time (g_c+I1), s	[illegible]	9.0	4.8	9.4	8.9	17.2	5.1	5.5
Green Ext Time (p_c), s	0.0	1.8	0.0	0.5	0.2	1.8	0.0	0.4

Intersection Summary		
HCM 6th Ctrl Delay		25.5
HCM 6th LOS		C

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	331	202	528	491
Demand Flow Rate, veh/h	338	206	538	501
Vehicles Circulating, veh/h	455	566	139	405
Vehicles Exiting, veh/h	451	111	654	367
Ped Vol Crossing Leg, #/h	2	6	6	4
Ped Cap Adj	1.000	0.999	0.999	0.999
Approach Delay, s/veh	8.9	7.8	7.8	11.6
Approach LOS	A	A	A	B

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	338	206	538	501
Cap Entry Lane, veh/h	868	775	1197	913
Entry HV Adj Factor	0.980	0.980	0.981	0.980
Flow Entry, veh/h	331	202	528	491
Cap Entry, veh/h	850	759	1174	894
V/C Ratio	0.390	0.266	0.450	0.549
Control Delay, s/veh	8.9	7.8	7.8	11.6
LOS	A	A	A	B
95th %tile Queue, veh	2	1	2	3

Intersection	
Intersection Delay, s/veh	13
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	4	8	109	8	74	3	265	136	90	332	2
Future Vol, veh/h	8	4	8	109	8	74	3	265	136	90	332	2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	4	8	115	8	78	3	279	143	95	349	2
Number of Lanes	0	1	0	1	1	0	0	1	1	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	1
HCM Control Delay	10.4	11.2	12.1	14.7
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	1%	0%	40%	100%	0%	100%	0%
Vol Thru, %	99%	0%	20%	0%	10%	0%	99%
Vol Right, %	0%	100%	40%	0%	90%	0%	1%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	268	136	20	109	82	90	334
LT Vol	3	0	8	109	0	90	0
Through Vol	265	0	4	0	8	0	332
RT Vol	0	136	8	0	74	0	2
Lane Flow Rate	282	143	21	115	86	95	352
Geometry Grp	5	5	4b	5	5	5	5
Degree of Util (X)	0.46	0.205	0.041	0.231	0.146	0.166	0.567
Departure Headway (Hd)	5.865	5.15	7.008	7.243	6.094	6.312	5.802
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	615	696	509	496	588	568	622
Service Time	3.602	2.887	5.07	4.989	3.839	4.048	3.538
HCM Lane V/C Ratio	0.459	0.205	0.041	0.232	0.146	0.167	0.566
HCM Control Delay	13.5	9.2	10.4	12.2	9.9	10.3	15.9
HCM Lane LOS	B	A	B	B	A	B	C
HCM 95th-tile Q	2.4	0.8	0.1	0.9	0.5	0.6	3.6

HCM 6th Roundabout
3 McKinleyville Ave & Railroad Dr

08/21/2024

Intersection	
Intersection Delay, s/veh	6.3
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	20	201	425	446
Demand Flow Rate, veh/h	20	205	434	455
Vehicles Circulating, veh/h	570	296	109	128
Vehicles Exiting, veh/h	13	247	481	373
Ped Vol Crossing Leg, #/h	0	8	2	9
Ped Cap Adj	0.999	0.999	1.000	0.999
Approach Delay, s/veh	4.9	5.5	6.3	6.7
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	20	205	434	455
Cap Entry Lane, veh/h	772	1020	1235	1211
Entry HV Adj Factor	0.996	0.980	0.980	0.980
Flow Entry, veh/h	20	201	425	446
Cap Entry, veh/h	768	999	1210	1186
V/C Ratio	0.026	0.201	0.352	0.376
Control Delay, s/veh	4.9	5.5	6.3	6.7
LOS	A	A	A	A
95th %tile Queue, veh	0	1	2	2

HCM 6th Signalized Intersection Summary
5 McKinleyville Ave & Hiller Rd

08/21/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	47	58	236	44	145	30	225	302	198	239	20
Future Volume (veh/h)	44	47	58	236	44	145	30	225	302	198	239	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		0.99	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	46	49	61	248	46	153	32	237	318	208	252	21
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	443	238	296	525	119	397	115	326	408	501	774	65
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.46	0.46	0.46	0.46	0.46	0.46
Sat Flow, veh/h	1179	755	939	1277	378	1257	42	716	895	852	1699	142
Grp Volume(v), veh/h	46	0	110	248	0	199	587	0	0	208	0	273
Grp Sat Flow(s),veh/h/ln	1179	0	1694	1277	0	1635	1052	0	0	852	0	1841
Q Serve(g_s), s	1.2	0.0	1.9	6.9	0.0	3.7	2.1	0.0	0.0	0.0	0.0	3.7
Cycle Q Clear(g_c), s	5.0	0.0	1.9	8.8	0.0	3.7	11.6	0.0	0.0	10.9	0.0	3.7
Prop In Lane	1.00		0.55	1.00		0.77	0.05		0.54	1.00		0.08
Lane Grp Cap(c), veh/h	443	0	535	525	0	516	849	0	0	501	0	839
V/C Ratio(X)	0.10	0.00	0.21	0.47	0.00	0.39	0.69	0.00	0.00	0.42	0.00	0.33
Avail Cap(c_a), veh/h	656	0	840	756	0	811	1410	0	0	796	0	1475
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.4	0.0	9.8	13.1	0.0	10.5	9.0	0.0	0.0	8.8	0.0	6.8
Incr Delay (d2), s/veh	0.1	0.0	0.2	0.7	0.0	0.5	1.0	0.0	0.0	0.5	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.6	1.6	0.0	1.1	3.2	0.0	0.0	1.1	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.5	0.0	10.0	13.7	0.0	11.0	10.0	0.0	0.0	9.4	0.0	7.1
LnGrp LOS	B	A	B	B	A	B	A	A	A	A	A	A
Approach Vol, veh/h		156			447			587			481	
Approach Delay, s/veh		10.8			12.5			10.0			8.1	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	22.4	18.9	22.4	18.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	31.5	19.5	31.5	19.5
Max Q Clear Time (g_c+I1), s	13.6	7.0	12.9	10.8
Green Ext Time (p_c), s	4.3	0.6	2.9	1.4

Intersection Summary	
HCM 6th Ctrl Delay	10.2
HCM 6th LOS	B

Intersection	
Intersection Delay, s/veh	9.3
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	2	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	156	447	587	481
Demand Flow Rate, veh/h	159	456	599	490
Vehicles Circulating, veh/h	722	322	309	333
Vehicles Exiting, veh/h	101	586	572	445
Ped Vol Crossing Leg, #/h	4	4	4	2
Ped Cap Adj	0.999	0.997	0.999	1.000
Approach Delay, s/veh	8.5	5.8	11.8	9.9
Approach LOS	A	A	B	A

Lane	Left	Left	Right	Left	Left
Designated Moves	LTR	LT	R	LTR	LTR
Assumed Moves	LTR	LT	R	LTR	LTR
RT Channelized					
Lane Util	1.000	0.658	0.342	1.000	1.000
Follow-Up Headway, s	2.609	2.535	2.535	2.609	2.609
Critical Headway, s	4.976	4.544	4.544	4.976	4.976
Entry Flow, veh/h	159	300	156	599	490
Cap Entry Lane, veh/h	661	1059	1059	1007	983
Entry HV Adj Factor	0.981	0.980	0.981	0.980	0.982
Flow Entry, veh/h	156	294	153	587	481
Cap Entry, veh/h	648	1035	1036	987	964
V/C Ratio	0.241	0.284	0.148	0.595	0.499
Control Delay, s/veh	8.5	6.3	4.8	11.8	9.9
LOS	A	A	A	B	A
95th %tile Queue, veh	1	1	1	4	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	177	1	223	2	1	0	239	554	3	3	611	209
Future Volume (veh/h)	177	1	223	2	1	0	239	554	3	3	611	209
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	186	1	162	2	1	0	252	583	2	3	643	216
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	266	1	503	5	2	0	302	1059	4	7	754	863
Arrive On Green	0.15	0.15	0.15	0.00	0.00	0.00	0.17	0.57	0.57	0.00	0.40	0.40
Sat Flow, veh/h	1772	10	1569	1207	603	0	1781	1863	6	1781	1870	1552
Grp Volume(v), veh/h	187	0	162	3	0	0	252	0	585	3	643	216
Grp Sat Flow(s),veh/h/ln	1782	0	1569	1810	0	0	1781	0	1869	1781	1870	1552
Q Serve(g_s), s	6.6	0.0	5.2	0.1	0.0	0.0	9.0	0.0	12.9	0.1	20.6	4.8
Cycle Q Clear(g_c), s	6.6	0.0	5.2	0.1	0.0	0.0	9.0	0.0	12.9	0.1	20.6	4.8
Prop In Lane	0.99		1.00	0.67		0.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	267	0	503	7	0	0	302	0	1063	7	754	863
V/C Ratio(X)	0.70	0.00	0.32	0.41	0.00	0.00	0.84	0.00	0.55	0.42	0.85	0.25
Avail Cap(c_a), veh/h	487	0	698	138	0	0	393	0	1250	135	981	1051
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.6	0.0	17.0	32.7	0.0	0.0	26.4	0.0	8.9	32.7	17.9	7.6
Incr Delay (d2), s/veh	3.3	0.0	0.4	32.6	0.0	0.0	11.5	0.0	0.4	33.9	5.8	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	1.8	0.1	0.0	0.0	4.5	0.0	4.2	0.1	8.9	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.9	0.0	17.4	65.3	0.0	0.0	38.0	0.0	9.4	68.6	23.7	7.8
LnGrp LOS	C	A	B	E	A	A	D	A	A	E	C	A
Approach Vol, veh/h		349			3			837			862	
Approach Delay, s/veh		24.1			65.3			18.0			19.8	
Approach LOS		C			E			B			B	

Timer - Assigned Phs	1	2	4	5	6	8
Phs Duration (G+Y+Rc), s	4.8	41.9	14.4	15.6	31.0	4.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	44.0	18.0	14.5	34.5	5.0
Max Q Clear Time (g_c+I1), s	[illegible]	14.9	8.6	11.0	22.6	2.1
Green Ext Time (p_c), s	0.0	4.1	1.1	0.2	4.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	19.9
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary
6: Central Ave & Hiller Rd

08/21/2024

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	177	223	239	554	611	209
Future Volume (veh/h)	177	223	239	554	611	209
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	186	162	252	583	643	216
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	280	520	304	1270	806	918
Arrive On Green	0.16	0.16	0.17	0.68	0.43	0.43
Sat Flow, veh/h	1781	1585	1781	1870	1870	1552
Grp Volume(v), veh/h	186	162	252	583	643	216
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	1870	1552
Q Serve(g_s), s	5.7	4.4	7.9	8.4	17.3	3.9
Cycle Q Clear(g_c), s	5.7	4.4	7.9	8.4	17.3	3.9
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	280	520	304	1270	806	918
V/C Ratio(X)	0.66	0.31	0.83	0.46	0.80	0.24
Avail Cap(c_a), veh/h	676	871	415	1564	983	1065
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.0	14.6	23.2	4.3	14.3	5.7
Incr Delay (d2), s/veh	3.8	0.5	7.3	0.4	4.7	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.1	3.6	1.9	7.0	1.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.8	15.1	30.6	4.8	19.0	5.9
LnGrp LOS	C	B	C	A	B	A
Approach Vol, veh/h	348			835	859	
Approach Delay, s/veh	21.4			12.6	15.7	
Approach LOS	C			B	B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		43.9		14.1	14.4	29.5
Change Period (Y+Rc), s		4.5		5.0	4.5	4.5
Max Green Setting (Gmax), s		46.5		22.0	13.5	30.5
Max Q Clear Time (g_c+I1), s		10.4		7.7	9.9	19.3
Green Ext Time (p_c), s		7.5		1.5	0.1	5.7
Intersection Summary						
HCM 6th Ctrl Delay			15.4			
HCM 6th LOS			B			

HCM 6th Signalized Intersection Summary
8: Central Ave & Heartwood Dr

08/21/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	23	157	61	19	60	160	719	38	49	725	42
Future Volume (veh/h)	47	23	157	61	19	60	160	719	38	49	725	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	49	24	72	64	20	47	168	757	32	52	763	37
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	263	105	420	188	53	74	217	985	814	74	1538	75
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.12	0.53	0.53	0.04	0.45	0.45
Sat Flow, veh/h	964	725	1584	541	364	500	1781	1870	1546	1781	3446	167
Grp Volume(v), veh/h	73	0	72	131	0	0	168	757	32	52	393	407
Grp Sat Flow(s),veh/h/ln	1689	0	1584	1412	0	0	1781	1870	1546	1781	1777	1836
Q Serve(g_s), s	0.0	0.0	1.7	2.7	0.0	0.0	4.5	15.7	0.5	1.4	7.7	7.7
Cycle Q Clear(g_c), s	1.7	0.0	1.7	4.4	0.0	0.0	4.5	15.7	0.5	1.4	7.7	7.7
Prop In Lane	0.67		1.00	0.49		0.36	1.00		1.00	1.00		0.09
Lane Grp Cap(c), veh/h	368	0	420	315	0	0	217	985	814	74	793	819
V/C Ratio(X)	0.20	0.00	0.17	0.42	0.00	0.00	0.77	0.77	0.04	0.70	0.50	0.50
Avail Cap(c_a), veh/h	876	0	902	821	0	0	398	1264	1045	146	950	981
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.6	0.0	13.8	19.7	0.0	0.0	20.8	9.2	5.6	23.1	9.6	9.6
Incr Delay (d2), s/veh	0.4	0.0	0.3	1.3	0.0	0.0	5.8	3.3	0.0	11.5	1.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.6	1.4	0.0	0.0	2.0	5.1	0.1	0.8	2.5	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.9	0.0	14.0	21.0	0.0	0.0	26.6	12.5	5.6	34.7	10.6	10.6
LnGrp LOS	B	A	B	C	A	A	C	B	A	C	B	B
Approach Vol, veh/h		145			131			957			852	
Approach Delay, s/veh		16.5			21.0			14.8			12.1	
Approach LOS		B			C			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.5	30.7		11.6	10.5	26.8		11.6				
Change Period (Y+Rc), s	4.5	5.0		4.5	4.5	5.0		4.5				
Max Green Setting (Gmax), s	4.0	33.0		24.0	10.9	26.1		24.0				
Max Q Clear Time (g_c+I1), s	3.4	17.7		3.7	6.5	9.7		6.4				
Green Ext Time (p_c), s	0.0	8.0		0.8	0.2	7.7		0.9				
Intersection Summary												
HCM 6th Ctrl Delay		14.2										
HCM 6th LOS		B										

HCM 6th AWSC

1 McKinleyville Ave & Murray Rd 08/21/2024

Intersection	
Intersection Delay, s/veh	18.9
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	95	350	253	42	267	22	190	69	43	11	57	23
Future Vol, veh/h	95	350	253	42	267	22	190	69	43	11	57	23
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	100	368	266	44	281	23	200	73	45	12	60	24
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	19.2	13.7	25.8	13.2
HCM LOS	C	B	D	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	63%	100%	0%	0%	100%	0%	0%	12%
Vol Thru, %	23%	0%	100%	32%	0%	100%	80%	63%
Vol Right, %	14%	0%	0%	68%	0%	0%	20%	25%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	302	95	233	370	42	178	111	91
LT Vol	190	95	0	0	42	0	0	11
Through Vol	69	0	233	117	0	178	89	57
RT Vol	43	0	0	253	0	0	22	23
Lane Flow Rate	318	100	246	389	44	187	117	96
Geometry Grp	5	5	5	5	5	5	5	5
Degree of Util (X)	0.685	0.208	0.476	0.701	0.099	0.391	0.239	0.217
Departure Headway (Hd)	7.753	7.496	6.981	6.487	8.026	7.508	7.364	8.138
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	467	479	516	556	446	478	487	441
Service Time	5.501	5.247	4.732	4.238	5.785	5.267	5.123	5.902
HCM Lane V/C Ratio	0.681	0.209	0.477	0.7	0.099	0.391	0.24	0.218
HCM Control Delay	25.8	12.2	16	23.1	11.7	15	12.4	13.2
HCM Lane LOS	D	B	C	C	B	B	B	B
HCM 95th-tile Q	5.1	0.8	2.5	5.5	0.3	1.8	0.9	0.8

HCM 6th AWSC

2 Central Ave & Murray Rd 08/21/2024

Intersection	
Intersection Delay, s/veh	55.4
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	82	43	225	77	26	8	231	409	117	9	277	54
Future Vol, veh/h	82	43	225	77	26	8	231	409	117	9	277	54
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	86	45	237	81	27	8	243	431	123	9	292	57
Number of Lanes	1	1	1	1	1	0	1	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	3	3	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	2	3	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	3	2	3
HCM Control Delay	17.8	15.2	92	25.9
HCM LOS	C	C	F	D

Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	100%	0%	0%	100%	0%	100%	0%	0%
Vol Thru, %	0%	78%	0%	100%	0%	0%	76%	0%	100%	0%
Vol Right, %	0%	22%	0%	0%	100%	0%	24%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	231	526	82	43	225	77	34	9	277	54
LT Vol	231	0	82	0	0	77	0	9	0	0
Through Vol	0	409	0	43	0	0	26	0	277	0
RT Vol	0	117	0	0	225	0	8	0	0	54
Lane Flow Rate	243	554	86	45	237	81	36	9	292	57
Geometry Grp	6	6	6	6	6	6	6	6	6	6
Degree of Util (X)	0.559	1.171	0.22	0.109	0.524	0.223	0.092	0.024	0.69	0.123
Departure Headway (Hd)	8.278	7.611	9.551	9.037	8.317	10.376	9.689	9.383	8.87	8.15
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	435	476	378	399	436	349	372	384	411	443
Service Time	6.028	5.36	7.251	6.737	6.017	8.076	7.389	7.083	6.57	5.85
HCM Lane V/C Ratio	0.559	1.164	0.228	0.113	0.544	0.232	0.097	0.023	0.71	0.129
HCM Control Delay	21.1	123.1	14.9	12.8	19.8	16	13.4	12.3	29.1	12
HCM Lane LOS	C	F	B	B	C	C	B	B	D	B
HCM 95th-tile Q	3.3	20.2	0.8	0.4	3	0.8	0.3	0.1	5.1	0.4

Intersection	
Int Delay, s/veh	57.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	3	4	183	12	98	4	435	151	80	355	6
Future Vol, veh/h	2	3	4	183	12	98	4	435	151	80	355	6
Conflicting Peds, #/hr	6	0	7	1	0	2	7	0	1	2	0	8
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	3	4	193	13	103	4	458	159	84	374	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1165	1180	392	1104	1104	548	388	0	0	619	0	0
Stage 1	553	553	-	548	548	-	-	-	-	-	-	-
Stage 2	612	627	-	556	556	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	171	190	657	~ 189	211	536	1170	-	-	961	-	-
Stage 1	517	514	-	521	517	-	-	-	-	-	-	-
Stage 2	480	476	-	515	513	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	117	166	648	~ 166	185	531	1161	-	-	959	-	-
Mov Cap-2 Maneuver	117	166	-	~ 166	185	-	-	-	-	-	-	-
Stage 1	510	453	-	517	513	-	-	-	-	-	-	-
Stage 2	372	473	-	449	452	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	22.3	256.4	0.1	1.7
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1161	-	-	218	217	959	-	-
HCM Lane V/C Ratio	0.004	-	-	0.043	1.421	0.088	-	-
HCM Control Delay (s)	8.1	0	-	22.3	256.4	9.1	0	-
HCM Lane LOS	A	A	-	C	F	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	17.9	0.3	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	111	9	184	31	7	11	173	948	20	6	704	92
Future Volume (veh/h)	111	9	184	31	7	11	173	948	20	6	704	92
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	0.99		0.99	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	117	9	148	33	7	1	182	998	18	6	741	94
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	355	15	250	171	30	3	219	1164	21	11	840	107
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.12	0.64	0.64	0.01	0.52	0.52
Sat Flow, veh/h	1394	88	1443	475	170	16	1781	1830	33	1781	1619	205
Grp Volume(v), veh/h	117	0	157	41	0	0	182	0	1016	6	0	835
Grp Sat Flow(s),veh/h/ln	1394	0	1531	662	0	0	1781	0	1863	1781	0	1825
Q Serve(g_s), s	0.0	0.0	6.9	1.5	0.0	0.0	7.3	0.0	31.9	0.2	0.0	29.7
Cycle Q Clear(g_c), s	5.0	0.0	6.9	8.4	0.0	0.0	7.3	0.0	31.9	0.2	0.0	29.7
Prop In Lane	1.00		0.94	0.80		0.02	1.00		0.02	1.00		0.11
Lane Grp Cap(c), veh/h	355	0	265	204	0	0	219	0	1185	11	0	947
V/C Ratio(X)	0.33	0.00	0.59	0.20	0.00	0.00	0.83	0.00	0.86	0.54	0.00	0.88
Avail Cap(c_a), veh/h	590	0	524	422	0	0	219	0	1211	97	0	1061
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.1	0.0	27.8	29.5	0.0	0.0	31.3	0.0	10.7	36.2	0.0	15.6
Incr Delay (d2), s/veh	0.2	0.0	0.8	0.2	0.0	0.0	22.7	0.0	6.6	34.6	0.0	8.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	2.5	0.7	0.0	0.0	4.4	0.0	11.8	0.2	0.0	12.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.3	0.0	28.6	29.6	0.0	0.0	54.0	0.0	17.3	70.8	0.0	24.5
LnGrp LOS	C	A	C	C	A	A	D	A	B	E	A	C
Approach Vol, veh/h		274			41			1198			841	
Approach Delay, s/veh		28.0			29.6			22.9			24.8	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.5	51.0		17.7	13.0	42.4		17.7
Change Period (Y+Rc), s	4.0	4.5		5.0	4.0	4.5		5.0
Max Green Setting (Gmax), s	4.0	47.5		25.0	9.0	42.5		25.0
Max Q Clear Time (g_c+I1), s	2.2	33.9		8.9	9.3	31.7		10.4
Green Ext Time (p_c), s	0.0	9.2		0.8	0.0	8.3		0.1

Intersection Summary	
HCM 6th Ctrl Delay	24.3
HCM 6th LOS	C

HCM 6th AWSC
5 McKinleyville Ave & Hiller Rd 08/21/2024

Intersection	
Intersection Delay, s/veh	307.9
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	40	80	50	436	120	276	88	288	342	230	276	45
Future Vol, veh/h	40	80	50	436	120	276	88	288	342	230	276	45
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	42	84	53	459	126	291	93	303	360	242	291	47
Number of Lanes	1	1	1	1	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	17.7	79.2	380.6	235.7
HCM LOS	C	F	F	F

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	12%	100%	0%	0%	100%	0%	0%	42%
Vol Thru, %	40%	0%	100%	0%	0%	100%	0%	50%
Vol Right, %	48%	0%	0%	100%	0%	0%	100%	8%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	718	40	80	50	436	120	276	551
LT Vol	88	40	0	0	436	0	0	230
Through Vol	288	0	80	0	0	120	0	276
RT Vol	342	0	0	50	0	0	276	45
Lane Flow Rate	756	42	84	53	459	126	291	580
Geometry Grp	5	5	5	5	5	5	5	5
Degree of Util (X)	1.774	0.119	0.227	0.132	1.145	0.298	0.628	1.429
Departure Headway (Hd)	9.339	12.981	12.441	11.672	11.103	10.563	9.808	10.289
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	401	278	291	309	330	342	372	360
Service Time	7.039	10.691	10.141	9.372	8.803	8.263	7.508	7.989
HCM Lane V/C Ratio	1.885	0.151	0.289	0.172	1.391	0.368	0.782	1.611
HCM Control Delay	380.6	17.4	18.8	16.1	128.8	17.7	27.7	235.7
HCM Lane LOS	F	C	C	C	F	C	D	F
HCM 95th-tile Q	43.2	0.4	0.9	0.5	15.1	1.2	4.1	26

HCM 6th Signalized Intersection Summary
6 Central Ave & Hiller Rd 08/21/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	329	6	393	11	6	2	336	900	23	13	762	254
Future Volume (veh/h)	329	6	393	11	6	2	336	900	23	13	762	254
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	336	6	295	11	6	0	343	918	20	13	778	253
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	309	6	313	58	22	0	295	1226	27	21	696	226
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.00	0.17	0.67	0.67	0.01	0.52	0.52
Sat Flow, veh/h	1410	31	1507	58	107	0	1781	1822	40	1781	1339	436
Grp Volume(v), veh/h	336	0	301	17	0	0	343	0	938	13	0	1031
Grp Sat Flow(s),veh/h/ln	1410	0	1537	166	0	0	1781	0	1862	1781	0	1775
Q Serve(g_s), s	1.6	0.0	25.1	0.3	0.0	0.0	21.5	0.0	43.2	0.9	0.0	67.5
Cycle Q Clear(g_c), s	27.0	0.0	25.1	25.4	0.0	0.0	21.5	0.0	43.2	0.9	0.0	67.5
Prop In Lane	1.00		0.98	0.65		0.00	1.00		0.02	1.00		0.25
Lane Grp Cap(c), veh/h	309	0	319	80	0	0	295	0	1253	21	0	922
V/C Ratio(X)	1.09	0.00	0.94	0.21	0.00	0.00	1.16	0.00	0.75	0.63	0.00	1.12
Avail Cap(c_a), veh/h	309	0	319	80	0	0	295	0	1253	55	0	922
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.0	0.0	50.7	43.4	0.0	0.0	54.3	0.0	14.0	64.0	0.0	31.3
Incr Delay (d2), s/veh	76.1	0.0	35.8	1.9	0.0	0.0	104.6	0.0	2.9	11.4	0.0	67.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	12.7	0.5	0.0	0.0	18.1	0.0	17.4	0.5	0.0	44.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	130.1	0.0	86.5	45.3	0.0	0.0	158.8	0.0	16.9	75.3	0.0	99.1
LnGrp LOS	F	A	F	D	A	A	F	A	B	E	A	F
Approach Vol, veh/h		637			17			1281			1044	
Approach Delay, s/veh		109.5			45.3			54.9			98.8	
Approach LOS		F			D			D			F	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.0	92.0		32.0	26.0	72.0		32.0
Change Period (Y+Rc), s	4.5	4.5		5.0	4.5	4.5		5.0
Max Green Setting (Gmax), s	[illegible]	85.0		27.0	21.5	67.5		27.0
Max Q Clear Time (g_c+I1), s	0.9	45.2		29.0	23.5	69.5		27.4
Green Ext Time (p_c), s	0.0	16.1		0.0	0.0	0.0		0.0

Intersection Summary		
HCM 6th Ctrl Delay		81.0
HCM 6th LOS		F

Intersection												
Int Delay, s/veh	13.4											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✢			✢			✢			✢	
Traffic Vol, veh/h	3	3	4	22	4	212	7	501	30	247	506	8
Future Vol, veh/h	3	3	4	22	4	212	7	501	30	247	506	8
Conflicting Peds, #/hr	2	0	2	3	0	3	2	0	3	3	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	3	4	23	4	223	7	527	32	260	533	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1733	1635	542	1624	1623	549	543	0	0	562	0	0
Stage 1	1059	1059	-	560	560	-	-	-	-	-	-	-
Stage 2	674	576	-	1064	1063	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	69	101	540	82	103	535	1026	-	-	1009	-	-
Stage 1	271	301	-	513	511	-	-	-	-	-	-	-
Stage 2	444	502	-	270	300	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	27	63	537	55	64	532	1024	-	-	1008	-	-
Mov Cap-2 Maneuver	27	63	-	55	64	-	-	-	-	-	-	-
Stage 1	268	189	-	508	504	-	-	-	-	-	-	-
Stage 2	252	495	-	165	189	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	77.4	73.2	0.1	3.2
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1024	-	-	60	276	1006	-	-
HCM Lane V/C Ratio	0.007	-	-	0.175	0.908	0.258	-	-
HCM Control Delay (s)	8.5	0	-	77.4	73.2	9.8	0	-
HCM Lane LOS	A	A	-	F	F	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.6	8.2	1	-	-

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✢			✢		↰	↱		↰	↱	
Traffic Volume (veh/h)	81	20	214	46	16	83	194	1071	56	81	1013	81
Future Volume (veh/h)	81	20	214	46	16	83	194	1071	56	81	1013	81
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.96	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	85	21	140	48	17	50	204	1127	52	85	1066	71
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	121	32	153	116	48	96	214	1161	54	104	1026	68
Arrive On Green	0.18	0.18	0.18	0.18	0.18	0.18	0.12	0.66	0.66	0.06	0.59	0.59
Sat Flow, veh/h	471	182	862	429	269	537	1781	1772	82	1781	1731	116
Grp Volume(v), veh/h	246	0	0	115	0	0	204	0	1179	85	0	1137
Grp Sat Flow(s),veh/h/ln	1514	0	0	1236	0	0	1781	0	1853	1781	0	1846
Q Serve(g_s), s	10.1	0.0	0.0	0.0	0.0	0.0	14.7	0.0	77.7	6.1	0.0	76.4
Cycle Q Clear(g_c), s	20.5	0.0	0.0	10.4	0.0	0.0	14.7	0.0	77.7	6.1	0.0	76.4
Prop In Lane	0.35		0.57	0.42		0.43	1.00		0.04	1.00		0.06
Lane Grp Cap(c), veh/h	307	0	0	260	0	0	214	0	1214	104	0	1095
V/C Ratio(X)	0.80	0.00	0.00	0.44	0.00	0.00	0.95	0.00	0.97	0.82	0.00	1.04
Avail Cap(c_a), veh/h	321	0	0	272	0	0	214	0	1214	104	0	1095
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	51.8	0.0	0.0	47.4	0.0	0.0	56.3	0.0	21.1	60.0	0.0	26.2
Incr Delay (d2), s/veh	13.8	0.0	0.0	1.7	0.0	0.0	47.8	0.0	19.4	38.4	0.0	37.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.0	0.0	0.0	3.5	0.0	0.0	9.4	0.0	36.5	3.8	0.0	42.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.7	0.0	0.0	49.1	0.0	0.0	104.1	0.0	40.4	98.4	0.0	64.0
LnGrp LOS	E	A	A	D	A	A	F	A	D	F	A	F
Approach Vol, veh/h		246			115			1383			1222	
Approach Delay, s/veh		65.7			49.1			49.8			66.4	
Approach LOS		E			D			D			E	

Timer - Assigned Phs	1	2	4	5	6	8
Phs Duration (G+Y+Rc), s	12.0	89.4	27.4	20.0	81.4	27.4
Change Period (Y+Rc), s	4.5	5.0	4.5	4.5	5.0	4.5
Max Green Setting (Gmax), s	7.5	84.4	24.1	15.5	76.4	24.1
Max Q Clear Time (g_c+I1), s	8.1	79.7	22.5	16.7	78.4	12.4
Green Ext Time (p_c), s	0.0	4.2	0.3	0.0	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	57.9
HCM 6th LOS	E

HCM 6th Signalized Intersection Summary
1. McKinleyville Ave & Murray Rd

08/21/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱			✥			✥	
Traffic Volume (veh/h)	95	350	253	42	267	22	190	69	43	11	57	23
Future Volume (veh/h)	95	350	253	42	267	22	190	69	43	11	57	23
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.97	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	100	368	266	44	281	23	200	73	45	12	60	24
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	163	656	465	90	982	80	0	207	128	0	243	97
Arrive On Green	0.09	0.34	0.34	0.05	0.30	0.30	0.00	0.19	0.19	0.00	0.19	0.19
Sat Flow, veh/h	1781	1944	1378	1781	3319	270	0	1072	661	0	1259	504
Grp Volume(v), veh/h	100	336	298	44	149	155	0	0	118	0	0	84
Grp Sat Flow(s),veh/h/ln	1781	1777	1546	1781	1777	1812	0	0	1733	0	0	1763
Q Serve(g_s), s	1.7	5.0	5.1	0.8	2.1	2.1	0.0	0.0	1.9	0.0	0.0	1.3
Cycle Q Clear(g_c), s	1.7	5.0	5.1	0.8	2.1	2.1	0.0	0.0	1.9	0.0	0.0	1.3
Prop In Lane	1.00		0.89	1.00		0.15	0.00		0.38	0.00		0.29
Lane Grp Cap(c), veh/h	163	599	521	90	526	536	0	0	335	0	0	341
V/C Ratio(X)	0.61	0.56	0.57	0.49	0.28	0.29	0.00	0.00	0.35	0.00	0.00	0.25
Avail Cap(c_a), veh/h	304	1020	887	276	993	1012	0	0	995	0	0	1012
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	14.1	8.7	8.8	14.9	8.7	8.7	0.0	0.0	11.3	0.0	0.0	11.0
Incr Delay (d2), s/veh	3.7	0.8	1.0	4.1	0.3	0.3	0.0	0.0	0.6	0.0	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	1.3	1.2	0.3	0.6	0.6	0.0	0.0	0.6	0.0	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.8	9.5	9.8	19.0	9.0	9.0	0.0	0.0	11.9	0.0	0.0	11.4
LnGrp LOS	B	A	A	B	A	A	A	A	B	A	A	B
Approach Vol, veh/h		734			348			118			84	
Approach Delay, s/veh		10.8			10.3			11.9			11.4	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	0.0	10.7	5.1	15.4	0.0	10.7	7.5	14.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	18.5	5.0	18.5	5.0	18.5	5.5	18.0
Max Q Clear Time (g_c+I1), s	0.0	3.9	2.8	7.1	0.0	3.3	3.7	4.1
Green Ext Time (p_c), s	0.0	0.5	0.0	3.0	0.0	0.3	0.0	1.4

Intersection Summary	
HCM 6th Ctrl Delay	10.8
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary
2. Central Ave & Murray Rd

08/21/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑↱		↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	82	43	225	77	26	8	231	409	117	9	277	54
Future Volume (veh/h)	82	43	225	77	26	8	231	409	117	9	277	54
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	86	45	237	81	27	8	243	431	123	9	292	57
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	119	370	305	116	271	80	296	552	158	21	365	71
Arrive On Green	0.07	0.20	0.20	0.06	0.20	0.20	0.17	0.39	0.39	0.01	0.24	0.24
Sat Flow, veh/h	1781	1870	1543	1781	1384	410	1781	1398	399	1781	1516	296
Grp Volume(v), veh/h	86	45	237	81	0	35	243	0	554	9	0	349
Grp Sat Flow(s),veh/h/ln	1781	1870	1543	1781	0	1794	1781	0	1797	1781	0	1812
Q Serve(g_s), s	2.6	1.1	7.9	2.4	0.0	0.9	7.2	0.0	14.7	0.3	0.0	9.9
Cycle Q Clear(g_c), s	2.6	1.1	7.9	2.4	0.0	0.9	7.2	0.0	14.7	0.3	0.0	9.9
Prop In Lane	1.00		1.00	1.00		0.23	1.00		0.22	1.00		0.16
Lane Grp Cap(c), veh/h	119	370	305	116	0	351	296	0	710	21	0	436
V/C Ratio(X)	0.72	0.12	0.78	0.70	0.00	0.10	0.82	0.00	0.78	0.43	0.00	0.80
Avail Cap(c_a), veh/h	164	619	510	164	0	593	347	0	792	164	0	612
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.9	17.9	20.7	24.9	0.0	17.9	21.9	0.0	14.4	26.7	0.0	19.4
Incr Delay (d2), s/veh	9.4	0.1	4.2	7.5	0.0	0.1	12.8	0.0	4.6	13.5	0.0	5.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.4	2.9	1.2	0.0	0.3	3.7	0.0	5.7	0.2	0.0	4.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.3	18.1	24.9	32.4	0.0	18.1	34.7	0.0	19.0	40.2	0.0	24.6
LnGrp LOS	C	B	C	C	A	B	C	A	B	D	A	C
Approach Vol, veh/h		368			116			797			358	
Approach Delay, s/veh		26.3			28.1			23.8			25.0	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.1	26.0	8.0	15.3	13.5	17.6	8.1	15.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	24.0	5.0	18.0	10.6	18.4	5.0	18.0
Max Q Clear Time (g_c+I1), s	[illegible]	16.7	4.4	9.9	9.2	11.9	4.6	2.9
Green Ext Time (p_c), s	0.0	2.1	0.0	0.6	0.1	1.1	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	24.9
HCM 6th LOS	C

Intersection	
Intersection Delay, s/veh	10.5
Intersection LOS	B

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	368	116	797	358
Demand Flow Rate, veh/h	376	119	813	365
Vehicles Circulating, veh/h	390	776	143	359
Vehicles Exiting, veh/h	334	180	623	536
Ped Vol Crossing Leg, #/h	2	2	2	2
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	8.7	8.2	12.8	8.1
Approach LOS	A	A	B	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	376	119	813	365
Cap Entry Lane, veh/h	927	625	1193	957
Entry HV Adj Factor	0.979	0.979	0.981	0.981
Flow Entry, veh/h	368	116	797	358
Cap Entry, veh/h	907	612	1169	939
V/C Ratio	0.406	0.190	0.682	0.382
Control Delay, s/veh	8.7	8.2	12.8	8.1
LOS	A	A	B	A
95th %tile Queue, veh	2	1	6	2

Intersection	
Intersection Delay, s/veh	21.8
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	3	4	183	12	98	4	435	151	80	355	6
Future Vol, veh/h	2	3	4	183	12	98	4	435	151	80	355	6
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	3	4	193	13	103	4	458	159	84	374	6
Number of Lanes	0	1	0	1	1	0	0	1	1	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	1
HCM Control Delay	11.4	14.4	26.5	20.7
HCM LOS	B	B	D	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	1%	0%	22%	100%	0%	100%	0%
Vol Thru, %	99%	0%	33%	0%	11%	0%	98%
Vol Right, %	0%	100%	44%	0%	89%	0%	2%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	439	151	9	183	110	80	361
LT Vol	4	0	2	183	0	80	0
Through Vol	435	0	3	0	12	0	355
RT Vol	0	151	4	0	98	0	6
Lane Flow Rate	462	159	9	193	116	84	380
Geometry Grp	5	5	4b	5	5	5	5
Degree of Util (X)	0.82	0.25	0.022	0.418	0.215	0.165	0.691
Departure Headway (Hd)	6.387	5.67	8.187	7.82	6.671	7.065	6.544
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	564	629	440	458	535	504	547
Service Time	4.165	3.447	6.187	5.604	4.455	4.849	4.327
HCM Lane V/C Ratio	0.819	0.253	0.02	0.421	0.217	0.167	0.695
HCM Control Delay	32.1	10.4	11.4	16.2	11.3	11.3	22.8
HCM Lane LOS	D	B	B	C	B	B	C
HCM 95th-tile Q	8.2	1	0.1	2	0.8	0.6	5.3

HCM 6th Roundabout
3. McKinleyville Ave & Railroad Dr 08/26/2024

Intersection	
Intersection Delay, s/veh	8 3
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	9	309	621	464
Demand Flow Rate, veh/h	9	315	633	473
Vehicles Circulating, veh/h	664	473	91	214
Vehicles Exiting, veh/h	23	251	582	574
Ped Vol Crossing Leg, #/h	8	2	7	8
Ped Cap Adj	0 999	1 000	0 999	0 999
Approach Delay, s/veh	5.3	8.7	8.4	7.9
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2 609	2 609	2 609	2 609
Critical Headway, s	4.976	4.976	4 976	4.976
Entry Flow, veh/h	9	315	633	473
Cap Entry Lane, veh/h	701	852	1258	1109
Entry HV Adj Factor	0 993	0 980	0 981	0 980
Flow Entry, veh/h	9	309	621	464
Cap Entry, veh/h	696	835	1232	1086
V/C Ratio	0.013	0.370	0 504	0.427
Control Delay, s/veh	5 3	8 7	8 4	7 9
LOS	A	A	A	A
95th %tile Queue, veh	0	2	3	2

HCM 6th Signalized Intersection Summary
5. McKinleyville Ave & Hiller Rd 08/21/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	80	50	436	120	276	88	288	342	230	276	45
Future Volume (veh/h)	40	80	50	436	120	276	88	288	342	230	276	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1 00		0 97	1 00		0 97	1 00		0 97	1 00		0 97
Parking Bus, Adj	1.00	1.00	1 00	1 00	1.00	1.00	1 00	1.00	1.00	1 00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	42	84	53	459	126	291	93	303	360	242	291	47
Peak Hour Factor	0.95	0 95	0 95	0 95	0 95	0.95	0 95	0.95	0 95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	270	406	256	516	189	437	129	330	365	268	762	123
Arrive On Green	0 38	0 38	0 38	0 38	0 38	0 38	0 49	0 49	0 49	0 49	0 49	0.49
Sat Flow, veh/h	969	1058	667	1247	492	1136	146	678	749	772	1564	253
Grp Volume(v), veh/h	42	0	137	459	0	417	756	0	0	242	0	338
Grp Sat Flow(s),veh/h/ln	969	0	1725	1247	0	1628	1573	0	0	772	0	1817
Q Serve(g_s), s	2 6	0 0	3 7	23 2	0 0	14 8	25 0	0 0	0 0	0 9	0 0	8 2
Cycle Q Clear(g_c), s	17.5	0.0	3.7	26.9	0 0	14.8	33 2	0 0	0.0	34.1	0 0	8 2
Prop In Lane	1 00		0 39	1 00		0 70	0 12		0 48	1 00		0 14
Lane Grp Cap(c), veh/h	270	0	663	516	0	626	824	0	0	268	0	885
V/C Ratio(X)	0 16	0 00	0.21	0.89	0 00	0 67	0 92	0 00	0 00	0 90	0 00	0 38
Avail Cap(c_a), veh/h	270	0	663	516	0	626	824	0	0	268	0	885
HCM Platoon Ratio	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1.00	1 00	1 00	1 00	1 00
Upstream Filter(I)	1.00	0.00	1 00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0 00	1 00
Uniform Delay (d), s/veh	25 1	0 0	14 4	24 6	0 0	17 8	17 6	0 0	0 0	23 7	0 0	11 3
Incr Delay (d2), s/veh	0 3	0.0	0.2	17.3	0.0	2.7	15.0	0.0	0.0	30.9	0.0	0.3
Initial Q Delay(d3),s/veh	0 0	0 0	0 0	0 0	0.0	0 0	0 0	0.0	0.0	0 0	0 0	0 0
%ile BackOfQ(50%),veh/ln	0.6	0.0	1 4	9.7	0 0	5 4	14 1	0.0	0.0	6.4	0 0	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.3	0.0	14.6	41 9	0.0	20.5	32.6	0.0	0.0	54.6	0.0	11.6
LnGrp LOS	C	A	B	D	A	C	C	A	A	D	A	B
Approach Vol, veh/h		179			876			756			580	
Approach Delay, s/veh		17 1			31 7			32 6			29 5	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	38 6	31 4	38.6	31.4
Change Period (Y+Rc), s	4 5	4 5	4 5	4 5
Max Green Setting (Gmax), s	34.1	26.9	34 1	26 9
Max Q Clear Time (g_c+I1), s	35 2	19 5	36 1	28 9
Green Ext Time (p_c), s	0.0	0 5	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	30.4
HCM 6th LOS	C

Intersection	
Intersection Delay, s/veh	21.0
Intersection LOS	C

Approach	EB	WB	NB	SB
Entry Lanes	1	2	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	179	876	756	580
Demand Flow Rate, veh/h	183	894	771	592
Vehicles Circulating, veh/h	1012	447	376	692
Vehicles Exiting, veh/h	272	700	619	649
Ped Vol Crossing Leg, #/h	5	2	5	5
Ped Cap Adj	1.000	0.999	0.999	0.999
Approach Delay, s/veh	13.7	11.4	23.1	34.9
Approach LOS	B	B	C	D

Lane	Left	Left	Right	Left	Left
Designated Moves	LTR	LT	R	LTR	LTR
Assumed Moves	LTR	LT	R	LTR	LTR
RT Channelized					
Lane Util	1.000	0.668	0.332	1.000	1.000
Follow-Up Headway, s	2.609	2.535	2.535	2.609	2.609
Critical Headway, s	4.976	4.544	4.544	4.976	4.976
Entry Flow, veh/h	183	597	297	771	592
Cap Entry Lane, veh/h	492	945	945	940	681
Entry HV Adj Factor	0.980	0.981	0.980	0.980	0.980
Flow Entry, veh/h	179	585	291	756	580
Cap Entry, veh/h	482	926	925	921	667
V/C Ratio	0.372	0.632	0.315	0.820	0.870
Control Delay, s/veh	13.7	13.5	7.2	23.1	34.9
LOS	B	B	A	C	D
95th %tile Queue, veh	2	5	1	9	10

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	329	6	393	11	6	2	336	900	23	13	762	254
Future Volume (veh/h)	329	6	393	11	6	2	336	900	23	13	762	254
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.97	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	336	6	331	11	6	2	343	918	22	13	778	255
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	345	6	623	20	11	4	351	1110	27	26	800	977
Arrive On Green	0.20	0.20	0.20	0.02	0.02	0.02	0.20	0.61	0.61	0.01	0.43	0.43
Sat Flow, veh/h	1752	31	1573	1029	561	187	1781	1819	44	1781	1870	1552
Grp Volume(v), veh/h	342	0	331	19	0	0	343	0	940	13	778	255
Grp Sat Flow(s),veh/h/ln	1783	0	1573	1777	0	0	1781	0	1862	1781	1870	1552
Q Serve(g_s), s	21.7	0.0	18.4	1.2	0.0	0.0	21.8	0.0	45.3	0.8	46.5	8.4
Cycle Q Clear(g_c), s	21.7	0.0	18.4	1.2	0.0	0.0	21.8	0.0	45.3	0.8	46.5	8.4
Prop In Lane	0.98		1.00	0.58		0.11	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	352	0	623	35	0	0	351	0	1137	26	800	977
V/C Ratio(X)	0.97	0.00	0.53	0.54	0.00	0.00	0.98	0.00	0.83	0.49	0.97	0.26
Avail Cap(c_a), veh/h	352	0	623	280	0	0	351	0	1137	78	803	979
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.5	0.0	26.5	55.4	0.0	0.0	45.5	0.0	17.5	55.8	32.0	9.6
Incr Delay (d2), s/veh	40.5	0.0	0.9	12.2	0.0	0.0	41.5	0.0	5.2	13.5	24.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	18.4	0.0	7.1	0.7	0.0	0.0	13.5	0.0	19.2	0.5	25.6	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	86.0	0.0	27.4	67.6	0.0	0.0	87.0	0.0	22.7	69.3	56.9	9.7
LnGrp LOS	F	A	C	E	A	A	F	A	C	E	E	A
Approach Vol, veh/h		673			19			1283			1046	
Approach Delay, s/veh		57.2			67.6			39.9			45.6	
Approach LOS		E			E			D			D	

Timer - Assigned Phs	1	2	4	5	6	8
Phs Duration (G+Y+Rc), s	6.2	74.1	27.0	27.0	53.3	6.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.8	66.5	22.5	22.5	49.0	18.0
Max Q Clear Time (g_c+I1), s	10.8	47.3	23.7	23.8	48.5	3.2
Green Ext Time (p_c), s	0.0	7.2	0.0	0.0	0.3	0.0

Intersection Summary	
HCM 6th Ctrl Delay	45.6
HCM 6th LOS	D

HCM 6th Signalized Intersection Summary
6: Central Ave & Hiller Rd 08/21/2024

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	329	393	336	900	762	254
Future Volume (veh/h)	329	393	336	900	762	254
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	336	295	343	918	778	253
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	376	666	372	1295	818	1004
Arrive On Green	0.21	0.21	0.21	0.69	0.44	0.44
Sat Flow, veh/h	1781	1585	1781	1870	1870	1531
Grp Volume(v), veh/h	336	295	343	918	778	253
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	1870	1531
Q Serve(g_s), s	18.0	13.0	18.5	29.1	39.3	6.8
Cycle Q Clear(g_c), s	18.0	13.0	18.5	29.1	39.3	6.8
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	376	666	372	1295	818	1004
V/C Ratio(X)	0.89	0.44	0.92	0.71	0.95	0.25
Avail Cap(c_a), veh/h	399	666	372	1305	829	1013
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.7	20.3	38.1	9.1	26.6	7.3
Incr Delay (d2), s/veh	21.6	0.7	27.5	2.1	20.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.9	12.8	10.7	10.3	21.0	3.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	59.3	21.0	65.6	11.2	47.0	7.5
LnGrp LOS	E	C	E	B	D	A
Approach Vol, veh/h	631			1261	1031	
Approach Delay, s/veh	41.4			26.0	37.3	
Approach LOS	D			C	D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		72.4		25.7	25.0	47.4
Change Period (Y+Rc), s		4.5		5.0	4.5	4.5
Max Green Setting (Gmax), s		68.5		22.0	20.5	43.5
Max Q Clear Time (g_c+I1), s		31.1		20.0	20.5	41.3
Green Ext Time (p_c), s		15.0		0.7	0.0	1.6
Intersection Summary						
HCM 6th Ctrl Delay			33.3			
HCM 6th LOS			C			

HCM 6th Signalized Intersection Summary
8: Central Ave & Heartwood Dr 08/21/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	81	20	214	46	16	83	194	1071	56	81	1013	81
Future Volume (veh/h)	81	20	214	46	16	83	194	1071	56	81	1013	81
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.96	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	85	21	140	48	17	50	204	1127	52	85	1066	71
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	205	44	482	95	42	67	239	1186	981	104	1885	125
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.13	0.63	0.63	0.06	0.56	0.56
Sat Flow, veh/h	629	258	1577	263	246	391	1781	1870	1547	1781	3375	225
Grp Volume(v), veh/h	106	0	140	115	0	0	204	1127	52	85	561	576
Grp Sat Flow(s),veh/h/ln	1087	0	1577	900	0	0	1781	1870	1547	1781	1777	1822
Q Serve(g_s), s	0.0	0.0	6.9	4.7	0.0	0.0	11.5	56.8	1.3	4.8	20.9	20.9
Cycle Q Clear(g_c), s	9.7	0.0	6.9	14.4	0.0	0.0	11.5	56.8	1.3	4.8	20.9	20.9
Prop In Lane	0.80		1.00	0.42		0.43	1.00		1.00	1.00		0.12
Lane Grp Cap(c), veh/h	249	0	482	203	0	0	239	1186	981	104	992	1018
V/C Ratio(X)	0.43	0.00	0.29	0.57	0.00	0.00	0.85	0.95	0.05	0.81	0.57	0.57
Avail Cap(c_a), veh/h	339	0	582	294	0	0	374	1205	997	104	992	1018
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.1	0.0	27.2	41.7	0.0	0.0	43.3	17.2	7.1	47.7	14.6	14.6
Incr Delay (d2), s/veh	1.6	0.0	0.5	3.5	0.0	0.0	10.7	15.8	0.0	37.2	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	2.7	3.0	0.0	0.0	5.7	25.9	0.4	3.2	8.1	8.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.7	0.0	27.6	45.2	0.0	0.0	54.1	33.0	7.1	84.8	15.8	15.8
LnGrp LOS	D	A	C	D	A	A	D	C	A	F	B	B
Approach Vol, veh/h		246			115			1383			1222	
Approach Delay, s/veh		33.3			45.2			35.1			20.6	
Approach LOS		C			D			D			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.5	70.0		22.0	18.3	62.2		22.0				
Change Period (Y+Rc), s	4.5	5.0		4.5	4.5	5.0		4.5				
Max Green Setting (Gmax), s	6.0	65.0		24.0	21.5	50.5		24.0				
Max Q Clear Time (g_c+I1), s	6.8	58.8		11.7	13.5	22.9		16.4				
Green Ext Time (p_c), s	0.0	6.2		1.2	0.3	15.5		0.4				
Intersection Summary												
HCM 6th Ctrl Delay			29.4									
HCM 6th LOS			C									